# MARIPOSA ENERGY PROJECT

## Commission Decision

CALIFORNIA
ENERGY COMMISSION
Edmund G. Brown, Jr., Governor

MAY 2011
CEC 800-2011-001-CMF

DOCKET NUMBER 09-AFC-3

**CALIFORNIA**
**ENERGY COMMISSION**
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Sacramento, CA 95814

http://www.energy.ca.gov/sitingcases/mariposa/index.html

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**DISCLAIMER**

This report was prepared by the California Energy Commission Mariposa Project AFC Committee as part of the Mariposa Project, Docket No. 09-AFC-3. The views and recommendations contained in this document are not official policy of the Energy Commission until the report is adopted at an Energy Commission Business Meeting.

**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** ***MARIPOSA ENERGY PROJECT (MEP)*** | **DOCKET NO. 09-AFC-3**<br><br>**ORDER NO. 11-0518-16** |

# COMMISSION ADOPTION ORDER

This Commission Order adopts the Commission Decision on the Mariposa Energy Project. It incorporates the Presiding Member's Proposed Decision (PMPD) in the above-captioned matter and the Committee Errata. The Commission Decision is based upon the evidentiary record of these proceedings and considers the comments received at the May 18, 2011, business meeting. The text of the attached Commission Decision contains a summary of the proceedings, the evidence presented, and the rationale for the findings reached and Conditions imposed.

This **ORDER** adopts by reference the text, Conditions of Certification, Compliance Verifications, and Appendices contained in the Commission Decision. It also adopts specific requirements contained in the Commission Decision which ensure that the proposed facility will be designed, sited, and operated in a manner to protect environmental quality, to assure public health and safety, and to operate in a safe and reliable manner.

## FINDINGS

The Commission hereby adopts the following findings in addition to those contained in the accompanying text:

1. The Mariposa Energy Project will provide a degree of economic benefits and electricity reliability to the local area.

2. The Conditions of Certification contained in the accompanying text, if implemented by the project owner, ensure that the project will be designed, sited, and operated in conformity with applicable local, regional, state, and federal laws, ordinances, regulations, and standards, including applicable public health and safety standards, and air and water quality standards.

3. Implementation of the Conditions of Certification contained in the accompanying text will ensure protection of environmental quality and assure reasonably safe and reliable operation of the facility. The Conditions of Certification also assure that the project will neither result in, nor contribute substantially to, any significant direct, indirect, or cumulative adverse environmental impacts.

4. Existing governmental land use restrictions are sufficient to adequately control population density in the area surrounding the facility and may be reasonably expected to ensure public health and safety.

5. The project is subject to Fish and Game Code section 711.4 and the project owner must therefore pay a nine hundred forty-nine dollar ($949) fee to the California Department of Fish and Game.

6. Construction and operation of the project, as mitigated, will not create any significant adverse environmental impacts. Therefore, the evidence of record also establishes that no feasible alternatives to the project, as described during these proceedings, exist which would reduce or eliminate any significant environmental impacts of the mitigated project.

7. The evidence of record does not establish the existence of any environmentally superior alternative site.

8. The evidence of record establishes that an environmental justice screening analysis was conducted and that the project, as mitigated, will not have a disproportionate impact on low-income or minority populations.

9. The Decision contains a discussion of the public benefits of the project as required by Public Resources Code section 25523(h).

10. The Decision contains measures to ensure that the planned, temporary, or unexpected closure of the project will occur in conformance with applicable laws, ordinances, regulations, and standards.

11. The proceedings leading to this Decision have been conducted in conformity with the applicable provisions of Commission regulations governing the consideration of an Application for Certification and thereby meet the requirements of Public Resources Code sections 21000 et seq. and 25500 et seq.

## ORDER

Therefore, the Commission **ORDERS** the following:

1. The Application for Certification of the Mariposa Energy Project as described in this Decision is hereby approved and a certificate to construct and operate the project is hereby granted.

2. The approval of the Application for Certification is subject to the timely performance of the Conditions of Certification and Compliance Verifications enumerated in the accompanying text and Appendices. The Conditions and Compliance Verifications are integrated with this Decision and are not severable therefrom. While the project owner may delegate the performance of a Condition or Verification, the duty to ensure adequate performance of a Condition or Verification may not be delegated.

3. This Decision is adopted, issued, effective, and final on May 18, 2011.

4. Reconsideration of this Decision is governed by Public Resources Code, section 25530.

5. Judicial review of this Decision is governed by Public Resources Code, section 25531.

6. The Commission hereby adopts the Conditions of Certification, Compliance Verifications, and associated dispute resolution procedures as part of this Decision in order to implement the compliance monitoring program required by Public Resources Code section 25532. All conditions in this Decision take effect immediately upon adoption and apply to all construction and site preparation activities including, but not limited to, ground disturbance, site preparation, and permanent structure construction.

7. This Decision licenses the project owner to commence construction on the project within five years of this Decision date. Subject to the provisions of California Code of Regulations, title 20, section 1720.3, this license expires by operation of law when the project's start-of-construction deadline passes with no construction.

8. The project owner shall provide the Executive Director a check in the amount of nine hundred and forty-nine dollars ($949) payable to the California Department of Fish and Game.

9. The Executive Director of the Commission shall transmit a copy of this Decision and appropriate accompanying documents, including the Department of Fish and Game fee, as provided by Public Resources Code section 25537, California Code of Regulations, title 20, section 1768, and Fish and Game Code section 711.4.

10. We order that the Application for Certification docket file for this proceeding be closed effective the date of this Decision, with the exception that the docket file shall remain open for 30 additional days solely to receive material related to a petition for reconsideration of the Decision.

Dated: May 18, 2011, at Sacramento, California.

ROBERT B. WEISENMILLER
Chairman

Absent
JAMES D. BOYD
Vice Chair

KAREN DOUGLAS
Commissioner

CARLA PETERMAN
Commissioner

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# INTRODUCTION

## A. SUMMARY OF THE DECISION

This Decision contains the Commission's rationale in determining that the proposed Mariposa Energy Project (MEP) will, as mitigated, have no significant impacts on the environment and complies with all applicable laws, ordinances, regulations, and standards (LORS). This Decision is based exclusively upon the record established during this certification proceeding and summarized in this document. We have independently evaluated the evidence, provided references to the record[1] supporting our findings and conclusions, and specified the measures required to ensure that the MEP is designed, constructed, and operated in the manner necessary to protect public health and safety, promote the general welfare, and preserve environmental quality.

On June 15, 2009, Mariposa Energy, LLC (Applicant), owned by Diamond Generating Corporation (DGC), a wholly owned subsidiary of Mitsubishi Corporation, filed an Application for Certification (AFC) with the California Energy Commission (Energy Commission), to construct and operate a natural gas-fired, simple cycle peaking facility with a generating capacity of 200 megawatts (MW) in northeastern Alameda County.

The facility would be located southeast of the intersection of Bruns Road and Kelso Road on a 10-acre portion of a 158-acre parcel (known as the Lee Property) immediately south of the Pacific Gas and Electric Company (PG&E) Bethany Compressor Station and 230-kilovolt (kV) Kelso Substation.

The MEP is designed to provide dispatchable generation to meet PG&E's need for new energy sources in Alameda County and the San Francisco Bay Area, to support and back up intermittent renewable resources (e.g., wind and solar), and to satisfy the terms of MEP's power purchase agreement with PG&E, which has identified a near-term need for new power facilities that can be online by or before 2015 and that can support easily dispatchable and flexible system operation.

The MEP will be operated as a peaker unit, with some amount of load following and cycling. The primary purpose of MEP will be to provide generation capacity

[1] The Reporter's Transcript of the evidentiary hearings is cited as "date of hearing RT page __: line." For example: 03/07/11 RT 77:12. The exhibits included in the evidentiary record are cited as "Ex. number." A list of all exhibits is contained in **Appendix B** of this Decision.

during peak season (summer) high demand periods. The facility is expected to be operated during high demand times (typically afternoon hours) to supplement base-load and renewable generation capacity. A facility that provides peaking capacity must be able to be up and running at peak generation within 10 minutes of dispatch to meet California Independent System Operator (California ISO) requirements. As a peaking facility, MEP would not run continuously, but instead would start, run for as many hours as necessary, and then shut down.

The MEP would be a natural gas-fired, simple-cycle peaking facility with a generating capacity of 200 MW. The project proposes to operate on average, 1,400 hours per year, but if licensed, could run up to 4,000 hours. Power would be transmitted to the grid at 230-kV through a new 0.7-mile transmission line that would connect to the existing Kelso Substation. A new 580-foot 8-inch diameter natural gas pipeline would connect the project site to PG&E's Line 002, which is an existing natural gas pipeline located northeast of the project site. Service and process water would be fresh irrigation water provided from a new connection to the Byron-Bethany Irrigation District (BBID) via a new pump station and 1.8-mile 10-inch diameter pipeline.

If approved, construction of the generating facility, from site preparation and grading to commercial operation, is expected to take place from April 2011 to July 2012 (14 months total). There will be an average and peak workforce of approximately 90 and 177, respectively. Typically, noisy construction would be scheduled to occur between 7 a.m. and 7 p.m. on weekdays and 8 a.m. and 5 p.m. on Saturdays. Additional hours may be necessary to make up schedule deficiencies, or to complete critical construction activities (e.g., pouring concrete at night during hot weather, working around time-critical shutdowns and constraints). During some construction periods and during the startup phase of the project, some activities will continue 24 hours per day, 7 days per week. (Ex. 300, p. 3.5.)

MEP will have an operations and maintenance manager, business supervisor, and instrument technician working during the standard 5-day, 8-hours per day work week. Additionally, the facility will be staffed by an operator on a 24-hour basis, using rotating 12-hour shifts.

MEP operation will require approximately eight full-time employees that will result in an approximate operation payroll of $830,000 per year. The annual operations and maintenance budget is approximately $1,640,000, all of which is estimated to be spent locally in the Alameda County, Contra Costa County and San Joaquin County region. The cost of materials and supplies required for the

construction of MEP is estimated at approximately $185 million. (Ex. 300, pp. 3.5 – 3.6.)

The Energy Commission has exclusive jurisdiction to license this project and is considering the proposal under a review process established by Public Resources Code section 25540.6.

## B. SITE CERTIFICATION PROCESS

The MEP and its related facilities are subject to Energy Commission licensing jurisdiction. (Pub. Res. Code, § 25500 et seq.). During licensing proceedings, the Commission acts as lead state agency under the California Environmental Quality Act (CEQA). (Pub. Res. Code, §§ 25519(c), 21000 et seq.) The Commission's regulatory process, including the evidentiary record and associated analyses, is functionally equivalent to the preparation of an Environmental Impact Report. (Pub. Res. Code, § 21080.5.) The process is designed to complete the review within a specified time period when the required information is submitted in a timely manner. A license issued by the Commission is in lieu of other state and local permits.

The Commission's certification process provides a thorough review and analysis of all aspects of a proposed power plant project. During this process, the Energy Commission conducts a comprehensive examination of a project's potential economic, public health and safety, reliability, engineering, and environmental impacts.

Specifically, the Commission's process allows for and encourages public participation so that members of the public may become involved either informally or on a formal level as intervenor parties who have the opportunity to present evidence and cross-examine witnesses. Public participation is encouraged at every stage of the process.

The process begins when an Applicant submits an AFC. Commission staff reviews the data submitted as part of the AFC and makes a recommendation to the Commission on whether the AFC contains adequate information to begin the certification process. After the Commission determines an AFC contains sufficient analytic information, it appoints a Committee of two Commissioners to conduct the formal licensing process. This process includes public conferences and evidentiary hearings, where the evidentiary record is developed and becomes the basis for the Presiding Member's Proposed Decision (PMPD). The

PMPD determines a project's environmental impact and conformity with applicable laws, ordinances, regulations, and standards and provides recommendations to the full Commission.

The initial portion of the certification process is weighted heavily toward assuring public awareness of the proposed Project and obtaining necessary technical information. During this time, the Commission staff sponsors public workshops at which intervenors, agency representatives, and members of the public meet with Staff and the Applicant to discuss, clarify, and negotiate pertinent issues.

Following this, the Committee conducts a Prehearing Conference to assess the adequacy of available information, identify issues, and determine the positions of the parties. Based on information presented at this event, the Committee issues a Hearing Order to schedule formal evidentiary hearings. At the evidentiary hearings, all formal parties, including intervenors, may present sworn testimony, which is subject to cross-examination by other parties and questioning by the Committee. Members of the public may offer oral or written comments at these hearings. Evidence submitted at the hearings provides the basis for the Committee’s analysis and recommendations to the full Commission.

The Committee’s analysis and recommendations appear in the PMPD, which is available for a 30-day public comment period. Depending upon the extent of revisions necessary after considering comments received during this period, the Committee may elect to publish a revised version. If so, the Revised PMPD triggers an additional public comment period. Finally, the full Commission decides whether to accept, reject, or modify the Committee's recommendations at a public hearing.

Throughout the licensing process, members of the Committee, and ultimately the Commission, serve as fact-finders and decision-makers. Other parties, including the Applicant, Commission staff, and formal intervenors, function independently with equal legal status. An "ex parte" rule prohibits parties in the case, or other persons with an interest in the case, from communicating on substantive matters with the decision-makers, their staffs, or assigned hearing officer unless these communications are made on the public record. The Office of the Public Adviser is available to assist the public in participating in all aspects of the certification proceeding.

## C. PROCEDURAL HISTORY

Public Resources Code, sections 25500 et seq. and Energy Commission regulations (Cal. Code Regs., tit. 20, § 1701, et seq.) mandate a public review process and specify the occurrence of certain procedural events in which the public may participate. The key procedural events that occurred in the present case are summarized below.

On June 15, 2009, Applicant filed an AFC with the Energy Commission, to construct and operate a natural gas-fired, simple cycle peaking facility with a generating capacity of 200 MW in northeastern Alameda County.

The AFC was reviewed for data adequacy and on July 29, 2009, the Energy Commission found the AFC inadequate and adopted a list of deficiencies in eight technical areas. On August 26, 2009, the Energy Commission accepted the AFC as complete, assigned a Committee of two Commissioners to conduct proceedings, thus starting the Energy Commission's formal review of the proposed project.

The formal parties included the Applicant, Energy Commission staff (Staff), and Intervenors Robert Sarvey, Mountain House Community Services District, Rajesh Dighe, California Pilots Association, Jass Singh, Sierra Club California, and Rob Simpson.

On August 26, 2009, the Committee issued its "Notice of Public Site Visit and Informational Hearing and Committee Order." The Notice was mailed to local agencies and members of the community who were known to be interested in the project, including the owners of land adjacent to or in the vicinity of the MEP. The Public Adviser's Office also advertised the public hearing and site visit and distributed information to local officials and sensitive receptors surrounding the project site.[2]

On October 1, 2009, the Committee conducted a site visit to tour the proposed site and then convened a public Informational Hearing at the Byron Bethany Irrigation District offices in Byron, California. At that event, the Committee, the parties, interested governmental agencies, and other public participants discussed issues related to development of the project, described the

[2] Sensitive receptors are people or institutions with people that are particularly susceptible to illness, such as the elderly, very young children, people already weakened by illness (e.g., asthmatics), and persons engaged in strenuous exercise.

Commission's review process, and explained opportunities for public participation.

On October 30, 2009, the Committee issued its initial Scheduling Order. The Committee Schedule was based on both the Applicant's and Staff's proposed schedules and related discussion at the Informational Hearing. The schedule contained a list of events that must occur in order to complete the certification process within twelve months. The Committee issued several revised schedules during the course of discovery.

The Energy Commission seeks comments from and works closely with other regulatory agencies that administer LORS applicable to the proposed project. These agencies may include as applicable the U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service, U.S. Army Corps of Engineers, State Water Resources Control Board/Regional Water Quality Control Board, California Department of Fish and Game, and the California Air Resources Board.

In the course of the review process, Staff conducted a Data Request Workshop on December 15, 2010, the purpose of which was to allow Staff, the Applicant, other parties, interested agencies, and the public to clarify any of Staff's outstanding data requests and discuss the Applicant's expected responses. On June 30, 2010 Staff held an additional Data Response Workshop, for the same primary purpose.

On September 23, 2010, the Committee held an additional site visit prior to the Status Conference. On October 1, 2009 the Mariposa Committee conducted an Informational Hearing and attended a Site Visit, however, the committee changed and the newly appointed committee took the opportunity to tour the site.

The Supplemental Staff Assessment (SSA) for the MEP was published on December 16, 2010. Previously, Energy Commission staff published a Staff Assessment (SA) for the MEP on November 8, 2010. This document included staff's analysis, conclusions, and recommendations for the project. A public workshop was held on Monday, November 29, 2010, at the Byron Bethany Irrigation District office in Byron, California.

On January 28, 2011, the Committee issued its Notice of Prehearing Conference and Evidentiary Hearings. The Prehearing Conference was held on February 7, 2011, and the Evidentiary Hearings were held on February 24 and 25, 2011, in Byron, California and March 7, 2011 at the Energy Commission.

The Committee published the PMPD on April 13, 2011, and held a Committee Conference at the Mountain House Community Services District on May 5, 2011. The Full Commission adopted the PMPD and Errata as submitted at the May 18, 2011, business meeting.

## D. COMMISSION OUTREACH

Several entities within the Energy Commission provide various notices concerning power plant siting cases. Staff provides notices of staff workshops and the release of the Staff Assessments. The Hearing Office notices Committee-led events such as the informational hearing and site visit, status conferences, the prehearing conference, and evidentiary hearings. The Public Adviser's Office provides additional outreach for critical events as well as provides information to interested persons that would like to become more actively involved in a power plant siting proceeding. Further, the Media Office provides notice of events to local and regional press through press releases. The public may also subscribe to the proceeding's e-mail List Server offered on the web page for each project which gives an immediate notification of documents posted to the project web page. Through the activities of these entities, the Energy Commission has made every effort to ensure that interested persons are notified of activities in this proceeding.

## E. PUBLIC COMMENT

The record contains public comments from concerned individuals and organizations. Throughout these proceedings, as reflected in the transcribed record, the Committee provided an opportunity for public comment at each Committee-sponsored conference and hearing.

# I. PROJECT DESCRIPTION AND PURPOSE

On June 15, 2009, Mariposa Energy, LLC (Applicant), owned by Diamond Generating Corporation, a wholly owned subsidiary of Mitsubishi Corporation, submitted an Application for Certification (AFC) to the California Energy Commission to construct and operate the Mariposa Energy Project (MEP), simple cycle peaking facility with a generating capacity of 200 megawatts (MW) in northeastern Alameda County, California. The evidence received into the record regarding Project Description was undisputed. (Exs. 1; 4, 5; 6; 11; 58; 64; 66; and 301.)

## SUMMARY AND DISCUSSION OF THE EVIDENCE

1. Project Location

The MEP site is located in northeastern Alameda County, in an unincorporated area designated for Large Parcel Agriculture by the East County Area Plan. The site is located approximately 7 miles northwest of the San Joaquin County community of Tracy, 7 miles east of Livermore in Alameda County, 6 miles south of Byron in Contra Costa County, and approximately 2.5 miles west of the community of Mountain House in San Joaquin County. The MEP site is approximately 2.7 miles south of the Byron Airport and approximately 1 mile west of the centerline of the main runway approach path. (Ex. 300, p. 3-1.)

The facility would be located southeast of the intersection of Bruns Road and Kelso Road on a 10-acre portion of a 158-acre parcel (known as the Lee Property) immediately south of the Pacific Gas and Electric Company (PG&E) Bethany Compressor Station and 230-kilovolt (kV) PG&E Kelso Substation. The proposed power plant site is located in the southern portion of the Lee Property. (Ex. 300, p. 3-1.)

The existing, unrelated 6.5 MW Byron Power Cogeneration Plant occupies 2 acres of the 158-acre parcel northeast of the Mariposa Energy Project (MEP) site. The remainder of the parcel is non-irrigated grazing land. (Ex. 300, p. 3-1.)

2. Project Construction and Operation

If approved by the Energy Commission, Mariposa Energy will commence construction of the MEP in 2011. The project is expected to take about 14 months for construction and startup testing, and could begin commercial

operation by midyear of 2012, if there are no delays. The construction period will have an average workforce of 90 and a peak workforce of 177 workers on-site. (Ex. 300, p. 3-5.)

The cost of materials and supplies required for the construction of MEP is estimated at approximately $185 million. The estimated value of materials and supplies that will be purchased locally during construction is $12.3 million. MEP will provide about $16.3 million in construction payroll. Assuming that 90 percent of the construction workforce will reside in the Alameda County, Contra Costa County and San Joaquin County region, it is expected that approximately $14.7 million will stay in the local area during the 14-month construction period. (Ex. 300, p. 3-5.)

MEP will have an operations and maintenance manager, business supervisor, and instrument technician working during the standard 5-day, 8-hours per day work week. Additionally, the facility will be staffed by an operator on a 24-hour basis, using rotating 12-hour shifts. MEP operation will require approximately eight full-time employees that will generate an approximate operation payroll of $830,000 per year. The annual operations and maintenance budget is approximately $1,640,000, all of which is estimated to be spent locally in the Alameda County, Contra Costa County and San Joaquin County region. (Ex. 300, p. 3-5.)

3. Power Plant Equipment and Linear Facilities

The MEP will be a natural gas-fired, simple-cycle peaking facility with a generating capacity of 200 MW. The project proposes to operate on average, 600 hours per year, but if licensed, can run up to 4,000 hours. Applicant has a power purchase agreement in place with PG&E. Primary equipment for the generating facility includes four General Electric (GE) LM6000 PC-Sprint natural gas-fired combustion turbine generators (CTG) and associated equipment. Power will be transmitted to the grid at 230-kV through a new 0.7-mile transmission line that would connect to the existing Kelso Substation. A new 580-foot 8-inch diameter natural gas pipeline will connect the project site to PG&E's Line 2, which is an existing high-pressure natural gas pipeline located northeast of the project site. Service and process water will be fresh irrigation water provided via a new connection to the Byron-Bethany Irrigation District (BBID) via a new pump station and 1.8-mile pipeline. (Ex. 300, p. 3-2.)

The MEP is proposing to utilize on average 35 acre-feet of water per year. In the event of continuous and maximum permitted operation, the MEP would utilize

187 acre feet of water for 4,000 hours of operation. All domestic wastewater would be routed to an on-site septic system and either discharged to an on-site leach field or removed via truck for off-site disposal. Stormwater runoff will be detained on-site in an extended detention basin and released according to regulatory standards for stormwater quality control. Air emissions control systems would include a selective catalytic reduction (SCR) system for nitrogen oxides (NOx) control using 19 percent aqueous ammonia and an oxidation catalyst for carbon monoxide (CO) control. (Ex. 300, p. 3-3.)

Temporary construction facilities will include a 9.2-acre worker parking and laydown area immediately east of the project site, a 1-acre water supply pipeline parking and laydown area located at the BBID headquarters facility to serve water pipeline construction needs, and a 0.6-acre laydown area along the transmission line route. (Ex. 300, p. 3-3.)

4. Transmission System

MEP will be interconnected with the regional electrical grid by a new, approximately 0.7-mile-long, single-circuit, three-phase, 230-kV transmission line. The proposed 230-kV line will run generally north from the project site, staying east of the Byron Power Cogen Plant, crossing Kelso Road, and staying east of the PG&E Bethany Compressor Station. It will turn west just north of the Kelso Substation, then turn south to the final interconnect point at the Kelso Substation.

Construction of the MEP may require PG&E to reconductor two segments within their transmission system. The two segments are the Kelso–Tesla 230-kV line (Kelso–United States Wind Power Regional Linear Facility), which is approximately 3.3 miles long, and the Kelso–Tesla 230-kV line (United States Wind Power Regional Linear Facility –Tesla), which is approximately 4.7 miles long. The total length of the lines to be reconductored is approximately 8 miles. The lines would be reconductored with 1113 Aluminum Conductor Steel-Supported or equivalent. (Ex. 300, p. 3-5.)

5. Natural Gas Supply

The combustion turbine generators will be designed to burn natural gas only. The natural gas requirement during base load operation at annual average ambient temperature is approximately 1,926 million British thermal units per hour

(MMBtu/hr), or 44.9 million dry standard cubic feet. Seasonal temperature fluctuations do not significantly influence fuel demand.

Natural gas will be delivered to the site via a tap to an existing PG&E natural gas pipeline located approximately 580 feet east of MEP. The new gas supply piping would consist of an 8-inch-diameter pipeline. At the plant site, the natural gas will flow through an 8-inch turbine-meter set, gas scrubber/filtering equipment, a gas pressure control station, electric-driven booster compressors and final fuel filters, and a fuel gas heater prior to entering the combustion turbines. (Ex. 300. p. 3-4.)

6. Water Supply

The Applicant has proposed using fresh raw water to be supplied by Byron-Bethany Irrigation District (BBID) via 1.8-miles of 10 inch pipeline along Bruns Road. Total water use is expected to average 34.8 acre-feet per year (equivalent to the usage of approximately 35 homes) based upon the expected operating scenario of 600 hours per year and 200 start and stop cycles. The estimated annual usage associated with the maximum permitted operating scenario of 4,000 hours per year and 300 start and stop cycles is approximately 187 acre-feet per year, under annual average temperature design conditions.

Most of the water will be diverted to a mobile demineralization system. The demineralized water will be used for combustion turbine water injection for NOx control, online water wash of the combustion turbine compressor section, and the normal operating mode of the PC Sprint CTG. Additionally, some of the raw water will be used for miscellaneous on-site uses such as equipment wash-down and landscape irrigation. A small amount of water will be diverted to a domestic water treatment system and used on-site for domestic uses (e.g., sinks, toilets). (Ex. 300, p. 3-4.)

7. Wastewater Discharge

The MEP will be a Zero Liquid Discharge (ZLD) facility. Process wastewater and stormwater runoff from plant equipment process areas will be treated on-site via an oil/water separator and activated carbon filtration system. The treated water will then be recycled to the raw water storage tank for plant process water usage. (Ex. 300, p. 3-4.)

8. Emission Control and Monitoring

The CTGs selected for the project include demineralized water injection and selective catalytic reduction (SCR) to control emissions of NOx. The CTGs incorporate staged combustion of a pre-mixed fuel/air charge, resulting in high thermal efficiencies with reduced CO and volatile organic compound (VOC) emissions. CO and VOC emissions will be further controlled by means of CO oxidation catalysts. Criteria air pollutants will be mitigated by the purchase of emission reduction credits in the Bay Area Air Quality Management District.

Particulate emissions will be controlled by the use of best combustion practices; the use of natural gas, which is low in sulfur, as the sole fuel for the CTGs; and high efficiency air inlet filtration. For each CTG, a separate Continuous Emission Monitoring System (CEMS) will sample, analyze, and record fuel gas flow rate, NOx and CO concentration levels, and percentage of oxygen in the exhaust gas from the stacks. The CEMS sensors will transmit data to a data acquisition system that will store the data and generate emission reports in accordance with permit requirements. (Ex. 300, p. 3-3.)

9. Facility Closure

Facility closure can be temporary or permanent. Temporary closure is defined as a shutdown for a period exceeding the time required for normal maintenance, including closure for overhaul or replacement of the combustion turbines. Causes for temporary closure include a disruption in the supply of natural gas or damage to the plant from earthquake, fire, storm, or other natural acts. Permanent closure is defined as a cessation in operations with no intent to restart operations owing to plant age, damage to the plant beyond repair, economic conditions, or other reasons.

For a temporary facility closure where there is no release of hazardous materials, the MEP will maintain security of the facilities on a 24-hour basis, and would notify the Energy Commission and other responsible agencies. Depending on the length of the shutdown necessary, a contingency plan for the temporary cessation of operations will be implemented. The contingency plan will be designed to ensure conformance with all applicable LORS and the protection of public health, safety, and the environment. The plan, depending on the expected duration of the shutdown, may include the draining of all chemicals from storage tanks and other equipment and the safe shutdown of all equipment.

The planned life of the MEP facility is 40 years. The removal of the facility from service, or decommissioning, may range from “mothballing” to the removal of all equipment and appurtenant facilities, depending on conditions at the time of closure (see the Compliance/**General Conditions** section of this Decision). (Ex. 300. p. 3-6.)

## PUBLIC COMMENT

There were no comments received from the public regarding the Project Description.

## FINDINGS OF FACT

Based upon the evidentiary record, we find as follows:

1. Mariposa Energy, LLC (Applicant), owned by Diamond Generating Corporation, a wholly owned subsidiary of Mitsubishi Corporation, will own and operate the project.

2. The MEP will be located southeast of the intersection of Bruns Road and Kelso Road on a 10-acre portion of a 158-acre parcel in northeastern Alameda County, California, approximately 7 miles northwest of Tracy, 7 miles east of Livermore, 6 miles south of Byron, and approximately 2.5 miles west of the community of Mountain House.

3. The project will have a nominal capacity rating of 200 MW.

4. The project is expected to take about 14 months for construction and startup testing.

5. The construction period will have an average workforce of 90 and a peak workforce of 177 workers on-site.

6. The cost of materials and supplies required for the construction of MEP is estimated at approximately $185 million.

7. MEP operation will require approximately eight full-time employees that will generate an approximate operation payroll of $830,000 per year.

8. The project will operate on average, 600 hours per year, but if licensed, could run up to 4,000 hours.

9. The MEP will utilize on average 35 acre-feet of water per year.

10. MEP will be interconnected with the regional electrical grid, at the Kelso Substation, by a new, approximately 0.7-mile-long, single-circuit, three-phase, 230-kV transmission line.

11. Natural gas will be delivered to the site via a tap to an existing PG&E natural gas pipeline located approximately 580 feet east of MEP.

12. The MEP will use fresh raw water to be supplied by Byron-Bethany Irrigation District via a new 1.8-mile pipeline along Bruns Road.
13. The MEP will be a zero liquid discharge (ZLD) facility.

14. The planned life of the MEP facility is 40 years.

15. The project and its objectives are adequately described by the relevant documents contained in the record.

**CONCLUSION OF LAW**

1. We therefore conclude that the Mariposa Energy Project is described at a level of detail sufficient to allow review in compliance with the provisions of both the Warren- Alquist Act and the California Environmental Quality Act.

# II. PROJECT ALTERNATIVES

The California Environmental Quality Act (CEQA) Guidelines and the Energy Commission's regulations require an evaluation of the comparative merits of a range of feasible site and facility alternatives which represent the basic objectives of the proposed project but would avoid or substantially lessen potentially significant environmental impacts. Public Resources Code section 25540.6(b) requires an Applicant for a power plant such as the MEP, which is otherwise exempt from the notice of intention process, to include information on the site selection criteria, alternative sites, and the reasons for choosing the proposed site. Section 1765 of the Commission's regulations further requires the parties to present evidence on alternative sites and facilities. Based on the totality of the record and as reflected in our findings for each of the technical topics, the mitigated MEP will not result in any significant adverse effects on the environment. Nevertheless, this alternatives analysis is necessary to ensure compliance with CEQA Guidelines and Commission regulations. (Cal. Code Regs., tit. 14, §§ 15126.6 (c) and (e); *see also*, tit. 20, § 1765.)

The range of alternatives, including the "no project" alternative, is governed by the "rule of reason" and need not include those alternatives whose effects cannot be reasonably ascertained and whose implementation is remote and speculative. Rather, the analysis is necessarily limited to alternatives that the "lead agency determines could feasibly attain most of the basic objectives of the project." (Cal. Code Regs., tit. 14, § 15126.6(f).)

Both the Applicant and Staff provided alternatives analyses describing the site selection process and project configuration in light of project objectives. Several Intervenors also provided evidence on the subject of Alternatives. Evidence on Alternatives was heard at the evidentiary hearing on March 7, 2011 and is contained in the following exhibits: 1; 4; 7; 10; 14; 301; 406; 408; 410; 411 and 900. (3/7/11 RT 195:3-278:21.)

### SUMMARY AND DISCUSSION OF THE EVIDENCE

The proposed Mariposa Energy Project (MEP) site is located in northeastern Alameda County, in an unincorporated area designated for Large Parcel Agriculture by the East County Area Plan. The site is located approximately 7 miles northwest of Tracy, 7 miles east of Livermore, 6 miles south of Byron, and approximately 2.5 miles west of the community of Mountain House in San Joaquin County. The power plant site is approximately 2.7 miles south of the

Byron Airport and approximately one mile west of the centerline of the main runway approach path. (Ex. 301, p. 6-2.)

The project alternatives analyses considered each of the following factors:

- The project's basic objectives;
- Any potential significant environmental impacts of the project;
- Alternative locations or sites and whether the environmental impacts of the alternatives are the same, better, or worse than the proposed project;
- Technology alternatives to the project that would mitigate impacts; and
- Impacts of not constructing the project to determine whether the "no project" alternative is superior to the proposed project. (Ex. 301, p. 6-3.)

1. Project Objectives

The evidentiary record establishes that the project's primary objectives include:

- Safely construct and operate a 200-megawatt (MW), natural gas-fired, simple-cycle generating facility to meet Pacific Gas & Electric's (PG&E) growing peak load and the growing energy demands of customers within PG&E's service territory;
- Site the project within the Altamont Wind Resource Area in order to supply back-up generation when the local wind turbines decrease output due to decreased wind. The quick start, peaking facility will be utilized to supplement the renewable wind generation during periods of low or variable wind resource in order to maintain grid stability;
- Site the project as near as possible to a PG&E substation with available transmission capacity;
- Site the project to minimize or eliminate the length of any project linears, including gas and water supply pipelines, as well as transmission interconnections. These objectives minimize potential offsite environmental impacts and the cost of construction;
- Assist Alameda County in meeting its electrical energy needs by providing additional local dispatchable generation, decreasing the amount of imported energy and providing system/grid support at critical times, such as periods of decreasing renewable generation and peak load conditions;
- Minimize environmental and air quality impacts; and
- Assist the State of California in developing increased local generation projects, thus reducing dependence on imported power. (Ex. 301, pp. 6-4 - 6-5.)

Based on the stated project objectives, the Applicant selected the MEP site because it is:

- Located near the PG&E Kelso Substation;
- Not located in the Byron Airport Precision Instrument Outer Approach Surface 40:1 Slope or Precision Instrument Inner Approach Surface 50:1 Slope;
- Not located adjacent to moderate or high density residential areas or to sensitive receptors (such as schools and hospitals) or to recreation areas. The Mountain House Community is approximately 2.5 miles to the east and the Mountain House School is about 1.25 miles to the east;
- Adjacent to or near high-pressure natural gas transmission lines;
- Adjacent to or near water supply;
- Not located on land designated "Prime Farmland" and consistent with the Alameda County General Plan and Zoning Code;
- Determined to have readily available site control; and
- Large enough to accommodate the site including construction laydown. (Ex. 301, pp. 6-5 - 6-6.)

2. Environmental Impacts of the Project

As discussed throughout this Decision, the MEP will not result in any significant adverse impacts and will comply with applicable laws, ordinances, regulations, and standards by implementing the measures proposed in the Application for Certification and the Conditions of Certification contained in this Decision. (Ex. 301, p. 6-19.)

3. Project Alternatives

Applicant and Staff evaluated two alternative sites and determined there would be no appreciable advantages to using either site over the proposed MEP site. Much of the land in the study area is within restricted areas of the Byron Airport FAA airspace protection surface, is closer to moderate or high density residential areas (Mountain House community) or to sensitive receptors (such as schools and hospitals), or is located further from water supplies, natural gas facilities and transmission facilities. Finding a relatively flat 20-acre site with significantly lesser environmental value in the Altamont area is also restrictive. The record indicates that it was not appropriate to undertake a detailed evaluation of sites with

obvious environmental impacts greater than the proposed project. The two alternative sites are located in the general area of the proposed MEP site and share some common attributes. (Ex. 301, pp. 6-6 - 6-7; 3/7/11 RT 226:12 – 227:13; 255:18 -24.)

Alternative 1 (Costanza parcel) is located immediately west of the Lee Parcel, on the western side of Bruns Road. The 143-acre parcel is vacant and is used for cattle grazing. Two drainages run through the parcel; one running north on the western portion of the property and one running northeast across the southeast corner of the property. A cattle stock pond has been developed along the drainage on the eastern portion of the parcel. The northern portion of the parcel has several small hills. The property is zoned Ag-100 (Agricultural, 100-acre minimum) and is within unincorporated eastern Alameda County. The parcel does not have a Williamson Act contract. Residential dwellings are located nearby on adjacent parcels near the northern and southwestern parcel boundaries. Based on the location of these residences, the southeast corner of the Costanza parcel was considered for a potential power plant development site. (Ex. 301, p. 6-7.)

Alternative 2 (Gomes parcel) is located immediately northeast of the Lee Parcel, across Kelso Road. The 150-acre parcel contains a feedlot facility adjacent to Kelso Road and is bisected by BBID Canal 70, which runs generally north/south through the parcel. The western portion of the parcel is used for cattle grazing; the eastern portion is cultivated farmland. The northern portion of the parcel has slightly elevated terrain compared to the surroundings. A western “panhandle” extends west to Bruns Road across to a topographically low-lying area with multiple drainages. The property is zoned Ag-100 (Agricultural, 100-acre minimum) and is located within unincorporated eastern Alameda County. The parcel has a Williamson Act contract. Two 500-kV transmission lines run generally north/south through the center of the parcel. Residential dwellings are located on adjacent parcels immediately south and east of the parcel boundaries. Based on the location of these residences, potential power plant development would likely be limited to the middle of the parcel (from north to south), along the western property boundary, west of the BBID Canal 70 and the 500-kV transmission lines. (Ex. 301, p. 6-7.)

**Alternatives Table 1** below compares key development components of the MEP site and alternative sites and shows that the MEP site meets the project’s objectives.

**ALTERNATIVES Table 1**
**Comparison of Impacts and Linears**

| Characteristic | Project Site | Costanza (Alternative 1) | Gomes (Alternative 2) |
|---|---|---|---|
| Ability to Gain Site Control | Yes | Unknown | Unknown |
| Sufficient land area | Yes | Yes | Yes |
| Proximity to existing transmission, distribution lines and an existing substation | 0.7 miles | 0.7 miles | 0.4 miles |
| General Plan / East County Area Plan | Large Parcel Agriculture 100 acres | Large Parcel Agriculture 100 acres | Large Parcel Agriculture 100 acres |
| Consistent with General Plan | Yes | Yes | Yes |
| Zoning | Agricultural District | Agricultural District | Agricultural District |
| Consistent with Zoning | Yes | Yes | Yes |
| Williamson Act Contract | Yes | No | Yes |
| Located on "Prime Farmland" | No | No | No |
| Within the Byron Airport FAA Conical Airspace Protection Surface | Yes | Yes | Yes |
| Outside of the Precision Instrument Outer Approach Surface 40:1 Slope | Yes | Yes | Yes |
| Outside of the Precision Instrument Inner Approach Surface 50:1 Slope | Yes | Yes | Yes |
| Distance to water supply source of appropriate quality and quantity | 1.8 miles | 1.7 miles | 2.0 miles |
| Distance to Mountain House Community | 2.5 miles | 2.6 miles | 2.4 miles |
| Proximity to nearest residence | 2,112 feet | 2,500 feet | 2,100 feet |
| Potential Presence of Threatened and Endangered Species and Habitat | Low | Low | Low |
| Cultural/ Archaeological Sensitivity | Low | Moderate | Low |
| Potential noise impacts | Low | Moderate | Moderate |
| Potential visual impacts | Low | Moderate | Moderate |
| Potential soils impacts | Low | Low | Low |

Source: Ex. 301, p. 6-11.

We find the record contains an acceptable analysis of a reasonable range of alternatives to the project as proposed.

4. Alternative Water Supply Alternatives

MEP proposes to use water supplied by the Byron Bethany Irrigation District (BBID). BBID is the main water provider for projects in the area where MEP is located. As a peaking power plant, the project would operate only a small percentage of the time, and water use therefore would be minimal compared with a baseload facility. (Ex. 301, p. 6-12.)

The project design incorporates cost-effective water conservation features to minimize the use of water. MEP will not include evaporative (wet) cooling. Notwithstanding these significant measures to minimize water use, tertiary-treated recycled water supply sources were evaluated as an alternative to the BBID Canal 45 water supply. The nearest potential source of recycled water is Mountain House Community Services District (MHCSD) Wastewater Treatment Plant (WWTP), at a distance of approximately 5.5 miles from the MEP. Recycled water is also potentially available from the City of Tracy WWTP at a distance of approximately 11.5 miles from MEP. (Ex. 301, p. 6-12.)

Total water use is expected to average 34.8 acre-feet per year based on an expected operating scenario of 600 hours per year and 200 start and stop cycles. The estimated annual usage associated with the maximum-permitted operating scenario of 4,000 hours per year and 300 start and stop cycles is approximately 187 acre-feet per year. (Ex. 301, p. 6-12.)

MEP is within the service area of the BBID, and is not located within the boundaries of the MHCSD or City of Tracy, which are in neighboring San Joaquin County. Therefore, Mariposa Energy is required to contract with BBID for the MEP water supply. Regardless of the source, BBID has adopted a Recycled Water Policy to negotiate the purchase of recycled water from developments such as the MHCSD. BBID is prepared to use recycled water to meet the MEP water supply demands provided that a sufficiently reliable supply of tertiary recycled water may be obtained from MHCSD at a reasonable cost. (Ex. 301, p. 6-14.)

The record indicates the possibility of jurisdictional issues that might arise if the MHCSD or City of Tracy were to provide a water supply outside their legally created jurisdictional boundaries. The record also discloses issues regarding the environmental conflicts created by a longer water supply alternative, including potential impacts to former crude-oil pipelines. Further investigations would require test borings and trenching, which create additional potential impacts. For these reasons, these water supply alternatives do not reduce environmental impacts below the water supply proposal for the MEP. (Ex. 301, pp. 6-14 – 6-15; 3/7/11RT 202:13 – 206:24; 208:20 – 209:6.)

With the inclusion of facility-specific water conservation measures and the implementation of a regional water conservation program resulting in a zero net use of water, we find the proposed use of a freshwater supply would be consistent with state water policy found in State Water Resources Control Board

(SWRCB) Resolution 75-58, and the Energy Commission's 2003 Integrated Energy Policy Report (IEPR) water policy because there is no other economically feasible or environmentally desirable alternative. (Ex. 301, p. 6-15; 3/7/11RT 210:6 – 10).

Intervenor, Robert Sarvey, suggested that the use of dry low NOx combusters, could eliminate two-thirds of the project's water consumption and inquired whether the Staff's alternatives expert considered it as a technological alternative. Staff's expert testified that in the absence of a significant impact, staff will not recommend modifications to the applicant's project. The evidence establishes that the MEP will have a zero net use of water and that air impacts are also mitigated below significance. We are not compelled to require more than that. (Exs. 301 p. 6-21; 408, p. 1; 3/7/11 RT 209:15 - 212:11; 251:9 - 252:5.)

5. Generation Technology Alternatives

MEP will be a natural gas-fired, simple-cycle peaking facility with a generating capacity of 200 megawatt (MW). The record contains an analysis of the following alternative generation technologies that can use natural gas readily available from the existing transmission system:

Conventional Boiler and Steam Turbine. This technology burns fuel in the furnace of a conventional boiler to create steam. The steam is used to drive a steam turbine-generator, and the steam is then condensed and returned to the boiler. This is a dated technology that is able to achieve thermal efficiencies up to approximately 36 percent when utilizing natural gas, although efficiencies are somewhat higher when utilizing oil or coal. Because of this low efficiency and large space requirement, the conventional boiler and steam turbine technology was eliminated from consideration.

Conventional Combined-Cycle Combustion Turbine. This technology integrates combustion turbines and steam turbines to achieve higher efficiencies. The combustion turbine's hot exhaust is passed through a heat recovery system generator to create steam used to drive a steam turbine-generator. This technology is able to achieve high thermal efficiencies. The combined-cycle alternative, however, requires very large capital cost more appropriate for a baseload facility, a large site, and very large quantities of water for wet cooling. Additionally, conventional combined-cycle technology cannot match the General Electric (GE) LM6000 technology for rapid startup, efficient cycling, high part-load

efficiency, and load following capability, all of which are critical basic project objectives of MEP.

Kalina Combined-Cycle. This technology is similar to the conventional combined-cycle, except a mixture of ammonia and water is used in place of pure water in the steam cycle. The Kalina cycle could potentially increase combined-cycle thermal efficiencies by several percentage points. This technology is still in the development phase and has not been commercially demonstrated; therefore, it was eliminated from consideration.

Internal Combustion Engines. Reciprocating internal combustion engine designs are also available for small peaking power plant configurations. These are based on the design for large marine diesel engines, fitted to burn natural gas. Advantages of internal combustion engines are that they: (1) use very little water for cooling, because they use a closed-loop coolant system with radiators and fans; (2) provide quick-start capability (on-line at full power in 10 minutes); (3) have more efficient heat rates at both partial and full loads; and (4) are responsive to load-following needs because they are deployed in small units (8 megawatts [MW] per unit with 10 to 14 engines in one power plant), that can be started up and shut down at will. Disadvantages of this design include higher emissions than comparable combustion turbine technology and much higher capital costs. The Applicant proposed the use of internal combustion engines to PG&E, and PG&E rejected that configuration as not meeting the basic project objectives as efficiently and effectively as the MEP configuration. (Ex. 301, pp. 6-16 - 6-17.)

6. Alternative Fuels and Technologies

Technologies based on fuels other than natural gas were eliminated from consideration because they do not meet the project objective of providing operationally flexible, dispatchable, quick start, and reliable power. Some of these alternative fuels have potential for additional air quality and public health impacts. Others, like certain biofuels, are not available in commercial quantities or are not available via pipeline or other reliable delivery system. Additional factors rendering alternative fuel technologies unsuitable for the proposed project are as follows:

- No new geothermal or new hydroelectric resources of sufficient size and sufficient operational profile exist in the PG&E service territory or adjacent

territories that can meet the contractually obligated online date of July 1, 2012;

- Biomass fuel facilities do not provide quick start capabilities and have additional environmental impacts related to air emissions and solid waste generation. Additionally, biomass facilities would require additional acreage, taller structures, and larger quantities of water;
- Solar and wind technologies are generally not dispatchable and, therefore, are not capable of providing fast-starting, flexible generating capacity and are not capable of producing ancillary services other than reactive power;
- Coal, fuel oil, and other similar fuels emit more air pollutants and greenhouse gases than technologies utilizing natural gas; and
- Nuclear fission is an established technology. However, California law currently prohibits nuclear fission as an energy generation technology.

The availability of the natural gas resource provided by PG&E, as well as the environmental and operational advantages of natural gas technologies, makes natural gas the preferred choice for the proposed project. (Ex. 301, pp. 6-17 - 6-18.)

Intervenors Sarvey, Dighe, and Sierra Club California submitted argument in their Opening Briefs that rooftop solar and wind energy would be superior alternatives to the MEP. While we generally favor these renewable energy sources, we agree with staff that they are better suited to serving the baseload, but lack the reliability necessary to fulfill the prime objective of the MEP which is to provide quick start peak energy to back up intermittent renewable energy sources, day or night, regardless of weather conditions. We find that solar and wind power are inferior alternatives compared to fast ramping gas-fired peaking power for the purpose of supporting the intermittency of solar and wind power. (3/7/11 RT 228:14 – 230:23; 232:10 - 233:16.)

Intervenor, Robert Sarvey, submitted written comments claiming that the Decision ignores alternatives that provide fast start and fast ramping capability. Specifically, Mr. Sarvey refers to the Mulqueeney Ranch Pumped Storage Project (MRPSP) as an alternative. We disagree. First of all, the MRPSP is a proposed project, not an alternative. Proposed projects are relevant to cumulative impacts analysis but are not treated as alternatives. In addition, the preliminary permit (Ex. 411, which was received into the record on February 24, 2011) indicates that the project is only in its nascent phase (a preliminary permit application was filed with FERC on October 1, 2010) and does not support Mr. Sarvey's assertion that the MRPSP would have either fast start or fast ramping

capability. In fact, the MRPSP preliminary permit indicates that the MRPSP would only be able to run continuously at 280 MW for 8 hours (Ex. 411, p.12). Assuming Mr. Sarvey meant to present the water pumping station as an alternative technology, we note that it would still not fulfill several key project objectives: it is not natural gas fired, not located in the Altamont Wind Resource Area, would require extended linear infrastructure, may have extensive impacts due to reservoir construction and would not be able to meet the start date contemplated in the power purchase agreement with PG&E. As such, nothing in the record indicates that either the MRPSP or pumped storage in general is a reasonable alternative to consider. Thus, while we have considered and addressed the MRPSP in evidentiary hearings and herein, we can understand why the MRPSP was omitted from Staff's analysis since the Final Staff Assessment was published at the same time as the MRPSP's preliminary permit was filed with FERC.

7. No Project Alternative

CEQA requires an evaluation of the "no project" alternative "… to allow decisionmakers to compare the impacts of approving the proposed project with the impacts of not approving the proposed project." (14 Cal. Code Regs., § 15126.6(e)(1).) The "no project" analysis assumes: (a) that baseline environmental conditions would not change because the proposed project would not be installed; and (b) that the events or actions reasonably expected to occur in the foreseeable future would occur if the project were not approved.

Prior to the evidentiary hearings, the Applicant brought a motion to strike evidence regarding the need for the project and argued in its prehearing conference statement that:

"Senate Bill No. 110, which became Chapter 581, Statutes of 1999 repealed Public Resources Code sections 25523(f) and 25524(a) and amends other provisions relating to the assessment of need for new resources. SB 110 removed the requirement that, to certify a proposed facility, the Commission must make a specific finding that the proposed facility is in conformance with the adopted integrated assessment of need. Regarding need-determination, SB 110 states: "Before the California electricity industry was restructured the regulated cost recovery framework for power plants justified requiring the commission to determine the need for new generation, and site only power plants for which need was established. Now that power plant owners are at risk to recover their

investments, it is no longer appropriate to make this determination. (Pub. Res. Code, § 25009, added by Stats. 1999, ch. 581, § 1.)

"Therefore, while various parties seek to dispute the need for MEP, and while these arguments may or may not be appropriate before the CPUC, as a matter of law, this proffered testimony is not relevant to this proceeding as it is no longer necessary, appropriate or permitted by existing law for the CEC to make this determination." (Applicant's Prehearing Conference Statement, p. 5.)

We were not convinced that the repeal of Public Resources Code sections 25523(f) and 25524(a) prohibited the admission of evidence on need in all contexts. Thus, while the Energy Commission no longer considers the need for the project to meet the public policy of confirming cost-recovery, evidence on need could be used to support various other findings required by Public Resources Code section 25523 and consistent with Title 20 California Code of Regulations section 1742. Therefore, in our February 18, 2011 Hearing Order, we denied Applicant's motion to strike Exhibits 408 (Sarvey – Alternatives) and 900 (Sierra Club – Land Use) because we found that evidence related to need may be relevant to the "no project alternative" in the Alternative analysis.

Intervenor Sarvey offered the expert testimony of Bill Powers who testified that Staff's alternatives analysis fails to examine energy efficiency measures and demand side management programs that are viable replacements for the MEP. Mr. Powers argues that the CPUC decision D.07-10-032 issued on October 18, 2007 which authorized PG&E's procurement of up to 1,200 MW of new generation (including the MEP's 200 MW) was based upon demand forecasts that have since been rendered obsolete by subsequent forecasts. He concludes that the "No Project" alternative is the appropriate selection for MEP given: 1) excessive reserve margins in PG&E territory, 2) peak demand projections well below the historic 2006 peak at least until 2016 or 2017, and 3) nearly 1,000 MW of solar PV resources that will be online by 2016 to meet any future growth in peak demand in subsequent years. (Ex. 406.)

Under the heading, "No Project Alternative," Mr. Sarvey makes similar arguments in his testimony based upon a single short-term Energy Commission peak demand forecast and last year's summer outlook to claim that the MEP is not needed. He also claims that "impacts to ratepayers are significant." (Ex. 408.)

Finally, Intervenor Sierra Club California submitted the testimony of Ed Mainland which similarly claims that the MEP is not needed to meet in-state electrical

demand. Mr. Mainland contends that renewable energy, energy storage and upgraded facilities would make up for the deficit of the 200 MW from the MEP. (Ex. 900.)

Staff testified that if the "no project" alternative was selected, the construction and operational impacts from the proposed MEP would not occur. However, in the absence of MEP, staff testified that Diamond Generating Corporation or another power company would likely propose that other power plants be constructed along the PG&E transmission system to serve the demand that could be met with the MEP. (Ex. 301, p. 6-18; 3/7/11 RT 223:1 - 224:6.)

Staff further opined that it is thus difficult to determine whether the "no project" alternative would have serious, long-term consequences on air quality and the cost or reliability of electricity in the region. Staff claims that if no new natural gas plants were constructed, reliance on older power plants may increase. These plants would consume more fuel and emit more air pollutants per kilowatt-hour generated than the proposed project. In the near term, Staff averred that the more likely result is that existing plants, many of which produce higher level of pollutants, would operate more than they do now. Staff concluded that the "no project" alternative is not environmentally superior to the MEP project. (Ex. 301, p. 6-18; 3/7/11 RT 237:10: - 238:1; 243:19-22.)

Applicant argues the question of whether MEP is needed was relevant to the CPUC's 2009 decision to allow PG&E to enter into a Power Purchase Agreement as part of its Long Term Procurement Plan (LTPP). In that regard, the CPUC determined in D.09-10-017 that "The Mariposa Energy Project is a dispatchable peaking power plant with quick start and spinning reserve capabilities and therefore provides operational flexibility to provide "firming" for intermittent renewable resources." The CPUC concluded as a matter of law that "The Mariposa PPA is consistent with the requirements of D.07-12-052, including the preferred loading order, and the need for dispatchable ramping resources." (Applicant's Opening. Brief, p. 5.)

When we consider the question of the need for the MEP in the context of the "no project" analysis, we are mindful that our regulations require that we defer to agency decisions on matters within their jurisdiction and that Staff's analysis must focus on those safety and reliability matters not expected to be considered by other agencies. [Cal. Code Regs., tit. 20, §§ 1743(b) and 1744(e).]

The CPUC has determined that the MEP is needed to serve peak demand and we will not second-guess that determination. (Exs. 1, pp. 1-1, 6-2; 4, pp. 16, 109; 8, Attachment DR2-1, p. 1; 13, p. 21; 14, p.4; 67, p. 2.) For purposes of the "no project" alternative analysis, our inquiry focuses on whether the environmental impacts which would result from not building the MEP result in a superior alternative.

The CEQA Guidelines provide in pertinent part:

> (2) The "no project" analysis shall discuss the existing conditions at the time the notice of preparation is published, or if no notice of preparation is published, at the time environmental analysis is commenced, ***as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services***. If the environmentally superior alternative is the "no project" alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives.

(Cal. Code Regs., tit 14, § 15126.6, subd. (e)(2), **emphasis added**.)

As further explained by the Guidelines, our evaluation of impacts "...would compare the environmental effects of the property remaining in its existing state against environmental effects which would occur if the project is approved. If disapproval of the project under consideration would result in predictable actions by others, such as the proposal of some other project, this "no project" consequence should be discussed. In certain instances, the no project alternative means "no build" wherein the existing environmental setting is maintained. However, where failure to proceed with the project will not result in preservation of existing environmental conditions, the analysis should identify the practical result of the project's non-approval and not create and analyze a set of artificial assumptions that would be required to preserve the existing physical environment." (Cal. Code Regs., tit 14, § 15126.6, subd. (e)(3)(B).)

We have already found in the **Land Use** section of this Decision that the MEP constitutes permissible infrastructure under the East County Area Plan ("ECAP"). Specifically, we found that the MEP is a "structure and development necessary to the provision" of public utilities and that MEP would be considered a public facility under Policy 13 of the ECAP. These findings are consistent with the Energy

Commission's previous determinations in both the East Altamont Energy Center, (01-AFC-4) and the Tesla Power Plant, (01-AFC-21) proceedings where, in conformance with Alameda County's interpretation of the ECAP, we found that power plants will be considered permissible infrastructure under the ECAP. (3/7/11 RT 249:24-250:5.)

The evidence suggests that other power plants could likely be constructed at or near the MEP site given the consistent determination that the area is appropriate for power plant development. Furthermore, new plants constructed in the area could utilize undeveloped land (greenfield sites), possibly creating significant environmental impacts. According to the testimony of staff, if no new natural gas plants were constructed, reliance on older power plants may increase. These plants could consume more fuel and emit more air pollutants per kilowatt-hour generated than the proposed project. In the near term, the more likely result is that existing plants, many of which produce higher levels of pollutants, could operate more than they do now. Also, as noted by Staff, in the absence of the MEP, other plants would be sited elsewhere in California to serve the demand that could have been met by the MEP. (Ex. 301, p. 6-18; 3/7/11 RT 245:1-8.)

The Intervenors' evidence offered to show the absence of the need for the MEP in the context of the "no project" alternatives analysis fails for two reasons. First, economic impacts to rate payers is not an environmental impact for purposes of "no project" analysis under CEQA, and, second, the inherently changing nature of demand forecasts prevent us from making a finding that some other peaker in the region will never be built in place of the MEP. There is no evidence or argument in the record suggesting that the project site would not or could not be developed in the absence of the MEP Project.

Finally, we realize that project "need" is not directly relevant to the "no project" alternative analysis. Instead, as discussed above, the analysis considers what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services. We recognize that Staff has woven project benefits into its analysis (i.e. if the project were not built, the region will not benefit from the relatively efficient source of 200 MW of new generation that this facility would provide). However, their insertion of this additional, tangential information into the analysis does not alter the intended purpose and scope of our "no project" evaluation. (Ex. 301, p. 6-18; 3/7/11 RT 224:12-16.)

We are persuaded by the Applicant's and Staff's evidence, that the "no project" alternative is not environmentally superior to the MEP Project. (Ex. 301, p. 6-18.)

**PUBLIC COMMENT**

**Robert Sarvey** commented that the range of alternative sites was "impermissibly narrow" without citation to law. As noted above, the range of alternatives is governed by the "rule of reason" and CEQA sets no minimum number or quantified range of alternatives (see *Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal. 3d553, 556 and Marin *Municipal Water District v. KG Land California Corporation* (1991, 1st Dist.) 235 Cal. App. 3d 1652, 1665-1666).

**Leo Huang** of Mountain House commented that we should look at better energy, like solar energy. (2/24/11 RT: 249:15-24.)

**Jon Rubin** of Mountain House commented that solar would have a lot better image for people. (2/24/11 RT: 278:11-280:25.)

**Jason Gonce** of Mountain House commented that he was very concerned about a power plant that is potentially not green and on the border of our civilization. (2/24/11 RT: 308:4 - 308:12.)

**Susan Sarvey** commented that the ratepayers don't need to pay for another idle peaker plant. All of the recent CEC demand reports indicate that peak demand is falling, not rising, due to successful energy efficiency measures and the economic downturn. (2/25/11 RT: 307:5 - 308:12.) She also commented that "Staff's alternative witness doesn't know what the loading order is, doesn't know if the project is needed, doesn't know much about the energy requirements of the state of California and doesn't know how much of anything about alternative technology. He actually admitted most of his testimony was cut and paste." (3/7/11 RT: 305:18-307:18.)

**Vinod Pothuru** of Mountain House commented that government is encouraging solar, "and in California we have plenty of solar energy as well as in Mountain House abundant wind energy there. We can think of alternative things. This power plant is going to pollute whole area." (2/25/11 RT: 331:2 - 333:1.)

**Frank Lin** of Mountain House commented that we are not against the utility company using new technology to generate electricity. It can be wind turbine, it can be solar power. (2/25/11 RT: 334:18 - 335:24.)

**Hui Chen**: of Mountain House commented that this is a very perfect place to generate renewable energy rather than build a gas fired power plant here. (2/25/11 RT: 340:24 - 342:2.)

As we explained above, the MEP is needed to support intermittent renewable energy, not to supplant it. Again, the need for a power plant is determined by the CPUC, not the Energy Commission. We have determined that the MEP serves a necessary function in the state's energy portfolio which is explained in more detail above, and in the **Greenhouse Gases** section of this Decision.

## FINDINGS OF FACT

Based upon the totality of evidence, including evidence presented on each subject area described in other portions of this Decision, we find and conclude as follows:

1. The record contains an acceptable analysis of a reasonable range of alternatives to the project as proposed.
2. The evidentiary record contains an adequate review of alternative project sites, linears, fuels, technologies, and the "no project" alternative
3. The proposed use of a freshwater supply is consistent with state water policy SWRCB Resolution 75-58, and the Energy Commission's 2003 *IEPR* water policy because there is no other economically feasible or environmentally superior alternative at this time.
4. Alternative fuels and technologies are not capable of meeting project objectives.
5. No site alternative is capable of meeting the stated project objectives.
6. The "no project" alternative would not avoid or substantially lessen potentially significant environmental impacts.
7. The "no project" alternative is not environmentally superior to the MEP Project.
8. If all Conditions of Certification contained in this Decision are implemented, construction and operation of the MEP will not create any significant direct, indirect, or cumulative adverse environmental impacts.

## CONCLUSION OF LAW

We conclude, therefore, that the evidence contains a sufficient analysis of alternatives and complies with the requirements of the California Environmental Quality Act, the Warren-Alquist Act, and their respective regulations. No Conditions of Certification are required for this topic.

# III. COMPLIANCE AND CLOSURE

Public Resources Code section 25532 requires the Commission to establish a post-certification monitoring system. The purpose of this requirement is to assure that certified facilities are constructed and operated in compliance with applicable laws, ordinances, regulations, standards, as well as the specific Conditions of Certification adopted as part of this Decision.

## SUMMARY OF THE EVIDENCE

The record contains a full explanation of the purposes and intent of the Compliance Plan (Plan). The Plan is the administrative mechanism used to ensure that the Mariposa Energy Project is constructed and operated according to the Conditions of Certification. It essentially describes the respective duties and expectations of the Project Owner and the Staff Compliance Project Manager (CPM) in implementing the design, construction, and operation criteria set forth in this Decision.

Compliance with the Conditions of Certification contained in this Decision is verified through mechanisms such as periodic reports and site visits. The Plan also contains requirements governing the planned closure, as well as the unexpected temporary and unexpected permanent closure, of the Project.

The Compliance Plan is composed of two broad elements. The first element establishes the "General Conditions," which:

- set forth the duties and responsibilities of the Compliance Project Manager (CPM), the project owner, delegate agencies, and others;
- set forth the requirements for handling confidential records and maintaining the compliance record;
- set forth procedures for settling disputes and making post-certification changes;
- set forth the requirements for periodic compliance reports and other administrative procedures necessary to verify the compliance status of all Commission imposed Conditions; and
- set forth requirements for facility closure.

The second general element of the Plan contains the specific “Conditions of Certification.” These are found following the summary and discussion of each individual topic area in this Decision. The individual Conditions contain the measures required to

mitigate potentially adverse Project impacts associated with construction, operation, and closure to levels of insignificance. Each Condition also includes a verification provision describing the method of assuring that the Condition has been satisfied.

The contents of the Compliance Plan are intended to be implemented in conjunction with any additional requirements contained in the individual Conditions of Certification.

## FINDINGS OF FACT

The record establishes:

1. Requirements contained in the Compliance Plan and in the specific Conditions of Certification are intended to be implemented in conjunction with one another.

2. We adopt the following Compliance Plan as part of this Decision.

## CONCLUSIONS OF LAW

1. The compliance and monitoring provisions incorporated as a part of this Decision satisfy the requirements of Public Resources Code section 25532.

2. The Compliance Plan and the specific Conditions of Certification contained in this Decision assure that the Mariposa Energy Project will be designed, constructed, operated, and closed in conformity with applicable law.

# GENERAL CONDITIONS

## DEFINITIONS

The following terms and definitions are used to establish when Conditions of Certification are implemented.

### PRE-CONSTRUCTION SITE MOBILIZATION

Site mobilization is limited preconstruction activities at the site to allow for the installation of fencing, construction trailers, construction trailer utilities, and construction trailer parking at the site. Limited ground disturbance, grading, and trenching associated with the above mentioned pre-construction activities is considered part of site mobilization. Walking, driving or parking a passenger vehicle, pickup truck and/or light vehicles is allowable during site mobilization.

### CONSTRUCTION

Onsite work to install permanent equipment or structures for any facility.

#### Ground Disturbance

Construction-related ground disturbance refers to activities that result in the removal of top soil or vegetation at the site beyond site mobilization needs, and for access roads and linear facilities.

#### Grading, Boring, and Trenching

Construction-related grading, boring, and trenching refers to activities that result in subsurface soil work at the site and for access roads and linear facilities, e.g., alteration of the topographical features such as leveling, removal of hills or high spots, moving of soil from one area to another, and removal of soil.

Notwithstanding the definitions of ground disturbance, grading, boring, and trenching above, construction does **not** include the following:

1. the installation of environmental monitoring equipment;
2. a soil or geological investigation;
3. a topographical survey;
4. any other study or investigation to determine the environmental acceptability or feasibility of the use of the site for any particular facility; and
5. any work to provide access to the site for any of the purposes specified in “Construction” 1, 2, 3, or 4 above.

### START OF COMMERCIAL OPERATION

For compliance monitoring purposes, “commercial operation” begins after the completion of start-up and commissioning, when the power plant has reached reliable steady-state production of electricity at the rated capacity. At the start of commercial operation, plant control is usually transferred from the construction manager to the plant operations manager.

## COMPLIANCE PROJECT MANAGER RESPONSIBILITIES

The Compliance Project Manager (CPM) shall oversee the compliance monitoring and is responsible for:

1. ensuring that the design, construction, operation, and closure of the project facilities are in compliance with the terms and conditions of the Energy Commission Decision;
2. resolving complaints;
3. processing post-certification changes to the Conditions of Certification, project description (petition to amend), and ownership or operational control (petition for change of ownership) (See instructions for filing petitions);
4. documenting and tracking compliance filings; and
5. ensuring that compliance files are maintained and accessible.

The CPM is the contact person for the Energy Commission and will consult with appropriate responsible agencies, Energy Commission, and staff when handling disputes, complaints, and amendments.

All project compliance submittals are submitted to the CPM for processing. Where a submittal required by a Condition of Certification requires CPM approval, the approval will involve all appropriate Energy Commission staff and management. All submittals must include searchable electronic versions (pdf or MS Word files).

## PRE-CONSTRUCTION AND PRE-OPERATION COMPLIANCE MEETING

The CPM usually schedules pre-construction and pre-operation compliance meetings prior to the projected start-dates of construction, plant operation, or both. The purpose of these meetings is to assemble both the Energy Commission's and project owner's technical staff to review the status of all pre-construction or pre-operation requirements contained in the Energy Commission's Conditions of Certification. This is to confirm that all applicable Conditions of Certification have been met, or if they have not been met, to ensure that the proper action is taken. In addition, these meetings ensure, to the extent possible, that Energy Commission conditions will not delay the construction and operation of the plant due to oversight and to preclude any last minute, unforeseen issues from arising. Pre-construction meetings held during the certification process must be publicly noticed unless they are confined to administrative issues and processes.

## ENERGY COMMISSION RECORD

The Energy Commission shall maintain the following documents and information as a public record, in either the Compliance file or Dockets file, for the life of the project (or other period as required):

1. all documents demonstrating compliance with any legal requirements relating to the construction and operation of the facility;
2. all monthly and annual compliance reports filed by the project owner;
3. all complaints of noncompliance filed with the Energy Commission; and

4. all petitions for project or Condition of Certification changes and the resulting staff or Energy Commission action.

## PROJECT OWNER RESPONSIBILITIES

The project owner is responsible for ensuring that the compliance Conditions of Certification and all other Conditions of Certification that appear in the Commission Decision are satisfied. The Compliance Conditions regarding post-certification changes specify measures that the project owner must take when requesting changes in the project design, Conditions of Certification, or ownership. Failure to comply with any of the Conditions of Certification or the compliance conditions may result in reopening of the case and revocation of Energy Commission certification; an administrative fine; or other action as appropriate. A summary of the Compliance Conditions of Certification is included as **Compliance Table 1** at the conclusion of this section of the Decision.

## COMPLIANCE CONDITIONS OF CERTIFICATION

### UNRESTRICTED ACCESS (COMPLIANCE-1)

The CPM, responsible Energy Commission staff, and delegated agencies or consultants shall be guaranteed and granted unrestricted access to the power plant site, related facilities, project-related staff, and the records maintained on-site for the purpose of conducting audits, surveys, inspections, or general site visits. Although the CPM will normally schedule site visits on dates and times agreeable to the project owner, the CPM reserves the right to make unannounced visits at any time.

### COMPLIANCE RECORD (COMPLIANCE-2)

The project owner shall maintain project files on-site or at an alternative site approved by the CPM for the life of the project, unless a lesser period of time is specified by the Conditions of Certification. The files shall contain copies of all “as-built” drawings, documents submitted as verification for Conditions, and other project-related documents.

Energy Commission staff and delegate agencies shall, upon request to the project owner, be given unrestricted access to the files maintained pursuant to this Condition.

### COMPLIANCE VERIFICATION SUBMITTALS (COMPLIANCE-3)

Each Condition of Certification is followed by a means of verification. The verification describes the Energy Commission’s procedure(s) to ensure post-certification compliance with adopted Conditions. The verification procedures, unlike the Conditions, may be modified as necessary by the CPM.

Verification of compliance with the Conditions of Certification can be accomplished by the following:

1. monthly and/or annual compliance reports, filed by the project owner or authorized agent, reporting on work done and providing pertinent documentation, as required by the specific Conditions of Certification;

2. appropriate letters from delegate agencies verifying compliance;

3. Energy Commission staff audits of project records; and/or

4. Energy Commission staff inspections of work, or other evidence that the requirements are satisfied.

Verification lead times associated with start of construction may require the project owner to file submittals during the certification process, particularly if construction is planned to commence shortly after certification.

A cover letter from the project owner or authorized agent is required for all compliance submittals and correspondence pertaining to compliance matters. **The cover letter subject line shall identify the project by AFC number, the appropriate condition(s) of certification by condition number(s), and a brief description of the subject of the submittal**. The project owner shall also identify those submittals **not** required by a Condition of Certification with a statement such as: "This submittal is for information only and is not required by a specific Condition of Certification." When submitting supplementary or corrected information, the project owner shall reference the date of the previous submittal and CEC submittal number.

The project owner is responsible for the delivery and content of all verification submittals to the CPM, whether such condition was satisfied by work performed by the project owner or an agent of the project owner.

All hardcopy submittals shall be addressed as follows:

**<u>Compliance Project Manager</u>**
**(09-AFC-3C)**
**California Energy Commission**
**1516 Ninth Street (MS-2000)**
**Sacramento, CA 95814**

Those submittals shall be accompanied by a searchable electronic copy, on aCD or by e-mail, as agreed upon by the CPM.

If the project owner desires Energy Commission staff action by a specific date, that request shall be made in the submittal cover letter and shall include a detailed explanation of the effects on the project if that date is not met.

## PRE-CONSTRUCTION MATRIX AND TASKS PRIOR TO START OF CONSTRUCTION (COMPLIANCE-4)

Prior to commencing construction, a compliance matrix addressing <u>only</u> those Conditions that must be fulfilled before the start of construction shall be submitted by the project owner to the CPM. This matrix will be included with the project owner's first compliance submittal or prior to the first pre-construction meeting, whichever comes first. It will be submitted in the same format as the compliance matrix described below.

Construction shall not commence until the pre-construction matrix is submitted, all pre-construction Conditions have been complied with, and the CPM has issued a letter to

the project owner authorizing construction. Various lead times for submittal of compliance verification documents to the CPM for Conditions of Certification are established to allow sufficient staff time to review and comment and, if necessary, allow the project owner to revise the submittal in a timely manner. This will ensure that project construction may proceed according to schedule.

Failure to submit compliance documents within the specified lead-time may result in delays in authorization to commence various stages of project development.

If the project owner anticipates commencing project construction as soon as the project is certified, it may be necessary for the project owner to file compliance submittals prior to project certification. Compliance submittals should be completed in advance where the necessary lead time for a required compliance event extends beyond the date anticipated for start of construction. The project owner must understand that the submittal of compliance documents prior to project certification is at the owner's own risk. Any approval by Energy Commission staff is subject to change, based upon the Commission Decision.

## Compliance Reporting

There are two different compliance reports that the project owner must submit to assist the CPM in tracking activities and monitoring compliance with the terms and conditions of the Energy Commission Decision. During construction, the project owner or authorized agent will submit Monthly Compliance Reports. During operation, an Annual Compliance Report must be submitted. These reports, and the requirement for an accompanying compliance matrix, are described below. The majority of the Conditions of Certification require that compliance submittals be submitted to the CPM in the monthly or annual compliance reports.

### COMPLIANCE MATRIX (COMPLIANCE-5)

A compliance matrix shall be submitted by the project owner to the CPM along with each monthly and annual compliance report. The compliance matrix is intended to provide the CPM with the current status of all Conditions of Certification in a spreadsheet format. The compliance matrix must identify:

1. the technical area;
2. the condition number;
3. a brief description of the verification action or submittal required by the condition;
4. the date the submittal is required (e.g., 60 days prior to construction, after final inspection, etc.);
5. the expected or actual submittal date;
6. the date a submittal or action was approved by the Chief Building Official (CBO), CPM, or delegate agency, if applicable;
7. the compliance status of each Condition, e.g., "not started," "in progress" or "completed" (include the date); and

8. if the Condition was amended, the date of the amendment.

Satisfied Conditions shall be placed at the end of the matrix.

**MONTHLY COMPLIANCE REPORT (COMPLIANCE-6)**

The first Monthly Compliance Report is due one month following the Energy Commission business meeting date upon which the project was approved, unless otherwise agreed to by the CPM. The first Monthly Compliance Report shall include the AFC number and an initial list of dates for each of the events identified on the Key Events List found at the end of this section of the Decision.

During pre-construction and construction of the project, the project owner or authorized agent shall submit an original and an electronic searchable version of the Monthly Compliance Report within 10 working days after the end of each reporting month. Monthly Compliance Reports shall be clearly identified for the month being reported. The reports shall contain, at a minimum:

1. a summary of the current project construction status, a revised/updated schedule if there are significant delays, and an explanation of any significant changes to the schedule;
2. documents required by specific conditions to be submitted along with the Monthly Compliance Report. Each of these items must be identified in the transmittal letter, as well as the conditions they satisfy and submitted as attachments to the Monthly Compliance Report;
3. an initial, and thereafter updated, compliance matrix showing the status of all Conditions of Certification;
4. a list of Conditions that have been satisfied during the reporting period, and a description or reference to the actions that satisfied the Condition;
5. a list of any submittal deadlines that were missed, accompanied by an explanation and an estimate of when the information will be provided;
6. a cumulative listing of any approved changes to Conditions of Certification;
7. a listing of any filings submitted to, or permits issued by, other governmental agencies during the month;
8. a projection of project compliance activities scheduled during the next two months. The project owner shall notify the CPM as soon as any changes are made to the project construction schedule that would affect compliance with Conditions of Certification;
9. a listing of the month's additions to the on-site compliance file; and
10. a listing of complaints, notices of violation, official warnings, and citations received during the month, a description of the resolution of the resolved actions, and the status of any unresolved actions.

All sections, exhibits, or addendums shall be separated by tabbed dividers or as acceptable by the CPM.

## ANNUAL COMPLIANCE REPORT (COMPLIANCE-7)

After construction is complete, the project owner shall submit Annual Compliance Reports instead of Monthly Compliance Reports. The reports are for each year of commercial operation and are due to the CPM each year at a date agreed to by the CPM. Annual Compliance Reports shall be submitted over the life of the project, unless otherwise specified by the CPM. Each Annual Compliance Report shall include the AFC number, identify the reporting period, and shall contain the following:

1. an updated compliance matrix showing the status of all Conditions of Certification (fully satisfied conditions do not need to be included in the matrix after they have been reported as completed);
2. a summary of the current project operating status and an explanation of any significant changes to facility operations during the year;
3. documents required by specific conditions to be submitted along with the Annual Compliance Report. Each of these items must be identified in the transmittal letter with the condition it satisfies, and submitted as attachments to the Annual Compliance Report;
4. a cumulative listing of all post-certification changes approved by the Energy Commission or cleared by the CPM;
5. an explanation for any submittal deadlines that were missed, accompanied by an estimate of when the information will be provided;
6. a listing of filings submitted to, or permits issued by, other governmental agencies during the year;
7. a projection of project compliance activities scheduled during the next year;
8. a listing of the year's additions to the on-site compliance file;
9. an evaluation of the on-site contingency plan for unplanned facility closure, including any suggestions necessary for bringing the plan up to date (see Compliance Conditions for Facility Closure addressed later in this section); and
10. a listing of complaints, notices of violation, official warnings, and citations received during the year, a description of the resolution of any resolved matters, and the status of any unresolved matters.

## CONFIDENTIAL INFORMATION (COMPLIANCE-8)

Any information that the project owner deems confidential shall be submitted to the Energy Commission's Executive Director with an application for confidentiality pursuant to Title 20, California Code of Regulations, section 2505(a). Any information that is determined to be confidential shall be kept confidential as provided for in Title 20, California Code of Regulations, section 2501, et. seq.

## ANNUAL ENERGY FACILITY COMPLIANCE FEE (COMPLIANCE-9)

Pursuant to the provisions of Section 25806(b) of the Public Resources Code, the project owner is required to pay an annual compliance fee, which is adjusted annually. Current Compliance fee information is available on the Energy Commission's website **http://www.energy.ca.gov/siting/filing_fees.html**. You may also contact the CPM for

the current fee information. The initial payment is due on the date of the Business Meeting at which the Energy Commission adopts the final decision. All subsequent payments are due by July 1 of each year in which the facility retains its certification. The payment instrument shall be made payable to the California Energy Commission and mailed to: Accounting Office MS-02, California Energy Commission, 1516 9th St., Sacramento, CA 95814.

## REPORTING OF COMPLAINTS, NOTICES, AND CITATIONS (COMPLIANCE-10)

Prior to the start of construction, the project owner must send a letter to property owners living within one mile of the project notifying them of a telephone number to contact project representatives with questions, complaints, or concerns. If the telephone is not staffed 24 hours per day, it shall include automatic answering with a date and time stamp recording. All recorded complaints shall be responded to within 24 hours. The telephone number shall be posted at the project site and made easily visible to passersby during construction and operation. The telephone number shall be provided to the CPM who will post it on the Energy Commission's web page at **http://www.energy.ca.gov/sitingcases/power_plants_contacts.html**.

Any changes to the telephone number shall be submitted immediately to the CPM, who will update the web page.

In addition to the monthly and annual compliance reporting requirements described above, the project owner shall report and provide copies to the CPM of all complaint forms, including noise and lighting complaints, notices of violation, notices of fines, official warnings, and citations within 10 days of receipt. Complaints shall be logged and numbered. Noise complaints shall be recorded on the form provided in the **NOISE** Conditions of Certification, found in that section of this Decision. All other complaints shall be recorded on the complaint form (Attachment A).

## FACILITY CLOSURE

At some point in the future, the project will cease operation and close down. At that time, it will be necessary to ensure that the closure occurs in such a way that public health and safety and the environment are protected from adverse impacts. Although the project setting for this project does not appear, at this time, to present any special or unusual closure problems, it is impossible to foresee what the situation will be in 30 years or more when the project ceases operation. Therefore, provisions must be made that provide the flexibility to deal with the specific situation and project setting that exist at the time of closure. Laws, Ordinances, Regulations, and Standards (LORS) pertaining to facility closure are identified in the sections dealing with each technical area. Facility closure will be consistent with LORS in effect at the time of closure.

There are at least three circumstances in which a facility closure can take place: planned closure, unplanned temporary closure, and unplanned permanent closure**.**

## CLOSURE DEFINITIONS

### Planned Closure

A planned closure occurs when the facility is closed in an anticipated, orderly manner, at the end of its useful economic or mechanical life, or due to gradual obsolescence.

### Unplanned Temporary Closure

An unplanned temporary closure occurs when the facility is closed suddenly and/or unexpectedly, on a short-term basis, due to unforeseen circumstances such as a natural disaster or an emergency.

### Unplanned Permanent Closure

An unplanned permanent closure occurs if the project owner closes the facility suddenly and/or unexpectedly, on a permanent basis. This includes unplanned closure where the owner implements the on-site contingency plan. It can also include unplanned closure where the project owner fails to implement the contingency plan, and the project is essentially abandoned.

## COMPLIANCE CONDITIONS FOR FACILITY CLOSURE

### Planned Closure (COMPLIANCE-11)

In order to ensure that a planned facility closure does not create adverse impacts, a closure process that provides for careful consideration of available options and applicable laws, ordinances, regulations, standards, and local/regional plans in existence at the time of closure will be undertaken. To ensure adequate review of a planned project closure, the project owner shall submit a proposed facility closure plan to the Energy Commission for review and approval at least 12 months (or other period of time agreed to by the CPM) prior to the commencement of closure activities. The project owner shall file 120 copies (or other number of copies agreed upon by the CPM) of a proposed facility closure plan with the Energy Commission.

The plan shall:

1. identify and discuss any impacts and mitigation to address significant adverse impacts associated with proposed closure activities and to address facilities, equipment, or other project related remnants that will remain at the site;
2. identify a schedule of activities for closure of the power plant site, transmission line corridor, and all other appurtenant facilities constructed as part of the project;
3. identify any facilities or equipment intended to remain on site after closure, the reason, and any future use; and
4. address conformance of the plan with all applicable laws, ordinances, regulations, standards, and local/regional plans in existence at the time of facility closure, and applicable Conditions of Certification.

Prior to submittal of the proposed facility closure plan, a meeting shall be held between the project owner and the Energy Commission CPM for the purpose of discussing the specific contents of the plan.

In the event that there are significant issues associated with the proposed facility closure plan's approval, or if the desires of local officials or interested parties are inconsistent with the plan, the CPM shall hold one or more workshops and/or the Energy Commission may hold public hearings as part of its approval procedure.

As necessary, prior to or during the closure plan process, the project owner shall take appropriate steps to eliminate any immediate threats to public health and safety and the environment, but shall not commence any other closure activities until the Energy Commission approves the facility closure plan.

**Unplanned Temporary Closure/On-Site Contingency Plan (COMPLIANCE-12)**

In order to ensure that public health and safety and the environment are protected in the event of an unplanned temporary facility closure, it is essential to have an on-site contingency plan in place. The on-site contingency plan will help to ensure that all necessary steps to mitigate public health and safety impacts and environmental impacts are taken in a timely manner.

The project owner shall submit an on-site contingency plan for CPM review and approval. The plan shall be submitted no less than 60 days (or other time agreed to by the CPM) prior to commencement of commercial operation. The approved plan must be in place prior to commercial operation of the facility and shall be kept at the site at all times.

The project owner, in consultation with the CPM, will update the on-site contingency plan as necessary. The CPM may require revisions to the on-site contingency plan over the life of the project. In the annual compliance reports submitted to the Energy Commission, the project owner will review the on-site contingency plan, and recommend changes to bring the plan up to date. Any changes to the plan must be approved by the CPM.

The on-site contingency plan shall provide for taking immediate steps to secure the facility from trespassing or encroachment. In addition, for closures of more than 90 days, unless other arrangements are agreed to by the CPM, the plan shall provide for removal of hazardous materials and hazardous wastes, draining of all chemicals from storage tanks and other equipment, and the safe shutdown of all equipment. (See specific Conditions of Certification for the technical areas of **Hazardous Materials Management** and **Waste Management** in those respective sections of this Decision.)

In addition, consistent with requirements under unplanned permanent closure addressed below, the nature and extent of insurance coverage, and major equipment warranties must also be included in the on-site contingency plan. In addition, the status of the insurance coverage and major equipment warranties must be updated in the annual compliance reports.

In the event of an unplanned temporary closure, the project owner shall notify the CPM, as well as other responsible agencies, by telephone, fax, or e-mail, within 24 hours and shall take all necessary steps to implement the on-site contingency plan. The project owner shall keep the CPM informed of the circumstances and expected duration of the closure.

If the CPM determines that an unplanned temporary closure is likely to be permanent, or for a duration of more than 12 months, a closure plan consistent with the requirements for a planned closure shall be developed and submitted to the CPM within 90 days of the CPM's determination (or other period of time agreed to by the CPM).

**Unplanned Permanent Closure/On-Site Contingency Plan (COMPLIANCE-13)**

The on-site contingency plan required for unplanned temporary closure shall also cover unplanned permanent facility closure. All of the requirements specified for unplanned temporary closure shall also apply to unplanned permanent closure.

In addition, the on-site contingency plan shall address how the project owner will ensure that all required closure steps will be successfully undertaken in the event of abandonment.

In the event of an unplanned permanent closure, the project owner shall notify the CPM, as well as other responsible agencies, by telephone, fax, or e-mail within 24 hours and shall take all necessary steps to implement the on-site contingency plan. The project owner shall keep the CPM informed of the status of all closure activities.

A closure plan, consistent with the requirements for a planned closure, shall be developed and submitted to the CPM within 90 days of the permanent closure or another period of time agreed to by the CPM.

**Post Certification Changes to the Energy Commission Decision: Amendments, Ownership Changes, Staff Approved Project Modifications and Verification Changes (COMPLIANCE-14)**

The project owner must petition the Energy Commission pursuant to Title 20, California Code of Regulations, section 1769, in order to modify the project (including linear facilities) design, operation or performance requirements, and to transfer ownership or operational control of the facility. **It is the responsibility of the project owner to contact the CPM to determine if a proposed project change should be considered a project modification pursuant to section 1769.** Implementation of a project modification without first securing Energy Commission, or Energy Commission staff approval, may result in enforcement action that could result in civil penalties in accordance with section 25534 of the Public Resources Code.

A petition is required for **amendments** and for **staff approved project modifications** as specified below. Both shall be filed as a "Petition to Amend." Staff will determine if the change is significant or insignificant. For verification changes, a letter from the project owner is sufficient. In all cases, the petition or letter requesting a change should be submitted to the CPM, who will file it with the Energy Commission's Dockets Unit in accordance with Title 20, California Code of Regulations, section 1209.

The criteria that determine which type of approval and the process that applies are explained below. They reflect the provisions of Section 1769 at the time this condition was drafted. If the Commission's rules regarding amendments are amended, the rules in effect at the time an amendment is requested shall apply.

### Amendment

The project owner shall petition the Energy Commission, pursuant to Title 20, California Code of Regulations, Section 1769(a), when proposing modifications to the project (including linear facilities) design, operation, or performance requirements. If a proposed modification results in deletion or change of a Condition of Certification, or makes changes that would cause the project not to comply with any applicable laws, ordinances, regulations, or standards the petition will be processed as a formal amendment to the final decision, which requires public notice and review of the Energy Commission staff analysis and approval by the full Commission. The petition shall be in the form of a legal brief and fulfill the requirements of Section 1769(a). Upon request, the CPM will provide a sample petition to use as a template.

### Change of Ownership

Change of ownership or operational control also requires that the project owner file a petition pursuant to section 1769 (b). This process requires public notice and approval by the full Commission. The petition shall be in the form of a legal brief and fulfill the requirements of Section 1769(b). Upon request, the CPM will provide a sample petition to use as a template.

### Staff Approved Project Modification

Modifications that do not result in deletions or changes to Conditions of Certification, that are compliant with laws, ordinances, regulations and standards and will not have significant environmental impacts may be authorized by the CPM as a staff approved project modification pursuant to section 1769(a) (2). Once staff files an intention to approve the proposed project modifications, any person may file an objection to staff's determination within 14 days of service on the grounds that the modification does not meet the criteria of section 1769 (a)(2). If a person objects to staff's determination, the petition must be processed as a formal amendment to the decision and must be approved by the full commission at a noticed business meeting or hearing.

### Verification Change

A verification may be modified by the CPM without requesting an amendment to the decision if the change does not conflict with the Conditions of Certification and provides an effective alternate means of verification.

## CBO DELEGATION AND AGENCY COOPERATION

In performing construction and operation monitoring of the project, Energy Commission staff acts as, and has the authority of, the Chief Building Official (CBO). Energy Commission staff may delegate CBO responsibility to either an independent third party contractor or the local building official. Energy Commission staff retains CBO authority when selecting a delegate CBO, including enforcing and interpreting state and local codes, and use of discretion, as necessary, in implementing the various codes and standards.

Energy Commission staff may also seek the cooperation of state, regional, and local agencies that have an interest in environmental protection when conducting project monitoring.

## ENFORCEMENT

The Energy Commission's legal authority to enforce the terms and conditions of its Decision is specified in Public Resources Code sections 25534 and 25900. The Energy Commission may amend or revoke the certification for any facility, and may impose a civil penalty for any significant failure to comply with the terms or conditions of the Energy Commission Decision. The specific action and amount of any fines the Energy Commission may impose would take into account the specific circumstances of the incident(s). This would include such factors as the previous compliance history, whether the cause of the incident involves willful disregard of LORS, oversight, unforeseeable events, and other factors the Energy Commission may consider.

## NONCOMPLIANCE COMPLAINT PROCEDURES

Any person or agency may file a complaint alleging noncompliance with the Conditions of Certification. Such a complaint will be subject to review by the Energy Commission pursuant to Title 20, California Code of Regulations, section 1237, but in many instances the noncompliance can be resolved by using the informal dispute resolution process. Both the informal and formal complaint procedure, as described in current State law and regulations, are described below. They shall be followed unless superseded by future law or regulations.

### Informal Dispute Resolution Process

The following procedure is designed to informally resolve disputes concerning the interpretation of compliance with the requirements of this compliance plan. The project owner, the Energy Commission, or any other party, including members of the public, may initiate an informal dispute resolution process. Disputes may pertain to actions or decisions made by any party, including the Energy Commission's delegate agents.

This process may precede the more formal complaint and investigation procedure specified in Title 20, California Code of Regulations, section 1237, but is not intended to be a substitute for, or prerequisite to it. This informal procedure may not be used to change the terms and Conditions of Certification as approved by the Energy Commission, although the agreed upon resolution may result in a project owner, or in some cases the Energy Commission staff, proposing an amendment.

The process encourages all parties involved in a dispute to discuss the matter and to reach an agreement resolving the dispute. If a dispute cannot be resolved, then the matter must be brought before the full Energy Commission for consideration via the complaint and investigation procedure.

### Request for Informal Investigation

Any individual, group, or agency may request the Energy Commission to conduct an informal investigation of alleged noncompliance with the Energy Commission's terms

and Conditions of Certification. All requests for informal investigations shall be made to the designated CPM.

Upon receipt of a request for an informal investigation, the CPM shall promptly notify the project owner of the allegation by telephone and letter. All known and relevant information of the alleged noncompliance shall be provided to the project owner and to the Energy Commission staff. The CPM will evaluate the request and the information to determine if further investigation is necessary. If the CPM finds that further investigation is necessary, the project owner will be asked to promptly investigate the matter. Within seven working days of the CPM's request, provide a written report to the CPM of the results of the investigation, including corrective measures proposed or undertaken. Depending on the urgency of the noncompliance matter, the CPM may conduct a site visit and/or request the project owner to also provide an initial verbal report, within 48 hours.

**Request for Informal Meeting**

In the event that either the party requesting an investigation or the Energy Commission staff is not satisfied with the project owner's report, investigation of the event, or corrective measures proposed or undertaken, either party may submit a written request to the CPM for a meeting with the project owner. Such request shall be made within 14 days of the project owner's filing of its written report. Upon receipt of such a request, the CPM shall:

1. immediately schedule a meeting with the requesting party and the project owner, to be held at a mutually convenient time and place;
2. secure the attendance of appropriate Energy Commission staff and staff of any other agencies with expertise in the subject area of concern, as necessary;
3. conduct such meeting in an informal and objective manner so as to encourage the voluntary settlement of the dispute in a fair and equitable manner;
4. After the conclusion of such a meeting, promptly prepare and distribute copies to all in attendance and to the project file, a summary memorandum that fairly and accurately identifies the positions of all parties and any understandings reached. If an agreement has not been reached, the CPM shall inform the complainant of the formal complaint process and requirements provided under Title 20, California Code of Regulations, section 1230, et. seq.

**Formal Dispute Resolution Procedure-Complaints and Investigations**

Any person may file a complaint with the Energy Commission's Dockets Unit alleging noncompliance with a Commission decision adopted pursuant to Public Resources Code section 25500. Requirements for complaint filings and a description of how complaints are processed are in Title 20, California Code of Regulations, section 1237.

# KEY EVENTS LIST

PROJECT: _____
DOCKET #: _____

COMPLIANCE PROJECT MANAGER: _____

| EVENT DESCRIPTION | DATE |
|---|---|
| Certification Date | |
| Obtain Site Control | |
| Online Date | |
| **POWER PLANT SITE ACTIVITIES** | |
| Start Site Mobilization | |
| Start Ground Disturbance | |
| Start Grading | |
| Start Construction | |
| Begin Pouring Major Foundation Concrete | |
| Begin Installation of Major Equipment | |
| Completion of Installation of Major Equipment | |
| First Combustion of Gas Turbine | |
| Obtain Building Occupation Permit | |
| Start Commercial Operation | |
| Complete All Construction | |
| **TRANSMISSION LINE ACTIVITIES** | |
| Start T/L Construction | |
| Synchronization with Grid and Interconnection | |
| Complete T/L Construction | |
| **FUEL SUPPLY LINE ACTIVITIES** | |
| Start Gas Pipeline Construction and Interconnection | |
| Complete Gas Pipeline Construction | |
| **WATER SUPPLY LINE ACTIVITIES** | |
| Start Water Supply Line Construction | |
| Complete Water Supply Line Construction | |

## COMPLIANCE TABLE 1
## SUMMARY of COMPLIANCE CONDITIONS OF CERTIFICATION

| CONDITION NUMBER | SUBJECT | DESCRIPTION |
|---|---|---|
| **COMPLIANCE-1** | Unrestricted Access | The project owner shall grant Energy Commission staff and delegate agencies or consultants unrestricted access to the power plant site. |
| **COMPLIANCE-2** | Compliance Record | The project owner shall maintain project files on-site. Energy Commission staff and delegate agencies shall be given unrestricted access to the files. |
| **COMPLIANCE-3** | Compliance Verification Submittals | The project owner is responsible for the delivery and content of all verification submittals to the CPM, whether such condition was satisfied by work performed or the project owner or his agent. |
| **COMPLIANCE-4** | Pre-construction Matrix and Tasks Prior to Start of Construction | Construction shall not commence until the all of the following activities/submittals have been completed:<br>• property owners living within one mile of the project have been notified of a telephone number to contact for questions, complaints or concerns,<br>• a pre-construction matrix has been submitted identifying only those conditions that must be fulfilled before the start of construction,<br>• all pre-construction conditions have been complied with,<br>• the CPM has issued a letter to the project owner authorizing construction. |
| **COMPLIANCE-5** | Compliance Matrix | The project owner shall submit a compliance matrix (in a spreadsheet format) with each monthly and annual compliance report which includes the status of all compliance Conditions of Certification. |

| | | |
|---|---|---|
| **COMPLIANCE-6** | Monthly Compliance Report including a Key Events List | During construction, the project owner shall submit Monthly Compliance Reports (MCRs) which include specific information. The first MCR is due the month following the Energy Commission business meeting date on which the project was approved and shall include an initial list of dates for each of the events identified on the Key Events List. |
| **COMPLIANCE-7** | Annual Compliance Reports | After construction ends and throughout the life of the project, the project owner shall submit Annual Compliance Reports instead of Monthly Compliance Reports. |
| **COMPLIANCE-8** | Confidential Information | Any information the project owner deems confidential shall be submitted to the Energy Commission's Executive Director with a request for confidentiality. |
| **COMPLIANCE-9** | Annual fees | Payment of Annual Energy Facility Compliance Fee |
| **COMPLIANCE-10** | Reporting of Complaints, Notices and Citations | Within 10 days of receipt, the project owner shall report to the CPM, all notices, complaints, and citations. |
| **COMPLIANCE-11** | Planned Facility Closure | The project owner shall submit a closure plan to the CPM at least 12 months prior to commencement of a planned closure. |
| **COMPLIANCE-12** | Unplanned Temporary Facility Closure | To ensure that public health and safety and the environment are protected in the event of an unplanned temporary closure, the project owner shall submit an on-site contingency plan no less than 60 days prior to commencement of commercial operation. |
| **COMPLIANCE-13** | Unplanned Permanent Facility Closure | To ensure that public health and safety and the environment are protected in the event of an unplanned permanent closure, the project owner shall submit an on-site contingency plan no less than 60 days prior to commencement of commercial operation. |
| **COMPLIANCE-14** | Post-certification changes to the Decision | The project owner must petition the Energy Commission to delete or change a Condition of Certification, modify the project design or operational requirements and/or transfer ownership of operational control of the facility. |

COMPLAINT LOG NUMBER:_____ DOCKET NUMBER:_____

PROJECT NAME:_____

## COMPLAINANT INFORMATION

NAME:_____ PHONE NUMBER:_____

ADDRESS:_____

## COMPLAINT

DATE COMPLAINT RECEIVED:_____ TIME COMPLAINT RECEIVED:_____

COMPLAINT RECEIVED BY: ☐ TELEPHONE ☐ IN WRITING (COPY ATTACHED)

DATE OF FIRST OCCURRENCE:_____

DESCRIPTION OF COMPLAINT (INCLUDING DATES, FREQUENCY, AND DURATION):_____

_____

_____

FINDINGS OF INVESTIGATION BY PLANT PERSONNEL:_____

_____

_____

DOES COMPLAINT RELATE TO VIOLATION OF A CEC REQUIREMENT? ☐ YES ☐ NO

DATE COMPLAINANT CONTACTED TO DISCUSS FINDINGS:_____

DESCRIPTION OF CORRECTIVE MEASURES TAKEN OR OTHER COMPLAINT RESOLUTION:_____

_____

_____

DOES COMPLAINANT AGREE WITH PROPOSED RESOLUTION? ☐ YES ☐ NO

IF NOT, EXPLAIN:_____

_____

## CORRECTIVE ACTION

IF CORRECTIVE ACTION NECESSARY, DATE COMPLETED:_____

DATE FIRST LETTER SENT TO COMPLAINANT (COPY ATTACHED):_____

DATE FINAL LETTER SENT TO COMPLAINANT (COPY ATTACHED):_____

OTHER RELEVANT INFORMATION:_____

_____

_____

*"This information is certified to be correct."*

PLANT MANAGER SIGNATURE:_____ DATE:_____

(ATTACH ADDITIONAL PAGES AND ALL SUPPORTING DOCUMENTATION, AS REQUIRED)

# IV. ENGINEERING ASSESSMENT

The broad engineering assessment of the Mariposa Energy Project (MEP) consists of separate analyses that examine its facility design, engineering, efficiency, and reliability aspects. These analyses include the on-site power generating equipment and the project-related linear facilities.

## A. FACILITY DESIGN

This review covers several technical disciplines including the civil, electrical, mechanical, and structural engineering elements related to project design and construction. The evidence on facility design was uncontested. (Exs. 1; 4; 5; 6; 11; 58; 64; 66; and 300.)

### SUMMARY AND DISCUSSION OF THE EVIDENCE

The Application for Certification (AFC) describes the preliminary facility design. In considering the adequacy of the plans, the Commission reviews whether the power plant and linear facilities are described with sufficient detail to assure the project can be designed and constructed in accordance with applicable engineering laws, ordinances, regulations, and standards (LORS). The review also includes, as appropriate, the identification of special design features that are necessary to deal with unique site conditions which could impact public health and safety, the environment, or the operational reliability of the project. (Ex. 300, pp. 5.1-1 to 5.1-2.)

The Conditions of Certification include a design review and construction inspection process to verify compliance with applicable standards and special requirements. (Ex. 300, p. 5.1-4.) The project will be designed and constructed in conformance with the latest edition of the California Building Standards Code (currently the 2007 CBSC) and other applicable codes and standards in effect at the time design approval and construction actually begin. (Ex. 300, p. 5.1-3.) Condition of Certification **GEN-1** incorporates this requirement.

Energy Commission Staff considered potential geological hazards and reviewed the preliminary project design with respect to grading, flood protection, erosion control, site drainage, and site access in addition to the criteria for designing and constructing related linear facilities such as the natural gas and transmission interconnection facilities. (Ex. 300, pp. 5.1-2 to 5.1-3; see also, the **Geology and**

**Paleontology** section of this Decision.) The evidence establishes that the project will incorporate accepted industry standards. This includes design practices and construction methods for preparing and developing the site. (Ex. 300, p. 5.1-3.) Conditions **CIVIL-1** through **CIVIL-4** ensure that these activities will be conducted in compliance with applicable LORS.

Major structures, systems, and equipment include those structures and associated components necessary for power production and facilities used for storage of hazardous or toxic materials, as well as those capable of becoming potential health and safety hazards if not constructed properly. (Ex. 300, p. 5.1-3.) **GEN-2** requires the project owner to furnish the compliance project manager (CPM) and chief building official (CBO) with a schedule of facility design submittals and master drawings and master specification list prior to submitting the initial engineering designs for CBO review. Conditions **GEN-3** through **GEN-8** require that qualified individuals oversee and inspect construction of the facility. Similarly, Conditions **MECH-1** through **MECH-3** address compliance of the project's mechanical systems with appropriate standards, and a quality assurance/quality control program assures that the project will be designed, procured, fabricated, and installed as described. Condition **ELEC-1** provides assurance that design and construction of major electrical features will comply with applicable LORS. Compliance with design requirements will be verified through specific inspections and audits. (Ex. 300, p. 5.1-4.)

The site lies within a seismically active area of California and is influenced by the San Joaquin Fault system. However, the site is not located within an Alquist-Priolo Earthquake Fault Zone or within the trace of any known active faults. (Ex. 300, p. 5.4-5.) The 2007 CBC requires specific "dynamic" lateral force procedures for certain structures to determine their seismic design criteria; others may be designed using a "static" analysis procedure. To ensure that project structures are analyzed appropriately, Condition **STRUC-1** requires the project owner to submit its proposed lateral force procedures to the Chief Building Official[4] (CBO) for review and approval prior to the start of construction. (Ex. 300, p. 5.1-3.)

[4] The Energy Commission is the CBO for facilities we certify. We may delegate CBO authority to local building officials and/or independent consultants to carry out design review and construction inspections. When CBO duties are delegated, we require a Memorandum of Understanding with the delegate entity to outline respective roles, responsibilities, and qualifications of involved individuals such as those described in Conditions of Certification **GEN-1** through **GEN-8**. (Ex. 300, p. 5.1-4.) The Conditions further require that every appropriate element of project construction be first approved by the CBO and that qualified personnel perform or oversee inspections.

The evidentiary record also addresses project closure, which may range from "mothballing" the facility to removing all equipment and restoring the site. (Ex. 300, pp. 5.1-4 to 5.1-5.) To ensure that decommissioning of the facility will conform to applicable LORS and be completed in a manner that protects the environment and public health and safety, the project owner is required to submit a decommissioning plan which will identify: decommissioning activities; applicable LORS in effect when decommissioning occurs; activities necessary to restore the site, if appropriate; and decommissioning alternatives. (*Id.*) The general closure provisions of the Compliance Monitoring and Closure Plan describe related requirements (see the **Compliance and Closure** section of this Decision.)

Overall, the evidentiary record conclusively establishes that the project will be designed and constructed in compliance with all applicable LORS, and that these activities will not negatively impact public health and safety.

## PUBLIC COMMENT

The public offered no comment on the subject of Facility Design.

## FINDINGS OF FACT

Based on the uncontroverted evidence, we make the following findings:

1. The MEP is currently in the preliminary design stage.

2. The proposed facility can be designed and constructed in conformity with the applicable laws, ordinances, regulations, and standards (LORS) set forth in the appropriate portion of **Appendix A** of this Decision.

3. The Conditions of Certification set forth below provide, in part, that qualified personnel will perform design review, plan checking, and field inspections of the project.
4. The Conditions of Certification set forth below are necessary to ensure that the project is designed and constructed both in accordance with applicable law and in a manner that protects environmental quality as well as public health and safety.

5. The **General Conditions,** included in the **Compliance and Closure** section of this Decision, establish requirements to be followed in the event of facility closure.

## CONCLUSION OF LAW

1. We therefore conclude that implementation of the Conditions of Certification listed below ensure that the MEP will be designed and constructed in conformance with the applicable LORS pertinent to the engineering aspects summarized in this section of the Decision.

## CONDITIONS OF CERTIFICATION

**GEN-1** The project owner shall design, construct, and inspect the project in accordance with the 2007 (or the latest edition in effect when initial project engineering designs are submitted for review) California Building Standards Code (CBSC), also known as Title 24, California Code of Regulations, which encompasses the California Building Code (CBC), California Building Standards Administrative Code, California Electrical Code, California Mechanical Code, California Plumbing Code, California Energy Code, California Fire Code, California Code for Building Conservation, California Reference Standards Code, and all other applicable engineering LORS in effect at the time initial design plans are submitted to the CBO for review and approval (the CBSC in effect is the edition that has been adopted by the California Building Standards Commission and published at least 180 days previously). The project owner shall ensure that all the provisions of the above applicable codes are enforced during the construction, addition, alteration, moving, demolition, repair, or maintenance of the completed facility. All transmission facilities (lines, switchyards, switching stations and substations) are covered in the conditions of certification in the **Transmission System Engineering** section of this Decision.

In the event that the initial engineering designs are submitted to the CBO when the successor to the 2007 CBSC is in effect, the 2007 CBSC provisions shall be replaced with the applicable successor provisions. Where, in any specific case, different sections of the code specify different materials, methods of construction or other requirements, the most restrictive shall govern. Where there is a conflict between a general requirement and a specific requirement, the specific requirement shall govern.

The project owner shall ensure that all contracts with contractors, subcontractors, and suppliers clearly specify that all work performed and materials supplied comply with the codes listed above.

Then project owner shall submit plans, calculations and other related documents that have been specifically developed for the MEP.

**Verification:** Five days prior to requesting the issuance of the certificate of occupancy, the project owner shall submit to the CPM and the CBO a statement

of verification, signed by the responsible design engineer, attesting that all designs, construction, installation, and inspection requirements of the applicable LORS and the Energy Commission's decision have been met in the area of facility design. The project owner shall provide the CPM a copy of the certificate of occupancy within 30 days of receipt from the CBO.

Once the certificate of occupancy has been issued, the project owner shall inform the CPM at least 30 days prior to any construction, addition, alteration, moving, demolition, repair, or maintenance to be performed on any portion(s) of the completed facility that requires CBO approval for compliance with the above codes. The CPM will then determine if the CBO needs to approve the work.

**GEN-2** Before submitting the initial engineering designs for CBO review, the project owner shall furnish the CPM and the CBO with a schedule of facility design submittals, and master drawings and master specifications list. The master drawings and master specifications list shall contain a list of proposed submittal packages of designs, calculations, and specifications for major structures, systems, and equipment. Major structures, systems, and equipment are structures and their associated components or equipment that are necessary for power production, costly or time consuming to repair or replace, are used for the storage, containment, or handling of hazardous or toxic materials, or could become potential health and safety hazards if not constructed according to applicable engineering LORS. The schedule shall contain the planned date of each submittal to the CBO. To facilitate audits by Energy Commission staff, the project owner shall provide specific packages to the CPM upon request. In addition to the design submittals referenced above, plans and calculations for all construction work shall be submitted to the CBO for approval.

**Verification:** At least 60 days (or a project owner- and CBO-approved alternative time frame) prior to the start of rough grading, the project owner shall submit to the CBO and to the CPM the schedule, and the master drawings and master specifications list of documents to be submitted to the CBO for review and approval. These documents shall be the pertinent design documents for the major structures, systems, and equipment defined above in Condition of Certification **GEN-2**. Major structures and equipment shall be added to or deleted from the list only with CPM approval. The project owner shall provide schedule updates in the monthly compliance report.

**GEN-3** The project owner shall make payments to the CBO for design review, plan checks, and construction inspections, based upon a reasonable fee schedule to be negotiated between the project owner and the CBO, in accordance with the 2007 CBC. These fees may be based on the value of the facilities reviewed; may be based on hourly rates; or may be otherwise agreed upon by the project owner and the CBO.

**Verification:** A copy of the contract between the project owner and the CBO shall be submitted to the CPM. The project owner shall make the required payments to the CBO in accordance with the agreement between the project owner and the CBO. The project owner shall send a copy of the CBO's receipt of payment to the CPM in the next monthly compliance report indicating that applicable fees have been paid.

**GEN-4** Prior to the start of rough grading, the project owner shall assign a California- registered architect, or a structural or civil engineer, as the resident engineer (RE) in charge of the project. All transmission facilities (lines, switchyards, switching stations, and substations) are addressed in the conditions of certification in the **Transmission System Engineering** section of this Decision.

The RE shall be aware of construction activities at the project site at all times. However, he/she is not required to be physically present at the job site as long as the construction work is being performed as delegated below. The RE may delegate responsibility for portions of the project to other registered engineers. Registered mechanical and electrical engineers may be delegated responsibility for mechanical, plumbing, and electrical portions of the project, respectively. A registered civil engineer may be delegated responsibility for civil engineering aspects of the project such as grading, storm water pollution prevention practices (SWPPP), storm water management practices (SWMP), drainage, erosion, sedimentation control programs (DESCP) and similar aspects of civil engineering. A project may be divided into parts, provided that each part is clearly defined as a distinct unit. Separate assignments of general responsibility may be made for each designated part.

The RE or his/her delegate shall:

1. Monitor progress of construction work requiring CBO design review and inspection to ensure compliance with LORS;

2. Ensure that construction of all facilities subject to CBO design review and inspection conforms in every material respect to applicable LORS, these conditions of certification, approved plans, and specifications;

3. Prepare documents to initiate changes in approved drawings and specifications when either directed by the project owner or as required by the conditions of the project;

4. Be responsible for providing project inspectors and testing agencies with complete and up-to-date sets of stamped drawings, plans, specifications, and any other required documents;

5. Be responsible for the timely submittal of construction progress reports to the CBO from the project inspectors, the contractor, and other engineers who have been delegated responsibility for portions of the project; and

6. Be responsible for notifying the CBO of corrective action or the disposition of items noted on laboratory reports or other tests when they do not conform to CBO-approved plans and specifications.

The resident engineer (or his delegate) must be located at the project site, or be available at the project site within a reasonable period of time, during any hours in which construction takes place.

The RE shall have the authority to halt construction and to require changes or remedial work if the work does not meet requirements.

If the RE or the delegated engineers are reassigned or replaced, the project owner shall submit the name, qualifications and registration number of the newly assigned engineer to the CBO for review and approval. The project owner shall notify the CPM of the CBO's approval of the new engineer.

**Verification:** At least 30 days (or project owner- and CBO-approved alternative time frame) prior to the start of rough grading, the project owner shall submit to the CBO for review and approval, the resume and registration number of the RE and any other delegated engineers assigned to the project. The project owner shall notify the CPM of the CBO's approvals of the RE and other delegated engineer(s) within five days of the approval.

If the RE or the delegated engineer(s) is subsequently reassigned or replaced, the project owner has five days to submit the resume and registration number of the newly assigned engineer to the CBO for review and approval. The project owner shall notify the CPM of the CBO's approval of the new engineer within five days of the approval.

**GEN-5** Prior to the start of rough grading, the project owner shall assign at least one of each of the following California registered engineers to the project: a civil engineer; a soils, geotechnical, or civil engineer experienced and knowledgeable in the practice of soils engineering; and an engineering geologist. Prior to the start of construction, the project owner shall assign at least one of each of the following California registered engineers to the project: a design engineer who is either a structural engineer or a civil engineer fully competent and proficient in the design of power plant structures and equipment supports; a mechanical engineer; and an electrical engineer. (California Business and Professions Code section 6704 et seq., and sections 6730, 6731 and 6736 require state registration to practice as a civil engineer or structural engineer in California). All transmission

facilities (lines, switchyards, switching stations, and substations) are handled in the conditions of certification in the **Transmission System Engineering** section of this Decision.

The tasks performed by the civil, mechanical, electrical, or design engineers may be divided between two or more engineers, as long as each engineer is responsible for a particular segment of the project (for example, proposed earthwork, civil structures, power plant structures, equipment support). No segment of the project shall have more than one responsible engineer. The transmission line may be the responsibility of a separate California registered electrical engineer.

The project owner shall submit, to the CBO for review and approval, the names, qualifications, and registration numbers of all responsible engineers assigned to the project.

If any one of the designated responsible engineers is subsequently reassigned or replaced, the project owner shall submit the name, qualifications and registration number of the newly assigned responsible engineer to the CBO for review and approval. The project owner shall notify the CPM of the CBO's approval of the new engineer.

A. The civil engineer shall:

1. Review the foundation investigations, geotechnical, or soils reports prepared by the soils engineer, the geotechnical engineer, or by a civil engineer experienced and knowledgeable in the practice of soils engineering;

2. Design (or be responsible for the design of), stamp, and sign all plans, calculations, and specifications for proposed site work, civil works, and related facilities requiring design review and inspection by the CBO. At a minimum, these include: grading, site preparation, excavation, compaction, construction of secondary containment, foundations, erosion and sedimentation control structures, drainage facilities, underground utilities, culverts, site access roads and sanitary sewer systems; and

3. Provide consultation to the RE during the construction phase of the project and recommend changes in the design of the civil works facilities and changes to the construction procedures.

4. Review, implement and monitor storm water pollution prevention practices (SWPPP).

5. Review, implement and monitor storm water management practices (SWMP).

6. Review, implement and monitor drainage, erosion, sedimentation control programs (DESCP).

7. Review, implement and monitor all other civil engineering (earthwork) aspects of the project.

B. The soils engineer, geotechnical engineer, or civil engineer experienced and knowledgeable in the practice of soils engineering, shall:

1. Review all the engineering geology reports;

2. Prepare the foundation investigations, geotechnical, or soils reports containing field exploration reports, laboratory tests, and engineering analysis detailing the nature and extent of the soils that could be susceptible to liquefaction, rapid settlement or collapse when saturated under load;

3. Be present, as required, during site grading and earthwork to provide consultation and monitor compliance with requirements set forth in the CBC (depending on the site conditions, this may be the responsibility of either the soils engineer, the engineering geologist, or both); and

4. Recommend field changes to the civil engineer and RE.

This engineer shall be authorized to halt earthwork and to require changes if site conditions are unsafe or do not conform to the predicted conditions used as the basis for design of earthwork or foundations.

C. The engineering geologist shall:

1. Review all the engineering geology reports and prepare a final soils grading report; and

2. Be present, as required, during site grading and earthwork to provide consultation and monitor compliance with the requirements set forth in the CBC (depending on the site conditions, this may be the responsibility of either the soils engineer, the engineering geologist, or both).

D. The design engineer shall:

1. Be directly responsible for the design of the proposed structures and equipment supports;

2. Provide consultation to the RE during design and construction of the project;

3. Monitor construction progress to ensure compliance with engineering LORS;

4. Evaluate and recommend necessary changes in design; and

5. Prepare and sign all major building plans, specifications, and calculations.

E. The mechanical engineer shall be responsible for, and sign and stamp a statement with, each mechanical submittal to the CBO, stating that the proposed final design plans, specifications, and calculations conform to all of the mechanical engineering design requirements set forth in the Energy Commission's decision.

F. The electrical engineer shall:

1. Be responsible for the electrical design of the project; and

2. Sign and stamp electrical design drawings, plans, specifications, and calculations.

**Verification:** At least 30 days (or project owner- and CBO-approved alternative time frame) prior to the start of rough grading, the project owner shall submit to the CBO for review and approval, resumes and registration numbers of the responsible civil engineer, soils (geotechnical) engineer and engineering geologist assigned to the project.

At least 30 days (or project owner- and CBO-approved alternative time frame) prior to the start of construction, the project owner shall submit to the CBO for review and approval, resumes and registration numbers of the responsible design engineer, mechanical engineer, and electrical engineer assigned to the project.

The project owner shall notify the CPM of the CBO's approvals of the responsible engineers within five days of the approval.

If the designated responsible engineer is subsequently reassigned or replaced, the project owner has five days in which to submit the resume and registration number of the newly assigned engineer to the CBO for review and approval. The project owner shall notify the CPM of the CBO's approval of the new engineer within five days of the approval.

**GEN-6** Prior to the start of an activity requiring special inspection, including prefabricated assemblies, the project owner shall assign to the project, qualified and certified special inspector(s) who shall be responsible for the special inspections required by the applicable edition of the CBC. All transmission facilities (lines, switchyards, switching stations, and

substations) are handled in conditions of certification in the **Transmission System Engineering** section of this Decision.

A certified welding inspector, certified by the American Welding Society (AWS), and/or American Society of Mechanical Engineers (ASME) as applicable, shall inspect welding performed on-site requiring special inspection (including structural, piping, tanks and pressure vessels).

The special inspector shall:

1. Be a qualified person who shall demonstrate competence, to the satisfaction of the CBO, for inspection of the particular type of construction requiring special or continuous inspection;

2. Inspect the work assigned for conformance with the approved design drawings and specifications;

3. Furnish inspection reports to the CBO and RE. All discrepancies shall be brought to the immediate attention of the RE for correction, then, if uncorrected, to the CBO and the CPM for corrective action; and

4. Submit a final signed report to the RE, CBO, and CPM, stating whether the work requiring special inspection was, to the best of the inspector's knowledge, in conformance with the approved plans, specifications, and other provisions of the applicable edition of the CBC.

**Verification:** At least 15 days (or project owner- and CBO-approved alternative time frame) prior to the start of an activity requiring special inspection, the project owner shall submit to the CBO for review and approval, with a copy to the CPM, the name(s) and qualifications of the certified weld inspector(s), or other certified special inspector(s) assigned to the project to perform one or more of the duties set forth above. The project owner shall also submit to the CPM a copy of the CBO's approval of the qualifications of all special inspectors in the next monthly compliance report.

If the special inspector is subsequently reassigned or replaced, the project owner has five days in which to submit the name and qualifications of the newly assigned special inspector to the CBO for approval. The project owner shall notify the CPM of the CBO's approval of the newly assigned inspector within five days of the approval.

**GEN-7** If any discrepancy in design and/or construction is discovered in any engineering work that has undergone CBO design review and approval, the project owner shall document the discrepancy and recommend required corrective actions. The discrepancy documentation shall be submitted to the CBO for review and approval.

The discrepancy documentation shall reference this condition of certification and, if appropriate, applicable sections of the CBC and/or other LORS.

**Verification:** The project owner shall transmit a copy of the CBO's approval of any corrective action taken to resolve a discrepancy to the CPM in the next monthly compliance report. If any corrective action is disapproved, the project owner shall advise the CPM, within five days, of the reason for disapproval and the revised corrective action to obtain CBO's approval.

**GEN-8** The project owner shall obtain the CBO's final approval of all completed work that has undergone CBO design review and approval. The project owner shall request the CBO to inspect the completed structure and review the submitted documents. The project owner shall notify the CPM after obtaining the CBO's final approval. The project owner shall retain one set of approved engineering plans, specifications, and calculations (including all approved changes) at the project site or at another accessible location during the operating life of the project. Electronic copies of the approved plans, specifications, calculations, and marked-up as-builts shall be provided to the CBO for retention by the CPM.

**Verification:** Within 15 days of the completion of any work, the project owner shall submit to the CBO, with a copy to the CPM, in the next monthly compliance report, (a) a written notice that the completed work is ready for final inspection, and (b) a signed statement that the work conforms to the final approved plans. After storing the final approved engineering plans, specifications, and calculations described above, the project owner shall submit to the CPM a letter stating both that the above documents have been stored and the storage location of those documents.

Within 90 days of the completion of construction, the project owner shall provide to the CBO three sets of electronic copies of the above documents at the project owner's expense. These are to be provided in the form of "read only" (Adobe) files, with restricted (password-protected) printing privileges, on archive quality compact discs.

**CIVIL-1** The project owner shall submit to the CBO for review and approval the following:

1. Design of the proposed drainage structures and the grading plan;
2. An erosion and sedimentation control plan;
3. An storm water pollution prevention plan (SWPPP);
4. Related calculations and specifications, signed and stamped by the responsible civil engineer; and

5. Soils, geotechnical, or foundation investigations reports required by the CBC.

**Verification:** At least 30 days (or project owner- and CBO-approved alternative time frame) prior to the start of site grading the project owner shall submit the documents described above to the CBO for design review and approval. In the next monthly compliance report following the CBO's approval, the project owner shall submit a written statement certifying that the documents have been approved by the CBO.

**CIVIL-2** The resident engineer shall, if appropriate, stop all earthwork and construction in the affected areas when the responsible soils engineer, geotechnical engineer, or the civil engineer experienced and knowledgeable in the practice of soils engineering identifies unforeseen adverse soil or geologic conditions. The project owner shall submit modified plans, specifications, and calculations to the CBO based on these new conditions. The project owner shall obtain approval from the CBO before resuming earthwork and construction in the affected area.

**Verification:** The project owner shall notify the CPM within 24 hours, when earthwork and construction is stopped as a result of unforeseen adverse geologic/soil conditions. Within 24 hours of the CBO's approval to resume earthwork and construction in the affected areas, the project owner shall provide to the CPM a copy of the CBO's approval.

**CIVIL-3** The project owner shall perform inspections in accordance with the CBC. All plant site-grading operations, for which a grading permit is required, shall be subject to inspection by the CBO.

If, in the course of inspection, it is discovered that the work is not being performed in accordance with the approved plans, the discrepancies shall be reported immediately to the resident engineer, the CBO, and the CPM. The project owner shall prepare a written report, with copies to the CBO and the CPM, detailing all discrepancies, non-compliance items, and the proposed corrective action.

**Verification:** Within five days of the discovery of any discrepancies, the resident engineer shall transmit to the CBO and the CPM a non-conformance report (NCR), and the proposed corrective action for review and approval. Within five days of resolution of the NCR, the project owner shall submit the details of the corrective action to the CBO and the CPM. A list of NCRs, for the reporting month, shall also be included in the following monthly compliance report.

**CIVIL-4** After completion of finished grading and erosion and sedimentation control and drainage work, the project owner shall obtain the CBO's approval of the final grading plans (including final changes) for the erosion and sedimentation control work. The civil engineer shall state

that the work within his/her area of responsibility was done in accordance with the final approved plans.

**Verification:** Within 30 days (or project owner- and CBO-approved alternative time frame) of the completion of the erosion and sediment control mitigation and drainage work, the project owner shall submit to the CBO, for review and approval, the final grading plans (including final changes) and the responsible civil engineer's signed statement that the installation of the facilities and all erosion control measures were completed in accordance with the final approved combined grading plans, and that the facilities are adequate for their intended purposes, along with a copy of the transmittal letter to the CPM. The project owner shall submit a copy of the CBO's approval to the CPM in the next monthly compliance report.

**STRUC-1** Prior to the start of any increment of construction, the project owner shall submit plans, calculations and other supporting documentation to the CBO for design review and acceptance for all project structures and equipment identified in the CBO-approved master drawing and master specifications list. The design plans and calculations shall include the lateral force procedures and details as well as vertical calculations.

Construction of any structure or component shall not begin until the CBO has approved the lateral force procedures to be employed in designing that structure or component.

The project owner shall:

1. Obtain approval from the CBO of lateral force procedures proposed for project structures;

2. Obtain approval from the CBO for the final design plans, specifications, calculations, soils reports, and applicable quality control procedures. If there are conflicting requirements, the more stringent shall govern (for example, highest loads, or lowest allowable stresses shall govern). All plans, calculations, and specifications for foundations that support structures shall be filed concurrently with the structure plans, calculations, and specifications;

3. Submit to the CBO the required number of copies of the structural plans, specifications, calculations, and other required documents of the designated major structures prior to the start of on-site fabrication and installation of each structure, equipment support, or foundation;

4. Ensure that the final plans, calculations, and specifications clearly reflect the inclusion of approved criteria, assumptions, and

methods used to develop the design. The final designs, plans, calculations, and specifications shall be signed and stamped by the responsible design engineer; and

5. Submit to the CBO the responsible design engineer's signed statement that the final design plans conform to applicable LORS.

**Verification:** At least 60 days (or project owner- and CBO-approved alternative time frame) prior to the start of any increment of construction of any structure or component listed in the CBO-approved master drawing and master specifications list, the project owner shall submit to the CBO the above final design plans, specifications and calculations, with a copy of the transmittal letter to the CPM.

The project owner shall submit to the CPM, in the next monthly compliance report, a copy of a statement from the CBO that the proposed structural plans, specifications, and calculations have been approved and comply with the requirements set forth in applicable engineering LORS.

**STRUC-2** The project owner shall submit to the CBO the required number of sets of the following documents related to work that has undergone CBO design review and approval:

1. Concrete cylinder strength test reports (including date of testing, date sample taken, design concrete strength, tested cylinder strength, age of test, type and size of sample, location and quantity of concrete placement from which sample was taken, and mix design designation and parameters);

2. Concrete pour sign-off sheets;

3. Bolt torque inspection reports (including location of test, date, bolt size, and recorded torques);

4. Field weld inspection reports (including type of weld, location of weld, inspection of non-destructive testing (NDT) procedure and results, welder qualifications, certifications, qualified procedure description or number (ref: AWS); and

5. Reports covering other structural activities requiring special inspections shall be in accordance with the CBC.

**Verification:** If a discrepancy is discovered in any of the above data, the project owner shall, within five days, prepare and submit an NCR describing the nature of the discrepancies and the proposed corrective action to the CBO, with a copy of the transmittal letter to the CPM. The NCR shall reference the condition(s) of certification and the applicable CBC chapter and section. Within

five days of resolution of the NCR, the project owner shall submit a copy of the corrective action to the CBO and the CPM.

The project owner shall transmit a copy of the CBO's approval or disapproval of the corrective action to the CPM within 15 days. If disapproved, the project owner shall advise the CPM, within five days, the reason for disapproval, and the revised corrective action to obtain CBO's approval.

**STRUC-3** The project owner shall submit to the CBO design changes to the final plans required by the CBC, including the revised drawings, specifications, calculations, and a complete description of, and supporting rationale for, the proposed changes, and shall give to the CBO prior notice of the intended filing.

**Verification:** On a schedule suitable to the CBO, the project owner shall notify the CBO of the intended filing of design changes, and shall submit the required number of sets of revised drawings and the required number of copies of the other above-mentioned documents to the CBO, with a copy of the transmittal letter to the CPM. The project owner shall notify the CPM, via the monthly compliance report, when the CBO has approved the revised plans.

**STRUC-4** Tanks and vessels containing quantities of toxic or hazardous materials exceeding amounts specified in the CBC shall, at a minimum, be designed to comply with the requirements of that chapter.

**Verification:** At least 30 days (or project owner- and CBO-approved alternate time frame) prior to the start of installation of the tanks or vessels containing the above specified quantities of toxic or hazardous materials, the project owner shall submit to the CBO for design review and approval final design plans, specifications, and calculations, including a copy of the signed and stamped engineer's certification.

The project owner shall send copies of the CBO approvals of plan checks to the CPM in the following monthly compliance report. The project owner shall also transmit a copy of the CBO's inspection approvals to the CPM in the monthly compliance report following completion of any inspection.

**MECH-1** The project owner shall submit, for CBO design review and approval, the proposed final design, specifications and calculations for each plant major piping and plumbing system listed in the CBO-approved master drawing and master specifications list. The submittal shall also include the applicable QA/QC procedures. Upon completion of construction of any such major piping or plumbing system, the project owner shall request the CBO's inspection approval of that construction.

The responsible mechanical engineer shall stamp and sign all plans, drawings, and calculations for the major piping and plumbing systems, subject to CBO design review and approval, and submit a signed

statement to the CBO when the proposed piping and plumbing systems have been designed, fabricated, and installed in accordance with all of the applicable laws, ordinances, regulations and industry standards, which may include, but are not limited to:

- American National Standards Institute (ANSI) B31.1 (Power Piping Code);
- ANSI B31.2 (Fuel Gas Piping Code);
- ANSI B31.3 (Chemical Plant and Petroleum Refinery Piping Code);
- ANSI B31.8 (Gas Transmission and Distribution Piping Code);
- Title 24, California Code of Regulations, Part 5 (California Plumbing Code);
- Title 24, California Code of Regulations, Part 6 (California Energy Code, for building energy conservation systems and temperature control and ventilation systems);
- Title 24, California Code of Regulations, Part 2 (California Building Code); and
- Alameda County codes.

The CBO may deputize inspectors to carry out the functions of the code enforcement agency.

**Verification:** At least 30 days (or project owner- and CBO-approved alternative time frame) prior to the start of any increment of major piping or plumbing construction listed in the CBO-approved master drawing and master specifications list, the project owner shall submit to the CBO for design review and approval the final plans, specifications, and calculations, including a copy of the signed and stamped statement from the responsible mechanical engineer certifying compliance with applicable LORS, and shall send the CPM a copy of the transmittal letter in the next monthly compliance report.

The project owner shall transmit to the CPM, in the monthly compliance report following completion of any inspection, a copy of the transmittal letter conveying the CBO's inspection approvals.

**MECH-2** For all pressure vessels installed in the plant, the project owner shall submit to the CBO and California Occupational Safety and Health Administration (Cal-OSHA), prior to operation, the code certification papers and other documents required by applicable LORS. Upon completion of the installation of any pressure vessel, the project owner shall request the appropriate CBO and/or Cal-OSHA inspection of that installation.

The project owner shall:

1. Ensure that all boilers and fired and unfired pressure vessels are designed, fabricated, and installed in accordance with the appropriate section of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, or other applicable code. Vendor certification, with identification of applicable code, shall be submitted for prefabricated vessels and tanks; and

2. Have the responsible design engineer submit a statement to the CBO that the proposed final design plans, specifications, and calculations conform to all of the requirements set forth in the appropriate ASME Boiler and Pressure Vessel Code or other applicable codes.

**Verification:** At least 30 days (or project owner- and CBO-approved alternative time frame) prior to the start of on-site fabrication or installation of any pressure vessel, the project owner shall submit to the CBO for design review and approval, the above listed documents, including a copy of the signed and stamped engineer's certification, with a copy of the transmittal letter to the CPM.

The project owner shall transmit to the CPM, in the monthly compliance report following completion of any inspection, a copy of the transmittal letter conveying the CBO's and/or Cal-OSHA inspection approvals.

**MECH-3** The project owner shall submit to the CBO for design review and approval the design plans, specifications, calculations, and quality control procedures for any heating, ventilating, air conditioning (HVAC) or refrigeration system. Packaged HVAC systems, where used, shall be identified with the appropriate manufacturer's data sheets.

The project owner shall design and install all HVAC and refrigeration systems within buildings and related structures in accordance with the CBC and other applicable codes. Upon completion of any increment of construction, the project owner shall request the CBO's inspection and approval of that construction. The final plans, specifications and calculations shall include approved criteria, assumptions, and methods used to develop the design. In addition, the responsible mechanical engineer shall sign and stamp all plans, drawings and calculations and submit a signed statement to the CBO that the proposed final design plans, specifications and calculations conform with the applicable LORS.

**Verification:** At least 30 days (or project owner- and CBO-approved alternative time frame) prior to the start of construction of any HVAC or refrigeration system, the project owner shall submit to the CBO the required HVAC and refrigeration calculations, plans, and specifications, including a copy

of the signed and stamped statement from the responsible mechanical engineer certifying compliance with the CBC and other applicable codes, with a copy of the transmittal letter to the CPM.

**ELEC-1** Prior to the start of any increment of electrical construction for all electrical equipment and systems 480 Volts or higher (see a representative list, below), with the exception of underground duct work and any physical layout drawings and drawings not related to code compliance and life safety, the project owner shall submit, for CBO design review and approval, the proposed final design, specifications, and calculations. Upon approval, the above listed plans, together with design changes and design change notices, shall remain on the site or at another accessible location for the operating life of the project. The project owner shall request that the CBO inspect the installation to ensure compliance with the requirements of applicable LORS. All transmission facilities (lines, switchyards, switching stations, and substations) are handled in conditions of certification in the **Transmission System Engineering** section of this Decision.

A. Final plant design plans shall include:

1. one-line diagrams for the 13.8 kV, 4.16 kV and 480 V systems; and

2. system grounding drawings.

B. Final plant calculations must establish:

1. short-circuit ratings of plant equipment;

2. ampacity of feeder cables;

3. voltage drop in feeder cables;

4. system grounding requirements;

5. coordination study calculations for fuses, circuit breakers and protective relay settings for the 13.8 kV, 4.16 kV and 480 V systems;

6. system grounding requirements; and

7. lighting energy calculations.

C. The following activities shall be reported to the CPM in the monthly compliance report:

1. Receipt or delay of major electrical equipment;

2. Testing or energization of major electrical equipment; and

3. A signed statement by the registered electrical engineer certifying that the proposed final design plans and specifications conform to requirements set forth in the Energy Commission decision.

**Verification:** At least 30 days (or project owner and CBO-approved alternative time frame) prior to the start of each increment of electrical construction, the project owner shall submit to the CBO for design review and approval the above listed documents. The project owner shall include in this submittal a copy of the signed and stamped statement from the responsible electrical engineer attesting compliance with the applicable LORS, and shall send the CPM a copy of the transmittal letter in the next monthly compliance report.

## B. POWER PLANT EFFICIENCY

The Mariposa Energy Project (MEP) will use substantial amounts of natural gas for its fuel. Pursuant to the California Environmental Quality Act (CEQA), we must determine whether the consumption of this non-renewable form of energy will result in substantial impacts upon energy resources. (Cal. Code Regs., tit. 14, § 15126.4(a)(1), App.F.)

The evidence on this matter is uncontested and examines the project's energy requirements and energy use efficiency; effects on local and regional energy supplies and resources; requirements for additional energy supply capacity; and compliance with applicable energy standards. In addition, the evidence addresses whether there are feasible alternatives which would reduce any wasteful, inefficient, or unnecessary energy consumption attributable to the project. (Exs. 1 and 300.)

### SUMMARY AND DISCUSSION OF THE EVIDENCE

The project involves building and operating a 200 MW (nominal net output) natural gas fired, simple cycle electrical generating facility in Alameda County near the existing 6.5 MW Byron Power Cogen Plant. The Applicant intends to operate the plant's four GE LM6000PC SPRINT combustion turbine generators no more than 4,000 hours per year (approximately 46 percent of the year). Each combustion turbine generator will utilize a selective catalytic reduction system for air emissions control and an inlet air fogger to maintain maximum output and efficiency at escalated temperatures. (Ex. 300, pp. 5.3-1 to 5.3-2.)

At full load operation, the MEP is expected to consume natural gas at a maximum rate of 1,926 million British thermal units (MMBtu) per hour higher heating value (HHV). This is a substantial rate of energy consumption and could potentially impact energy supplies. Under expected project conditions, electricity will be generated at a thermal efficiency of approximately 38 percent (lower heating value (LHV) at full load operation. (Ex. 300, p. 5.3-2)

The MEP will be configured as four simple cycle power plants in parallel, in which electricity is generated by one natural gas-fired turbine generator per plant, four combustion turbine generators (CTG) total. This configuration, with its short start-up time and fast ramping[1] capability, is well suited to providing peaking power.

[1] "Ramping" is increasing and decreasing electrical output to meet fluctuating load requirements.

Further, when reduced output is required, one or more of the turbine generators can be shut down, allowing the remaining machines to produce a percentage of the full power at optimum efficiency, rather than operating a single, larger machine at a less efficient part load output. (Ex. 300, p. 5.3-3.)

The project objectives are to provide additional operationally flexible power generation to support intermittent renewable resources, such as solar and wind facilities, and to provide peak electricity generation to meet projected summer load. The Applicant expects that the MEP will mostly operate to meet peak demand and during periods when intermittent renewable resources experience fluctuation. The evidence establishes that a simple cycle configuration is consistent with and supports this expectation due to its operating flexibility. (Ex. 300, p. 5.3-3.)

Though the Applicant seeks to permit the project for 4,000 operating hours, the Applicant expects this facility to operate in peaking duty for approximately 600 hours per year on average; a capacity factor of about 7 percent. (Ex. 300, p. 5.3-3.)

Modern gas turbines embody the most fuel-efficient generating technology currently available. The turbines can be grouped into three categories: conventional; advanced; and next generation. The record contains an analysis of the equipment proposed for the project. It indicates that the LM6000PC Sprint gas turbine to be employed is an advanced turbine, and one of the most modern and efficient machines available. Alternatives to this turbine offer no significant improvements in actual operating efficiency. (Ex. 300, pp. 5.3-4 to 5.3-5.) The evidence also shows that the use of a mechanical chiller for gas turbine inlet air cooling is appropriate since the alternative – the evaporative cooler – offers no real efficiency benefit. (Ex. 300, p. 5.3-5.)

Natural gas for the MEP will be supplied by a new 4-inch-diameter natural gas pipeline that will interconnect with an existing Pacific Gas & Electric (PG&E) transmission line located 580 feet from the project site. The evidence conclusively establishes that PG&E's present fuel supply capacity is sufficient to meet the demands of the MEP. (Ex. 300, pp. 5.3-2 to 5.3.-3.) Moreover, the evidence shows that only natural gas burning technologies are feasible for this project. Other technologies such as solar, biomass, waste-to-energy, hydroelectric, wind, and geothermal were all considered but cannot meet project objectives, are simply not feasible, or are commercially unavailable. (Ex. 300, p. 5.3-4.)



Efficiency

In conclusion, the uncontradicted evidence shows that the MEP will help meet local electricity generation resource adequacy requirements for the northern California bay area. While it will consume substantial amounts of energy, it will do so in the most efficient manner practicable. It will not create significant adverse effects on energy supplies or resources, will not require additional sources of energy supply, and will not consume energy in a wasteful or inefficient manner. (Ex. 300, p. 5.3-6.)

## PUBLIC COMMENT

The public offered no comment on power plant efficiency.

## FINDINGS OF FACT

Based on the uncontroverted evidence, we make the following findings:

1. The MEP will provide approximately 200 MW of base load electrical power, operate in simple cycle mode, and utilize four GE SPRINT LM6000PC combustion turbine generators.

2. At full load operation, the project will generate electricity at an overall fuel efficiency of approximately 38 percent LHV.

3. The MEP's configuration with four simple cycle power plants in parallel, with a short start-up time and fast ramping capability, is well suited to providing peaking power.

4. Use of the four GE SPRINT LM6000PC combustion turbine generators is appropriate for the MEP.

5. The project will not require the development of new fuel supply resources.

6. The project will consume natural gas in as efficient a manner as practicable.

7. The record contains a comparative analysis of alternative fuel sources and generation technologies, none of which is superior to the proposed project at meeting project objectives in an efficient manner.

8. The MEP will help meet local electricity generation resource adequacy requirements for the northern California bay area.

## CONCLUSIONS OF LAW

1. The MEP will not create adverse effects upon energy supplies or resources, require additional sources of energy supply, or consume energy in a wasteful or inefficient manner. No federal, state, or local laws, ordinances, regulations, or standards apply to the efficiency of this project.

2. No Conditions of Certification are required for this topic area.

## C. POWER PLANT RELIABILITY

We must determine whether the project will be appropriately designed and sited in order to ensure safe and reliable operation. [Pub. Res. Code, § 25520(b); Cal. Code Regs., tit. 20, § 1752(c)(2).] However, there are no LORS that establish either power plant reliability criteria or procedures for attaining reliable operation.

The responsibility for maintaining system reliability falls largely to control area operators such as the California Independent System Operator (CAISO) that purchase, dispatch, and sell electric power throughout the state. (Ex. 300, p. 5.4-1.) Protocols to ensure sufficient electrical system reliability are still being developed. For example, "must run" power purchase agreements and "participating generator" agreements are two mechanisms that contribute to an adequate supply of reliable power. The CAISO requires that power plants selling ancillary services, as well as those holding reliability must run contracts, fulfill certain requirements, including:

- Filing periodic reports on plant reliability;
- Reporting all outages and their causes; and
- Scheduling all planned maintenance outages with the CAISO

According to the evidence, summarized below, these criteria have been developed on the assumption that individual power plants in the current competitive market will continue to exhibit historical reliability levels. (Ex. 300, p. 5.4-2.) However, it is possible that, if numerous power plants operated at reliability levels sufficiently lower than historical levels, this assumption would prove invalid. Therefore, to ensure adequate system reliability, we examine whether individual power plants will be built and operated to the traditional level of reliability reflected in the power generation industry because, where a power plant compares favorably to industry norms, it is not likely to degrade the overall reliability of the electric system it serves. (Ex. 300, p. 5.4-2.) The evidence presented on this topic was uncontested. (Exs. 1; 300.)

### SUMMARY AND DISCUSSION OF THE EVIDENCE

Applicant intends that the Mariposa Energy Project (MEP) provide operating flexibility and rapid start capability, i.e. the ability to quickly start up and provide efficient part load and base load power. It expects an annual availability factor[1] of

[1] This is the percentage of time that the power plant is available to generate power.

92 to 98 percent for the project. Both planned and unplanned outages subtract from a plant's availability. For practical purposes, a reliable power plant is one that is available when called upon to operate. The evidence shows that delivering acceptable reliability entails: 1) adequate levels of equipment availability; 2) plant maintainability with scheduled maintenance outages; 3) fuel and water availability; and 4) resistance to natural hazards, comparison to industry norms. (Ex. 300, p. 5.4-3.)

The record, summarized below, contains an evaluation of the proposed project against typical industry norms as a benchmark for assessing plant reliability.

1. Equipment Availability

Equipment availability will be ensured by use of appropriate quality assurance/quality control (QA/QC) programs during design, procurement, construction, and operation of the plant and by providing adequate maintenance and repair of the equipment and systems. The project owner will use a QA/QC program typical in the power industry. Equipment will be purchased from qualified suppliers and the project owner will perform receipt inspections, test components, and administer independent testing contracts. To ensure these measures are taken, we have incorporated appropriate Conditions of Certification in the **Facility Design** section of this Decision. (Ex. 300, p. 5.4-3.)

2. Plant Maintainability

A peaking generating facility commonly offers adequate opportunity for maintenance work during its downtime; the Applicant expects to operate the MEP approximately 600 hours per year, or about seven percent of the year. During periods of extended dispatch, however, as could occur if other major generating or transmission assets were disabled, the facility may be required to operate for extended periods. A typical approach for achieving reliability in such circumstances is to provide redundant examples of those pieces of equipment most likely to require service or repair. (Ex. 300, p. 5.4-4.)

The Applicant plans to provide appropriate redundancy of function for the project. The fact that the project consists of four combustion turbine-generator sets operating in parallel as independent equipment trains provides inherent reliability. A single equipment failure cannot disable more than one train, thus allowing the plant to continue to generate (at reduced output). Further, all plant ancillary systems are also designed with adequate redundancy to ensure continued

operation in the face of equipment failure. The evidence shows that equipment redundancy would be sufficient for a project such as this. (Ex. 300, p. 5.4-4.)

The project owner will establish a maintenance program typical of the power generation industry and based on recommendations from the various equipment manufacturers. This will encompass both preventive and predictive maintenance techniques. Maintenance outages will likely be planned for periods of low electricity demand. The evidence establishes that these measures will ensure acceptable reliability. (Ex. 300, p. 5.4-4.)

3. Fuel and Water Availability

For any power plant the long-term availability of fuel, and water for cooling or process use, is necessary to ensure reliability. The MEP will burn natural gas supplied by Pacific Gas & Electric (PG&E) from its system. Natural gas fuel will be supplied to the project via a new 4-inch-diameter pipeline extending 580 feet to interconnect with an existing PG&E transmission line. The evidence establishes that this line offers access to adequate supplies of gas to meet the project's needs. (Ex. 300, p. 5.4-4.)

The MEP will obtain raw water from the Byron Bethany Irrigation District (BBID) via a new 6-inch-diameter, 1.8-mile-long pipeline. Raw water would be used as service water, chiller make-up and fire protection. A portion would be demineralized and stored for use as gas turbine SPRINT injection water, combustor injection water, and turbine wash water. Potable water would also be obtained from the BBID. The evidence establishes that this source yields sufficient likelihood of a reliable supply of water. (For further discussion of water supply, see the **Soil and Water Resources** section of this Decision.) (Ex. 300, p. 5.4-4.)

4. Natural Hazards

The site lies within a seismically active area of California and is influenced by the San Joaquin Fault system. However, the site is not located within an Alquist-Priolo Earthquake Fault Zone or within the trace of any known active faults; see the "Faulting and Seismicity" portion of the **Geology and Paleontology** section of this Decision. The project will be designed and constructed to the latest applicable LORS. By implementing these seismic design criteria, this project will likely perform at least as well as, and perhaps better than, existing plants in the electric power system. We have adopted Conditions of Certification in the

**Facility Design** section of this Decision to ensure this occurs. Although the site is within the 100-year floodplain, the evidence similarly shows that compliance with these Conditions will adequately preserve the project's functional reliability. (Ex. 300, p. 5.4-5.)

The site does not lie within either a 100 or 500-year floodplain. With proper plant design (ensured by adherence to the proposed **Facility Design** Conditions of Certification), there would be no significant concerns with power plant functional reliability due to flooding. (Ex. 300, p. 5.4-5.)

5. Comparison to Industry Norms

The North American Electric Reliability Corporation (NERC) maintains industry statistics for availability factors and other related reliability data. NERC currently reports summary generating unit statistics for the years 2002 through 2006 which demonstrate an availability factor of about 91.82 percent for gas turbine units (50 MW and larger). The MEP's gas turbine has been on the market for several years and is expected to exhibit typically high availability, outperforming many of the older existing turbines. We are thus persuaded by the evidence that the project will likely reach its predicted annual availability factor of 92 to 98 percent. (Ex. 300, pp. 5.4-5 to 5.4-6.)

Finally, the evidence shows that the MEP will provide peaking power to provide local generating capacity and to provide back-up to as-available renewable resources. The evidence characterizes these factors as "noteworthy projects benefits." (Ex. 300, p. 5.4-6.)

## PUBLIC COMMENT

The public offered no comment on power plant efficiency.

## FINDINGS OF FACT

Based on the uncontested evidence, we make the following findings:

1. No federal, state, or local/county laws, ordinances, regulations, or standards apply to the reliability of the Mariposa Energy Project.

2. A project's reliability is acceptable if it does not degrade the reliability of the utility system to which it is connected.

3. The North American Electric Reliability Corporation reports that, for the years 2002 through 2006, gas turbine units (50 MW or larger) exhibited an availability factor of about 91.82 percent.

4. An availability factor of 92 to 98 percent is achievable by the MEP.

5. Implementation of Quality Assurance/Quality Control (QA/QC) programs during design, procurement, construction, and operation of the plant, as well as adequate maintenance and repair of the equipment and systems, will ensure the project is adequately reliable.

6. Appropriate Conditions of Certification included in the **Facility Design** section of this Decision ensure implementation of the QA/QC programs and conformance with seismic design criteria.

7. The MEP's fuel and water supplies will be reliable.

8. The MEP will meet or exceed industry norms for reliability, including reliability during seismic events, and will not degrade the overall electrical system.

9. The MEP will incorporate an appropriate redundancy of function for its equipment.

10. The MEP will provide peaking power to provide local generating capacity and to provide back-up to as-available renewable resources.

## CONCLUSIONS OF LAW

1. We therefore conclude that the MEP will meet industry norms and not degrade the overall reliability of the electrical system. There are no LORS that establish either power plant reliability criteria or procedures for attaining reliable operation.

2. No Conditions of Certification are required for this topic area.

## D. TRANSMISSION SYSTEM ENGINEERING

The Energy Commission's jurisdiction includes "…any electric power line carrying electric power from a thermal power plant…to a point of junction with an interconnected transmission system." (Pub. Res. Code, § 25107.) The Energy Commission assesses the engineering and planning design of new transmission facilities associated with a proposed project to ensure compliance with applicable law. The Commission also conducts an environmental review of the "whole of the action" related to the power plant proposal. This may include examining the environmental effects of facilities made necessary by the construction and operation of the proposed power plant but not licensed by the Energy Commission. (Cal. Code Regs., tit. 14 § 15378.)

Pacific Gas and Electric (PG&E) is responsible for ensuring electric system reliability in the PG&E system with the addition of the proposed generating plant. PG&E has provided its analysis and reports in the form of their Phase 1 and Phase 2 Interconnection Studies, and its approval for the facilities based upon changes required in the PG&E system to accommodate the addition of the proposed transmission modifications. (Exs. 23; 51.)

The California Independent System Operator (CAISO) is responsible for ensuring electric system reliability for all participating transmission owners and is also responsible for developing the standards necessary to achieve system reliability. The CAISO will review the studies of the PG&E system to ensure adequacy of the proposed transmission interconnection. The CAISO will also determine the reliability impacts of the proposed and potential transmission modifications on the PG&E transmission system in accordance with all applicable reliability criteria. According to the CAISO tariffs, the CAISO will determine the need for transmission additions or upgrades downstream from the interconnection point to insure reliability of the transmission grid. The CAISO will review and complete the Phase 2 Interconnection Study performed by PG&E and/or third party, provide their analysis, conclusions, and recommendations. The CAISO would execute a Large Generator Interconnection Agreement (LGIA) with the project owner.

The laws, ordinances regulations and standards (LORS) by which we have evaluated the MEP's transmission system engineering is summarized below and detailed in Appendix A of this decision.

- California Public Utilities Commission (CPUC) General Order 95 (GO-95), "Rules for Overhead Electric Line Construction,"
- California Public Utilities Commission (CPUC) General Order 128 (GO-128), "Rules for Construction of Underground Electric Supply and Communications Systems,"
- The National Electric Safety Code, 2007 provides electrical, mechanical, civil and structural requirements for overhead electric line construction and operation.
- The North American Electric Reliability Corporation (NERC) Reliability Standards define the plans, policies & procedures, methodologies & system models, coordination & responsibilities, and performance criteria for reliable planning, control and operation of the North American Bulk Electric System (BES) over broad spectrum of system conditions and following a wide range of probable disturbances.
- The Western Electric Coordinating Council (WECC) Regional System Performance Criteria is similar to the system performance limits as defined in NERC transmission planning standards.
- California ISO Planning Standards also provide standards and guidelines to ensure the adequacy, security and reliability in the planning of the California ISO grid transmission facilities.
- California ISO/FERC Electric Tariff provides rules, procedures and guidelines for construction of all transmission additions/upgrades (projects) within the California ISO controlled grid.

The evidence in the record evaluating the MEP's effects on transmission system engineering was not contested by any party. (Exs.1; 4; 5; 6; 7; 8; 11; 23; 25; 26; 51; 61; 301.)

## SUMMARY AND DISCUSSION OF THE EVIDENCE

1. Project Description

The project would consist of four natural gas-fired GE combustion turbine generator (CTG) units (LM6000 PC-Sprint model) operating in simple cycle mode with a total of 195.9 MW nominal net output. Each CTG unit rated 71.176 MVA, 13.8 kV would be connected through a 4,000-ampere non-segregated bus duct and a 4,000-ampere, 15 kV breaker to the low voltage terminal of a dedicated generator step-up (GSU) 36/48/60/67.2 MVA 13.8/230 kV transformer with a specified impedance of 8.3 percent @36 MVA. (Ex. 1).

The new MEP switchyard would be interconnected to the existing Kelso substation 230 kV bus by building a new 0.75-mile long 230 kV single circuit overhead line with 795 kcmil steel-reinforced aluminum conductors (ACSR). The line would be built on eight 84-95 foot steel tubular poles. It would run generally north from the project site, staying east of the Byron Power Cogeneration Plant, crossing Kelso Road, and staying east of the PG&E Bethany Compressor station. The line would turn west just north of the Kelso substation, and then turn south to the Kelso substation. It would remain within the fence line of 158-acre Lee parcel and the PG&E parcel in the north with the exception of the crossing of Kelso Road. The Applicant would build, own and operate the MEP switchyard and the generator 230 kV overhead tie line.

The configuration of the MEP switchyard, the generator interconnection tie line and its termination at the PG&E Kelso 230 kV substation would, as conditioned, accord with industry standards and good utility practices. Conditions of Certification **TSE 1** to **TSE 7** insure that the proposed facilities are designed, built and operated in accordance with good utility practices and applicable LORS. (Ex. 301, p. 5-5.6.)

In addition, CAISO concluded in the Phase 2 Group Study that the addition of the MEP would contribute to new overloads on four 230 kV transmission lines and assigned the MEP a significant portion of the cost responsibility for network upgrades to mitigate the overloads. The mitigation options for which the MEP is responsible include re-rating of the Lone Tree-USWP JW Ranch and the USWP JW Ranch-Cayetona 230 kV lines, and reconductoring of the following two lines with higher size conductors:

- Kelso-USWP RLF 230 kV line (3.3 miles); and
- USWP RLF-Tesla 230 kV line (4.7 miles).

These two lines are immediately downstream of the proposed interconnection of the MEP and their reconductorings are considered as project impacts. PG&E would do the construction work for reconductoring the line within their Right of Way. Since the reconductorings are considered “part of the whole” of the project, the potential environmental impacts of these downstream reconductorings were analyzed by the Applicant’s consultants and by Commission staff. (Exs 1; 11; 301, App. A.)

## 2. Results of Transmission Studies

The Phase 1 and Phase 2 Studies, conducted by the CAISO in coordination with PG&E, analyze the grid with and without the several generation queue projects (cluster group) which includes the MEP. The addition of these projects to the grid is analyzed under conditions specified in the planning standards and reliability criteria and establish the thresholds through which grid reliability is determined. The studies analyze the impact of the project for the first year of operation and thus are based on a forecast of loads, generation, and transmission for 2013. Generation and transmission forecasts are established by an interconnection queue of the projects in the cluster. The studies are focused on thermal overloads, deliverability assessment, voltage deviations or reactive power deficiency, system stability (excessive oscillations in generators and transmission system, voltage collapse, loss of loads, or cascading outages), short circuit duties and operational studies.

The Phase 2 Group study report provides the combined impacts of all transition queue projects as well as the impacts of the MEP on the transmission grid. Where the Phase 2 Studies shows that the interconnection of the cluster queue projects causes the grid to be out of compliance with reliability standards, then the study will identify mitigation alternatives or ways in which the grid could be brought into compliance with reliability standards. If the mitigation identified by CAISO or interconnecting utility includes downstream transmission facilities modifications or additions that require CEQA review for potential indirect impacts of the project as part of the “whole of the action,” the Energy Commission must analyze the environmental impacts of these modifications or additions according to the CEQA requirements.

The Phase 2 study used four power flow base cases: two for reliability assessment and two for deliverability assessment with the following system conditions:

- A 2013 summer peak base case.
- A 2013 summer off-peak base case.

The various studies contained in the Transition Cluster Phase 2 Interconnection Study are summarized below:

a. Power Flow Study

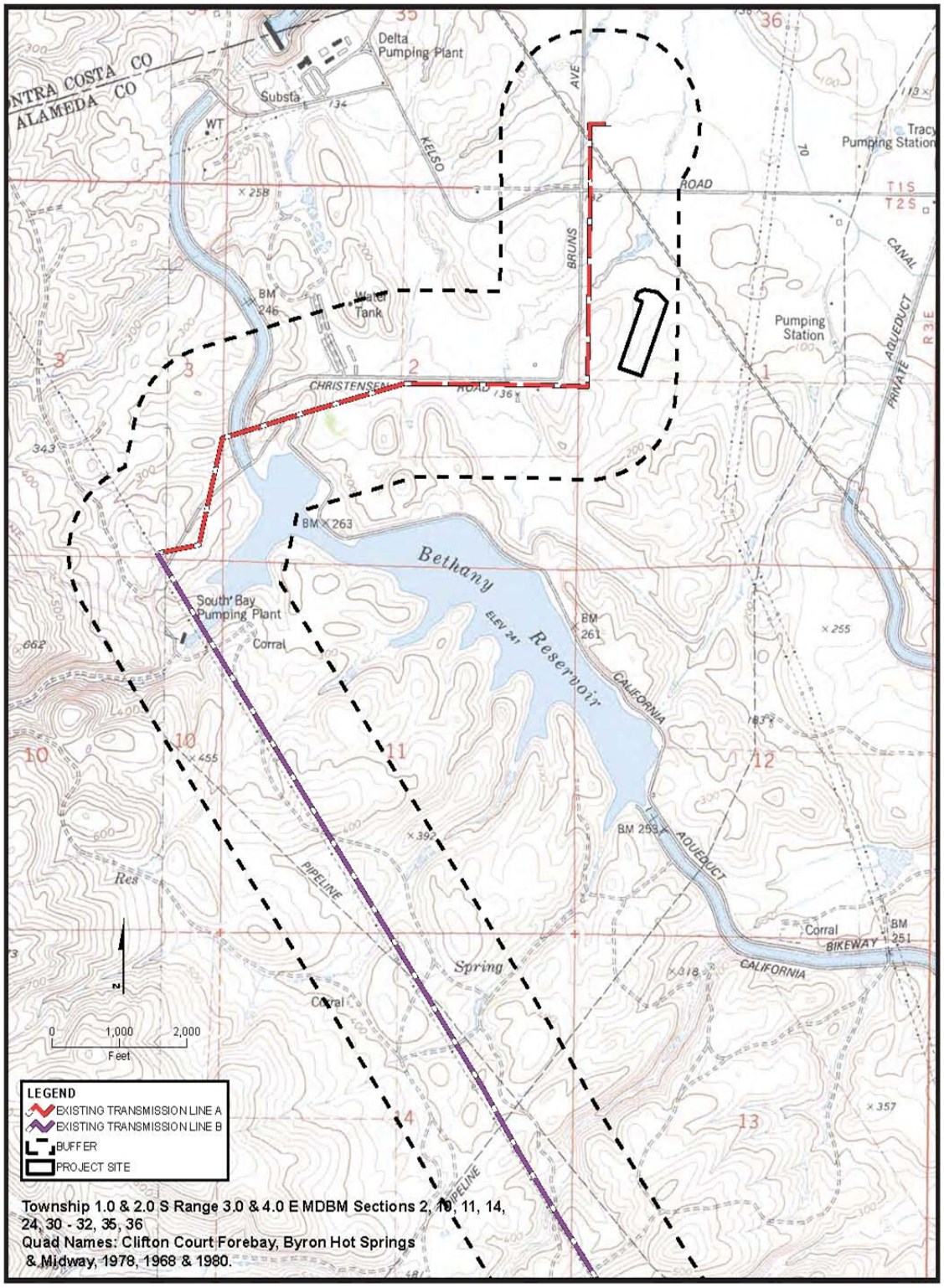
The steady state power flow analysis for the Transition Cluster Phase 2 Interconnection study was performed with 2013 summer peak and 2013 summer off-peak base cases to evaluate system impacts caused by the interconnection of six projects in the PG&E greater bay area, known as group 1. The group 1 cluster of projects, with a total of 1,158.9 MW net generation output, includes the proposed 195.9 MW MEP. The Group study report demonstrates that the addition of group 1 cluster projects would cause significant adverse impacts on the PG&E transmission system. Under year 2013 summer peak system conditions, the transition cluster projects cause new overloads on nine transmission lines/line sections during Category A normal (N-0) system conditions, on six transmission facilities during worst Category B (N-1, L-1 & G-1) contingencies, and on ten transmission facilities during worst Category C (N-2 or more) contingencies.

Under 2013 summer off-peak system conditions, the transition cluster projects cause new overloads on two transmission lines/line sections during Category A normal (N-0) system conditions, on two transmission facilities during worst Category B (N-1, L-1 & G-1) contingency conditions and on four transmission facilities during worst Category C (N-2 or more) contingencies. Commission staff testimony contains a summary of the portion of the CAISO Phase 2 group power flow analysis results pertinent to the MEP's identified contribution to the overloads on the transmission lines. (Ex. 301, pp. 5-5.8 -– 5-5.9.)

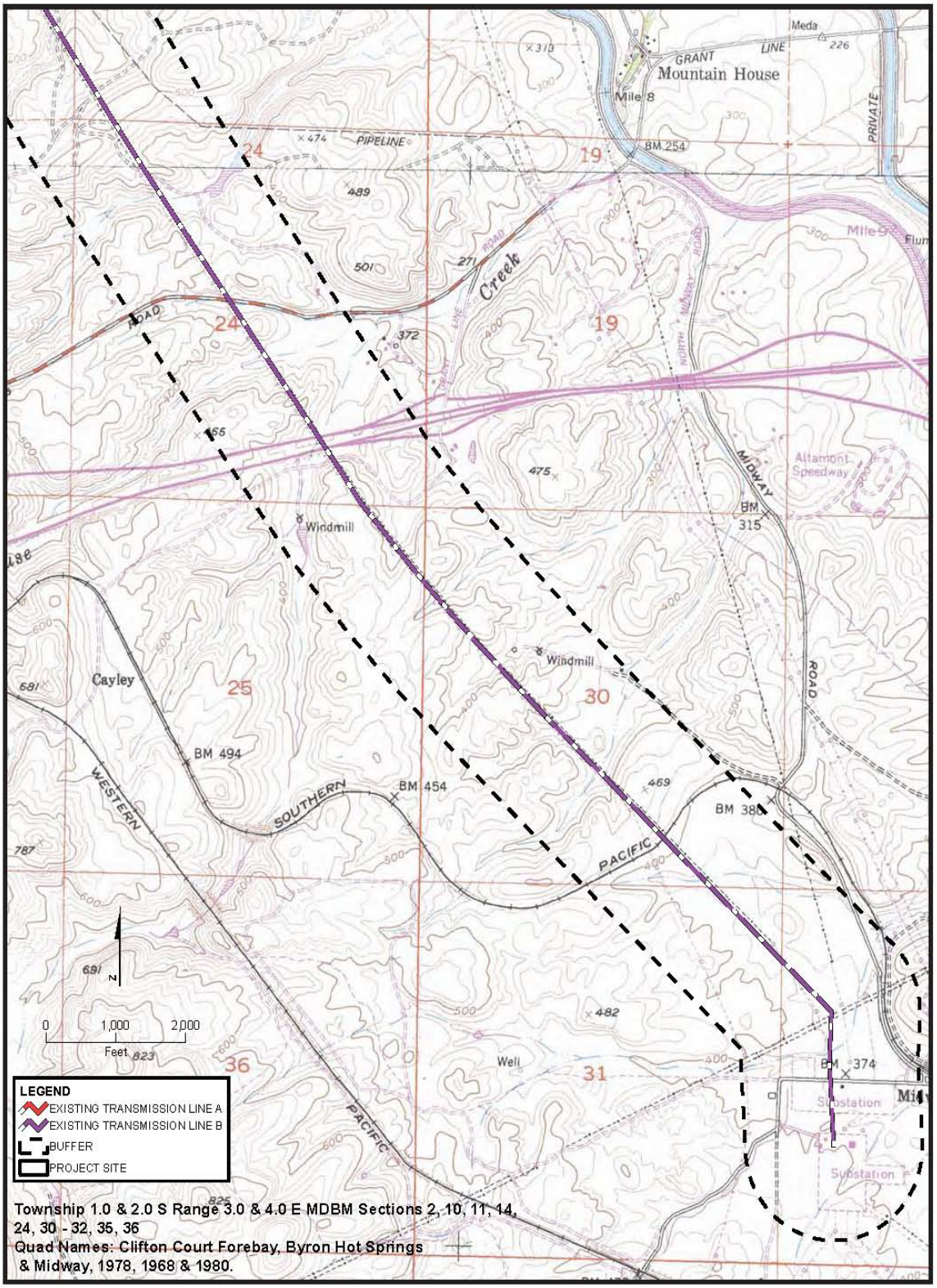
Mitigation options to offset the identified overloads include reconductoring of five transmission lines/line sections with higher size conductors, re-rating two transmission lines/line sections, installing Special Protection Systems (SPS) to curtail generation output and congestion management. Commission staff determined that the mitigation plan is adequate to eliminate the identified new overloads[1]. The MEP's contribution to the overloads may involve downstream reconductoring of two transmission lines. For the overloads on the Kelso-USWP Ralph-Tesla 230 kV line, the mitigation plan includes reconductoring of 3.3 miles of the Kelso-USWP Ralph 230 kV line and 4.7 miles of the USWP Ralph-Tesla 230 kV line with a higher size conductor. The Phase 2 group study states that the MEP has 56.2 percent cost responsibility with other group projects for the upgrades. The location of the reconductoring upgrades is shown on **Transmission System Engineering** Figures 1 and 2 (Ex. 301, p. 5-5.9.)

[1] California Independent System Operator, Transition Cluster Phase 2 Interconnection Study, Greater Bay Area Group Interconnection Study Report Revision 1.0, 2010, pages 15-19, 23-30 & 33-36.

**TRANSMISSION SYSTEM ENGINEERING - FIGURE 1**
**Mariposa Energy Project - Project Area Map, 1 of 2**
**(Ex. 301, p. 5-5.9)**



**TRANSMISSION SYSTEM ENGINEERING - FIGURE 1**
**Mariposa Energy Project - Project Area Map, 2 of 2**
**(Ex. 301, p. 5-5.9)**



b. Short Circuit Study

The short circuit study results show that, while addition of the transition cluster projects would overstress a circuit breaker at the Pittsburg Power Plant switching station, the MEP's contribution to this overstress is not significant.[2] Accordingly, the project is not found responsible for the circuit breaker upgrade. (Ex. 1, p. 5.5-10.)

c. Transient Stability Study

Transient stability analysis is performed to determine whether the transmission system would remain stable in abnormal operating conditions after the transition cluster projects, including the MEP, begin operation. The study concluded that the transmission system would remain stable with the addition of the MEP under a 2013 summer peak base case with simulated faults under selected Category B and Category C contingencies. (Ex. 1, p. 5.5-10.).*)*

d. Reactive Power Deficiency Analysis

This analysis showed that transition cluster projects did not cause voltage drops of 5 percent or more from the pre-project levels, or cause the PG&E system to fail to meet applicable voltage criteria. Thus, the MEP did not cause any adverse voltage impacts on the PG&E system. (Ex. 1, p. 5.5-10.).)

e. Deliverability Assessment

The Deliverability Assessment was performed by California ISO to determine the capability of the transition cluster projects to be deliverable to the aggregate load under 2013 summer peak and off-peak conditions. The Assessment concludes that the MEP and other cluster group projects as Full Capacity generation projects are deliverable to the California ISO grid. (*Id*., p. 5.5-11.)

f. Operational Studies

Operational studies were performed on a year-by-year basis by adding projects in the base cases based on their commercial operation dates (CODs). The purpose of these studies was to determine whether or not the required reliability

[2] MEP's contribution is less than the PG&E threshold value of 100 Amperes fault current to the breaker at risk.

upgrades and delivery network upgrades can be constructed in a timely manner to safely and reliably interconnect the MEP on the CAISO grid. (Ex. 1, p. 5.5-10.)

If the estimated construction times for downstream transmission facility upgrades are exceeded, the facilities may not be in service to meet the project COD for the MEP. If that happens, the CAISO can apply congestion management and/or operating procedures in the interim period until the upgrades are completed. (Ex. 1, p. 5.5-10.)

2. Environmental Impacts of Downstream Upgrades

In coordination with PG&E, the applicant has submitted environmental analysis to the Energy Commission for the CEQA review of upgrade impacts related to the MEP. (Ex. 11.) Commission staff also conducted an environmental analysis of impacts from installing downstream upgrades. (Ex. 301, App. A.) The Staff analysis of downstream potential was prepared to inform the Commission and the general public of the potential direct and indirect effects of the downstream upgrade, which is considered a reasonably foreseeable development resulting from the MEP. Staff based its analysis of potential environmental impacts on a planning-level project description of required facilities. (Ex. 301P. 5.5-9.)

As conditioned, the proposed project would not result in significant and unmitigable impacts to any issue area. The record establishes that environmental impacts associated with the proposed downstream upgrades would be less than significant with implementation of the recommended mitigation measures identified by Staff in its analysis. (Ex. 301, App. A.) Additional measures may be required by CPUC and CALISO upon further environmental analysis pursuant to CEQA, once preliminary project design information is available. PG&E would do the construction work for reconductoring the line within their Right of Way. (Ex. 301p. 5.5-9.)

a. Project Location and Description

Construction of the MEP may require PG&E to reconductor two segments within their transmission system, as shown in Transmission System Engineering Figures 1 and 2. The two segments are the Kelso–Tesla 230-kV line (Kelso–United States Wind Power Regional Line Facility), which is referred to in the figures as Transmission Line A, and is approximately 3.3 miles long, and the Kelso–Tesla 230-kV line (USWP RLF–Tesla), which is referred to in the figures as Transmission Line B, and is approximately 4.7 miles long. The total length of

the lines to be reconductored is approximately 8 miles. The Kelso-Tesla transmission line consists of a single 230-kV circuit with three conductors mounted on the existing lattice towers in the existing right-of-way. The project includes a total of 39 existing towers. Tower modifications and excavation work near the towers are not anticipated at this time. (Ex. 301, App. A-3.)

The area surrounding the project corridor is primarily undeveloped, with few industrial structures located within 500 feet of the transmission line. The nearest residences are located approximately 1,500 feet from the project. The entire study area has been significantly disturbed by vegetation-management practices beneath the existing transmission line, construction of access roads, and onsite cattle grazing. (Ex. 301, App. A-3)

Generally, reconductoring is accomplished by disconnecting the old conductor and using it like a rope to pull the new conductor through the temporary pulleys until it reaches the other end. These pulleys are called “travelers” or “sheave blocks,” and are mounted on each tower. Workers would access each tower by truck, then climb the tower or use a truck-mounted aerial bucket to access the tower in order to place the temporary pulleys on each tower and route the conductor through the travelers. While the process involves some disturbance at various laydown areas, environmental impacts tend to be limited to these areas, rather causing impacts along the entire reconductoring route. (Ex. 301, App. A-3)

b. Mitigation

To avoid and limit environmental impacts related to reconductoring activities, vegetation clearing and trimming would be kept to the minimum necessary for safe construction, operation, and maintenance of the line. Dragging and whipping of conductors and sock lines across the ground would be avoided to further minimize vegetation and ground disturbance. Use of materials labeled as potential pollutants would be minimized to the extent practicable. Where possible, use of potential pollutants that could ooze, drip, flake, or crumble would be avoided in and around wetland areas. (Exs. 11; 301, App. A, p. A-5.)

c. Analysis of Reconductoring Impacts

The downstream transmission facilities will be permitted by the CPUC, rather than the CEC, and therefore that agency will prepare the appropriate environmental document necessary to license those facilities. (Ex. 301, App. A-1)

i. Air Quality

Potential impacts are limited because reconductoring activities would not require additional grading and the work would be over a short-term period. Vehicle and other emissions would likely comply with applicable LORS, and would therefore not likely cause or contribute to a violation of the ambient air quality standards or otherwise result in a potential for a significant air quality impact. The reconductoring activities are thus not expected to result in significant air quality impacts. (Ex. 301,p. A-7.)

ii. Biological Resources

Commission staff analysis identified the special-status species which potentially occur in the study area of the MEP reconductoring project. (Ex. 301, App. A, p. A-9.) Further biological surveys and analysis would be required to complete that environmental document. The surveys would also be required to identify sensitive habitats and special-status species. Discrete work areas along the transmission line corridor may then be specifically sited to avoid local sensitive biological resources to the maximum extent practicable. (Ex. 301, App. A, p. A-9.)

We conclude that the potential impacts to sensitive biological resources from the project can be reduced through careful planning of the construction schedule and the placement of temporary work areas.

iii. Cultural Resources

Applicant's consultant conducted a literature search, and conducted a pedestrian archaeological survey of the proposed MEP transmission line reconductor project area over the period of January 18 – 20, 2010. The archaeological survey area consisted of a 200-foot-wide corridor centered on the eight-mile-long proposed reconductor route. No new historic or prehistoric cultural resources were identified as a result of the pedestrian field survey. (Ex. 11.) Commission staff analysis determined that that it would be possible to mitigate any potential impacts to a less-than-significant level by the implementing avoidance and minimization measures that are generally applied to cultural resources in Commission licenses. (Ex. 301, App. A, p. A-22.)

iv. Geology and Paleontology

The potential impacts to geologic and paleontological resources would be limited to the temporary construction sites or lay-down areas used during reconductoring. These sites would not require grading or other disturbance of

surface soils, other than construction vehicle disturbance. The impacts to geologic and paleontological resources would not be significant. The proposed work would comply with applicable LORS as related to the identified reconductoring project. (Ex. 301, App. A, p. A-23.)

No significant geologic or paleontological resources have been identified in the project area. Because the reconductoring route has been subjected to previous ground disturbance activities during installation of the existing transmission line, and new ground disturbances are not anticipated, the project would not result in potential significant impacts and would comply with applicable LORS. (Ex. 301, App. A, p. A-22.)

v. Land Use

The reconductoring project would replace transmission conductors within an existing utility corridor. This transmission system upgrade would not involve changing existing or planned land uses in Alameda County. Two or three construction staging yards would be required for the temporary stockpiling of materials and equipment along the transmission line corridor. These yards, approximately one acre in size, would be within the existing transmission line right-of-way and likely would be located near existing storage areas near or at the substations during construction. (Ex. 11). Any impacts to land use would be isolated and short term while construction crews reconductor the existing transmission lines. Because the stockpile areas would be temporary and would not displace any existing use, the impact would not be significant. (Ex. 301, App. A, p. A-25.)

We therefore conclude that the anticipated reconductoring of the Kelso-Tesla 230 kV transmission line would not cause a change in land use. The reconductoring work would be entirely within an existing and established right-of-way, the reconductored transmission line would not disrupt or divide the physical arrangement of an established community and would not restrict existing or future land uses along the route. (Ex. 301, p. A-26.)

vi. Noise and Vibration

The transmission line right-of-way is in a rural agricultural with few residences and no sensitive receptors. Noise levels above existing ambient levels during reconductoring may be noticeable beyond areas immediately adjacent to the rights-of-way; however, they would be temporary and no additional mitigation measures are proposed. The reconductored transmission line route would not

result in potential impacts greater than those analyzed for the MEP itself and would be consistent with applicable LORS. Therefore, any potential noise and vibration impacts would be less than significant. (Ex. 301, p. A-26.)

No significant effects regarding Public Health or Socioeconomics were identified. (Ex. 301, p. A-26.)

vii. Soil and Water Resources

During construction, implementation of the Stormwater Pollution Prevention Plan and implementation of erosion and dust control best management practices (BMPs) would limit impacts to the soil resources associated with construction of the transmission system to acceptable levels. The project is not likely to result in significant impacts, and would comply with the applicable LORS. (Ex. 301., p. A-28.)

viii. Traffic and Transportation

The transmission line segments to be reconductored are located in northeastern Alameda County, mostly in undeveloped areas comprised of grazing land, agricultural land, and wind farms. The affected transmission line segments stretch between the PG&E Kelso Substation less than a mile north of the proposed MEP site to the Tesla Substation less than 2 miles south of the junction of I-205 and I-580. The work would involve a maximum of 20 workers, who would have an insignificant effect on traffic and would not cause a significant loss of service (LOS) on existing roads. However, if reconductoring occurs at the same time as construction on the MEP itself, work-related trips should occur in off-peak hours to avoid commute impacts. (Ex. 301, p. A-27.)

To mitigate potential impacts to traffic, crews should set up temporary structures (i.e., netting) across the relevant roadways and freeways to catch any falling conductors. Construction of these temporary structures should occur during off-peak commute hours to mitigate any potential impacts to LOS. (Ex. 301, p. A-28.)

The majority of reconductoring activities would take place in undeveloped agricultural areas and thus would have minimal impact on the LOS for nearby roadways and freeways, except during peak construction of the MEP. The temporary nature of the reconductoring activities (approximately six to eight weeks) and the minimal staffing (a maximum of 20 workers), combined with implementation of mitigation measures similar to Conditions of Certification, would result in potential impacts to traffic and transportation that would be less than significant. (Ex. 301, p. A-29.)

ix. Transmission System Engineering

Conformance with applicable construction standards, safety and reliability LORS is likely to occur and would mitigate any safety or reliability implications of reconductoring the transmission line. (Ex. 301, p. A-31.)

x. Visual Resources

The new conductors would be similar in appearance with the existing transmission line, and adjacent transmission lines. No changes to the existing transmission towers are anticipated. Therefore the new conductors would not degrade the visual quality of the viewed landscape. (Ex. 301, p. A-31.)

Once construction is complete, this change to the transmission line would be undetectable to most viewers of the line, including motorists and residents living near the area, thus the project would not have any significant impacts on visual resources. The project would comply with applicable LORS. (Ex. 301,, p. A-31.)

xi. Waste Management and Hazardous Materials

Staff has recommended several impact mitigation measures including the use of a waste management plan, the recycling of construction wastes, proper storage and labeling of all wastes and steps to ensure compliance with accumulation time limits on wastes. The reconductoring would comply with all applicable LORS regulating the management of hazardous and non-hazardous wastes during both project construction and operation. In addition, the site should be managed to prevent contaminants from posing a significant risk to humans or to the environment. These steps will avoid impacts to workers and the environment. (Ex. 301., p. A-32.)

xii. Worker Safety and Fire Protection

Conditions of Certification contained in the MEP Decision for this issue would adequately ensure worker protection and fire safety on the reconductoring project as well.

The downstream reconductoring of the identified transmission lines is considered a reasonably foreseeable development resulting from the MEP. The analysis of potential environmental impacts is based on a planning-level project description of required facilities and measures to minimize potential effects are recommended in the staff testimony. (Ex. 301, App. A pp. A-32 – A-33.)

Overall, the recondutoring project would not result in significant and unmitigable impacts to any issue area. The record establishes that environmental impacts

associated with the proposed downstream upgrades would be less than significant with implementation of the recommended mitigation measures . Additional measures may be required by CPUC and CAISO upon further environmental analysis pursuant to CEQA, once preliminary project design information is available.

3. Cumulative Impacts

Potential cumulative impacts on the transmission network are identified through the California ISO and utility generator interconnection process. For this reason we do not expect the MEP would create any cumulative adverse impacts in the network. In fact, some positive impacts would result from adding the MEP to the network. The project is a local quick start peaking unit which would address the increasing peak load demand of the PG&E system in the greater bay area and Alameda County. Furthermore, MEP would provide additional reactive power and voltage support, and enhance reliability. (Ex. 301, p. 5.5-12.)

4. LORS Conformance

Evidence establishes that the MEP, including the proposed switchyard, the generator tie line to the PG&E Kelso 230 kV substation and its termination would be built and operated in accordance with industry standards, good utility practices, and engineering LORS, identified in Appendix A of this Decision. (Ex. 301, pp. 5.5-3 to 5.5-5.) Therefore, the MEP would meet the requirements and standards of all applicable LORS upon satisfactory compliance of the Conditions of Certifications.

**PUBLIC COMMENT**

There were no public comments made concerning transmission system engineering.

**FINDINGS OF FACT**

Based on the evidence, we make the following findings and conclusions:

1. The Mariposa Energy Project (MEP) will consist of four natural gas-fired combustion turbine generator (CTG) units (General Electric LM6000 PC-Sprint model) operating in simple cycle mode with a total 195.6 MW nominal output.

2. Each CTG unit rated 71.176 MVA, 13.8 kV will be connected through a 4,000-ampere non-segregated bus duct and a 4,000-ampere, 15 kV breaker

to the low to the low voltage terminal of a generator step-up (GSU) 36/48/60/67.2 MVA, 13.8/230 kV transformer with a specified impedance of 8.3 percent @36 MVA.

3. The new MEP switchyard would be interconnected to the existing Kelso substation 230 kV bus by building a new 0.75-mile long 230 kV single circuit line with 795 kcmil steel-reinforced aluminum conductors (ACSR)

4. The line would run generally north from the project site, staying east of the Byron Power Cogeneration Plant, crossing Kelso Road, and staying east of the PG&E Bethany Compressor station. It would turn west just north of the Kelso substation, and then turn south to the Kelso substation.
5. The line would remain within the fence line of 158-acre Lee parcel and the PG&E parcel in the north with the exception of the crossing of Kelso Road. The applicant would build, own and operate the MEP switchyard and the generator 230 kV overhead tie line.
6. The Applicant will build, own, and operate the MEP switchyard and the generator 230 kV overhead tie line.
7. The interconnecting line would be terminated at the PG&E Kelso 230 kV substation bus through a 2,000-ampere SF6 breaker with an associated 2,000-ampere disconnect switch installed within the existing fence line of Kelso substation.
8. PG&E would build, own and operate the interconnecting termination facilities within the fence line of the Kelso substation including a new breaker, a disconnect switch and transmission outlet.
9. The proposed interconnection facilities for the MEP including the proposed switchyard, the generator 230 kV tie line to the PG&E Kelso 230 kV substation and its termination at the Kelso substation would be built according to NESC standards and GO-95 Rules.
10. The new facilities would be adequate in accordance with industry standards and good utility practices, and can meet engineering LORS.
11. The Transition Cluster Phase 2 Interconnection Study (Phase 2 Group study) demonstrates that under 2013 summer peak system conditions the addition of six transition cluster queue generation projects in the greater bay area with a total 1,158.9 MW generation output including the 195.9 MW MEP would cause overloads impacts on the PG&E transmission system.
12. The Phase 2 study identified mitigation options for the overloads, including reliability and delivery network upgrades which we find are adequate to eliminate the overloads.
13. The California Independent System Operator concludes in the Phase 2 Group Study that the addition of the MEP would contribute to new overloads on four 230 kV transmission lines only and assigned the MEP a significant

portion of the cost responsibility for network upgrades to mitigate the overloads.

14. The mitigation options for which the MEP is responsible include re-rating of the Lone Tree-USWP JW Ranch and the USWP JW Ranch-Cayetona 230 kV lines, and reconductoring with higher size conductors on the Kelso-USWP RLF 230 kV line (3.3 miles), and the USWP RLF-Tesla 230 kV line (4.7 miles).

15. The latter two lines, which require reconductoring, are immediately downstream of the proposed interconnection of the MEP and their reconductorings are considered as project-related impacts for the purposes of CEQA review.

16. A general environmental analysis of the reconductoring, designed to meet the California Environmental Quality Act (CEQA) requirements, was performed by the Applicant and is included in the record as Exhibit 11. A similar analysis performed by Commission staff is found as Attachment A to Exhibit 301.

17. The California ISO Deliverability Assessment concludes that the MEP and other cluster group projects, as Full Capacity generation projects, are deliverable to the California ISO grid with implementation of the reconductoring upgrades identified in the group mitigation plan.

18. CAISO has determined that if the MEP-related upgrades are not in place in a timely manner to meet the project Commercial Operation Date (COD), congestion management and/or other operating procedures can be used until the transmission upgrades are completed. The MEP would be treated as an Energy Only generation project during this time.

19. Project-related downstream reconductorings can be carried out in a manner to meet all applicable LORS.

20. Downstream reconductoring will be built by PG&E and is subject to CPUC licensing and review jurisdiction.

21. The applicant has signed a power purchase agreement with PG&E for power supply during peak hours.

22. The MEP will provide local benefits as a local quick start peaking unit. It would meet the increasing load demand in the Alameda County and PG&E greater bay area, and provide additional reactive power and voltage support, enhance reliability and may reduce system losses in the PG&E local network.

## CONCLUSIONS OF LAW

1. We therefore conclude that with the implementation of the various mitigation measures specified in this Decision, the proposed transmission

interconnection for the project will not contribute to significant direct, indirect, or cumulative impacts.

2. The Conditions of Certification below ensure that the transmission-related aspects of the project will be designed, constructed, and operated in conformance with the applicable laws, ordinances, regulations, and standards identified in the record.

## CONDITIONS OF CERTIFICATION

**TSE-1** The project owner shall furnish to the CPM and to the CBO a schedule of transmission facility design submittals, a Master Drawing List, a Master Specifications List, and a Major Equipment and Structure List. The schedule shall contain a description and list of proposed submittal packages for design, calculations, and specifications for major structures and equipment. To facilitate audits by Energy Commission staff, the project owner shall provide designated packages to the CPM when requested.

**Verification:** At least 60 days (or a lesser number of days mutually agreed to by the project owner and the CBO) prior to the start of construction, the project owner shall submit the schedule, a Master Drawing List, and a Master Specifications List to the CBO and to the CPM. The schedule shall contain a description and list of proposed submittal packages for design, calculations, and specifications for major structures and equipment (see a list of major equipment in **Table 1: Major Equipment List** below). Additions and deletions shall be made to the table only with CPM and CBO approval. The project owner shall provide schedule updates in the Monthly Compliance Report.

| **Table 1: Major Equipment List** |
|---|
| Breakers |
| Step-up Transformer |
| Switchyard |
| Busses |
| Surge Arrestors |
| Disconnects and Wave-traps |
| Take off facilities |
| Electrical Control Building |
| Switchyard Control Building |
| Transmission Pole/Tower |
| Insulators and Conductors |
| Grounding System |

**TSE-2** Prior to the start of construction the project owner shall assign an electrical engineer and at least one of each of the following to the project:

A. a civil engineer;

B. a geotechnical engineer or a civil engineer experienced and knowledgeable in the practice of soils engineering;

C. a design engineer, who is either a structural engineer or a civil engineer fully competent and proficient in the design of power plant structures and equipment supports; or

D. a mechanical engineer.

(Business and Professions Code Sections 6704 et seq., require state registration to practice as a civil engineer or structural engineer in California.)

The tasks performed by the civil, mechanical, electrical or design engineers may be divided between two or more engineers, as long as each engineer is responsible for a particular segment of the project (e.g., proposed earthwork, civil structures, power plant structures, equipment support). No segment of the project shall have more than one responsible engineer. The transmission line may be the responsibility of a separate California registered electrical engineer. The civil, geotechnical or civil and design engineer assigned in conformance with Facility Design condition **GEN-5**, may be responsible for design and review of the TSE facilities.

The project owner shall submit to the CBO for review and approval, the names, qualifications and registration numbers of all engineers assigned to the project. If any one of the designated engineers is subsequently reassigned or replaced, the project owner shall submit the name, qualifications and registration number of the newly assigned engineer to the CBO for review and approval. The project owner shall notify the CPM of the CBO's approval of the new engineer. This engineer shall be authorized to halt earthwork and to require changes if site conditions are unsafe or do not conform with predicted conditions used as a basis for design of earthwork or foundations.

The electrical engineer shall:

1. Be responsible for the electrical design of the power plant switchyard, outlet and termination facilities; and

2. Sign and stamp electrical design drawings, plans, specifications, and calculations.

**Verification:** At least 30 days (or a lesser number of days mutually agreed to by the project owner and the CBO) prior to the start of rough grading, the project owner shall submit to the CBO for review and approval, the names, qualifications and registration numbers of all the responsible engineers assigned to the project. The project owner shall notify the CPM of the CBO's approvals of the engineers within five days of the approval.

If the designated responsible engineer is subsequently reassigned or replaced, the project owner has five days in which to submit the name, qualifications, and registration number of the newly assigned engineer to the CBO for review and approval. The project owner shall notify the CPM of the CBO's approval of the new engineer within five days of the approval.

**TSE-3** If any discrepancy in design and/or construction is discovered in any engineering work that has undergone CBO design review and approval, the project owner shall document the discrepancy and recommend corrective action (1998 CBC, Chapter 1, Section 108.4, Approval Required; Chapter 17, Section 1701.3, Duties and Responsibilities of the Special Inspector; Appendix Chapter 33, Section 3317.7, Notification of Noncompliance). The discrepancy documentation shall become a controlled document and shall be submitted to the CBO for review and approval and shall reference this condition of certification.

**Verification:** The project owner shall submit a copy of the CBO's approval or disapproval of any corrective action taken to resolve a discrepancy to the CPM within 15 days of receipt. If disapproved, the project owner shall advise the CPM, within five days, the reason for disapproval, and the revised corrective action required to obtain the CBO's approval.

**TSE-4** For the power plant switchyard, outlet line and termination, the project owner shall not begin any increment of construction until plans for that increment have been approved by the CBO. These plans, together with design changes and design change notices, shall remain on the site for one year after completion of construction. The project owner shall request that the CBO inspect the installation to ensure compliance with the requirements of applicable LORS. The following activities shall be reported in the Monthly Compliance Report:

A. receipt or delay of major electrical equipment;

B. testing or energization of major electrical equipment; and

C. the number of electrical drawings approved, submitted for approval, and still to be submitted.

**Verification:** At least 30 days (or a lesser number of days mutually agreed to by the project owner and the CBO) prior to the start of each increment of construction, the project owner shall submit to the CBO for review and approval the final design plans, specifications and calculations for equipment and systems of the power plant switchyard, outlet line and termination, including a copy of the signed and stamped statement from the responsible electrical engineer attesting to compliance with the applicable LORS, and send the CPM a copy of the transmittal letter in the next Monthly Compliance Report.

**TSE-5** The project owner shall ensure that the design, construction, and operation of the proposed transmission facilities will conform to all applicable LORS, and the requirements listed below. The project owner shall submit the required number of copies of the design drawings and calculations, as determined by the CBO.

Once approved, the project owner shall inform the CPM and CBO of any anticipated changes to the design, and shall submit a detailed description of the proposed change and complete engineering, environmental, and economic rationale for the change to the CPM and CBO for review and approval.

a) The power plant switchyard and outlet line shall meet or exceed the electrical, mechanical, civil, and structural requirements of CPUC General Order 95 or National Electric Safety Code (NESC); Title 8 of the California Code and Regulations (Title 8); Articles 35, 36 and 37 of the *High Voltage Electric Safety Orders*, California ISO standards, National Electric Code (NEC) and related industry standards.

*b)* Breakers and busses in the power plant switchyard and other switchyards, where applicable, shall be sized to comply with a short-circuit analysis.

c) Outlet line crossings and line parallels with transmission and distribution facilities shall be coordinated with the transmission line owner and comply with the owner's standards.

d) The project conductors shall be sized to accommodate the full output of the project.

e) Termination facilities shall comply with applicable PG&E interconnection standards.

f) The project owner shall provide to the CPM:

   i) The Special Protection System (SPS) sequencing and timing if applicable,

   ii) A letter stating that the mitigation measures or projects selected by the transmission owners for each reliability criteria violation, for which the project is responsible, are acceptable,

   iii) A copy of the executed LGIA signed by the California ISO and the project owner.

**Verification:** At least 60 days prior to the start of construction of transmission facilities (or a lesser number of days mutually agreed to by the project owner and CBO), the project owner shall submit to the CBO for approval:

a) Design drawings, specifications, and calculations conforming with CPUC General Order 95 or National Electric Safety Code (NESC); Title 8 of the California Code and Regulations (Title 8); Articles 35, 36 and 37 of the *High*

*Voltage Electric Safety Orders*, CA ISO standards, National Electric Code (NEC) and related industry standards, for the poles/towers, foundations, anchor bolts, conductors, grounding systems, and major switchyard equipment;

b) For each element of the transmission facilities identified above, the submittal package to the CBO shall contain the design criteria, a discussion of the calculation method(s), a sample calculation based on "worst case conditions"[3] and a statement signed and sealed by the registered engineer in responsible charge, or other acceptable alternative verification, that the transmission element(s) will conform with CPUC General Order 95 or National Electric Safety Code (NESC); Title 8 of the California Code and Regulations (Title 8); Articles 35, 36 and 37 of the *High Voltage Electric Safety Orders*, California ISO standards, National Electric Code (NEC), and related industry standards;

c) Electrical one-line diagrams signed and sealed by the registered professional electrical engineer in charge, a route map, and an engineering description of the equipment and configurations covered by requirements **TSE-5** a) through f);

d) The Special Protection System (SPS) sequencing and timing if applicable shall be provided concurrently to the CPM.

e) A letter stating that the mitigation measures or projects selected by the transmission owners for each reliability criteria violation, for which the project is responsible, are acceptable, and

f) A copy of the executed LGIA signed by the California ISO and the project owner.

Prior to the construction of or start of modification of transmission facilities, the project owner shall inform the CBO and the CPM of any anticipated changes to the design that are different from the design previously submitted and approved and shall submit a detailed description of the proposed change and complete engineering, environmental, and economic rationale for the change to the CPM and CBO for review and approval.

**TSE-6** The project owner shall provide the following Notice to the California Independent System Operator (California ISO) prior to synchronizing the facility with the California Transmission system:

1. At least one week prior to synchronizing the facility with the grid for testing, provide the California ISO a letter stating the proposed date of synchronization; and

2. At least one business day prior to synchronizing the facility with the grid for testing, provide telephone notification to the California ISO Outage Coordination Department.

[1] Worst-case conditions for the foundations would include for instance, a dead-end or angle pole.

**Verification:** The project owner shall provide copies of the California ISO letter to the CPM when it is sent to the California ISO one week prior to initial synchronization with the grid. The project owner shall contact the California ISO Outage Coordination Department, Monday through Friday, between the hours of 0700 and 1530 at (916) 351-2300 at least one business day prior to synchronizing the facility with the grid for testing. A report of conversation with the California ISO shall be provided electronically to the CPM one day before synchronizing the facility with the California transmission system for the first time.

**TSE-7** The project owner shall be responsible for the inspection of the transmission facilities during and after project construction, and any subsequent CPM and CBO approved changes thereto, to ensure conformance with CPUC GO-95 or NESC, Title 8, CCR, Articles 35, 36 and 37 of the, "High Voltage Electric Safety Orders", applicable interconnection standards, NEC and related industry standards. In case of non-conformance, the project owner shall inform the CPM and CBO in writing, within 10 days of discovering such non-conformance and describe the corrective actions to be taken.

**Verification:** Within 60 days after first synchronization of the project, the project owner shall transmit to the CPM and CBO:

A. "As built" engineering description(s) and one-line drawings of the electrical portion of the facilities signed and sealed by the registered electrical engineer in responsible charge. A statement attesting to conformance with CPUC GO-95 or NESC, Title 8, California Code of Regulations, Articles 35, 36 and 37 of the, "High Voltage Electric Safety Orders", and applicable interconnection standards, NEC, related industry standards, and these conditions shall be provided concurrently.

B. An "as built" engineering description of the mechanical, structural, and civil portion of the transmission facilities signed and sealed by the registered engineer in responsible charge or acceptable alternative verification. "As built" drawings of the electrical, mechanical, structural, and civil portion of the transmission facilities shall be maintained at the power plant and made available, if requested, for CPM audit as set forth in the "Compliance Monitoring Plan".

C. A summary of inspections of the completed transmission facilities, and identification of any nonconforming work and corrective actions taken, signed and sealed by the registered engineer in charge.

## E. TRANSMISSION LINE SAFETY AND NUISANCE

The Mariposa Energy Project's (MEP) transmission line must be constructed and operated in a manner that protects environmental quality, assures public health and safety, and complies with applicable law. This portion of the Decision assesses the potential for the transmission line to create the various impacts mentioned below, as well as whether mitigation measures are required to reduce any adverse effects to insignificant levels. The evidence submitted by Applicant and Staff was uncontested. (Exs. 1; 4; 5; 6; 7; 8; 11; 23; 25; 26; 51; 61; and 301.)

### SUMMARY AND DISCUSSION OF THE EVIDENCE

The MEP includes building and operating a new on-site, approximately 0.7-mile feet 230-kV overhead transmission line. The project line will run generally north from the project site, staying east of the Pacific Gas & Electric (PG&E) compressor station until it turns west just north of the Kelso substation and into the connection points within the Kelso Substation. PG&E will build, own, and operate the interconnection-related terminal facilities within the fence line of the Kelso substation. The project's switchyard will be designed and built by the project owner according to PG&E's guidelines on safety and field management. (Ex. 301, p. 4.11-3.)

The area for MEP and related connecting line is zoned for large-parcel agriculture but is also used for power generation facilities and related transmission lines. The 6.5 MW Byron Power Cogen plant for example, is directly to the north. The absence of residences in the immediate vicinity means that there will not be the types of residential field exposure at the root of the health concern of recent years. The site was chosen in part for its proximity to the Kelso Substation to which the project will be connected. (Ex. 301, p. 4.11-3.)

The project's line will consist of the following segments:

- The 0.7-mile overhead 230-kV line connecting the project to the new on-site project switchyard from which there will be further connection to the PG&E power grid;

- Eight steel monopole support structures for the conductors with heights varying from 84 feet to 95 feet; and

- Project-related modifications at the existing Kelso Substation.

The line will be owned, operated, and maintained by the Applicant, Mariposa Energy LLC, according to PG&E guidelines that ensure line safety and efficiency together with reliability and maintainability. This, in turn, assures compliance with applicable LORS. (Ex. 301, pp. 4.11-1, 4.11-4.)

The potential impacts from the project's transmission line involve aircraft collisions, interference with radio frequency communication, audible noise, hazardous shocks, nuisance shocks, fire danger, and electric and magnetic field (EMF) exposure. Regarding each of these potential impacts, the evidence conclusively establishes the following:

- *Aviation Safety*

Any potential hazard to area aircraft relates to the potential for collision in the navigable airspace and the need to file a "Notice of Proposed Construction or Alteration" with the Federal Aviation Administration (FAA). The nearest airport to the MEP site is Byron Airport with runways that are 4,500 feet and 3,000 feet long. The project site is about 2.7 miles away at its nearest point and therefore falls within the restricted space for the airport necessitating FAA notification. Since the line supports will be less than FAA's 200-foot limit in height in an area with other large transmission lines, an aviation hazard is not expected. However, the Applicant has filed the required FAA notification. There are no heliports located within 5,000 feet of the project lines and related facilities; therefore, the evidence indicates that the lines will not pose an aviation hazard to both area helicopters and fixed-wing aircraft. (2/25/11 RT 95:10-19; Ex. 301, p. 4.11-4.)

- *Interference with Radio-Frequency Communication*

This potential impact arises from corona discharge and is primarily a concern for lines larger than 345-kV. The project's 230-kV line will be built and maintained according to standard PG&E practices aimed at minimizing any interference. The low-corona designs are used for all PG&E lines of similar voltage rating to reduce surface-field strengths and the related potential for corona effects. Moreover, there are no nearby residential receptors making it unlikely that there will be complaints from radio-frequency interference. The evidence does not call for any related conditions of certification.

- *Audible Noise*

This is typically perceived as a characteristic crackling, hissing, or frying sound or hum, especially in wet weather. The noise level depends upon the strength of the line's electric field, and is a concern mainly from lines of 345-kV or higher. It can be limited through design, construction, and maintenance practices. The project line (230-kV) will embody a low corona design to minimize field strengths. It is not expected that the line will add significantly to the current background noise levels. (Project noise levels are discussed in detail in the **NOISE** section of this Decision.) (Ex. 301, p. 4.11-5.)

- *Fire Hazards*

Fire can be caused by sparks from the line's conductors or by direct contact between the line and nearby trees or other combustible objects. PG&E's standard fire prevention and suppression measures, and compliance with the clearance-related aspects of GO-95 as required in Condition of Certification **TLSN-3**, ensure that appropriate fire prevention measures are implemented. Furthermore, there are no large trees in the area the line traverses; this reduces contact-related fire hazards.

- *Hazardous Shocks*

Hazardous shocks can result from direct or indirect contact between an individual and the energized line. Compliance with the CPUC's GO-95, as required in Condition of Certification **TLSN-1**, will ensure that adequate measures are implemented to minimize this potential impact. (Ex. 301, p. 4.11-6.)

- *Nuisance Shocks*

Nuisance shocks are typically caused by direct contact with metal objects electrically charged by fields from the energized line. They are effectively minimized through grounding procedures for all metallic objects within the right-of-way as specified in Condition of Certification **TLSN-4**. (Ex. 301, p. 4.11-6.)

- *Exposure to Electric and Magnetic Fields*

Electric and magnetic fields (EMF) occur whenever electricity flows. The possibility of deleterious health effects from exposure to EMF has raised public health concerns about living and working near high-voltage lines. Due to the

present scientific uncertainty regarding potential health effects from EMF exposure, CPUC policy requires reduction of such fields in the design, construction, and maintenance of new or modified lines, if feasible, without affecting the safety, efficiency, reliability, and maintainability of the transmission grid. (Ex. 301, p. 4.11-7.)

The CPUC requires each new transmission line in California to be designed according to the EMF-reducing guidelines of the electric utility in the service area involved. EMF fields produced by new lines must be similar to the fields of comparable lines in that service area. To comply with CPUC requirements for EMF management, PG&E's specific field strength-reducing measures will be incorporated into the project line's design and include:

- Increasing the distance between the conductors and the ground to an optimal level;
- Reducing the spacing between the conductors to an optimal level;
- Minimizing the current in the line; and
- Arranging current flow to maximize the cancellation effects from the interacting of conductor fields. (Ex. 301, pp. 4.11-8 to 4.11-9.)

Condition of Certification **TLSN-2** requires that actual field strengths be measured, according to accepted procedures, to insure that the field intensities are similar to those of other PG&E lines. These measurements will reflect both the effectiveness of the field reduction techniques used and the MEP's potential contribution to area EMF levels. (Ex. 301, p. 4.11-9.)

Since there are no residences in the vicinity of the project's line, there will not be the long-term human residential EMF exposures primarily responsible for the health concern of recent years. The only project-related EMF exposures of potential significance are the short-term exposures of plant workers, regulatory inspectors, maintenance personnel, visitors, or individuals in the immediate vicinity of the line. These types of exposures are well understood as not being significantly related to an adverse health effect. (Ex. 301, p. 4.11-8.)

In light of the evidence, the record clearly establishes that the project will be designed, constructed, operated, and maintained in compliance with applicable LORS. Implementation of the Conditions of Certification will ensure that any impacts are reduced to less than significant levels. (Ex. 301, p. 4.11-10.)

## PUBLIC COMMENT

The public offered no comment on the subject of Transmission Line Safety and Nuisance.

## FINDINGS OF FACT

Based on the uncontroverted evidence, we make the following findings:

1. The Mariposa Energy Project includes the construction and operation of a new on-site 230-kV switchyard and an on-site, approximately 0.7-mile long overhead 230-kV transmission line.
2. The evidentiary record includes analyses of potential impacts from the project's transmission line involving aircraft collisions, interference with radio frequency communication, audible noise, hazardous shocks, nuisance shocks, fire danger, and EMF exposure.
3. There are no residences along the route of the project's new transmission line.
4. The available scientific evidence does not establish that EMF fields pose a significant health hazard to humans.
5. The electric and magnetic fields generated by the project's transmission line will be managed to the extent the CPUC considers appropriate, based on available health effects information.
6. The project's transmission line will comply with existing LORS for public health and safety.
7. The project's transmission line will incorporate standard EMF-reducing measures established by the CPUC and used by PG&E.
8. The project owner will provide field intensity measurements before and after line energization to assess EMF contributions from the project-related current flow.
9. The new transmission line will not result in significant adverse environmental impacts to public health and safety or cause significant direct, indirect, or cumulative impacts in the areas of aviation safety, radio frequency communication, fire hazards, nuisance or hazardous shocks, or electric and magnetic field exposure.

## CONCLUSIONS OF LAW

1. Implementation of the Conditions of Certification, below, will ensure that the MEP's outlet line complies with all applicable laws, ordinances, regulations, and standards relating to **Transmission Line Safety and Nuisance** as identified in the pertinent portion of **Appendix A** of this Decision.
2. The MEP's new transmission outlet line will not have a significant impact on the environment because of transmission line safety and nuisance factors.

## CONDITIONS OF CERTIFICATION

**TLSN-1** The project owner shall construct the 230-kV transmission lines according to the requirements of California Public Utility Commission's GO-95, GO-52, GO-131-D, Title 8, and Group 2, High Voltage Electrical Safety Orders, sections 2700 through 2974 of the California Code of Regulations, and PG&E's EMF-reduction guidelines.

**Verification:** At least 30 days before starting the construction of the transmission line or related structures and facilities, the project owner shall submit to the Compliance Project Manager (CPM) a letter signed by a California registered electrical engineer affirming that the lines will be constructed according to the requirements stated in the Condition.

**TLSN-2** The project owner shall use a qualified individual to measure the strengths of the electric and magnetic fields from each line at the points of maximum intensity along its route. The measurements shall be made after energization according to the American National Standard Institute/Institute of Electrical and Electronic Engineers (ANSI/IEEE) standard procedures. These measurements shall be completed not later than six months after the start of operations.

**Verification:** The project owner shall file copies of the post-energization measurements with the CPM within 60 days after completion of the measurements.

**TLSN-3** The project owner shall ensure that the rights-of-way of the transmission lines is kept free of combustible material, as required under the provisions of section 4292 of the Public Resources Code and section 1250 of Title 14 of the California Code of Regulations.

**Verification:** During the first 5 years of plant operation, the project owner shall provide a summary of inspection results and any fire prevention activities carried out along the right-of-way of the line and provide such summaries in the Annual Compliance Report.

**TLSN-4** The project owner shall ensure that all permanent metallic objects within the right-of-way of the project-related line is grounded according to industry standards.

**Verification:** At least 30 days before the line is energized, the project owner shall transmit to the CPM a letter confirming compliance with this Condition.

# V. PUBLIC HEALTH AND SAFETY

## A. GREENHOUSE GAS (GHG) EMISSIONS

### 1. Introduction and Summary

The generation of electricity using fossil fuels, such as the natural gas that the Mariposa Energy Project will consume, produces both "criteria pollutants" and greenhouse gas (GHG) emissions. Criteria pollutants are emissions that are known to adversely affect public health and for which regulatory agencies have established legal "criteria" which limit both the amount of the pollutants that may be emitted as well as the concentrations of the pollutants in the air. The project's criteria pollutant emissions and its compliance with applicable air quality laws are discussed in the Air Quality section of this Decision. This section assesses the GHG emissions that are likely to result from the construction and the operation of the project.

The GHG's consist of carbon dioxide ($CO_2$), nitrous oxide ($N_2O$), methane ($CH_4$), sulfur hexafluoride ($SF_6$), hydrofluorocarbons (HFC), and perflurocarbons (PFC). $CO_2$ emissions are far and away the most common of these emissions; as a result, even though the other GHGs have a greater impact on climate change on a per-unit basis, GHG emissions are often expressed in terms of "metric tons of $CO_2$-equivalent" ($MTCO_2e$) for simplicity. (Ex. 301, p. 4.1-77.)

There is general scientific consensus that climate change is occurring and that man-made emissions of GHG, if not sufficiently curtailed, are likely to contribute further to continued increases in global temperatures. (Ex. 301, p. 4.1-74.) Adding GHG to the atmosphere increases the insulating power of the air and thereby traps more heat at and near the earth's surface. The California Legislature has declared that "[g]lobal warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California." (Health & Saf. Code, § 38500.) (*Id*.)

In this part of the Decision we determine that:

- The Mariposa Energy Project's construction-produced GHG emissions will be insignificant;

- From a physical standpoint, the GHG emissions from a power plant's operation should be assessed not by treating the plant as a standalone facility

operating in a vacuum, but rather in the context of the operation of the entire electricity system of which the plant is an integrated part;

- From a policy and regulatory standpoint, the GHG emissions from a power plant's operation should be assessed in the context of the state's GHG laws and policies, such as AB 32; and

- The Mariposa Energy Project's operation will be consistent with the state's GHG policies and will help achieve the state's GHG goals, by (1) causing a decrease in overall electricity system GHG emissions; and (2) fostering the addition of renewable generation into the system, which will further reduce system GHG emissions.

As a result we find that the Mariposa Project's GHG emissions will comply with all applicable LORS (identified below in **Greenhouse Gas Table 1**) and will not result in any significant environmental impacts. We also find that the project is consistent with California's ambitious GHG goals and policies.

2. Policy and Regulatory Framework

As the Legislature stated 35 years ago, "it is the responsibility of state government to ensure that a reliable supply of electrical energy is maintained at a level consistent with the need for such energy for protection of public health and safety, for promotion of the general welfare, and for environmental quality protection." (Pub. Res. Code, § 25001.) Today, as a result of legislation, the most recent aspect of "environmental quality protection" is the reduction of GHG emissions. Several laws and statements of policy are applicable as shown by **Greenhouse Gas Table 1** below.

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**Greenhouse Gas Table 1**
**Laws, Ordinances, Regulations, and Standards (LORS)**

| Applicable LORS | Description |
|---|---|
| **Federal** | |
| Mandatory Reporting of Greenhouse Gases (40 CFR 98, Subpart D) | This rule requires mandatory reporting of GHG emissions for facilities that emit more than 25,000 metric tons of $CO_2$ equivalent emissions per year. |
| **State** | |
| California Global Warming Solutions Act of 2006, AB 32 (Stats. 2006; Chapter 488; Health and Safety Code sections 38500 et seq.) | California Global Warming Solutions Act of 2006. This act requires the California Air Resources Board (ARB) to enact standards that will reduce GHG emissions to 1990 levels. Electricity production facilities will be regulated by the ARB. |
| California Code of Regulations, tit. 17, Subchapter 10, Article 2, sections 95100 et. seq. | ARB regulations implementing mandatory GHG emissions reporting as part of the California Global Warming Solutions Act of 2006 (Stats. 2006; Chapter 488; Health and Safety Code sections 38500 et seq.) |
| California Code of Regulations, tit. 20, section 2900 et seq.; CPUC Decision D0701039 in proceeding R0604009 | The regulations prohibit utilities from entering into long-term contracts with any base load facility that does not meet a greenhouse gas emission standard of 0.5 metric tonnes carbon dioxide per megawatt-hour (0.5 $MTCO_2$/MWh) or 1,100 pounds carbon dioxide per megawatt-hour (1,100 lb $CO_2$/MWh). |

(Ex. 301, p. 4.1-74.)

a. AB 32

The organizing framework for California's GHG policy is set forth in the California Global Warming Solutions Act of 2006. [Assembly Bill 32, codified in Health & Safety Code, § 38560 et seq. (hereinafter AB 32).] AB 32 requires the California Air Resources Board ("CARB") to adopt regulations that will reduce statewide GHG emissions, by the year 2020, to the level of statewide GHG emissions that existed in 1990. Gubernatorial Executive Order S-3-05 (June 1, 2005) requires a further reduction, to a level 80 percent below the 1990 GHG emissions, by the year 2050. (Ex. 301, p. 4.1-75.)

The Energy Commission recognizes that meeting the AB 32 goals is vital to the state's economic and environmental health. CARB staff is developing regulatory language to implement its plan and holds ongoing public workshops on key elements of the recommended GHG reduction measures, including market mechanisms. The scoping plan adopted by CARB relies heavily on cost-effective energy efficiency and demand response, renewable energy, and other priority

resources in the loading order (discussed below) to achieve significant reductions of emissions in the electricity sector by 2020. Even more dramatic reductions in electricity sector emissions would likely be required to meet California's 2050 greenhouse gas reduction goal. Facilities under our jurisdiction, such as the Mariposa Energy Project, must be consistent with these policies. (Ex. 301, p. 4.1-75.)

In addition to AB 32, there are several other important components of the GHG policy and regulatory structure.

b. Renewable Portfolio Standard

California statutory law requires the state's utilities to provide at least 20 percent of their electricity supplies from renewable sources by the year 2020. (Pub. Util. Code, § 399.11 et seq.) Recent gubernatorial Executive Orders increase the requirement to 33 percent and require CARB to adopt regulations to achieve the goal. [Governor's Exec. Orders Nos. S-21-09 (Sept. 15, 2009), S-14-08 (Nov. 17, 2008).] (Ex. 301, pp. 4.1-75 - 76.)

c. Emissions Performance Standard

Senate Bill (SB) 1368 of 2006, and regulations adopted by the Energy Commission and the Public Utilities Commission pursuant to the bill, prohibit utilities from entering into long-term commitments with any facilities having a capacity factor greater than or equal to a 60 percent that exceed an Emission Performance Standard (EPS) of 0.500 metric tonnes of $CO_2$ per megawatt-hour. This is the equivalent of 1,100 pounds $CO_2$/MWh. (Pub. Util. Code, § 8340 et seq.; Cal. Code Regs., tit. 20, § 2900 et seq.; CPUC D0701039.) Currently, the EPS is the only LORS that limits power plant emissions. (Ex. 301. p. 4.1-76.)

d. Loading Order

In 2003 the Energy Commission and the CPUC agreed on a "loading order" for meeting electricity needs. The first resources that should be added are energy efficiency and demand response (at the maximum level that is feasible and cost-effective) followed by renewables, distributed generation and combined heat and power (also known as cogeneration) and finally efficient fossil sources and infrastructure development.[1] CARB's AB 32 Scoping Plan reflects these policy

[1] California Energy Commission 2008, *2008 Integrated Energy Policy Report Update*, (IEPR) (CEC-100-2008-008-CMF.)

preferences. (California Air Resources Board, Climate Change Scoping Plan, December 2008).

e. CEQA Guidelines on GHG Emissions

The California Natural Resources Agency recently amended its Guidelines for Implementation of the California Environmental Quality Act ("CEQA Guidelines") to address greenhouse gas emissions. The Guidelines direct lead agencies "to make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate the amount of greenhouse gas emissions resulting from a project," and permit agencies to "use a model or methodology to quantify greenhouse gases . . . and/or . . . rely on qualitative analysis or performance-based standards." (Tit. 14 Cal. Code Regs. §15064.4(a)).

The Guidelines set forth three factors for a lead agency to consider, among others, in assessing the significance of impact from GHG emissions and the environment: "(1) The extent to which the project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting; (2) Whether the project emissions exceed a threshold of significance that the lead agency applies to the project; [and] (3) The extent to which the project complies with regulations or requirements adopted to implement a statewide regional or local plan for the reduction or mitigation of greenhouse gas emissions." (*Id.)* While the Guidelines do not specify any threshold of significance for GHGs, they continue to encourage agencies to adopt quantitative thresholds of significance for pollutants through a formal rulemaking process, and the amendments to expressly allow agencies to "consider thresholds previously adopted or recommended by other public agencies or recommended by experts, provided the decision of the lead agency to adopt such a threshold is supported by substantial evidence." (Tit. 14 Cal. Code Regs. §15064.7).

f. Energy Commission Precedent

Implementation of the State and Energy Commission policies discussed above should result in increasing availability and flexibility of renewable generation. Gas-fired power plants such as Mariposa currently play a role in advancing the State's climate and energy goals by displacing less-efficient generation resources and facilitating the integration of renewables into the system. However, as the Energy Commission observed in its December 2009 decision on the Avenal Energy Project (08-AFC-01), the ability of gas-fired generation to contribute to the State's climate and energy goals is limited. The availability of

renewable generation will increase as new projects are licensed and built and the technology develops. Efficiency and conservation measures have already had a substantial impact on California's energy consumption, and new measures continue to be implemented. We therefore expect that the proportion of gas generation in the state's generation mix will gradually diminish. Accordingly, we must evaluate the consistency of each proposed gas-fired power plant with these policies in order to ensure that we license only those plants which will help to reduce GHG.

In Avenal, the Energy Commission used a three-part test to aid in its analysis of a proposed gas-fired plant's ability to advance the goals and policies described above. Gas-fired plants must:

1. Not increase the overall system heat rate for natural gas plants;

2. not interfere with generation from existing renewable facilities nor with the integration of new renewable generation; and

3. reduce system-wide GHG emissions and support the goals and policies of AB 32.[2]

While Avenal was decided before the Natural Resources Agency amended its Guidelines to specifically address GHG Emissions, we find the above factors to be consistent with the CEQA Guidelines, particularly the guidance set forth in Title 20 Cal. Code Regs. §15064.4(b)(1) & (3).

We now turn to a discussion of whether, and how well, the project would comply with the above-stated policies.

3. Construction Emissions Impacts

Power plant construction involves vehicles and other equipment that emit GHG. The Mariposa Energy Project's construction emissions are projected at 1,932 metric tons of $CO_2$-equivalent GHG during the 18-month construction period. (Ex. 301, p. 4.1-78.) By way of comparison, as discussed in the next section Staff estimates that if operated for 4000 hours per year as permitted, the project would emit 432,933 metric tons annually, although Staff expects the project to actually

[2] *Final Commission Decision on the Avenal Energy Application for Certification,* p. 101; [http://www.energy.ca.gov/sitingcases/avenal/documents/index.html]).

operate 35 percent of the number of hours permitted.[3] In any case, it is clear that annual operational emissions will be many times greater than total construction emissions.

As noted above, the CEQA Guidelines do not specify any threshold of significance for the emission of GHGs during project construction. In Avenal, we observed that draft guidance from CARB staff recommends a "best practices" performance standard for construction emissions of industrial projects, because construction emissions tend to be much smaller than operational emissions. [*See* CARB, Preliminary Draft Staff Proposal, *Recommended Approaches for Setting Interim Significance Thresholds for Greenhouse Gases under the California Environmental Quality Act* (Oct. 24, 2008), p. 9 [**www.opr.ca.gov/ceqa/pdfs/ Prelim_Draft_Staff_Proposal_10-24-08.pdf]**.

Last year, the Bay Area Air Quality Management District (BAAQMD) adopted Air Quality Guidelines which treat GHG emissions from construction in a manner similar to the CARB's Preliminary Draft Staff Proposal. The Guidelines do not specify a threshold of significance for construction-related GHG emissions, but encourage lead agencies "to incorporate best management practices to reduce GHG emissions during construction, as applicable. Best management practices may include, but are not limited to: using alternative fueled (e.g., biodiesel, electric) construction vehicles/equipment of at least 15 percent of the fleet; using local building materials of at least 10 percent; and recycling or reusing at least 50 percent of construction waste or demolition materials." (*See* BAAQMD, California Environmental Quality Act Air Quality Guidelines, p. 81 approved June 2, 2010 [**www.baaqmd.gov/~/media/Files/Planning%20and%20Research/ CEQA/BAAQMD%20CEQA%20Guidelines_December%202010.ashx]**).

The South Coast Air Quality Management District (SCAQMD) approved a different approach to significance of GHG impacts at its December 5, 2008 Board Meeting. Rather than set a threshold for operational emissions, construction emissions are amortized over the life of a project and considered in combination with operational emissions. [See Proposal to Adopt Interim CEQA GHG Significance Threshold for Stationary Sources, **[www.aqmd.gov/hb/w008/December/081231a.htm]**.[4] Applying the SCAQMD

[3] The project is permitted to operate 4000 hours, but is expected by Staff to operate only 1400 hours. (Ex. 301, p. 4.1-21.)

[4] SCQAMD has adopted a somewhat complicated tiered approach to determining the threshold of significance for GHG emission from operations (including amortized construction emissions).

approach to MEP, GHG emission from construction of MEP, amortized annually over the life of a project, would be 65 $MTCO_2e$ tons per year, a tiny fraction of a percent of estimated annual emissions from operation.

Nevertheless, we support the application of a performance standard as recommended by CARB, adopted by BAAQMD, and applied in Avenal, which will minimize GHG construction emissions. We find this approach to be consistent with the CEQA Guidelines which permit reliance on performance-based standards. (14 Cal. Code Regs. §15064.4(a)(2).)

We understand that "best practices" include the implementation of all feasible methods to control construction-related GHG emissions. In order to limit vehicle emissions of both criteria pollutants and GHG during construction, the project owner will use (1) operational measures, such as limiting vehicle idling time and shutting down equipment when not in use; (2) regular preventive maintenance to manufacturer specifications; (3) low-emitting diesel engines meeting federal emissions standards for construction equipment, whenever available; and (4) equipment that meets the latest criteria emissions standards. These are the current "best practices" for limiting emissions from construction equipment and no party suggested otherwise. (Ex. 301, pp. 4.1-48, 4.1-73, see Condition of Certification **AQ-SC5**.)

We find that the measures described above to directly and indirectly limit the emission of GHGs during the construction of the Mariposa Energy Project are in accordance with current best practices. We also note that the GHG emissions anticipated from construction are minimal compared with anticipated operational emissions. GHG emissions will be intermittent and mitigated during that time due to the implementation of the best practices. We therefore find that the GHG emissions from short-term construction activities will not result in a significant adverse impact.

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Essentially, annual emissions greater than 10,000 $MTCO_2e$ per year are deemed potentially significant, though projects found to be consistent with a GHG emissions reduction plan are exempt from a numerical threshold. [See Proposal to Adopt Interim CEQA GHG Significance Threshold for Stationary Sources **[www.aqmd.gov/hb/w008/December/081231a.htm**. GHG emissions from potential operation of the MEP facility are discussed in the next section.

4. Operations Emissions Impacts

a. Mariposa Energy Project Emissions

The MEP will provide a nominal capacity of 190 MW through four stationary combustion turbine-generators (four General Electric LM-6000 PC-Sprint) operating in simple-cycle mode with associated equipment. The MEP will would provide peaking power, and it will be permitted to operate at an annual capacity factor of up to 46 percent. The actual operational profile of this peaking plant will depend on the variable demand for electricity, the supply of other generation including intermittent renewable resources, and the need to provide year-round electricity reliability. The Applicant selected this technology to suit California's expected needs in integrating intermittent renewable energy. (Ex. 301, p. 4.1-78)

The primary sources of GHG emissions would be the natural gas fired combustion turbines. There would also be a small amount of GHG emissions from sulfur hexafluoride ($SF_6$) leaking from new electrical equipment. The employee and delivery traffic GHG emissions from off-site activities are negligible in comparison with the gas turbine GHG emissions. (Ex. 301, p. 4.1-78)

**Greenhouse Gas Table 2** shows what the proposed project, as permitted, could potentially emit in greenhouse gases on an annual basis if it operated at its maximum annual capacity factor of 46 percent. All emissions are converted to $CO_2$-equivalent and totaled. Electricity generation GHG emissions are generally dominated by $CO_2$ emissions from the carbon-based fuels; other sources of GHG are typically small and also are more likely to be easily controlled or reused/recycled, but are nevertheless documented here as some of the compounds have very high relative global warming potentials. A small amount of new $SF_6$ containing equipment will be required for this project, and the leakage of $SF_6$ and its $CO_2$ equivalent emissions have been estimated. (Ex. 301, p. 4.1-78)

**Greenhouse Gas Table 2**

**Estimated Potential Greenhouse Gas (GHG) Emissions**

| **Emissions Source** | **Operational GHG Emissions (MTCO2E/yr)** [a] |
|---|---|
| Combustion Turbine Generators (Four CTGs) | 432,848 |
| Fire Water Pump Engine | 58 |
| Worker Commutes (Off-Site) | 86 |
| Material Deliveries (Off-Site) | 10 |
| Equipment Leaks (SF6) | 28 |
| **Total Project GHG Emissions, excluding Off-Site Emissions (MTCO2E/yr)** | **432,933** |
| Estimated Annual Energy Output (MWh/yr) [b] | **798,000** |
| **Estimated Annualized GHG Performance** (MTCO2/MWh) | **0.540** |

Source: Ex. 301, p. 4.1-79
Notes:
a. One metric tonne (MT) equals 1.1 short tons or 2,204.6 pounds or 1,000 kilograms.
b. Based on maximum permitted capacity of approximately 46 percent annually (BAAQMD 2010c).

The project will be permitted, on an annual basis, to emit nearly 433,000 metric tonnes of $CO_2$-equivalent per year if operated at its maximum permitted level, though, as noted above, it is expected by Staff to operate only 35% of the number of hours permitted. [See *supra,* footnote 3.] The MEP, at 0.54 MTCO2/MWh, will exceed the limits of SB 1368 and the Greenhouse Gas Emission Performance Standard of 0.500 MTCO2/MWh for base load generation. However, this simple-cycle facility will be limited by local air district permit conditions to no more than a 46 percent annual capacity factor (Ex. 302). This demonstrates that the facility would not be base load generation and that the MEP is not designed or intended to operate at greater than 60 percent capacity factor. Therefore, the project does not have to meet the EPS limit. (Ex. 301, p. 4.1-79)

b. Determining Significance: the Necessity of a System Approach

The process of electricity generation, production, and consumption is unique compared to other industrial projects. As a result, assessing the GHG impacts of power plants requires an approach that is different from the approach taken to analyze any other type of project, whether the analysis is scientific or legal.

In general, when an agency conducts a CEQA analysis of a project such as a proposed factory, shopping mall, or residential subdivision, it does not need to analyze how the operation of the proposed project will affect the larger system or

group of factories, malls, or houses in a large multistate region. Rather, such projects are generally analyzed and evaluated on a stand-alone basis. The analysis and evaluation for power plants is, by necessity, different.

California's electricity system – which is actually a system serving the entire western region of the U.S., Canada, and Mexico – is large and complex. Hundreds of power plants, thousands of miles of transmission and distribution lines, and millions of points of electricity demand operate in an interconnected, integrated, and simultaneous fashion. Because the system is integrated, and because electricity is produced and consumed instantaneously, and will be unless and until large-scale electricity storage technologies are available, any change in demand and, most important for this analysis, any change in output from any generation source, is likely to affect the output from all generators. (*Committee Guidance on Fulfilling California Environmental Quality Act Responsibilities for Greenhouse Gas Impacts in Power Plant Siting Applications,* CEC-700-2009-004; hereinafter: "Committee CEQA Guidance")[5]

Not only is the electricity system integrated physically, but also operates as such. The California Independent System Operator (CAISO) is responsible for operating the system so that it provides power reliably and at the lowest cost. Thus the CAISO dispatches generating facilities generally in order of cheapest to operate (i.e., typically the most efficient) to most expensive (i.e., typically the least efficient). (Committee CEQA Guidance, p. 20.) Because operating cost is correlated with heat rate (the amount of fuel that it takes to generate a unit of electricity), and, in turn, heat rate is directly correlated with emissions (including GHG emissions), *when one power plant runs, it usually will take the place of another facility with higher emissions that otherwise would have operated* (emphasis added). (Committee CEQA Guidance, *2007 IEPR*.)

In sum, the unique way power plants operate in an integrated system means that we must assess their operational GHG emissions on a system-wide basis rather than on a stand-alone basis.

[5] The report was issued in March 2009 and is found on the Commission website at: **http://www.energy.ca.gov/2009publications/CEC-700-2009-004/CEC-700-2009-004.PDF**

We now turn to the specifics of the project's operation.

c. Mariposa's Effects on the Electricity System

(1) Providing Capacity and Ancillary Services

Power plants serve a variety of functions. Most obviously, they provide energy to keep lights shining and machinery working (typically referred to as "load"). But in order to keep the system functioning properly, they must also meet local needs for capacity and for the "ancillary services" of regulation, spinning reserve, non-spinning reserve, voltage support, and black start capability. (Ex. 301, pp.4.1- 76, 82 – 83.)

As more renewable generation is introduced into the system, gas-fired power plants such as Mariposa will be necessary to provide intermittent generation support, grid operations support, extreme load and system emergencies support, and general energy support, as well as meet local capacity requirements. At this time, gas-fired plants are better able to provide such services than are most renewables because they can be called upon when they are needed (dispatchable). (Ex. 301, p. 4.1-77.)

(2) Displacement of More-Costly, Less-Efficient, and Higher-Emitting Power Plants

The MEP will have a heat rate 10,187 Btu/kWhr. (Ex. 301, p. 4.1-82.) The heat rate, energy output and GHG emissions of other local generation resources are listed in **Greenhouse Gas Table 3**. There are few other existing peaker power plants in the Greater San Francisco Bay Area. Compared to the other existing power plants that remain in place to provide local reliability and that the MEP would be likely to displace, the MEP would be more efficient and emit fewer GHG emissions during any hour of operation. **Greenhouse Gas Table 3** shows that MEP would have a lower heat rate than many of the existing generating facilities currently used for peaking capacity in the Greater Bay Area. As such, the MEP would not increase the overall system heat rate for natural gas-fired power plants. (Ex. 301, pp. 4.1-81 - 82.)

**Greenhouse Gas Table 3**
**Greater Bay Area and San Joaquin County**
**Local Generation Heat Rates and 2009 Energy Outputs**

| Plant Name | Heat Rate (Btu/kWh) [a] | 2009 Energy Output (GWh) | GHG Performance (MTCO2/MWh) |
|---|---|---|---|
| Lodi STIG | 8,999 | 33.1 | 0.477 |
| Riverview Energy Center | 10,162 | 18.5 | 0.539 |
| MID Ripon 1 | 11,438 | 42.7 | 0.606 |
| Tracy Peaker Plant | 12,700 | 21.2 | 0.675 |
| Moss Landing, Unit 6 | 10,211 | 227.2 | 0.541 |
| Moss Landing, Unit 7 | 9,958 | 477.1 | 0.528 |
| Contra Costa Power Plant, Unit 6 | 13,499 | 21.1 | 0.716 |
| Contra Costa Power Plant, Unit 7 | 11,182 | 176.9 | 0.593 |
| Pittsburg Power Plant, Unit 5 | 11,461 | 103.2 | 0.608 |
| Pittsburg Power Plant, Unit 6 | 11,918 | 84.4 | 0.632 |
| Pittsburg Power Plant, Unit 7 | 14,629 | 29.3 | 0.776 |
| Potrero Power, Peaker, Unit 4 | 16,708 | 1.47 | 0.886 |
| Potrero Power, Peaker, Unit 5 | 15,780 | 1.79 | 0.837 |
| Potrero Power, Peaker, Unit 6 | 16,057 | 1.43 | 0.851 |
| **Proposed MEP** | **10,187** | **798 (max est.)** | **0.540** |

Ex. 301, p. 4.1-82

Intervenor, Robert Sarvey argues that Energy Commission staff's GHG analysis is inadequate because the net worst-case heat rate of the MEP, which is approximately 10,187 Btu/kWh, "is higher than the average system- wide heat rate for California which in 2002 was about 9,750 BTU/kWh." (Sarvey, Opening Brief, p. 10.) Comparing the MEP's net worst-case heat rate to the 2002 average system-wide heat rate is an "apples to oranges" comparison. His comparison ignores the project- specific GHG analysis which shows the heat rate, 2009 electrical production, and GHG performance for power plants within the Greater Bay Area load pocket as compared to the MEP contained in **Greenhouse Gas Table 3,** above**.** Rather than focusing on projects located throughout the California electrical system, Staff's analysis focused on existing power plants that could actually be displaced by MEP and concluded that MEP's net worst-case heat rate of 10,187 Btu/kWh was more efficient than all but three of the 14 plants identified, and MEP would likely be higher in the Greater Bay Area loading order than the most of these plants. (Ex. 301, p. 4.1-82.)

Further, Mr. Sarvey compares MEP's net worst-case heat rate to the gross heat rates (without considering plant parasitic loads) for the three versions of the LM-6000 turbine analyzed by the BAAQMD in the FDOC. (Ex. 302, Table 1, p. 8.) Table 1 of the FDOC shows that the difference in heat rates between the three versions of the LM-6000 turbines is between 3 and 4 percent. However, this

improvement in gross heat rate comes with a penalty in the form of a reduction in gross electrical output of approximately 4 to 6 percent. (Ex. 302, Appendix C, p. 23.) BAAQMD concluded in the FDOC that the difference in efficiency and heat rate was not sufficient to reject the version of the LM-6000 turbine proposed by MEP and noted that the other LM-6000 versions analyzed by BAAQMD did not meet project objectives. (Ex. 302, Appendix C, pp. 23-24.)

The heat rate of the MEP is less than that of nearly every comparable facility in the Greater Bay Area where the MEP would interconnect. (Ex. 301, pp. 4.1-82 GHG Table 4, 4.1-90.) Furthermore, the record shows that as California moves to a high renewable/low-GHG electricity system, non-renewable generation will have to be reduced by as much as 36,000 GWhs per year resulting in a net electricity system GHG emissions decrease. (Ex. 301, p. 4.1-84, GHG Table 5**.**) Highly dispatchable simple cycle projects, like the MEP, are the key to integrating renewables and firming the grid by operating when capacity and ancillary services are needed, while allowing the retirements or curtailments of those legacy fossil units Mr. Sarvey refers to. (Ex. 301, p. 4.1-89, GHG Table 8**.**)

(3) Fostering Renewables Integration

Most new renewable generation in California will be wind and solar generated power. But the wind and the sun are not continuous, on-demand resources. As a result, in order to rely on such intermittent sources of renewable-generated power, utilities must have available other, nonrenewable generating resources or significant storage that can fill the gap when renewable generation decreases. Indeed, because of this need for backup generation, or if and when utility-scale storage becomes feasible and cost-effective, nonrenewable generation must increase in order for the state to meet California's RPS and GHG goals. (Ex. 301, p. 4.1-82.)

The MEP would provide flexible, highly dispatchable, fast starting,[6] and fast ramping[7] power consistent with the CAISO use of these terms, and it would not obstruct penetration of renewable energy. The MEP is likely to serve as an important firming source for intermittent renewable resources in support of California's RPS and GHG goals. The simple-cycle gas turbines would support

[6] Energy Commission staff identified facilities with startup times less than 2 hours as *fast-start* in the report Expected Roles for Gas-Fired Generation (Ex. 301, p. 4.1-82). The CAISO categorizes units with startup times less than 10 minutes as *fast-start* and units with startup times less than 2 hours as *short-start* in the report for 2010 Integration of Renewable Resources (CAISO 2010).

[7] The CAISO categorizes *fast-ramping* as a generator capable of going from lowest power to highest in under 20 minutes, or greater than 10 MW per minute.

the CAISO need for flexible and dispatchable resources. Each of the four turbines would be capable of starting up and reaching full load in approximately 10 minutes with emissions stabilized at permitted levels or lower within 30 minutes (Ex. 1, section 2.3.2). This would provide CAISO with an ancillary service of approximately 190 MW of non-spinning reserves. The MEP also would have very low minimum operating times, which means that it can be started and ramped up quickly, then shutdown after a short duration to enhance the integration and backup of intermittent renewable deliveries. (Ex. 301, p. 4.1-75.)

The flexibility of California's fleet of fossil fuel generation, including those in the Bay Area listed in **Table 3** above, will need to be significantly increased to meet the statewide 20 percent RPS[8]; the 33 percent RPS will require even more flexibility to integrate the renewables. Both Intervenors Sarvey and Sierra Club California argue in their briefs that there is no need for the MEP. In the **Alternatives** section of this Decision, we explained that the question of the need for the power plant rests within the jurisdiction of the CPUC. The CPUC has already determined that the MEP is needed for dispatchable peaking power with quick start and spinning reserve capabilities that will provide "firming" for intermittent renewable resources. (Exs. 1, pp. 1-1, 6-2; 4, pp. 16, 109; 8, Attachment DR2-1, p. 1; 13, p. 21; 14, p.4; 67, p. 2.) We find that power plants with the operational flexibility of and offering the ancillary services provided by the MEP are needed by California to meet its renewable energy policy goals.

This does not imply, however, that the existing and new fossil fuel capacity will operate more. Greenhouse Gas Table 4 shows how the build-out of either the 20 percent or the 33 percent statewide RPS goal will affect generation from new and existing non-renewable resources. Should California reach its goal of meeting 33 percent of its retail demand in 2020 with renewable energy, non-renewable, most likely fossil-fueled, energy needs will fall by over 36,000 GWh/year. In other words, all growth will need to come from renewable resources to achieve the 33 percent RPS. And some existing and new fossil units will generate less energy than they currently do, given the expected growth in retail sales of renewables. (Ex. 301, pp. 4.1-75 - 4.1-76.)

[8] California Independent System Operator. Integration of Renewable Resources. Operational Requirements and Generation Fleet Capability at 20% RPS. August 31, 2010

**Greenhouse Gas Table 4**
**Estimated Changes in Non-Renewable Energy Potentially Needed to Meet California Loads, 2008 to 2020**

| **California Electricity Supply** | **Annual GWh** | |
|---|---|---|
| Statewide Retail Sales, 2008, actual [a] | 264,794 | |
| Statewide Retail Sales, 2020, forecast [a] | 289,697 | |
| Growth in Retail Sales, 2008-20 | 24,903 | |
| Growth in Net Energy for Load, 2008-20 [b] | 29,840 | |
| **California Renewable Electricity** | **GWh @ 20% RPS** | **GWh @ 33% RPS** |
| Renewable Energy Requirements, 2020 [c] | 57,939 | 95,600 |
| Current Renewable Energy, 2008 | 29,174 | |
| Change in Renewable Energy, 2008-20 [c] | 28,765 | 66,426 |
| Resulting Change in Non-Renewable Energy | 176 | -36,586 |

Ex. 301, p. 4.1-84

Notes:

a. 2009 IEPR Demand Forecast, Form 1.1c. Excludes pumping loads for entities that do not have an RPS.
b. 2009 IEPR Demand Forecast, Form 1.5a.
c. RPS requirements are a percentage of retail sales.

We find that the MEP would not interfere with generation from existing renewable facilities nor with the integration of new renewable generation. The MEP is designed to operate for reliability, namely for backup and renewable integration purposes, with a low annual capacity factor The MEP would be much more likely to foster integration of renewable energy than comparable non-renewable base load or intermediate energy resources.

We therefore find that GHG emissions from operation activities will not have a significant environmental impact.

5. The Role of New Natural Gas Power Plants

At present, the California electricity system needs new efficient gas-fired generation to displace and replace less efficient generation, and to help integrate additional intermittent renewable generation. But as new gas plants are built to meet those needs, the system will change; moreover, the specific location, type, operation, and timing of each plant will be different. As a result, each plant will have somewhat different impacts. Furthermore, future implementation of efficiency and demand response measures, and new technologies such as storage, smart grid, and distributed generation, may also significantly change the physical needs and operation of the electrical system. It is therefore reasonable to assume that at some point in the future there will be a decrease in the need for additional gas-fired generation. Therefore, we cannot and should not continue

adding gas-fired plants *ad infinitum.* Rather, we will analyze each such project in light of the goals and policies discussed above.

In this case, the evidence establishes that the MEP will not increase the system heat rate as it has a lower heat rate than many of the generators in the San Joaquin Valley and San Francisco Bay/Delta areas. It will support, rather than interfere with, existing and new renewable generation. Finally, it will reduce system-wide GHG emissions and otherwise support the goals of AB 32. We find the proposed project is consistent with state energy policy, and will help the state achieve its renewable energy goals.

## PUBLIC COMMENT

Intervenor, **Rajesh Dighe**, filed written comments that claim that the state "is going against its own Renewable Energy Generation AB32 initiative to reduce GHG emissions" but does not specify how. Identical form letters were received from **Hui Chen, Tony Zhou, Simon Wu, Wentao Li, the Samat family, Linda X. Zhao** and **Kishor M. Bhatt**. In a later filed comment, **Mr. Dighe** suggests rooftop solar panels and voluntary conservation via community education as an alternative. As explained above, MEP operation will foster the achievement of the GHG goals of AB 32.

## FINDINGS OF FACT

1. The GHG emissions from Mariposa Energy Project construction are likely to be 1932 $MTCO_2$ equivalent ("$MTCO_2E$") during the 18-month construction period.

2. There is no numerical threshold of significance under CEQA for construction-related GHG emissions.

3. The three-part test used in Avenal (08-AFC-01) is consistent with the CEQA Guidelines, particularly the guidance set forth in 20 Cal. Code Regs. §15064.4(b)(1) & (3).

4. Construction-related GHG emissions will be less than significant if they are controlled with best practices.

5. The project will use best practices to control its construction-related GHG emissions.

6. State government has a responsibility to ensure a reliable electricity supply, consistent with environmental, economic, and health and safety goals.

7. California utilities are obligated to meet whatever demand exists from any and all customers.

8. The maximum annual $CO_2$ emissions from the Mariposa Energy Project's operation will be 432,933 $MTCO_2E$, which constitutes an emissions performance factor of 0.54 $MTCO_2E$ / MWh.

9. Under SB 1368 and implementing regulations, California's electric utilities may not enter into long-term commitments with base load power plants with $CO_2$ emissions that exceed the Emissions Performance Standard ("EPS") of 0.500 $MTCO_2$/MWh.

10. The EPS in SB 1368 is the only LORS that limits power plant emissions.

11. The Mariposa Energy Project's operation would be limited by local air district permit conditions to no more than a 46 percent annual capacity factor .

12. Because it will operate below a capacity factor of 60 percent the project is not a base load facility and is exempt from the EPS limit.

13. The California Renewable Portfolio Standard (RPS) requires the state's electric utilities obtain at least 33 percent of the power supplies from renewable sources, by the year 2020.

14. California's power supply loading order requires California utilities to obtain their power first from the implementation of all feasible and cost-effective energy efficiency and demand response, then from renewables and distribution generation, and finally from efficient fossil-fired generation and infrastructure improvement.

15. Even as more renewable generation is added to the California electricity system, gas-fired power plants such as the Mariposa Energy Project will be necessary to meet local capacity requirements and to provide intermittent generation support, grid operations support, extreme load and system emergencies support, and general energy support.

16. There is no evidence in the record indicating that construction or operation of the Mariposa Energy Project will be inconsistent with the loading order.

17. When it operates, the Mariposa Energy Project will have a heat rate of 10,187 Btu/kWhr.

18. When it operates, the Mariposa Energy Project will displace generation from less-efficient (i.e., higher-heat-rate and therefore higher-GHG-emitting) power plants in the Greater Bay Area.

19. The Mariposa Energy Project's operation will reduce overall GHG emissions from the electricity system.

20. Intermittent solar and wind generation will account for most of the installation of renewables in the next few decades.

21. Intermittent generation needs dispatchable generation, such as the Mariposa Energy Project, in order to be integrated effectively into the electricity system.

22. The Mariposa Energy Project's operation will foster the addition of renewable generation into the electricity system, which will further reduce system GHG emissions.

23. Power-plants with the operational flexibility of and offering the ancillary services provided by the Mariposa Energy Project are needed by California to meet its renewable energy policy goals

24. The addition of some amount of efficient, dispatchable, natural-gas-fired generation will be necessary to integrate renewables into California's electricity system and meet the state's RPS and GHG goals, but the amount is not without limit.

**CONCLUSIONS OF LAW**

1. The Mariposa Energy Project's construction-related GHG emissions will not cause a significant environmental impact.

2 The Mariposa Energy Project's operational GHG emissions will not cause a significant environmental impact.

4. The Mariposa Energy Project's GHG emissions are exempt from the EPS limits established by SB 1368.

5. The Mariposa Energy Project's operation will help California utilities meet their RPS obligations.

6. The Mariposa Energy Project operation will be consistent with California's loading order.

7. The Mariposa Energy Project operation will foster the achievement of the GHG goals of AB 32 and Executive Order S-3-05.
8. The GHG emissions of any power plant must be assessed within the system on a case-by-case basis.

9. The Mariposa Energy Project will not increase the overall system heat rate for natural gas plants.

10. The Mariposa Energy Project will not interfere with generation from existing renewables or with the integration of new renewable generation.

11. The Mariposa Energy Project will reduce system-wide GHG emissions.

12. Any new natural-gas-fired power plant that we certify must:

    a) not increase the overall system heat rate for natural gas plants;
    b) not interfere with generation from existing renewables or with the integration of new renewable generation; and
    c) have the ability to reduce system-wide GHG emissions.

We find that MEP is consistent with these requirements.

## B. AIR QUALITY

This section examines the potential adverse impacts of criteria air pollutant emissions resulting from project construction and operation. In consultation with the local air pollution control district, the Commission determines whether the project will likely conform with applicable LORS, whether it will likely result in significant air quality impacts, including violations of ambient air quality standards, and whether the project's mitigation measures will likely reduce potential impacts to insignificant levels.

Applicant and Staff reached agreement on all relevant issues, including the Conditions of Certification. The evidence contained in the record is undisputed. (Exs. 1; 2; 4; 5; 6; 7; 8; 9; 11; 13; 14; 21; 22; 33; 34; 37; 46; 47; 48; 52; 57; 59; 61; 62; 65; 301; 302.)

### SUMMARY AND DISCUSSION OF THE EVIDENCE

National Ambient Air Quality Standards (NAAQS) have been established for seven air contaminants identified as "criteria air pollutants." These include sulfur dioxide ($SO_2$), carbon monoxide (CO), ozone (O3), nitrogen dioxide ($NO_2$), lead (Pb), particulate matter less than 10 microns in diameter (PM10) and particulate matter less than 2.5 microns in diameter (PM2.5). The review of potential impacts also includes the precursor pollutants for ozone, which are nitrogen oxides ($NO_X$) and volatile organic compounds (VOC), and the precursors for PM10 and PM2.5, which are primarily $NO_X$, sulfur oxides ($SO_X$), and ammonia ($NH_3$). Sulfur oxides ($SO_X$) react in the atmosphere to form particulate matter and are major contributors to acid rain. (Ex. 301, p. 4.1-2.)

Both the U.S. EPA and the California Air Resources Board (CARB) have established allowable maximum ambient concentrations for the criteria pollutants identified above. The California Ambient Air Quality Standards (CAAQS) are more stringent than federal standards. Federal and State ambient air quality standards are shown below in **AIR QUALITY Table 1** of this Decision. (Ex. 301, pp. 4.1-6.)

**AIR QUALITY Table 1**
**State and Federal Ambient Air Quality Standards**

| Pollutant | Averaging Time | California Standard | Federal Standard |
|---|---|---|---|
| Ozone ($O_3$) | 1 Hour | 0.09 ppm (180 μg/m$^3$) | None |
| | 8 Hour | 0.070 ppm (137 μg/m$^3$) | 0.075 ppm (147 μg/m$^3$) |
| Respirable Particulate Matter (PM10) | 24 Hour | 50 μg/m$^3$ | 150 μg/m$^3$ |
| | Annual | 20 μg/m$^3$ | None |
| Fine Particulate Matter (PM2.5) | 24 Hour | None | 35 μg/m$^3$ |
| | Annual | 12 μg/m$^3$ | 15 μg/m$^3$ |
| Carbon Monoxide (CO) | 1 Hour | 20 ppm (23 mg/m$^3$) | 35 ppm (40 mg/m$^3$) |
| | 8 Hour | 9 ppm (10 mg/m$^3$) | 9 ppm (10 mg/m$^3$) |
| Nitrogen Dioxide ($NO_2$) | 1 Hour | 0.18 ppm (339 μg/m$^3$) | None |
| | Annual | 0.030 ppm (57 μg/m$^3$) | 0.053 ppm (100 μg/m$^3$) |
| Sulfur Dioxide ($SO_2$) | 1 Hour | 0.25 ppm (655 μg/m$^3$) | None |
| | 3 Hour | None | 0.5 ppm (1301 μg/m$^3$) |
| | 24 Hour | 0.04 ppm (105 μg/m$^3$) | 0.14 ppm (365 μg/m$^3$) |
| | Annual | None | 0.03 ppm (80 μg/m$^3$) |

(Ex. 301, p. 4.1-7.)

In general, an area is designated as “attainment” if the concentration of a particular air contaminant does not exceed the standard. Likewise, an area is designated as "non-attainment” for an air contaminant if that contaminant standard is violated. Where not enough ambient data are available to support designation as either attainment or non-attainment, the area can be designated as unclassified. An area could be attainment for one air contaminant while non-attainment for another, or attainment for the federal standard and non-attainment for the state standard for the same air contaminant. (Ex. 301, p. 4.1-8.)

The Mariposa Energy Project (MEP) is located within the jurisdiction of the San Francisco Bay Area Air Quality Management District (BAAQMD) but is on the edge of the San Joaquin Valley Air Basin. Because some project-related activities would occur in San Joaquin County and project emissions would occur on the edge of the San Joaquin Valley Air Basin the environmental setting of the San Joaquin Valley (or Central Valley) is considered in this Decision. Intervenors Singh and Dighe incorrectly assume in their Opening Briefs that the Applicant can choose the applicable air district. However, no regulations from the San

Joaquin Valley Air Pollution Control District (SJVAPCD) are applicable. (Ex. 301, p. 4.1-2.)

The federal and state attainment status of criteria pollutants in the San Francisco Bay Area are summarized in **Air Quality Table 2**. Overall air quality in the San Francisco Bay Area Air Basin is better than other areas such as the South Coast, San Joaquin Valley, and Sacramento regions. This is due to a more favorable climate, with cooler temperatures and better ventilation. Although air quality improvements have occurred, violations and exceedances of the State ozone and PM standards continue to persist in the San Francisco Bay Area Air Basin, and still pose challenges to State and local air pollution control agencies. (Ex. 301, p. 4.1-8.)

**Air Quality Table 2**
**Attainment Status of Bay Area Air Quality Management District**

| Pollutants | State Classification | Federal Classification |
|---|---|---|
| Ozone (1-hr) | Nonattainment | No Federal Standard |
| Ozone (8-hr) | Nonattainment | Nonattainment (Marginal) |
| PM10 | Nonattainment | Unclassified |
| PM2.5 | Nonattainment | Nonattainment |
| CO | Attainment | Attainment |
| $NO_2$ | Attainment | Attainment [a] |
| $SO_2$ | Attainment | Attainment |

Notes:
a. Attainment status relative to the new federal short-term $NO_2$ standard is scheduled to be determined by January 2012. (Ex. 301, p. 4.1-8)

Ozone transport studies have shown that emissions sources from the Bay Area impact downwind areas, including western San Joaquin County and Stanislaus County. Studies conducted by the Air Resources Board identified the Carquinez Strait, the Livermore Valley, and the Santa Clara Valley as pathways transporting air pollution from the Bay Area into the San Joaquin Valley Air Basin. (Ex. 301, p. 4.1-8.)

The local and recent ambient air quality data show existing violations of ambient air quality standards for ozone, PM10, and PM2.5. The analysis in evidence uses the highest local background ambient air concentrations from the last three years collected at local monitoring stations close to the project as the baseline in

the analysis of potential ambient air quality impacts for the MEP. The highest concentrations are shown in **Air Quality Table 3**. (Ex. 301, pp. 4.1-14 - 4.1-15.)

**Air Quality Table 3**
**MEP, Highest Local Background Concentrations**
**Used in Staff Assessment (µg/m$^3$)**

| Pollutant | Averaging Time | Background | Limiting Standard | Percent of Standard |
|---|---|---|---|---|
| **PM10** | 24 hour | **126.8** | 50 | **254** |
| | Annual | **24.8** | 20 | **124** |
| **PM2.5** | 24 hour | **81.2** | 35 | **232** |
| | Annual | **14.3** | 12 | **119** |
| **CO** | 1 hour | 5,029 | 23,000 | 22 |
| | 8 hour | 2,640 | 10,000 | 26 |
| **$NO_2$** | 1 hour | 105.7 | 339 | 31 |
| | 1 hour Federal | 73.0 | 188 | 39 |
| | Annual | 18.9 | 57 | 33 |
| **$SO_2$** | 1 hour | 46.9 | 655 | 7 |
| | 1 hour Federal | 46.9 | 196 | 24 |
| | 24 hour | 18.3 | 105 | 17 |
| | Annual | 5.2 | 80 | 7 |

Note that an exceedance is not necessarily a violation of the standard, and that only persistent exceedances lead to designation of an area as nonattainment. (Ex. 301, p. 4.1-15.)

The proposed MEP would include the following new stationary sources of emissions: (1) four General Electric (GE) LM6000 PC-Sprint natural gas-fired combustion turbine generators (CTG) with a nominal capacity of 50 MW and a heat input capacity of up to 481 MMBtu/hr (high heating value) for each gas turbine, in a simple-cycle configuration; and (2) one fire water pump to be driven by a 220 bhp diesel engine certified to achieve ARB Tier 3 emission standards.

The proposed MEP is designed to provide peaking power. Each of the four CTGs would be capable of starting up and reaching full load in approximately 10 minutes with emissions stabilized at permitted levels within 30 minutes. MEP proposed to limit fire water pump operation to no more than 20 minutes for non-emergency use or testing in any hour; however, the evidence shows that each test would occur for 30 minutes, per recommendations from the National Fire Protection Association in NFPA 25. (Ex, 301, pp. 4.1-15 - 4.1-16.)

The MEP facility would be permitted to operate up to 4,000 hours per year plus 300 startup and shutdown cycles (equivalent to an annual capacity factor of about 46 percent). However, the applicant expects the proposed MEP

combustion turbines to actually run only approximately 600 hours per year with 200 startup and shutdown events annually, based on MEP's review of data from 2004 on California simple-cycle power plants greater than 50 MW. (Ex. 301, p. 4.1-16.)

The CTGs would each be equipped with an inlet air chilling system with a modular, multistage filtration system. The chilled inlet air would be drawn into the turbine combustion chamber to increase power output and efficiency. The proposed MEP would also include other equipment causing exempt levels of emissions. These include heating for a control room building, one aqueous ammonia storage tank, and electrical circuit breakers and transformers. (Ex. 301, p. 4.1-16.)

1. Construction Emissions

Construction of the MEP is expected to take about 14 months. Onsite construction activities include site preparation, grading, excavating, and erection of facility structures, including administration structures. During the construction period, air emissions would be generated from the exhaust of off-road/non-road heavy construction equipment and on-road vehicles and fugitive dust from activity in areas disturbed by grading and from material handling. Construction would take place within approximately 20 acres of the MEP site, which includes approximately 9.2 acres for laydown and parking. Activities would generally be confined to a 10 hour work day, 22 days per month. The maximum annual construction emissions would occur from month 1 through month 12. (Ex. 301, p. 4.1-16.)

Fugitive dust emissions would result from:

- Dust released during site preparation, grading, and excavation at the construction site;
- Dust entrained during on-site travel on paved and unpaved surfaces;
- Dust entrained during aggregate material and soil loading and unloading operations; and
- Wind erosion of soil at areas disturbed during construction activities. (Ex. 301, p. 4.1-16.)

Combustion-related emissions would be the result of:

- Exhaust from the gasoline and diesel construction equipment used (off-road) for site preparation, grading, excavation, and erection, fabrication, and installation of onsite structures;

- Exhaust from water trucks used to control construction dust emissions;
- Exhaust from portable welding machines, compressors, and portable lighting;
- Exhaust from gasoline and diesel trucks used to transport workers and materials around the construction site;
- Exhaust from diesel trucks used to deliver concrete, fuel and construction supplies to and from the construction site; and
- Exhaust from automobiles used by workers commuting to the construction site. (Ex. 301, pp. 4.1-16 - 4.1-17.)

Estimates for the highest short-term and total annual impacts over the 14-month construction period are shown in **Air Quality Table 4**. The total impact is the sum of the existing background condition plus the maximum impact predicted by the modeling analysis for project activity. The values in **bold** in the Impact and Background columns represent the values that either equal or exceed the relevant ambient air quality standard. (Ex. 301, pp. 4.1-23 - 4.1-24.)

**Air Quality Table 4**
**MEP, Construction-Phase Maximum Impacts (μg/m$^3$)**

| Pollutant | Averaging Time | Modeled Impact | Background | Total Impact | Limiting Standard | Percent of Standard |
|---|---|---|---|---|---|---|
| PM10 | 24 hour | **67.5** | **126.8** | **194.3** | 50 | **389** |
| | Annual | 6.0 | **24.8** | **30.8** | 20 | **154** |
| PM2.5 | 24 hour | 17.9 | **81.2** | **99.1** | 35 | **283** |
| | Annual | 1.2 | **14.3** | **15.5** | 12 | **129** |
| CO | 1 hour | 957 | 5,029 | 5,986 | 23,000 | 26 |
| | 8 hour | 416 | 2,640 | 3,056 | 10,000 | 31 |
| $NO_2$ [a] | 1 hour | 226.0 | 105.7 | 331.7 | 339 | 98 |
| | Annual | 19.5 | 18.9 | 38.4 | 57 | 67 |
| $SO_2$ | 1 hour | 1.2 | 46.9 | 48.1 | 655 | 7 |
| | 24 hour | 0.19 | 18.3 | 18.4 | 105 | 18 |
| | Annual | 0.03 | 5.2 | 5.2 | 80 | 7 |

Note: a. The maximum 1-hour NO2 concentration is based on AERMOD OLM output, and the ambient ratio method (ARM) is applied for annual $NO_2$, using national default 0.75 ratio. (Ex. 301, p. 4.1-24.)

The maximum modeled project construction impacts would occur at the eastern property boundary for the 1-hour $NO_2$ and western property boundary for the 24-hour PM10 construction impacts. The highest diesel exhaust combustion-related impact would be about 6 μg/m$^3$ (24-hour PM10/PM2.5) at the western property boundary. Modeling shows that 24-hour PM10 concentrations could result in a potential new violation, during the 14 months of construction. Based on the evidence, this is a significant impact that can be mitigated. This impact would only occur for receptors within 425 feet (130 meters) of the construction site,

inside the 158 acre parcel that would be used for grazing, and the impact would cease at the conclusion of construction. For each pollutant, the concentrations would decrease rapidly with distance. (Ex. 301, p. 4.1-24.)

The highest diesel exhaust combustion-related impact would be about 2 $\mu g/m^3$ (24-hour PM10/PM2.5) at the western property boundary. For each pollutant, the concentrations would decrease rapidly with distance. At the closest residence, which is approximately 0.6 miles away, to the northeast of MEP along Kelso Road, the 24-hour PM10 impact caused by project construction would be about 15 $\mu g/m^3$, about one quarter of the maximum impact as shown in **Air Quality Table 4**. (Ex. 301, p. 4.1-24.)

Construction activities are short-term and do not need to be compared to the new federal 1-hour $NO_2$ and $SO_2$ standards. The MEP construction phase impacts would occur over a proposed schedule lasting about 14 months. Construction impacts would be zero during the almost all of the second and third years in a compliance assessment with the new federal $NO_2$ and $SO_2$ standards. Because the new federal 1-hour $NO_2$ standard depends on multi-year averaging of impacts and backgrounds over three years, the $NO_2$ impacts during the 14 months of construction would not be likely to cause a new violation of the federal 1-hour $NO_2$ or $SO_2$ standard. (Ex. 301, p. 4.1-24.)

Particulate matter emissions from construction would cause a significant impact because they will contribute to existing violations of PM10 and PM2.5 ambient air quality standards, and additionally that those emissions can and should be mitigated to a level of insignificance. Significant secondary impacts would also occur for PM10, PM2.5, and ozone because construction-phase emissions of particulate matter precursors (including SOx) and ozone precursors (NOx and VOC) would contribute to existing violations of these standards. The direct impacts of $NO_2$, in conjunction with worst-case background conditions, would not create a new violation of the California 1-hour or annual $NO_2$ ambient air quality standard. The direct impacts of CO and $SO_2$ would not be significant because construction of the project would neither cause nor contribute to a violation of these standards. Mitigation should be provided for construction emissions of PM10, PM2.5, SOx, NOx, and VOC to reduce PM10, PM2.5, $NO_2$, and ozone impacts. (Ex. 301, pp. 4.1-24 - 4.1-25.)

The Applicant proposes to reduce construction-related emissions of particulate matter, particulate matter precursors, and ozone precursors by implementing measures consistent with local air district requirements limiting visible emissions and nuisances. The applicant expects to implement controls for construction

activities requiring the use of water or chemical dust suppressants to minimize PM10 emissions and prevent visible particulate emissions, and will include the following construction mitigation measures:

- Watering unpaved roads and disturbed areas;
- Limiting onsite vehicle speeds to 10 mph and post the speed limit;
- Frequent watering during period of high winds when excavation/grading is occurring;
- Sweeping onsite paved roads and entrance roads on an as-needed basis;
- Replacing ground cover in disturbed areas as soon as practical;
- Covering truck loads when hauling material that could be entrained during transit;
- Applying dust suppressants or covers to soil stockpiles and disturbed areas when inactive for more than 2 weeks;
- Using ultra-low sulfur diesel fuel (15 ppm sulfur) in all diesel-fueled equipment;
- Maintaining all diesel-fueled equipment per manufacturer's recommendations to reduce tailpipe emissions;
- Limiting diesel heavy equipment idling to less than 5 minutes, to the extent practical; and
- Using electric motors for construction equipment to the extent feasible. (Ex. 301, p. 4.1-25.)

Additional measures would reduce construction-phase impacts to a less than significant level by reducing construction emissions of particulate matter and combustion contaminants. The short-term and variable nature of construction activities warrants a qualitative approach to mitigation. Construction emissions and the effectiveness of mitigation vary widely depending on variable levels of activity, the specific work taking place, the specific equipment, soil conditions, weather conditions, and other factors, making precise quantification difficult. Despite this variability, there are a number of feasible control measures that can be implemented to significantly reduce construction emissions. The use of oxidizing soot filters is a viable emissions control technology for all heavy diesel-powered construction equipment that does not use an ARB-certified low emission diesel engine. In addition, prior to beginning construction, the applicant should provide an Air Quality Construction Mitigation Plan (AQCMP) that specifically identifies mitigation measures to limit air quality impacts during construction. Conditions of Certification **AQ-SC1** through **AQ-SC5** would implement these requirements. These conditions are consistent with both the applicant's proposed

strategy and the conditions of certification adopted in similar prior licensing cases. Compliance with these conditions would substantially eliminate the potential for significant air quality impacts during construction of the MEP project. (Ex. 301, pp. 4.1-25 - 4.1-26.)

**Initial Commissioning Emissions**

New electrical generation facilities must go through initial commissioning phases before becoming commercially available to generate electricity. During this period, initial firing causes greater emissions than those that occur during normal operations because of the need to tune the combustor, conduct numerous startups and shutdowns, operate under low loads, and conduct testing before emission control systems are functioning or fine-tuned for optimum performance. (Ex. 301, p. 4.1-17.)

The Applicant identifies the series of commissioning tests and expects that up to 200 hours of operation over approximately 26 days would be needed accomplish the various commissioning activities. The total initial commissioning emissions are presented in **Air Quality Table 5.** (Ex. 301, pp. 4.1-17 - 4.1-18.)

**Air Quality Table 5**
**MEP, Maximum Initial Commissioning Emissions (hourly and daily)**

| Source | NOx | VOC | PM10/ PM2.5 | CO | SOx |
|---|---|---|---|---|---|
| Each CTG Maximum Commissioning (lb/hr) | 51 | 4.48 | 2.5 | 45 | 1.35 |
| Each CTG Maximum Commissioning (lb/day) | 408 | 36 | 17.6 (avg.) | 360 | 10.8 |
| Each CTG Total Commissioning (ton) | 16.3 | 1.0 | 0.91 | 8.7 | 0.54 |

(Ex. 301, p. 4.1-18.)

**Operation Emissions**

A refined dispersion modeling analysis was performed by the applicant to identify off-site criteria pollutant impacts that would occur from routine operational emissions throughout the life of the MEP. The worst case one-hour impacts reflect the highest emissions, during startups, and all other impacts reflect the impacts during normal steady-state operation. The modeled impacts are extremely conservative, since the maximum impacts are evaluated under a combination of highest allowable emission rates and the most extreme meteorological conditions, which are unlikely to occur simultaneously. The predicted maximum concentrations are summarized in **Air Quality Table 6**.

PM10 and PM2.5 values are shown in **bold** because they exceed ambient air quality standards due to high background levels. (Ex. 301, p. 4.1-27.)

**Air Quality Table 6**
**MEP, Routine Operation Maximum Impacts (µg/m$^3$)**

| Pollutant | Averaging Time | Modeled Impact | Background | Total Impact | Limiting Standard | Percent of Standard |
|---|---|---|---|---|---|---|
| PM10 | 24 hour | 3.0 | **126.8** | **129.8** | 50 | **260** |
| | Annual | 0.1 | **24.8** | **24.9** | 20 | **124** |
| PM2.5 | 24 hour | 3.0 | **81.2** | **84.2** | 35 | **240** |
| | Annual | 0.1 | **14.3** | **14.4** | 12 | **120** |
| CO | 1 hour | 144.0 | 5,029 | 5,173 | 23,000 | 22 |
| | 8 hour | 23.0 | 2,640 | 2,663 | 10,000 | 27 |
| $NO_2$ [a, b] | 1 hour | 129.2 | 105.7 | 234.9 | 339 | 69 |
| | 1 hr Federal | 104.1 | 73.0 | 177.1 | 188 | 94 |
| | Annual | 0.2 | 18.9 | 19.0 | 57 | 33 |
| $SO_2$ | 1 hour | 10.7 | 46.9 | 57.7 | 655 | 9 |
| | 1 hr Federal | 10.7 | 46.9 | 57.7 | 196 | 29 |
| | 24 hour | 1.59 | 18.3 | 19.8 | 105 | 19 |
| | Annual | 0.04 | 5.2 | 5.3 | 80 | 7 |

Notes:
a. The maximum 1-hour $NO_2$ concentration is based on AERMOD OLM output, and the ambient ratio method (ARM) is applied for annual $NO_2$, using national default 0.75 ratio.
b. The proposed MEP emergency-use fire water pump engine would cause a highest 1-hour $NO_2$ modeled impact of 265 µg/m$^3$, if run continuously. Staff recommends restrictions on non-emergency use of the MEP fire water pump engine to demonstrate compliance with 1-hour $NO_2$ standards (**AQ-SC9** and **AQ-SC10**).

The maximum 24-hour PM10 and 1-hour $NO_2$ impact due to the CTGs at MEP occurs in the undeveloped and elevated terrain about 1.9 miles (3.0 kilometers) southwest of the project site. Because of the high exhaust temperature and velocity, impacts would be substantially lower at the closest residence, which is approximately 0.6 miles away, to the northeast of MEP along Kelso Road. Although PM10 and PM2.5 concentrations presently exceed the limiting standards, the addition of MEP would cause no more than a 4 percent contribution at the location experiencing highest impact, which is in the hills. (Ex. 301, p. 4.1-27.)

In their Opening Briefs, Intervenors, Rajesh Dighe and Jass Singh, argue that the modeling data was inadequate. However, the evidence shows that all meteorological data used in the Staff Assessment is from a tower formerly located along Patterson Pass Road, about 0.5 miles south of the Mountain House Community Services District. Background concentrations of key pollutants, namely ozone and $NO_2$, are from an air quality monitoring site at

Tracy Airport. The Patterson Pass tower provides appropriate and representative meteorological (weather) inputs for staff's modeling because of the similarity of the surrounding topography and land uses. Four years of individual hours make up the Patterson Pass data, and this is a robust set covering the range of conditions foreseeable for dispersion. (Ex. 301, p. 4.1-41.)

These meteorological data are certified by the California Air Resources Board. (2/24/11 RT 415:17-416:6.) The Intervenors offered no evidence to impeach the meteorological data. Therefore, we find the meteorological data is adequate.

Intervenor, Robert Sarvey, argues in his Opening Brief that the MEP does not comply with the federal 1-hour $NO_2$ standard. He argues that Staff's conclusion that the MEP would not violate the new federal 1 hour standard has no basis since Staff did not use EPA or SJVAPCD approved methods to determine if in fact the MEP would violate the new federal 1 hour standard. He also states that Staff's analysis fails to satisfy EPA requirements for placement of $NO_2$ monitors. He ends with a statement that Applicant has not met the burden of proving that the new $NO_2$ standard will be met. (Sarvey, Opening Brief, pp. 7 - 8.).

The evidence contradicts this claim. Staff's testimony regarding its impact assessment for NOx emissions clearly delineates why it selected the analysis it did and how it relates to the federal standard. The federal standard was promulgated after the MEP application filing date and, since the MEP would be a minor source under PSD, this impact assessment is not subject to U.S. EPA review. (Ex. 301, p. 4.1-23.) We also reject Intervenor, Rob Simpson's unsubstantiated assertion that the nearby CoGen facility is under common control with the MEP that would fuse them into a major source. (Simpson, Opening Brief.)

Furthermore, the evidence proves that the proposed MEP fire water pump engine, when operating, would dominate the 1-hour $NO_2$ impact with the highest concentration of about 265 $\mu g/m^3$ adjacent to the engine if it were tested every hour, which is not proposed. If testing of the fire pump engine coincides with the highest background $NO_2$ conditions, then the total concentration could exceed the California ambient air quality standard of 339 $\mu g/m^3$ for locations within about 100 meters of the engine. Fire pump engine use would be infrequent, and the possibility of emergency use engine emissions coinciding with the highest background conditions is considered to be a remote likelihood and not reasonably foreseeable for this analysis. Nevertheless, causing a new violation would be a potentially significant impact. We require that this impact be mitigated in two ways: first, by limiting reliability testing of the engine to no more than 30

minutes per test, which would match the recommendations from the National Fire Protection Association in NFPA 25 for testing water-based fire protection systems; and second by limiting testing of the engine to only certain hours of the day when background concentrations of $NO_2$ are known to be low (between 8 a.m. and 11 a.m.). With these limitations, we find the resulting concentrations would be reduced to a level that would not be likely to cause a new violation of the federal 1-hour $NO_2$ standard (see **AQ-SC10**). Additional restrictions of simultaneous non-emergency use of the engine with the remainder of the power plant are contained in **AQ-SC10**. (Ex. 301, p. 4.1-27.)

Mr. Sarvey's claim that Staff and Applicant's $NO_2$ analysis fails to satisfy the USEPA's requirements for the placement of $NO_2$ monitors was addressed in Staff's testimony. The current CAAQS for $NO_2$ became effective in early 2008, and the U.S. EPA adopted a new 1-hour standard of 0.100 ppm (188 $\mu g/m^3$) in early 2010, after the MEP application filing date. Although the attainment designations have not yet been established for the new, more stringent federal standards, the San Francisco Bay Area air basin appears likely to remain in attainment for $NO_2$ under the new federal standard. The record shows that the new federal 1-hour standard became effective in April 2010, but areas will not be given attainment designations until 2012. The evidence shows that the areas near the project site would attain all current state and federal $NO_2$ standards. For the Tracy Airport station, the nearest $NO_2$ monitor, current SJVAPCD data reflects a background of 0.039 ppm $NO_2$ (73 $\mu g/m^3$) for the 3-year average of the 98th percentile of the yearly distribution of 1-hour daily maximum concentration at Tracy Airport. The SJVAPCD processed its 1-hour $NO_2$ data following federal guidance. However, this data is preliminary and does not reflect the higher concentrations that might be expected with the new near-roadway $NO_2$ monitoring requirements. As a result, the values are subject to change. (Ex. 301, p. 4.1-14.) In light of the inchoate state of the federal standards, the record establishes that Staff's analysis reflects the most current data available and under these circumstances, we are satisfied that the Applicant's burden in this regard is met.

Particulate matter emissions from routine operation would cause a significant impact because they will contribute to existing violations of PM10 and PM2.5 ambient air quality standards. Significant secondary impacts would also occur for PM10, PM2.5, and ozone because operational emissions of particulate matter precursors (including SOx) and ozone precursors (NOx and VOC) would contribute to existing violations of these standards. (Ex. 301, p. 4.1-28.)

The direct impacts of $NO_2$ after implementing **AQ-SC10** in conjunction with worst-case background conditions would not create a new violation of the $NO_2$ ambient air quality standards. The direct impacts of CO and $SO_2$ would not be significant because routine operation of the project would neither cause nor contribute to a violation of these standards. Mitigation should be provided for emissions of PM10, PM2.5, SOx, NOx, and VOC to reduce PM10, PM2.5, and ozone impacts. (Ex. 301, p. 4.1-28.)

The project's gaseous emissions of NOx, SOx, VOC, and ammonia are precursor pollutants that can contribute to the formation of secondary pollutants, including ozone, PM10, and PM2.5. Gas-to-particulate conversion in ambient air involves complex chemical and physical processes that depend on many factors, including local humidity, pollutant travel time, and the presence of other compounds. Currently, there are no agency-recommended models or procedures for estimating ozone or particulate nitrate or sulfate formation from a single project or source. However, because of the known relationships of NOx and VOC to ozone and of NOx, SOx, and ammonia emissions to secondary PM10 and PM2.5 formation, unmitigated emissions of these pollutants would likely contribute to higher ozone and PM10/PM2.5 levels in the region. We find significant impacts of ozone and PM10/PM2.5 precursors are mitigated with BAAQMD offsets and local SJVAPCD emission reductions that are provided under condition of certification **AQ-SC7**. (Ex. 301, p. 4.1-28.)

Intervenor Sarvey argues that mitigation for 1400 hours per year of operation is flawed because the permit will allow the project to operate up to 5,200 hours per year. (Sarvey Opening Brief, pp. 8 - 9.) However, the record clearly shows how the Energy Commission staff determined the expected annual emissions based upon a conservatively-high reasonably foreseeable annual capacity factor and number of startups. Energy Commission staff conducted a comprehensive review of peaking facilities' data from 2001 to 2008 and found that in the average year, the average peaking unit operated about 300 hours. Energy Commission data indicated that 98 percent of all comparable peaking facilities operate with an annual capacity factor of less than 16 percent or 1,400 hours annually. Expected annual emissions derived by staff relied on these historic capacity factors. Along with 1,400 hours of steady state operation, staff assumed the MEP could require up to its proposed 300 startup events annually, especially if called upon to integrate renewable resources. These levels apply to staff's analysis for determining CEQA mitigation requirements for this project. This is conservatively somewhat higher than the 600 hours and 200 startups expected by the applicant. (Ex. 301, p. 4.1-21.) We disagree with Mr. Sarvey's characterization that Staff's

determination is speculation and find that 1,400 hours of annual operation is a very conservative and reasonable forecast (Tit. 14, Cal. Code of Regs. § 15144.)

Ammonia ($NH_3$) is a particulate precursor but not a criteria pollutant. Reactive with sulfur and nitrogen compounds, ammonia is abundant in the Bay Area and San Joaquin Valley due to natural sources, agricultural activities, and as a byproduct of tailpipe controls on motor vehicles. Studies ongoing by the BAAQMD are exploring the relationship of the ammonia emission inventory to ambient particulate levels, with a preliminary indication that restricting ammonia emissions could be a useful part of a regional strategy to reduce particulate matter formation. With sulfuric and nitric acid availability being a key component of particulate matter formation, minimizing and offsetting SOx and NOx emissions would avoid PM10/PM2.5 impacts and reduce secondary pollutant impacts to a less than significant level. (Ex. 301, p. 4.1-28.)

Mr. Sarvey complains that "staff does not even bother to quantify the secondary particulate formation must less mitigate the ammonia emissions." (Sarvey, Opening Brief, p. 12.) Staff acknowledges that ammonia slip (the amount of ammonia that passes through the SCR system in un-reacted form) can contribute to secondary pollutants. (Ex. 301, p. 4.1-28.) Staff points out that there are no approved models for creating the estimates Mr. Sarvey wishes. (*Id*.) Similarly, staff agrees that unmitigated emissions of these pollutants would likely contribute to higher ozone and PM10/PM2.5 levels in the region. (*Id*.) However, Mr. Sarvey overlooks staff's statement that "significant impacts of ozone and PM10/PM2.5 precursors would be mitigated with BAAQMD offsets and local SJVAPCD emission reductions that would be provided under a condition of certification limiting ammonia slip to 5ppm. (*Id*.) While this analysis and mitigation may not be as precise as Mr. Sarvey would wish, it appears to be reasonable, given the lack of tools available for quantification. Mr. Sarvey has provided no evidence to explain why the mitigation identified by Staff is not sufficient.

Based on the evidence, we will limit ammonia slip emissions to the extent feasible. Ammonia emissions are not restricted by the Bay Area Air Quality Management District except for avoiding excessive health risks. The Applicant in this case proposes to achieve levels of 5 ppmvd during steady operations, and the record indicates that this to is an achievable performance standard to avoid unnecessarily high levels of ammonia emissions. Accordingly, we adopt this limit as it is reflected in the Bay Area Air Quality Management District's determination of compliance (Condition of Certification **AQ-17**). (Ex. 301, pp. 4.1-28 - 4.1-29.)

The evidence shows that impacts during fumigation conditions, impacts from commissioning-phase operations, and visibility impacts were evaluated and that there would either be no significant impact or that any impacts would be reduced below the level of significance by the mitigation measures we are adopting in this Decision. (Ex. 301, pp. 4.1-29 - 4.1-30.)

The Applicant would mitigate air quality impacts by limiting emissions to the maximum extent feasible with the Best Available Control Technology and by providing emission reduction credits (ERCs) to offset emissions. (Ex. 301, p. 4.1-30.)

Mr. Sarvey protests that the BAAQMD and Energy Commission staff did not provide an hourly emission limit for particulate matter which he claims is required to comply with BAAQMD Rule 2-2-301 (b) or BAAQMD SIP Rule 2-2-206.2. District Regulation 2-2-301 requires that the Mariposa Energy Project use the Best Available Control Technology to control NOx, CO, POC, PM10, and SOx emissions from sources that will have the potential to emit over 10 pounds per highest day of each of those pollutants. Pursuant to Regulation 2-2-206, BACT is defined as the more stringent of: (a) "The most effective control device or technique which has been successfully utilized for the type of equipment comprising such a source; or (b) The most stringent emission limitation achieved by an emission control device or technique for the type of equipment comprising such a source". (Sarvey, Opening Brief, pp. 12 - 13.)

When cross-examined by Mr. Sarvey, BAAQMD representatives explained that "extreme" variability in measuring emissions has led the district to abandon the numerical approach apparently preferred by Mr. Sarvey. The district has decided that best available control technology in this case is better served by the technology and not by numerical limit. (2/24/11RT 382:2 – 383:25.)

The district testified that: "There is no way to lower particulate other than the technology. And therefore a numerical limit doesn't make any sense. We've decided that we are not going with the one hour, three hour pounds per hour limit." (2/24/11RT 382:2 – 383:25.)

According to our regulations, the district determines BACT ( 20 Cal. Code Regs. § 1744.5). The mere fact that the BAAQMD used to impose a numerical limit does not mean that they must continue to do so, particularly in the face of evidence indicating that it is not reasonable to do so. The BAAQMD has provided evidence of the reason why it chose not to use a numerical limit and Energy

Commission staff duly deferred. (20 Cal. Code Regs. § 1744(e).) We find no impropriety.

In a similar vein, Mr. Sarvey argues, without citation to law, that the Applicant has not met the burden of proof that the project's particulate matter emissions will not be a significant impact to the health of residents near the project area because the BAAQMD did not conduct a health risk assessment for particulate matter. (Sarvey, Opening Brief, pp. 13 - 14.) The District testified that there are no approved tools for conducting such an analysis. (2/24/11RT 379:7 – 15; Ex. 302, Appendix D, p. 15.) CEQA does not require speculation, and the FDOC is not deficient for failing to include particulate matter in its health risk assessment. (14 Cal. Code Regs. § 15145.) Again, we find no impropriety.

The combustion turbine generators at MEP would include two catalyst systems: the SCR and water injection system to reduce NOx; and the oxidation catalyst system to reduce CO and VOC. Operating exclusively with pipeline quality natural gas limits SOx and particulate matter emissions. Additionally, inlet air filters would be used to minimize particulate emissions. (Ex. 301, p. 4.1-30.)

Based on the evidence, the Applicant has sufficient holdings of ERCs to offset NOx and VOC emissions, at the levels originally proposed in the AFC. (Ex. 1.) The FDOC would require the MEP to achieve emission levels lower than those originally proposed in the AFC. However, according to public records, the Applicant owns or controls offsets at levels that exceed the BAAQMD requirements. Any surplus ERCs held by the Applicant can be used to reduce impacts remaining after meeting BAAQMD requirements. The Applicant is not volunteering to surrender ERCs for the proposed increases of $SO_2$ and PM10/PM2.5. Instead, the Applicant entered into a Air Quality Mitigation Settlement Agreement with SJVAPCD (discussed below). (Ex. 301, p. 4.1-31.)

With respect to the NOx ERCs, Mr. Sarvey's testimony states that Energy Commission Staff overestimates the effectiveness of the projects BAAQMD ERC's (Ex 403, p. 2-3.), but it appears that Mr. Sarvey misread Staff's position. NOX ERCs are required pursuant to BAAQMD rules, the jurisdiction in which the project is located. (BAAQMD Rule 2-2-302.) These rules include a 1.15:1 ratio. (Ex. 301, p. 4.1-31.) However, because the source of the ERCs is located in Santa Clara, Staff assessed whether the level of ERCs required by LORS would be sufficient to mitigate impacts. Staff looked to the SJVAPCD rules (which do not apply since the project is not located with the SJVAPCD jurisdiction) to establish a ratio for ensuring that the level of benefits that the ERCs provide to

the area affected by project emissions is sufficient. For projects located within its borders, SJVAPCD applies an offset ratio of 1.5:1 for offsets from neighboring districts. Staff applied this 1.5:1 ratio to the ERCs required pursuant to BAAQMD rules (which were provided at 1.15:1) and determined that they are sufficient to offset reasonably expected emissions. (Ex. 301, p. 4.1-33.) This analysis convinces us that the MEP complies with all applicable BAAQMD rules and NOx emissions from the MEP will not cause significant impacts.

**Air Quality Table 7** summarizes the BAAQMD Rule 2-2-302 offset requirements for the MEP (at the mandatory NOx offset ratio of 1.15-to-1) and the offsets held by the Applicant .

**Air Quality Table 7**
**MEP, BAAQMD Offset Requirements and Offset Holdings (tpy)**

| Source | NOx | VOC | PM10/ PM2.5 | CO | SOx |
|---|---|---|---|---|---|
| Total Four CTGs Maximum Annual | 45.6 | 5.60 | 18.6 | 29.98 | 1.10 |
| Diesel Fire Water Pump Engine | 0.3 | 0.02 | 0.02 | 0.1 | < 0.01 |
| **MEP Potential to Emit** | **46.0** | **5.62** | **18.6** | **30.1** | **1.10** |
| **Offset Requirements** | | | | | |
| BAAQMD Offset Requirements | 52.44 [a] | 0 [b] | 0 [c] | 0 [d] | 0 [e] |
| Effectiveness of BAAQMD Offset in San Joaquin Valley (1.5-to-1) | 34.96 | 0 | 0 | 0 | 0 |
| **MEP Offset Holdings Certificate, Site of Reduction** | | | | | |
| #1182 Owens Corning, Santa Clara | 55.90 | --- | --- | --- | --- |
| #1184 Quebecor World, San Jose | --- | 11.10 | --- | --- | --- |
| **Additional Mitigation** | | | | | |
| SJVAPCD Air Quality Mitigation Settlement Agreement, December 17, 2009 | --- | --- | 11.03 | --- | See PM10 |
| **MEP Mitigation Total** | **34.96** | **---** | **11.03** | **---** | **---** |
| **Reasonably-Foreseeable Emissions** | | | | | |
| **Expected Annual Emissions (from Table 14)** | **22.72** | **2.51** | **8.13** | **---** | **1.10** |
| **Fully Offset?** | **Yes** | **Yes** | **Yes** | **---** | **Yes** |

Notes:
a. BAAQMD offset requirements for NOx for MEP includes an offset ratio of 1.15-to-1. In BAAQMD, VOC (or precursor organic compounds) offsets may be used to offset emission increases of NOx.
b. Offsets are not required by BAAQMD for VOC (POC) since MEP would not exceed 10 tons per year.
c. Offsets are not required by BAAQMD for PM10 or PM2.5 since MEP would not exceed 100 tons per year.
d. Offset are not required by BAAQMD for CO since the area is designated as an area that attains the CO ambient air quality standards and MEP would not be subject to PSD review for CO. This Staff Assessment demonstrates that MEP would not cause or contribute to a violation of the CO ambient air quality standards.
e. Offsets are not required by BAAQMD for $SO_2$ since MEP would not exceed 100 tons per year. (Ex. 301, p. 4.1-31.)

The Applicant is participating in a separate agreement to provide certain emission reductions in addition to the emission offsets identified above. The Air Quality Mitigation Settlement Agreement entered into by the Applicant and approved by the SJVAPCD Governing Board on December 17, 2009 includes the following features:

- SJVAPCD expressed that it: "*is concerned about the general migration of air pollutants from the BAAQMD region and the migration's effect on the ability of the District to meet its air quality attainment goals*" and that: "*due to the proximity of the [Mariposa] Project to the District, the emissions from the Project will mostly impact the District without corresponding benefits from offsets provided from sources within the BAAQMD.*"
- SJVAPCD and MEP determined that payment of an air quality mitigation fee of $644,503 for local air quality benefit programs is the appropriate method for MEP to address SJVAPCD concerns and ensure localized benefits within SJVAPCD.
- The actual emission reductions provided by the mitigation fee are unknown because the SJVAPCD has only provided a range of measures to be implemented, at the discretion of the SJVAPCD. Final measures implemented by the SJVAPCD can include: "*the SJVAPCD's Burn Cleaner woodstove retrofit and fireplace replacement program, the Carl Moyer Program, heavy duty engine retrofit/replacement program, agricultural engine replacement program, and/or other similar programs approved by the SJVAPCD.*"
- The SJVAPCD commits to giving preference to: "*cost-effective programs in or near the Mountain House Community Service District, City of Tracy, San Joaquin County, and the Northern Region of the San Joaquin Valley Air Basin, in that order*." (Ex. 301, p. 4.1-32.)

Based on the evidence, the timing of the reductions achieved by the fee is a concern. Emission reductions created by SJVAPCD using the fee may occur slowly. The SJVAPCD must first identify mitigation projects, either by advertising availability of funds or by contacting operators of sources that are normally outside of SJVAPCD jurisdiction. The owner of the source then must apply for the funds, then order and receive the replacement equipment, and retire the original source. It is expected that the SJVAPCD would use the fee quickly and in the most effective manner, but how quickly the reductions might occur is speculative. The SJVAPCD would make the primary decisions on when and where reductions would occur, depending somewhat on market demand for the funds. No party can guarantee the timing of the reductions. (Ex. 301, p. 4.1-32.)

The cost-effectiveness of the fee depends on what programs are finally selected, ranging from a low cost of $16,800 per ton of NOx or VOC reductions for the Carl

Moyer Program to approximately $55,500 per ton of PM10 reductions for the woodstove retrofit and fireplace replacement program (Part A-2 of the Settlement Agreement). It is assumed that a reasonable worst-case scenario (lowest air quality benefits) is for a 5 percent administration fee and then the remainder of $644,503 being applied to the woodstove and fireplace program. This would result in the Settlement Agreement providing a minimum of 11.03 tons of PM10 reductions (shown in **Air Quality Table 7**). (Ex. 301, p. 4.1-32.)

Mr. Sarvey criticized the mitigation agreement that the Applicant entered into with SJVAPCD (Sarvey Op. Brief, p. 9). Staff acknowledged that the project's PM emissions could cause an impact because they will contribute to a violation, due in part to the fact that BAAQMD exempts projects with lower emissions, such as the MEP, from offset requirements. Although the impacts would occur in a place that is undeveloped and contribute only 4 percent of the predicted maximum concentrations, there will nonetheless be reductions attributable to the agreement with SJVAPCD (Ex. 301 p. 4.1-27). The agreement provides a menu of options, and the evidence summarized some of the actions and reductions that could be obtained as a result of this agreement. (Ex. 301, p. 4.1-32) Energy Commission Staff considered the potential of a shortfall in emission reductions from the MEP/SJVAPCD mitigation agreement, and incorporated provisions in Condition of Certification **AQ-SC-7** to expand the scope of the agreement to cover any shortfall, and to require a showing that local emission reductions have been achieved prior to initiating operation of the facility. (Ex. 301, p. 4.1-50)

We therefore find that the proposed emission offset package, along with the emissions controls described above, would mitigate all project air quality impacts to a less than significant level. We adopt Conditions of Certification **AQ-SC6** through **AQ-SC8** to incorporate future changes to the air quality permits and to ensure ongoing compliance during commissioning and routine operation through quarterly reports. (Ex. 301, p. 4.1-34.)

**Cumulative Impacts and Mitigation**

"Cumulative impacts" are defined as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts." (CEQA Guidelines, § 15355.) Such impacts can be relatively minor yet still be significant when combined with other closely related past, present, and known or reasonably foreseeable future projects. (Ex. 301, p. 4.1-34.)

Criteria pollutants have impacts that are usually (though not always) cumulative by their nature. Rarely will a project itself cause a violation of a federal or state criteria pollutant standard. However, many new sources contribute to violations of criteria pollutant standards because of elevated background conditions. Air districts attempt to reduce background criteria pollutant levels by adopting attainment plans, which are multi-faceted programmatic approaches to attainment. Attainment plans typically include new source review requirements that provide offsets and use Best Available Control Technology, combined with more stringent emissions controls on existing sources. (Ex. 301, p. 4.1-34.)

The MEP is subject to BAAQMD rules and regulations that specify performance standards, offset requirements, and emission control requirements for stationary sources. The regulations also include requirements for obtaining Authority to Construct (ATC) permits and subsequent operating permits. These regulations apply to MEP and all projects; they ensure that all projects will be consistent with steps taken to bring the region into attainment. Routinely updating the attainment plans ensure that population, employment, and transportation trends in the region are taken into account. Compliance with BAAQMD rules and regulations ensures that projects will be consistent with the regional air quality management plans. (Ex. 301, p. 4.1-35.)

**Cumulative Impacts**

The MEP and other reasonably foreseeable projects could cause impacts that would be locally combined if present and future projects would introduce stationary sources that are not included in the "background" conditions. Reasonably foreseeable future projects are those that are either currently under construction or in the process of being approved by a local air district or municipality. Projects with stationary sources located up to six miles from the project site usually need to be considered by the analysis. The applicant with assistance from BAAQMD and SJVAPCD staff identified the following reasonably foreseeable future sources for the analysis of localized cumulative impacts:

- **Waste Management of Alameda County** (BAAQMD Facility 2066) includes one landfill gas fired flare and four portable diesel engines for waste tippers.
- **East Altamont Energy Center** (EAEC, 01-AFC-4, BAAQMD Facility 13050), is an approved 1,100 MW power plant, granted a license by the Energy Commission in August 2003, for a site 1.9 miles (3.0 kilometers) northeast of MEP, bordered by Byron Bethany Road to the north, Kelso Road to the south, and Mountain House Road to the west. If built, EAEC would include three stationary combustion turbines generators and

auxiliary sources. This facility is included in the cumulative model, although some equipment, namely the EAEC emergency-use generator and pump engines, would no longer be allowed to emit at the originally-approved and modeled levels. The fate of the EAEC is uncertain because although the Energy Commission extended the license to allow construction by 2011, the BAAQMD review of EAEC is out of date, and the licensed version of EAEC may no longer be able to demonstrate compliance with current air quality requirements, such as Best Available Control Technology.

- **Byron Power Company** (Byron Co-gen), Ridgewood Power at 4901 Bruns Road (Facility 10437), is an existing facility that is included in the cumulative model for $NO_2$. This facility consists of five natural gas fired internal combustion engine-generator sets rated at approximately 1.1 MW (1,470 hp) each, and historically, it operates very few hours per year. (Ex. 301, pp. 4.1-36 - 4.1-37.)

The following existing sources are either included as background sources or not included as follows:

- **The Mountain House Community Services District** anticipates 14,915 residential units and a population over 40,000 at build-out (2022), eventually within a mixed-use use development that is existing and under construction. Increased urbanization of western San Joaquin County introduces mobile sources and area sources (e.g., natural gas combustion for residential hot water heaters) that contribute to local air pollution today and in the future. Development at Mountain House is generally subject to environmental review by San Joaquin County, which determined in 1994 that Mountain House Master Plan would cause an increase in regional emissions due to new vehicle travel and area sources that would have a significant and unavoidable impact on air quality within the San Joaquin Valley and adjacent San Francisco Bay Air Basin. Planning and development are ongoing. Air quality management agencies address this growth through regional air quality management plans, noted above.

The 1994 Final Environmental Impact Report (EIR) for development of Mountain House Specific Plan I identified the following forecast for mobile source and residential emissions in year 2000: 1,852 lb/day (338 tpy) NOx; 1,145 lb/day (209 tpy) VOC; 192 lb/day (35 tpy) PM10; and 217 lb/day (40 tpy) SOx. These emissions would be attributable to the Mountain House Community Services District in its existing and/or planned form. Baseline emissions are reflected in background conditions, and forecasted emissions are addressed in regional air quality management plans.

The 2005 Draft EIR for development of Mountain House Specific Plan III identified the following forecast for mobile and area source emissions for the College Park Project at Mountain House in year 2025: 37.9 tpy NOx; 57.6 tpy VOC; and 112.4 tpy PM10. These emissions would be attributable to the Mountain House Community

Services District in its existing and/or planned form. Baseline emissions are reflected in background conditions, and forecasted emissions are addressed in regional air quality management plans.

- **Pacific Gas & Electric (PG&E) Company, Bethany Compressor Station** at 14750 Kelso Road (Facility 14218), existing facility impacts are included as part of the background concentrations.
- **Tesla Power Project**, approved by the Energy Commission in 2004 (01-AFC-21, BAAQMD Facility 13424) for a site in Alameda County approximately five miles south of MEP, but construction never started. The staff's analysis did not include this project because the Energy Commission terminated the certification for this power plant on October 16, 2009. (Ex. 301, pp. 4.1-37 - 4.1-38.)

  We note that Mr. Sarvey argued that BAAQMD's "PSD Increment Consumption Status Report" dated April 16, 2008 (Ex. 412) indicated that Tesla's increment consumption was high (Ex. 403, p. 3). However, the report demonstrated that increment consumption had not exceeded allowable limits. (Ex. 412, p. 4) PSD requirements are the responsibility of BAAQMD, whose PSD program provides an exemption for projects which are not a "major source." As indicated above, MEP is not a major source.

The MEP applicant's analysis of cumulative impacts assumes lower PM2.5 than PM10 impacts due to the proposed cooling tower at EAEC. To compensate for this, staff shows the PM2.5 impact level equivalent to PM10. (Ex. 301, p. 4.1-38.)

The maximum modeled cumulative impacts of MEP and nearby sources are presented below in **Air Quality Table 8**. The total impact is conservatively estimated by the maximum modeled impact plus existing maximum background pollutant levels, except for comparison with the 1-hour federal $NO_2$ standard.

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**Air Quality Table 8**
**MEP, Ambient Air Quality Impacts from Cumulative Sources (µg/m$^3$)**

| Pollutant | Averaging Time | Modeled Impact | Background | Total Impact | Limiting Standard | Percent of Standard |
|---|---|---|---|---|---|---|
| PM10 | 24 hour | 8.7 | **126.8** | **135.5** | 50 | **271** |
| | Annual | 2.4 | **24.8** | **27.2** | 20 | **136** |
| PM2.5 | 24 hour | 8.7 | **81.2** | **89.9** | 35 | **257** |
| | Annual | 2.4 | **14.3** | **16.7** | 12 | **139** |
| CO | 1 hour | 504.0 | 5,029 | 5,533 | 23,000 | 24 |
| | 8 hour | 133.0 | 2,640 | 2,773 | 10,000 | 28 |
| $NO_2$ [a, b] | 1 hour | 152.6 | 105.7 | 258.3 | 339 | 76 |
| | 1 hr Federal | 104.1 | 73.0 | 177.1 | 188 | 94 |
| | Annual | 1.2 | 18.9 | 20.1 | 57 | 35 |
| $SO_2$ | 1 hour | 129.0 | 46.9 | 175.9 | 655 | 27 |
| | 1 hr Federal | 129.0 | 46.9 | 175.9 | 196 | 90 |
| | 24 hour | 20.0 | 18.3 | 38.3 | 105 | 36 |
| | Annual | 1.0 | 5.2 | 6.2 | 80 | 8 |

Notes:
a. The maximum 1-hour $NO_2$ concentration is based on AERMOD OLM output.
b. The proposed emergency use engines at all cumulative facilities would dominate the highest 1-hour $NO_2$ modeled impacts.
(Ex. 301, p. 4.1-38.)

Compared with the impacts from the proposed MEP project alone, maximum cumulative impacts caused by the sources in this assessment would be relatively higher for all criteria pollutants. Modeled concentrations of 1-hour $NO_2$ are highest adjacent to EAEC, where two internal combustion engines are proposed for emergency use. In the immediate vicinity of 330 feet (100 meters) of the EAEC fence-line, maximum 1-hour $NO_2$ concentrations could potentially exceed the newly-established federal 1-hour $NO_2$ standard. However, compliance with this new standard is not based upon maximum 1-hour concentrations, but rather it relies on multi-year data. When viewed over a multi-year period, the modeled concentrations of $NO_2$ impacts from emergency-use sources become especially conservatively high because the standby sources are modeled with operation recurring each hour although they would emit only sporadically during testing events that would rarely occur simultaneously with worst-case meteorological conditions. (Ex. 301, pp. 4.1-38 - 4.1-39.)

Cumulative sources would not create any new violation of the limiting standards, except for the federal 1-hour $NO_2$ standard, where modeling reveals concentrations that could result in a potential new violation adjacent to the proposed emergency-use-only sources at EAEC. Adjacent to EAEC, the proposed MEP would contribute less than 7 µg/m$^3$, which is an interim Significant Impact Level that is considered to be a suitable level for determining whether the contribution by MEP would be cumulatively considerable. The potential new

violation caused by EAEC would only occur for receptors within about 330 feet (100 meters) of that power plant site. With MEP's contribution to modeled concentrations below 7 $\mu g/m^3$ in the area of the new potential exceedance, the contribution made by MEP to the potential new violation would not be cumulatively considerable. (Ex. 301, p. 4.1-39.)

Based on the evidence, particulate matter emissions from the MEP would be cumulatively considerable because they would contribute to existing violations of the PM10 and PM2.5 ambient air quality standards. Secondary impacts would also be cumulatively considerable for PM10, PM2.5, and ozone because emissions of particulate matter precursors (including SOx) and ozone precursors (NOx and VOC) would contribute to existing violations of the PM10, PM2.5, and ozone standards. To address the contribution caused by MEP to cumulative particulate matter and ozone impacts, mitigation would offset all nonattainment pollutants and their precursors at a minimum ratio of one-to-one. (Ex. 301, p. 4.1-39.)

**Compliance with LORS**

The FDOC was issued by the BAAQMD in final form on November 24, 2010. (Ex. 302.) The Determination of Compliance would represent the federal New Source Review (NSR) permit. Compliance with all District Rules and Regulations was demonstrated to the District's satisfaction in the FDOC, and the FDOC conditions are presented in the Conditions of Certification below. (Ex. 301, p. 4.1-39.)

**Federal**

**40 CFR 51, Nonattainment New Source Review.** The FDOC includes conditions that would implement the federal nonattainment New Source Review (NSR) permit for MEP. Nonattainment NSR rules and regulations for PM2.5 are not yet in place at the local level. Because the applicable interim federal program of 40 CFR 51, Appendix S, applies to new sources of PM2.5 emitting greater than 100 tons per year, MEP is not subject to federal nonattainment NSR for PM2.5. (Ex. 301, p. 4.1-39.)

**40 CFR 52.21, Prevention of Significant Deterioration (PSD).** A PSD permit would not be required for the proposed MEP project because it would be neither a new major source nor a major modification to an existing major source.

If, in the future, the project owner changes the project, Condition of Certification **AQ-SC6** would ensure that the owner promptly notifies the Energy Commission to incorporate changes in permit conditions, if any. (Ex. 301, p. 4.1-40.)

**40 CFR 60, NSPS Subpart KKKK.** The four CTGs proposed for MEP would be likely to comply with the applicable emission limits by achieving a NOx emission rate of 2.5 ppmvd over any one-hour period except during startup or shutdown. The NSPS Subpart KKKK requires reporting any excess emissions including startup and shutdown emissions, if they exceed a 4-hour rolling average limit of 25 ppm NOx, applicable only to simple cycle units; however, the post-combustion control systems for MEP would ensure that this limit would not be exceeded during any conditions. (Ex. 301, p. 4.1-40.)

**40 CFR 60, NSPS Subpart IIII.** The fire water pump engine proposed for MEP would comply with the applicable emission limits of this federal program because its emissions would be certified by ARB as Tier 3 compliant. (Ex. 301, p. 4.1-40.)

**State**

MEP has demonstrated that the project would comply with § 41700 of the California State Health and Safety Code, which restricts emissions that would cause nuisance or injury. Compliance with the FDOC and the Energy Commission staff's Conditions of Certification enable staff's affirmative finding. (Ex. 301, p. 4.1-40.)

**Local**

The Final Determination of Compliance summarizes how the proposed MEP project would comply with BAAQMD requirements. (Ex. 301, p. 4.1-40.)

**PUBLIC COMMENT**

**Matt Mullen**, a Mountain House resident, opposed the construction of the MEP. He commented that "I do my running and biking here on Bruns Road and Kelso Road. And I'm concerned about air quality and pollution when I'm out doing my activities with my friends." (2/24/11 RT: 276:1-19.)

**Chris Gray** is Chief of Staff for Supervisor Scott Haggerty for Alameda County. Supervisor Haggerty is also the past Chairman and a current member of the Bay Area Air Quality District. He commented that after "doing our due diligence over a long period of time, we have become very satisfied with the plant." (2/24/11 RT: 284:16-286:10.)

**Travis Miller**, a Mountain House resident, commented that "all of the emissions discharges are going to flow right into Mountain House, which already has some Clean Air Act issues as is." (2/24/11 RT: 291:5-293:14.)

**Frank Lin** commented that "this natural gas burning power plant not only generates air polluted emission, but also kills its downhill communities economic-wise." (2/25/11 RT: 334:18-335:24.)

**Anand Palanisamy** of Mountain House commented that "this plant is going to pollute the air and also there will be a lot of noise. It will affect a beautiful and brand-new community." (2/24/11 RT 432:18-23.)

All of these comments which are addressed in the Decision above, are also considered in the **Public Health** section of this Decision.

**FINDINGS OF FACT**

Based on the evidence, we find as follows:

1. The MEP is located within the jurisdiction of the BAAQMD but is on the edge of the San Joaquin Valley Air Basin.

2. The MEP would include the following new stationary sources of emissions: (1) four General Electric (GE) LM6000 PC-Sprint natural gas-fired combustion turbine generators (CTG) with a nominal capacity of 50 MW and a heat input capacity of up to 481 MMBtu/hr (high heating value) for each gas turbine, in a simple-cycle configuration; and (2) one fire water pump to be driven by a 220 bhp diesel engine.

3. Construction of the MEP is expected to take about 14 months.

4. The project's construction-related impacts are temporary and short-term in nature.

5. The project's construction-related impacts are mitigated to below a level of significance by measures identified in the Conditions of Certification **AQ-SC1** through **AQ-SC5**.

6. The District is classified as non-attainment for the state 1-hour and federal 8-hour ozone standards, the state PM10 standards and the state and federal PM2.5 standards. The District meets applicable standards for all other criteria pollutants.

7. Operation of the project would comply with applicable BAAQMD rules and regulations, including New Source Review, Best Available Control Technology (BACT) requirements, and requirements to offset emission increases.

8. The project NOx and VOC emissions would contribute to existing violations of state and federal ozone ambient air quality standards. The ozone precursor offsets required by BAAQMD and shown in Condition of Certification **AQ-SC7** will mitigate the foreseeable ozone impact to a less than significant level.

9. The project PM10 and PM2.5 emissions and the PM10/PM2.5 precursor emissions of SOx would contribute to the existing violations of state PM10 and state and federal PM2.5 ambient air quality standards. The local emission reductions resulting from the SJVAPCD Air Quality Mitigation Settlement would mitigate the foreseeable PM10/PM2.5 impacts to a less than significant level. Condition of Certification **AQ-SC7** would ensure that, in conjunction with the offsets required by BAAQMD, sufficient quantities of local SJVAPCD emission reductions will occur to satisfy Energy Commission staff's longstanding position that all nonattainment pollutant and precursor emissions be offset at least one-to-one.

10. Condition of Certification **AQ-SC9** will ensure that the applicant would not conduct initial commissioning on any of the CTGs simultaneously.

11. Condition of Certification **AQ-SC10** ensures that the fire pump engine is limited to no more than 30 minutes per test, that testing occurs only during certain hours when background concentrations are known to be low (between 8 a.m. and 11 a.m.), and so that engine testing does not occur simultaneously with commissioning.

12. Use of emission reduction credits in this case is appropriate, and is consistent with applicable federal and state emission control strategies.

13. The District issued a Final Determination of Compliance that finds the MEP will comply with all applicable District rules for project operation.

14. The record contains an adequate analysis of the project's contributions to cumulative air quality impacts.

## CONCLUSIONS OF LAW

1. The mitigation measures imposed are sufficient to ensure that the MEP will conform with all applicable laws, ordinances, regulations, and standards relating to air quality.

2. Implementation of the Conditions of Certification listed below ensures that the MEP will not result in any significant direct, indirect, or cumulative impacts to air quality.

## CONDITIONS OF CERTIFICATION

**AQ-SC1** Air Quality Construction Mitigation Manager (AQCMM): The project owner shall designate and retain an on-site AQCMM who shall be responsible for directing and documenting compliance with conditions **AQ-SC3, AQ-SC4** and **AQ-SC5** for the entire project site and linear facility construction. The on-site AQCMM may delegate responsibilities to one or more AQCMM delegates. The AQCMM and AQCMM delegates shall have full access to all areas of construction on the project site and linear facilities, and shall have the authority to stop any or all construction activities as warranted by applicable construction mitigation conditions. The AQCMM and AQCMM delegates may have other responsibilities in addition to those described in this condition. The AQCMM shall not be terminated without written consent of the compliance project manager (CPM).

**Verification:** At least 60 days prior to the start of ground disturbance, the project owner shall submit to the CPM for approval the name, resume, qualifications, and contact information for the on-site AQCMM and all AQCMM delegates. The AQCMM and all delegates must be approved by the CPM before the start of ground disturbance.

**AQ-SC2** Air Quality Construction Mitigation Plan (AQCMP): The project owner shall provide, for approval, an AQCMP that details the steps to be taken and the reporting requirements necessary to ensure compliance with conditions of certification **AQ-SC3**, **AQ-SC4** and **AQ-SC5**.

**Verification:** At least 60 days prior to the start of any ground disturbance, the project owner shall submit the AQCMP to the CPM for approval. The CPM will notify the project owner of any necessary modifications to the plan within 30 days from the date of receipt. The AQCMP must be approved by the CPM before the start of ground disturbance.

**AQ-SC3** Construction Fugitive Dust Control: The AQCMM shall submit documentation to the CPM in each monthly compliance report (MCR) that demonstrates compliance with the following mitigation measures for purposes of preventing all fugitive dust plumes from leaving the project site and linear facility routes. Any deviation from the following mitigation measures shall require prior CPM notification and approval.

A. All unpaved roads and disturbed areas in the project and linear construction sites shall be watered as frequently as necessary to comply with the dust mitigation objectives of **AQ-SC4**. The frequency of watering may be either reduced or eliminated during periods of precipitation.

B. No vehicle shall exceed 15 miles per hour within the construction site.

C. The construction site entrances shall be posted with visible speed limit signs.

D. All construction equipment vehicle tires shall be inspected and washed as necessary to be free of dirt prior to entering paved roadways.

E. Gravel ramps of at least 20 feet in length must be provided at the tire washing/cleaning station.

F. All unpaved exits from the construction site shall be graveled or treated to prevent track-out to public roadways.

G. All construction vehicles shall enter the construction site through the treated entrance roadways unless an alternative route has been submitted to and approved by the CPM.

H. Construction areas adjacent to any paved roadway shall be provided with sandbags or other measures as specified in the Storm Water Pollution Prevention Plan (SWPPP) to prevent run-off to roadways.

I. All paved roads within the construction site shall be swept at least twice daily (or less during periods of precipitation) on days when construction activity occurs to prevent the accumulation of dirt and debris.

J. At least the first 500 feet of any public roadway exiting from the construction site shall be swept as needed on days when construction activity occurs or on any other day when dirt or run-off from the construction site is visible on the public roadways.

K. All soil storage piles and disturbed areas that remain inactive for longer than 10 days shall be covered or treated with appropriate dust suppressant compounds.

L. All vehicles that are used to transport solid bulk material on public roadways and that have the potential to cause visible emissions shall be provided with a cover, or the materials shall be sufficiently wetted and loaded onto the trucks to provide at least two feet of freeboard.

M. Wind erosion control techniques (such as windbreaks, water, chemical dust suppressants, and/or vegetation) shall be used on all construction areas that may be disturbed. Any windbreaks installed to comply with this condition shall remain in place until the soil is stabilized or permanently covered with vegetation.

**Verification:** The project owner shall include in the MCR: (1) a summary of all actions taken to maintain compliance with this condition; (2) copies of any

complaints filed with the air district in relation to project construction; and (3) any other documentation deemed necessary by the CPM and AQCMM to verify compliance with this condition. Such information may be provided via electronic format or disk at the project owner's discretion, as approved by the CPM.

**AQ-SC4** Dust Plume Response Requirement: The AQCMM or an AQCMM delegate shall monitor all construction activities for visible dust plumes. Observations of visible dust plumes with the potential to be transported off the project site, 200 feet beyond the centerline of the construction of linear facilities, or within 100 feet upwind of any regularly occupied structures not owned by the project owner indicate that existing mitigation measures are not providing effective mitigation. The AQCMM or delegate shall then implement the following procedures for additional mitigation measures in the event that such visible dust plumes are observed.

Step 1: Within 15 minutes of making such a determination, the AQCMM or delegate shall direct more intensive application of the existing mitigation methods.

Step 2: If Step 1 specified above fails to result in adequate mitigation within 30 minutes of the original determination, the AQCMM or delegate shall direct implementation of additional methods of dust suppression.

Step 3: If Step 2 specified above fails to result in effective mitigation within one hour of the original determination, the AQCMM or delegate shall direct a temporary shutdown of the activity causing the emissions. The activity shall not restart until the AQCMM or delegate is satisfied that appropriate additional mitigation or other site conditions have changed so that visual dust plumes will not result upon restarting the shutdown source. The project owner may appeal to the CPM any directive from the AQCMM or delegate to shut down an activity, provided that the shutdown shall go into effect within one hour of the original determination, unless overruled by the CPM before that time.

**Verification:** The AQCMP shall include a section detailing how additional mitigation measures will be accomplished within the specified time limits.

**AQ-SC5** Diesel-Fueled Engine Control: The AQCMM shall submit to the CPM, in the MCR, a construction mitigation report that demonstrates compliance with the following mitigation measures for purposes of controlling diesel construction-related emissions. Any deviation from the following mitigation measures shall require prior CPM notification and approval.

A. All diesel-fueled engines used in the construction of the facility shall have clearly visible tags, issued by the on-site AQCMM, showing that the engine meets the conditions set forth herein.

B. All construction diesel engines with a rating of 50 hp or higher shall meet, at a minimum, the Tier 3 California Emission Standards for Off-Road Compression-Ignition Engines, as specified in California Code of Regulations, Title 13, § 2423(b)(1), unless certified by the on-site AQCMM that such engine is not available for a particular item of equipment. This good faith effort shall be documented with signed written correspondence by the appropriate construction contractors, along with documented correspondence with at least two construction equipment rental firms. In the event that a Tier 3 engine is not available for any off-road equipment larger than 50 hp, that equipment shall be equipped with a Tier 2 engine or an engine that is equipped with retrofit controls to reduce exhaust emissions of nitrogen oxides (NOx) and diesel particulate matter (DPM) to no more than Tier 2 levels, unless certified by engine manufacturers or the on-site AQCMM that the use of such devices is not practical for specific engine types. For purposes of this condition, the use of such devices is “not practical” for the following, as well as other, reasons:

   1. There is no available retrofit control device that has been verified by either the California Air Resources Board or U.S. Environmental Protection Agency to control the engine in question to Tier 2 equivalent emission levels and either a Tier 1 engine or the highest level of available control is being used; or

   2. The construction equipment is intended to be on site for five days or less.

   3. The CPM may grant relief from this requirement if the AQCMM can demonstrate a good faith effort to comply with this requirement and that compliance is not possible.

   4. Equipment owned by specialty subcontractors may be granted an exemption, for single equipment items on a case-by-case basis, if it can be demonstrated that extreme financial hardship would occur if the specialty subcontractor had to rent replacement equipment, or if it can be demonstrated that a specialized equipment item is not available by rental.

C. The use of a retrofit control device may be terminated immediately, provided that the CPM is informed within 10 working days of the termination and the AQCMM demonstrates that one of the following conditions exists:

   1. The use of the control device is excessively reducing the normal availability of the construction equipment due to increased down

time for maintenance, and/or reduced power output due to an excessive increase in back pressure.

2. The control device is causing or is reasonably expected to cause significant engine damage.
3. The control device is causing or is reasonably expected to cause a significant risk to workers or the public.
4. Any other seriously detrimental cause which has the approval of the CPM prior to implementation of the termination.

D. All heavy earth-moving equipment and heavy duty construction-related trucks with engines meeting the requirements of (b) above shall be properly maintained and the engines tuned to the engine manufacturer's specifications.

E. All diesel heavy construction equipment shall not idle for more than five minutes, to the extent practical.

F. Construction equipment will employ electric motors when feasible.

**Verification:** The project owner shall include in the MCR: (1) a summary of all actions taken to maintain compliance with this condition; (2) a list of all heavy equipment used on site during that month, including the owner of that equipment and a letter from each owner indicating that the equipment has been properly maintained; and (3) any other documentation deemed necessary by the CPM and AQCMM to verify compliance with this condition. Such information may be provided via electronic format or disk at the project owner's discretion, as approved by the CPM.

**AQ-SC6** The project owner shall submit to the CPM for review and approval any modification proposed by the project owner to any project air permit. The project owner shall submit to the CPM any modification to any permit proposed by the District or U.S. EPA, and any revised permit issued by the District or U.S. EPA, for the project.

**Verification:** The project owner shall submit any proposed air permit modification to the CPM within five working days of either: 1) submittal by the project owner to an agency, or 2) receipt of proposed modifications from an agency. The project owner shall submit all modified air permits to the CPM within 15 days of receipt.

**AQ-SC7** The project owner shall provide emission reductions in the form of offsets or emission reduction credits (ERCs) in the quantities of at least 22.72 tons per year (tpy) NOx, 2.51 tpy VOC, 8.13 tpy PM10, and 1.10 tpy SOx emissions.

The project owner shall surrender the NOx and/or VOC ERCs from among Bay Area Air Quality Management District Certificate Numbers

1182 and/or 1184, or an alternate certificate, as allowed by this condition. If additional ERCs are submitted, the project owner shall submit an identification of the additional ERCs to the CPM. The project owner shall request CPM approval for any substitutions, modifications, or additions to the listed credits.

The project owner shall demonstrate that a sufficient quantity of local emission reductions of PM10 and/or SOx occur by providing a report that identifies the feasible timing of the reductions and the ultimate use and cost-effectiveness of the $644,503 fee in the Air Quality Mitigation Settlement Agreement executed by the San Joaquin Valley Air Pollution Control District Governing Board, December 17, 2009 (Attachment DR8-2 of CH2M 2010b). If insufficient emission reductions would result from the use of the fee, then the project owner shall expand the scope of the Settlement Agreement and fee or surrender sufficient PM10 and/or SOx ERCs from the northern region of the San Joaquin Valley Air Pollution Control District in the amount corresponding with the shortfall.

The CPM, in consultation with the District, may approve any such change to the ERC list provided that the project remains in compliance with all applicable laws, ordinances, regulations, and standards, and that the requested change(s) will not cause the project to result in a significant environmental impact. The District must also confirm that each requested change is consistent with applicable federal and state laws and regulations.

**Verification:** The project owner shall submit to the CPM records showing that the project's BAAQMD offset requirements have been met prior to initiating construction and that the local emission reductions achieved by using the SJVAPCD fee are likely to occur prior to initiating operation. If the CPM approves a substitution or modification to the list of ERCs, the CPM shall file a statement of the approval with the project owner and the Energy Commission docket. The CPM shall maintain an updated list of approved ERCs for the project.

**AQ-SC8** The project owner shall submit to the CPM quarterly operation reports that include operational and emissions information as necessary to demonstrate compliance with the conditions of certification. The quarterly operation report shall specifically note or highlight incidences of noncompliance.

**Verification:** The project owner shall submit quarterly operation reports to the CPM and APCO no later than 30 days following the end of each calendar quarter. This information shall be maintained on site for a minimum of five years and shall be provided to the CPM and District personnel upon request.

**AQ-SC9** The facility shall be operated such that simultaneous commissioning of the combustion turbines will not occur without abatement of nitrogen oxide and CO emissions by its SCR system and oxidation catalyst system. Operation of a combustion turbine during commissioning without abatement shall be limited to discrete commissioning activities that can only be properly executed without the SCR or Oxidation Catalyst Systems fully operational.

**Verification:** The project owner shall submit a monthly compliance report to the CPM during the commissioning period demonstrating compliance with this condition.

**AQ-SC10** The diesel fire water pump engine (proposed rating: 220 horsepower) shall be certified as meeting ARB Tier 3 or better standards. Scheduled testing of the fire pump engine shall not occur during operation of any combustion turbine in commissioning mode. Any planned test of the fire pump engine shall last no more than 30 minutes and shall be completed only between 8 a.m. and 11 a.m. standard time.

**Verification:** The project owner shall submit a monthly compliance report to the CPM during the commissioning period, and subsequent quarterly operation reports (**AQ-SC8**), demonstrating compliance with this condition.

**BAAQMD PROPOSED PERMIT CONDITIONS**

The following conditions would be applicable to the combustion equipment and the abatement devices that are subject to permitting requirements.

Conditions **AQ-1** through **AQ-10** shall only apply during the commissioning period. Unless otherwise indicated, **AQ-11** through **AQ-38** shall apply after the commissioning period has ended. Conditions **AQ-39** through **AQ-43** shall apply to the diesel fire pump engine.

**Conditions for the Commissioning Period for GE LM 6000 PC Sprint Gas Turbines**

**AQ-1** The project owner of the MEP shall minimize emissions of carbon monoxide and nitrogen oxides from S-1, S-2, S-3 and S-4 Gas Turbines to the maximum extent possible during the commissioning period. (Basis: BACT, Regulation 2, Rule 2, § 409)

**Verification:** A summary of significant operation and maintenance events and monitoring records required shall be included in the quarterly operation report (**AQ-SC8**).

**AQ-2** At the earliest feasible opportunity in accordance with the recommendations of the equipment manufacturers and the construction contractor, the project owner shall tune the S-1, S-2, S-3 and S-4 Gas Turbines combustors to minimize the emissions of carbon monoxide and nitrogen oxides. (Basis: BACT, Regulation 2, Rule 2, § 409)

**Verification:** A summary of significant operation and maintenance events and monitoring records required shall be included in the quarterly operation report (**AQ-SC8**).

**AQ-3** At the earliest feasible opportunity in accordance with the recommendations of the equipment manufacturers and the construction contractor, the project owner shall install, adjust, and operate the A-1, A-3, A-5 and A-7 Oxidation Catalysts and A-2, A-4, A-6 and A-8 SCR Systems to minimize the emissions of carbon monoxide and nitrogen oxides from S-1, S-2, S-3, and S-4 Gas Turbines. (Basis: BACT, Regulation 2, Rule 2, § 409)

**Verification:** A summary of significant operation and maintenance events and monitoring records required shall be included in the quarterly operation report (**AQ-SC8**).

**AQ-4** The project owner of the MEP shall submit a plan to the District Engineering Division and the CEC CPM at least four weeks prior to first firing of S-1, S-2, S-3, and S-4 Gas Turbines describing the procedures to be followed during the commissioning of the gas turbines. The plan shall include a description of each commissioning activity, the anticipated duration of each activity in hours, and the purpose of the activity. The activities described shall include, but not be limited to, the initial tuning of the combustors, the installation and operation of the required emission control systems, the installation, calibration, and testing of the CO and $NO_x$ continuous emission monitors, and any activities requiring the firing of the Gas Turbines (S-1, S-2, S-3 & S-4) without abatement by their respective oxidation catalysts and/or SCR Systems. The project owner shall not fire any of the Gas Turbines (S-1, S-2, S-3 or S-4) sooner than 28 days after the District receives the commissioning plan. (Basis: Regulation 2, Rule 2, § 419)

**Verification:** The project owner shall submit a commissioning plan to the CPM and APCO for approval at least four weeks prior to first firing of the gas turbine describing the procedures to be followed during the commissioning period and the anticipated duration of each commissioning activity.

**AQ-5** During the commissioning period, the project owner of the MEP shall demonstrate compliance with **AQ-7**, **AQ-8**, **AQ-9**, and **AQ-10** through the use of properly operated and maintained continuous emission monitors and data recorders for the following parameters and emission concentrations:

- firing hours;
- fuel flow rates;
- stack gas nitrogen oxide emission concentrations;
- stack gas carbon monoxide emission concentrations; and
- stack gas oxygen concentrations.

The monitored parameters shall be recorded at least once every 15 minutes (excluding normal calibration periods or when the monitored source is not in operation) for the Gas Turbines (S-1, S-2, S-3, and S-4). The project owner shall use District-approved methods to calculate heat input rates, nitrogen dioxide mass emission rates, carbon monoxide mass emission rates, and $NO_x$ and CO emission concentrations, summarized for each clock hour and each calendar day. The project owner shall retain records on site for at least 5 years from the date of entry and make such records available to District personnel upon request. (Basis: Regulation 2, Rule 2, § 419)

**Verification:** The project owner shall submit to the CPM and APCO for approval the commissioning plan as required in **AQ-4**.

**AQ-6** The project owner shall install, calibrate, and operate the District-approved continuous monitors specified in **AQ-5** prior to first firing of the Gas Turbines (S-1, S-2, S-3 and S-4). After first firing of the turbines, the project owner shall adjust the detection range of these continuous emission monitors as necessary to accurately measure the resulting range of CO and $NO_x$ emission concentrations. The instruments shall operate at all times of operation of S-1, S-2, S-3, and S-4 including start-up, shutdown, upset, and malfunction, except as allowed by BAAQMD Regulation 1-522, BAAQMD Manual of Procedures, Volume V. If necessary to comply with this requirement, the project owner shall install dual-span monitors. The type, specifications, and location of these monitors shall be subject to District review and approval. (Basis: Regulation 2, Rule 2, § 419)

**Verification:** The project owner shall make the site available for inspection by representatives of the District, ARB, and the Commission upon request.

**AQ-7** The project owner shall not fire S-1, S-2, S-3, or S-4 Gas Turbine without abatement of nitrogen oxide emissions by the corresponding SCR System A-2, A-4, A-6, or A-8 and/or abatement of carbon monoxide emissions by the corresponding Oxidation Catalyst A-1, A-3, A-5, or A-7 for more than 200 hours each during the commissioning

period. Such operation of any Gas Turbine (S-1, S-2, S-3, S-4) without abatement shall be limited to discrete commissioning activities that can only be properly executed without the SCR system and/or oxidation catalyst in place. Upon completion of these activities, the project owner shall provide written notice to the District Engineering and Enforcement Divisions and the unused balance of the 200 firing hours for each turbine without abatement shall expire. (Basis: BACT, Regulation 2, Rule 2, § 409)

**Verification:** The project owner shall submit to the CPM and APCO for approval the commissioning plan as required in **AQ-4**. A summary of significant operation and maintenance events and monitoring records required shall be included in the quarterly operation report (**AQ-SC8**).

**AQ-8** The total mass emissions of nitrogen oxides, carbon monoxide, precursor organic compounds, $PM_{10}$, and sulfur dioxide that are emitted by the Gas Turbines (S-1, S-2, S-3, and S-4) during the commissioning period shall accrue towards the consecutive twelve-month emission limitations specified in **AQ-20**. (Basis: Regulation 2, Rule 2, § 409)

**Verification:** A summary of significant operation and maintenance events and monitoring records required shall be included in the quarterly operation report (**AQ-SC8**).

**AQ-9** The owner/ operator shall not operate the Gas Turbines (S-1, S-2, S-3, and S-4) in a manner such that the combined pollutant emissions from the gas turbines will exceed the following limits during the commissioning period. These emission limits shall include emissions resulting from the start-up and shutdown of the Gas Turbines (S-1, S-2, S-3, S-4). In addition, commissioning activities will be conducted on no more than one turbine/day. (Basis: BACT, Regulation 2, Rule 2, § 409.)

| | |
|---|---|
| $NO_x$ (as $NO_2$): | 16.3 tons per year |
| CO: | 8.7 tons per year |
| POC (as $CH_4$): | 1.0 ton per year |
| $PM_{10}$: | 1.0 ton per year |
| $SO_2$: | 0.54 ton per year |

**Verification:** The above limits for NOx and CO both apply. A summary of significant operation and maintenance events and monitoring records required shall be included in the quarterly operation report (**AQ-SC8**).

**AQ-9a** The owner/ operator shall not operate the Gas Turbines (S-1, S-2, S-3, and S-4) in a manner such that the pollutant emissions from each gas turbine will exceed the following limits during the commissioning period. These emission limits shall include emissions resulting from the start-up and shutdown of the Gas Turbines (S-1, S-2, S-3, S-4). In

addition, commissioning activities will be conducted on no more than one turbine/day. (Basis: BACT, Regulation 2, Rule 2, § 409)

| | |
|---|---|
| $NO_x$ (as $NO_2$): | 408 pounds per calendar day |
| | 51 pounds per hour |
| CO: | 360 pounds per calendar day |
| | 45 pounds per hour |
| POC (as $CH_4$): | 36 pounds per calendar day |
| $PM_{10}$: | 20 pounds per calendar day |
| $SO_2$: | 10.8 pounds per calendar day |

**Verification:** The above limits for NOx and CO both apply. A summary of significant operation and maintenance events and monitoring records required shall be included in the quarterly operation report (**AQ-SC8**).

**AQ-10** Within 90 days after startup of each turbine, the Project owner shall conduct District and CEC approved source tests on that turbine to determine compliance with the emission limitations specified in **AQ-17**. The source tests shall determine $NO_x$, CO, and POC emissions during start-up and shutdown of the gas turbines. The POC emissions shall be analyzed for methane and ethane to account for the presence of unburned natural gas. The source test shall include a minimum of three start-up and three shutdown periods. Thirty working days before the execution of the source tests, the Project owner shall submit to the District and the CEC Compliance Program Manager (CPM) a detailed source test plan designed to satisfy the requirements of this Part. The District and the CEC CPM will notify the Project owner of any necessary modifications to the plan within 20 working days of receipt of the plan; otherwise, the plan shall be deemed approved. The Project owner shall incorporate the District and CEC CPM comments into the test plan. The Project owner shall notify the District and the CEC CPM within seven (7) working days prior to the planned source testing date. The project owner shall submit the source test results to the District and the CEC CPM within 60 days of the source testing date. (Basis: Regulation 2, Rule 2, § 419)

**Verification:** The project owner shall submit a source test plan to the CPM and APCO for approval as part of the commissioning plan required in **AQ-4**.

**Conditions for the GE LM 6000 PC Sprint Simple-Cycle Gas Turbines (S-1, S-2, S-3, and S-4)**

**AQ-11** The project owner shall fire the Gas Turbines (S-1, S-2, S-3, and S-4) exclusively on PUC-regulated natural gas with a maximum sulfur content of 1 grain per 100 standard cubic feet. To demonstrate compliance with this limit, the operator of S-1, S-2, S-3 and S-4 shall sample and analyze the gas from each supply source at least monthly to determine the sulfur content of the gas. PG&E monthly sulfur data may be used provided that such data can be demonstrated to be representative of the gas delivered to the MEP. (Basis: BACT for SO2 and PM10)

**Verification:** The result of the natural gas fuel sulfur monitoring data and other fuel sulfur content source data shall be submitted to the District and CPM in the quarterly operation report (**AQ-SC8**).

**AQ-12** The project owner shall not operate the units such that the heat input rate to each Gas Turbine (S-1, S-2, S-3, and S-4) exceeds 481 MMBtu (HHV) per hour. (Basis: 2-2-409 )

**Verification:** A summary of significant operation and maintenance events and monitoring records required shall be included in the quarterly operation report (**AQ-SC8**).

**AQ-13** The project owner shall not operate the units such that the heat input rate to each Gas Turbine (S-1, S-2, S-3, and S-4) exceeds 11,544 MMBtu (HHV) per day. (Basis: 2-2-409, Cumulative Increase for $PM_{10}$)

**Verification:** A summary of significant operation and maintenance events and monitoring records required shall be included in the quarterly operation report (**AQ-SC8**).

**AQ-14** The project owner shall not operate the units such that the combined cumulative heat input rate for the Gas Turbines (S-1, S-2, S-3, and S-4) exceeds 8,128,900 MMBtu (HHV) per year. (Basis: 2-2-409, Offsets)

**Verification:** A summary of significant operation and maintenance events and monitoring records required shall be included in the quarterly operation report (**AQ-SC8**).

**AQ-15a** The owner operator shall not operate any turbine S-1, S-2, S-3, or S-4 such that the hours of operation for any of the four units exceeds 5,200 hours per year (Basis: 2-2-409)

**Verification:** A summary of significant operation and maintenance events and monitoring records required shall be included in the quarterly operation report (**AQ-SC8**).

**AQ-15b** The owner operator shall not operate the turbines S-1, S-2, S-3, or S-4 such that the hours of operation for the four units combined exceeds 16,900 hours per year. (Basis: Offsets, Cumulative Increase)

**Verification:** A summary of significant operation and maintenance events and monitoring records required shall be included in the quarterly operation report (**AQ-SC8**).

**AQ-16** The project owner shall ensure that each Gas Turbine (S-1, S-2, S-3, S-4) is abated by the properly operated and properly maintained Selective Catalytic Reduction (SCR) System A-2, A-4, A-6, or A-8 and Oxidation Catalyst System A-1, A-3, A-5, or A-7 whenever fuel is combusted at those sources and the corresponding SCR catalyst bed (A-2, A-4, A-6 or A-8) has reached minimum operating temperature. (Basis: BACT for $NO_x$, POC and CO)

**Verification:** The project owner shall make the site available for inspection by representatives of the District, ARB, and the Commission upon request. A summary of significant operation and maintenance events and monitoring records required shall be included in the quarterly operation report (**AQ-SC8**).

**AQ-17** The project owner shall ensure that the Gas Turbines (S-1, S-2, S-3, S-4) comply with requirements (a) through (i). Requirements (a) through (f) do not apply during a gas turbine start-up, and shutdown. (Basis: BACT and Regulation 2, Rule 5)

a) Nitrogen oxide mass emissions (calculated as $NO_2$) at each exhaust point P-1, P-2, P-3, and P-4 (exhaust point for S-1, S-2, S-3 and S-4 Gas Turbine after abatement by A-2, A-4, A-6 and A-8 SCR System) shall not exceed 4.4 pounds per hour. (Basis: BACT for $NO_x$).

b) The nitrogen oxide emission concentration at each exhaust point P-1, P-2, P-3 and P-4 shall not exceed 2.5 ppmv, on a dry basis, corrected to 15% $O_2$, averaged over any 1-hour period. (Basis: BACT for $NO_x$)

c) Carbon monoxide mass emissions at each exhaust point P-1, P-2, P-3, and P-4 shall not exceed 2.14 pounds per hour. (Basis: BACT for CO)

d) The carbon monoxide emission concentration at each exhaust point P-1, P-2, P-3, and P-4 shall not exceed 2.0 ppmv, on a dry basis, corrected to 15% $O_2$ averaged over any rolling 3-hour period. (Basis: BACT for CO)

e) Ammonia ($NH_3$) emission concentrations at each exhaust point P-1, P-2, P-3, and P-4 shall not exceed 5 ppmv, on a dry basis, corrected to 15% $O_2$, averaged over any rolling 3-hour period. This ammonia emission concentration shall be verified by the continuous recording of the ammonia injection rate to each SCR System A-2, A-4, A-6, and A-8. The correlation between the gas turbine heat input rates, A-2, A-4, A-6, and A-8 SCR System ammonia injection rates, and corresponding ammonia emission concentration at emission points P-1, P-2, P-3 and P-4 shall be determined in accordance with **AQ-25** or a District approved alternative method. (Basis: Regulation 2, Rule 5)

f) Precursor organic compound (POC) mass emissions (as $CH_4$) at each exhaust point P-1, P-2, P-3, and P-4 shall not exceed 0.612 pounds per hour. (Basis: BACT for POC)

g) Sulfur dioxide ($SO_2$) mass emissions at each exhaust point P-1, P-2, P-3, and P-4 shall not exceed 1.347 pounds per hour. (Basis: BACT for $SO_2$)

**Verification:** A summary of significant operation and maintenance events and monitoring records required shall be included in the quarterly operation report (**AQ-SC8**).

**AQ-18** The project owner shall ensure that the regulated air pollutant mass emission rates from each of the Gas Turbines (S-1, S-2, S-3, and S-4) during a start-up or shutdown does not exceed the limits established below. Startups shall not exceed 30 minutes. Shutdowns shall not exceed 15 minutes. (Basis: BACT Limit for startup and shutdown operation)

**TABLE 40. STARTUP AND SHUTDOWN**

| Pollutant | Maximum Emissions Per Startup (lb/startup) | Maximum Emissions During Hour with Startup and/or Shutdown(lb/hr) | Maximum Emissions Per Shutdown (lb/shutdown) |
|---|---|---|---|
| NOx (as NO2) | 14.2 | 18.5 | 3.2 |
| CO | 14.1 | 17.3 | 2.7 |
| POC (as CH4) | 1.1 | 1.4 | 0.12 |

**Verification:** A summary of significant operation and maintenance events and monitoring records required shall be included in the quarterly operation report (**AQ-SC8**).

**AQ-19** The project owner shall not allow total combined emissions from the Gas Turbines (S-1, S-2, S-3, and S-4), including emissions generated during gas turbine start-ups, and shutdowns to exceed the following limits during any calendar day:

(a) 1100 pounds of $NO_x$ (as $NO_2$) per day (Basis: Cumulative Increase);

(b) 934 pounds of CO per day (Basis: Cumulative Increase);

(c) 95 pounds of POC (as $CH_4$) per day (Basis: Cumulative Increase); and

(d) 130 pounds of $SO_2$ per day (Basis: Cumulative Increase).

**Verification:** A summary of significant operation and maintenance events and monitoring records required shall be included in the quarterly operation report (**AQ-SC8**).

**AQ-20** The project owner shall not allow cumulative combined emissions from the Gas Turbines (S-1, S-2, S-3, and S-4), including emissions generated during gas turbine start-ups, shutdowns, and malfunctions to exceed the following limits during any consecutive twelve-month period:

(a) 45.6 tons of $NO_x$ (as $NO_2$) per year (Basis: Offsets);

(b) 27.2 tons of CO per year (Basis: Cumulative Increase);

(c) 5.6 tons of POC (as $CH_4$) per year (Basis: Cumulative Increase);

(d) 18.6 tons of $PM_{10}$ per year (Basis: Cumulative Increase); and

(e) 2.9 tons of $SO_2$ per year (Basis: Cumulative Increase).

Emissions of $PM_{10}$ from each gas turbine shall be calculated by multiplying turbine fuel usage times an emission factor determined by source testing of the turbine conducted in accordance with Part 26. The emission factor for each turbine shall be based on the average of the emissions rates observed during the 4 most recent source tests on that turbine (or, prior to the completion of 4 source tests on a turbine,

on the average of the emission rates observed during all source tests on the turbine).

**Verification:** A summary of significant operation and maintenance events and monitoring records required shall be included in the quarterly operation report (**AQ-SC8**).

**AQ-21** The project owner shall not allow the maximum projected annual toxic air contaminant emissions (per **AQ-24**) from the Gas Turbines (S-1, S-2, S-3, S-4) combined to exceed the following limits:

| | |
|---|---|
| formaldehyde | 3725.26 pounds per year |
| benzene | 107.94 pounds per year |
| Specified polycyclic aromatic hydrocarbons (PAHs) | 1.063 pounds per year |

unless the following requirement is satisfied:

The project owner shall perform a health risk assessment to determine the total facility risk using the emission rates determined by source testing and the most current Bay Area Air Quality Management District approved procedures and unit risk factors in effect at the time of the analysis. The project owner shall submit the risk analysis to the District and the CEC CPM within 60 days of the source test date. The project owner may request that the District and the CEC CPM revise the carcinogenic compound emission limits specified above. If the project owner demonstrates to the satisfaction of the APCO that these revised emission limits will not result in a significant cancer risk, the District and the CEC CPM may, at their discretion, adjust the carcinogenic compound emission limits listed above. (Basis: Regulation 2, Rule 5)

**Verification:** Source test results obtained through compliance with **AQ-24** and **AQ-28** shall confirm the toxic air contaminant emission rates or the project owner shall submit an updated health risk assessment.

**AQ-22** The project owner shall demonstrate compliance with **AQ-12** through **AQ-15**, **AQ-17**(a) through **AQ-17**(e), **AQ-18** ($NO_x$, and CO limits), **AQ-19**(a), **AQ-19**(b), **AQ-20**(a) and **AQ-20**(b) by using properly operated and maintained continuous monitors (during all hours of operation including gas turbine start-up, and shutdown periods). The project owner shall monitor for all of the following parameters:

(a) Firing Hours and Fuel Flow Rates for each of the following sources: S-1, S-2, S-3, and S-4;

(b) Oxygen ($O_2$) concentration, Nitrogen Oxides ($NO_x$) concentration, and carbon monoxide (CO) concentration at exhaust points P-1, P-2, P-3, and P-4; and

(c) Ammonia injection rate at A-2, A-4, A-6 and A-8 SCR Systems.

The project owner shall record all of the above parameters at least every 15 minutes (excluding normal calibration periods) and shall summarize all of the above parameters for each clock hour. For each calendar day, the project owner shall calculate and record the total firing hours, the average hourly fuel flow rates, and pollutant emission concentrations.

The project owner shall use the parameters measured above and District-approved calculation methods to calculate the following parameters:

(d) Heat Input Rate for each of the following sources: S-1, S-2, S-3, and S-4; and

(e) Corrected $NO_x$ concentration, $NO_x$ mass emission rate (as $NO_2$), corrected CO concentration, and CO mass emission rate at each of the following exhaust points: P-1, P-2, P-3 and P-4.

For each source and exhaust point, the project owner shall record the parameters specified in **AQ-22**(d) and **AQ-22**(e) at least once every 15 minutes (excluding normal calibration periods). As specified below, the project owner shall calculate and record the following data:

(f) total Heat Input Rate for every clock hour and the average hourly Heat Input Rate for every rolling 3-hour period.

(g) on an hourly basis, the cumulative total Heat Input Rate for each calendar day for the following: each Gas Turbine and for S-1, S-2, S-3, and S-4 combined.

(h) the average $NO_x$ mass emission rate (as $NO_2$), CO mass emission rate, and corrected $NO_x$ and CO emission concentrations for every clock hour.

(i) on an hourly basis, the cumulative total $NO_x$ mass emissions (as $NO_2$) and the cumulative total CO mass emissions, for each calendar day for the following: each Gas Turbine and for S-1, S-2, S-3 and S-4 combined.

(j) For each calendar day, the average hourly Heat Input Rates, corrected $NO_x$ emission concentration, $NO_x$ mass emission rate (as $NO_2$), corrected CO emission concentration, and CO mass emission rate for each Gas Turbine.

(k) on a monthly basis, the cumulative total $NO_x$ mass emissions (as $NO_2$) and cumulative total CO mass emissions, for the previous

consecutive twelve-month period for sources S-1, S-2, S-3, and S-4 combined. (Basis: 1-520.1, 9-9-501, BACT, Offsets, NSPS, Cumulative Increase)

**Verification:** The project owner shall make the site available for inspection by representatives of the District, ARB and the Commission to verify the continuous monitoring and recordkeeping system is properly installed and operational.

**AQ-23** To demonstrate compliance with **AQ-17**(f), **AQ-17**(g), **AQ-19**(c), **AQ-19**(d), **AQ-20**(c), **AQ-20**(d), **AQ-20**(e), the project owner shall calculate and record on a daily basis, the precursor organic compound (POC) mass emissions, fine particulate matter ($PM_{10}$) mass emissions (including condensable particulate matter), and sulfur dioxide ($SO_2$) mass emissions from each power train. The project owner shall use the actual heat input rates measured pursuant to **AQ-22**, actual Gas Turbine start-up times, actual Gas Turbine shutdown times, and CEC and District-approved emission factors developed pursuant to source testing under **AQ-26** to calculate these emissions. The project owner shall present the calculated emissions in the following format:

(a) For each calendar day, POC, $PM_{10}$, and $SO_2$ emissions, summarized for each power train (Gas Turbine) and S-1, S-2, S-3, and S-4 combined; and

(b) on a monthly basis, the cumulative total POC, $PM_{10}$, and $SO_2$ mass emissions, for each year for S-1, S-2, S-3, and S-4 combined. (Basis: Offsets, Cumulative Increase)

**Verification:** The project owner shall make the site available for inspection by representatives of the District, ARB and the Commission to verify the calculation and recordkeeping system is properly installed and operational.

**AQ-24** To demonstrate compliance with **AQ-21**, the project owner shall calculate and record on an annual basis the maximum projected annual emissions of: Formaldehyde, Benzene, and Specified PAHs. The project owner shall calculate the maximum projected annual emissions using the maximum annual heat input rate of 8,128,900 MMBtu/year for S-1, S-2, S-3, and S-4 combined and the highest emission factor (pounds of pollutant per MMBtu of heat input) determined by the most recent of any source test of the S-1, S-2, S-3, or S-4 Gas Turbines. If the highest emission factor for a given pollutant occurs during minimum-load turbine operation, a reduced annual heat input rate may be utilized to calculate the maximum projected annual emissions to reflect the reduced heat input rates during gas turbine start-up and minimum-load operation. The reduced annual heat input rate shall be subject to District review and approval. (Basis: Regulation 2, Rule 5)

**Verification:** The project owner shall make the site available for inspection by representatives of the District, ARB and the Commission to verify the calculation and recordkeeping system is properly installed and operational.

**AQ-25** Within 90 days of start-up of each of the MEP GE LM-6000 PC Sprint units, the project owner shall conduct a District-approved source test on exhaust point P-1, P-2, P-3, or P-4 to determine the corrected ammonia ($NH_3$) emission concentration to determine compliance with **AQ-17**(e). The source test shall determine the correlation between the heat input rates of the gas turbine, A-2, A-4, A-6, or A-8 SCR System ammonia injection rate, and the corresponding $NH_3$ emission concentration at emission point P-1, P-2, P-3, or P-4. The source test shall be conducted over the expected operating range of the turbine (including, but not limited to, minimum and full load modes) to establish the range of ammonia injection rates necessary to achieve $NO_x$ emission reductions while maintaining ammonia slip levels. The project owner shall repeat the source testing on an annual basis thereafter. Ongoing compliance with **AQ-17**(e) shall be demonstrated through calculations of corrected ammonia concentrations based upon the source test correlation and continuous records of ammonia injection rate. The project owner shall submit the source test results to the District and the CEC CPM within 60 days of conducting the tests. (Basis: Regulation 2, Rule 5)

**Verification:** The results and field data collected during source tests shall be submitted to the District and CPM within 60 days of testing and according to a pre-approved protocol (**AQ-27**). Testing for steady-state emissions shall be conducted upon initial operation and at least once every 12 months.

**AQ-26** Within 90 days of start-up of each of the MEP GE LM-6000 PC Sprint units and on an annual basis thereafter, the project owner shall conduct a District-approved source test on exhaust points P-1, P-2, P-3 and P-4 while each Gas Turbine is operating at maximum load to determine compliance with **AQ-17**(a), **AQ-17**(b), **AQ-17**(c), **AQ-17**(d), **AQ-17**(f), **AQ-17**(g), and to determine a total particulate matter including condensable particulate matter emission factor, and while each Gas Turbine is operating at minimum load to determine compliance with **AQ-17**(c), and **AQ-17**(d) and to verify the accuracy of the continuous emission monitors required in **AQ-22**. The project owner shall test for (as a minimum): water content, stack gas flow rate, oxygen concentration, precursor organic compound concentration and mass emissions, nitrogen oxide concentration and mass emissions (as $NO_2$), carbon monoxide concentration and mass emissions, sulfur dioxide concentration and mass emissions, methane, ethane, and total particulate matter emissions including condensable particulate matter. The project owner shall submit the source test results to the District

and the CEC CPM within 60 days of conducting the tests. The project owner may conduct up to four tests per year for total particulate matter including condensable particulate matter. (Basis: BACT, Offsets)

**Verification:** The results and field data collected during source tests shall be submitted to the District and CPM within 60 days of testing and according to a pre-approved protocol (**AQ-27**). Testing for steady-state emissions shall be conducted upon initial operation and at least once every 12 months.

**AQ-27** The project owner shall obtain approval for all source test procedures from the District's Source Test Section and the CEC CPM prior to conducting any tests. The project owner shall comply with all applicable testing requirements for continuous emission monitors as specified in Volume V of the District's Manual of Procedures. The project owner shall notify the District's Source Test Section and the CEC CPM in writing of the source test protocols and projected test dates at least 7 days prior to the testing date(s). As indicated above, the Project owner shall measure the contribution of condensable PM (back half) to any measurement of the total particulate matter or PM10 emissions. However, the Project owner may propose alternative measuring techniques to measure condensable PM such as the use of a dilution tunnel or other appropriate method used to capture semi-volatile organic compounds. The project owner shall submit the source test results to the District and the CEC CPM within 60 days of conducting the tests. (Basis: BACT, Regulation 2, Rule 2, § 419)

**Verification:** The project owner shall submit the proposed source test plan or protocol for the source tests seven days prior to the proposed source test date to both the District and CPM for approval. The project owner shall notify the District and CPM no later than seven days prior to the proposed source test date and time. The project owner shall submit the source test results to the District and the CEC CPM within 60 days of conducting the tests.

**AQ-28** Within 90 days of start-up of each of the MEP GE LM-6000 PC Sprint gas turbines and on a biennial basis (once every two years) thereafter, the project owner shall conduct a District-approved source test on one of the following exhaust points P-1, P-2, P-3 or P-4 while the Gas Turbine is operating at maximum allowable operating rates to demonstrate compliance with **AQ-21**. The project owner shall also test the gas turbine while it is operating at minimum load. If three consecutive biennial source tests demonstrate that the annual emission rates calculated pursuant to **AQ-24** for any of the compounds listed below are less than the BAAQMD trigger levels, pursuant to Regulation 2, Rule 5, shown, then the project owner may discontinue future testing for that pollutant:

| | |
|---|---|
| Benzene | ≤ 3.8 pounds/year and 2.9 pounds/hour |
| Formaldehyde | < 18 pounds/year and 0.12 pounds/hour |
| Specified PAHs<br>(Basis: Regulation 2, Rule 5) | ≤ 0.0069 pounds/year |

**Verification:** The results and field data collected during source tests shall be submitted to the District and CPM within 60 days of testing and according to a pre-approved protocol (**AQ-27**). Testing for toxic air contaminant emissions shall be conducted upon initial operation and at least once every 24 months.

**AQ-29** The project owner shall calculate the sulfuric acid mist (SAM) emission rate using the total heat input for the sources and the highest results of any source testing conducted pursuant to **AQ-30**. If this SAM mass emission limit of **AQ-31** is exceeded, the project owner must utilize air dispersion modeling to determine the impact (in micrograms/cubic meter) of the sulfuric acid mist emissions pursuant to Regulation 2, Rule 2, § 306. (Basis: Regulation 2, Rule 2, § 306)

**Verification:** The project owner shall make the site available for inspection by representatives of the District, ARB and the Commission to verify the calculation and recordkeeping system is properly installed and operational. The quarterly operation report (**AQ-SC8**) shall include a determination of the impact if triggered by this condition.

**AQ-30** Within 90 days of start-up of each of the MEP GE LM-6000 PC Sprint gas turbines and on an annual basis thereafter, the project owner shall conduct a District-approved source test on two of the four exhaust points P-1, P-2, P-3 and P-4 while each gas turbine is operating at maximum heat input rates to demonstrate compliance with the SAM emission rates specified in **AQ-31**. The project owner shall test for (as a minimum) $SO_2$, $SO_3$, and $H_2SO_4$. The project owner shall submit the source test results to the District and the CEC CPM within 60 days of conducting the tests. (Basis: Regulation 2, Rule 2, § 306, and Regulation 2, Rule 2, § 419.)

**Verification:** The results and field data collected during source tests shall be submitted to the District and CPM within 60 days of testing and according to a pre-approved protocol (**AQ-27**). Testing for steady-state emissions shall be conducted upon initial operation and at least once every 12 months.

**AQ-31** The project owner shall not allow sulfuric acid emissions (SAM) from stacks P-1, P-2, P-3, P-4 combined to exceed 7 tons in any consecutive 12 month period. (Basis: Regulation 2, Rule 2, § 306, and Regulation 2, Rule 2, § 419.)

**Verification:** A summary of significant operation and maintenance events and monitoring records required shall be included in the quarterly operation report (**AQ-SC8**).

**AQ-32** The project owner shall ensure that the stack height of emission points P-1, P-2, P-3 and P-4 are each at least 79.5 feet above grade level at the stack base. (Basis: Regulation 2, Rule 5)

**Verification:** The project owner shall make the site available for inspection by representatives of the District, ARB and the Commission.

**AQ-33** The project owner of the MEP shall submit all reports to the District (including, but not limited to monthly CEM reports, monitor breakdown reports, emission excess reports, equipment breakdown reports, etc.) as required by District Rules or Regulations and in accordance with all procedures and time limits specified in the Rule, Regulation, Manual of Procedures, or Enforcement Division Policies & Procedures Manual. (Basis: Regulation 2, Rule 1, § 403)

**Verification:** The project owner shall ensure that notifications and reports, including the quarterly operation report (**AQ-SC8**), are prepared and submitted in compliance with this condition.

**AQ-34** The project owner of the MEP shall maintain all records and reports on site for a minimum of 5 years. These records shall include but are not limited to: continuous monitoring records (firing hours, fuel flows, emission rates, monitor excesses, breakdowns, etc.), source test and analytical records, natural gas sulfur content analysis results, emission calculation records, records of plant upsets and related incidents. The project owner shall make all records and reports available to District and the CEC CPM staff upon request. (Basis: Regulation 2, Rule 1, § 403, Regulation 2, Rule 6, § 501)

**Verification:** The project owner shall make the site available for inspection by representatives of the District, ARB and the Commission.

**AQ-35** The project owner of the MEP shall notify the District and the CEC CPM of any violations of these permit conditions. Notification shall be submitted in a timely manner, in accordance with all applicable District Rules, Regulations, and the Manual of Procedures. Notwithstanding the notification and reporting requirements given in any District Rule, Regulation, or the Manual of Procedures, the project owner shall submit written notification (facsimile is acceptable) to the Enforcement Division within 96 hours of the violation of any permit condition. (Basis: Regulation 2, Rule 1, § 403)

**Verification:** A summary of significant operation and maintenance events and monitoring records required shall be included in the quarterly operation report (**AQ-SC8**).

**AQ-36** The Project owner of MEP shall provide adequate stack sampling ports and platforms to enable the performance of source testing. The location and configuration of the stack sampling ports shall comply with the District Manual of Procedures, Volume IV, Source Test Policy and Procedures, and shall be subject to BAAQMD review and approval, except that the facility shall provide four sampling ports that are at least 6 inches in diameter in the same plane of each gas turbine stack (P-1, P-2, P-3, P-4). (Basis: Regulation 1, § 501)

**Verification:** The project owner shall make the site available for inspection by representatives of the District, ARB and the Commission.

**AQ-37** Within 180 days of the issuance of the Authority to Construct for the MEP, the Project owner shall contact the BAAQMD Technical Services Division regarding requirements for the continuous emission monitors, sampling ports, platforms, and source tests required by **AQ-10**, **AQ-25**, **AQ-26**, **AQ-28** and **AQ-30**. The project owner shall conduct all source testing and monitoring in accordance with the District approved procedures. (Basis: Regulation 1, § 501)

**Verification:** The project owner shall contact the District for specifications on monitors, ports, platforms and source tests and shall submit verification of this contact to the District and CPM with the initial source test protocol (**AQ-27**).

**AQ-38** The project owner shall ensure that the MEP complies with the requirement to hold SO2 allowances in 40 CFR 72.9(c)(1) and the continuous emission monitoring requirements of 40 CFR Part 75. (Basis: Regulation 2, Rule 7)

**Verification:** The project owner shall submit to the CPM and District the results of audits of the monitoring system demonstrating compliance with this condition as part of the quarterly operation report (**AQ-SC8**).

**Conditions for Diesel Fire Pump (S-5)**

**AQ-39** The project owner shall not exceed 50 hours per year per engine for reliability-related testing. (Basis: "Stationary Diesel Engine ATCM" § 93115, title 17, CA Code of Regulations, subsection (e)(2)(A)(3) or (e)(2)(B)(3))

**Verification:** A summary of significant operation and maintenance events and monitoring records required shall be included in the quarterly operation report (**AQ-SC8**).

**AQ-40** The project owner shall operate each emergency standby engine only for the following purposes: to mitigate emergency conditions, for emission testing to demonstrate compliance with a District, State or Federal emission limit, or for reliability-related activities (maintenance and other testing, but excluding emission testing). Operating while mitigating emergency conditions or while emission testing to show compliance with District, State or Federal emission limits is not limited.

[Basis: "Stationary Diesel Engine ATCM" § 93115, title 17, CA Code of Regulations, subsection (e)(2)(A)(3) or (e)(2)(B)(3)]

**Verification:** A summary of significant operation and maintenance events and monitoring records required shall be included in the quarterly operation report (**AQ-SC8**).

**AQ-41** The project owner shall operate each emergency standby engine only when a non-resettable totalizing meter (with a minimum display capability of 9,999 hours) that measures the hours of operation for the engine is installed, operated and properly maintained. (Basis: "Stationary Diesel Engine ATCM" § 93115, title 17, CA Code of Regulations, subsection (e)(4)(G)(1))

**Verification:** The project owner shall make the site available for inspection by representatives of the District, ARB and the Commission. The project owner shall include a photograph of each totalizing meter in the quarterly operation report (**AQ-SC8**).

**AQ-42** Records: The project owner shall maintain the following monthly records in a District-approved log for at least 36 months from the date of entry (60 months if the facility has been issued a Title V Major Facility Review Permit or a Synthetic Minor Operating Permit). Log entries shall be retained on-site, either at a central location or at the engine's location, and made immediately available to the District staff upon request.

a. Hours of operation for reliability-related activities (maintenance and testing).

b. Hours of operation for emission testing to show compliance with emission limits.

c. Hours of operation (emergency).

d. For each emergency, the nature of the emergency condition.

e. Fuel usage for each engine(s).

(Basis: "Stationary Diesel Engine ATCM" § 93115, title 17, CA Code of Regulations, subsection (e)(4)(I), (or, Regulation 2-6-501))

**Verification:** The project owner shall make the site available for inspection by representatives of the District, ARB and the Commission.

**AQ-43** At School and Near-School Operation:

- If the emergency standby engine is located on school grounds or within 500 feet of any school grounds, the following requirements shall apply:

  - The project owner shall not operate each stationary emergency standby diesel-fueled engine for non-emergency use, including maintenance and testing, during the following periods:

    a. Whenever there is a school-sponsored activity (if the engine is located on school grounds)

    b. Between 7:30 a.m. and 3:30 p.m. on days when school is in session.

  - "School" or "School Grounds" means any public or private school used for the purposes of the education of more than 12 children in kindergarten or any of grades 1 to 12, inclusive, but does not include any private school in which education is primarily conducted in a private home(s). "School" or "School Grounds" includes any building or structure, athletic field, or other areas of school property but does not include unimproved school property.

    [Basis: "Stationary Diesel Engine ATCM" § 93115, title 17, CA Code of Regulations, subsection (e)(2)(A)(1)] or (e)(2)(B)(2)]

**Verification:** The project owner shall make the site available for inspection by representatives of the District, ARB and the Commission.

## C. PUBLIC HEALTH

The public health analysis supplements the previous discussion on air quality and considers the potential public health effects from project emissions of toxic air contaminants. In this analysis, we review the evidence concerning whether such emissions will result in significant adverse public health impacts that violate standards for public health protection. (Exs. 1; 3, 4, 6, 11, 15, 37, 61, 62, and 301.)

This Decision discusses other potential public health concerns in the following sections: the accidental release of hazardous materials is discussed in **Hazardous Materials Management** and **Worker Safety and Fire Protection**. Electromagnetic fields are discussed in the section on **Transmission Line Safety and Nuisance**. Potential impacts to soils and surface water sources are discussed in the **Soil and Water Resources** section. Hazardous and non-hazardous wastes are described in **Waste Management**.

### SUMMARY AND DISCUSSION OF THE EVIDENCE

Project construction and operation will result in routine emissions of toxic air contaminants (TACs). These substances are categorized as noncriteria pollutants because there are no ambient air quality standards established to regulate their emissions. Criteria pollutants are discussed in the **Air Quality** section of this Decision, *supra*. In the absence of standards, state and federal regulatory programs have developed a health risk assessment procedure to evaluate potential health effects from these emissions. (Ex. 301, p. 4.7-1.)

The risk assessment consists of the following steps:

- Identify the types and amounts of hazardous substances that the Mariposa Energy Project (MEP) could emit to the environment;
- Estimate worst-case concentrations of project emissions in the environment using dispersion modeling;
- Estimate amounts of pollutants to which people could be exposed through inhalation, ingestion, and dermal contact; and
- Characterize potential health risks by comparing worst-case exposure to safe standards based on known health effects. (Ex. 301, p. 4.7-2.)

Typically, the initial risk analysis for a project is performed at a “screening level” which is designed to estimate actual health risks. The risks for screening

purposes are based on examining conditions that would lead to the highest, or worst-case, risks and then using those conditions in the study. Such conditions include:

- Using the highest levels of pollutants that could be emitted from the source;
- Assuming weather conditions that would lead to the maximum ambient concentration of pollutants;
- Using the type of air quality computer models which predict the greatest plausible impacts;
- Calculating health risks at the location where the pollutant concentrations are estimated to be the highest;
- Assuming that an individual's exposure to cancer-causing agents occurs continuously for 70 years; and
- Using health-based standards designed to protect the most sensitive members of the population (i.e., the young, elderly, and those with respiratory illnesses). (Ex. 301, p. 4.7-3; 2/24/11 RT 405:19-406:22.)

The risk assessment process addresses three categories of health impacts:

- acute (short-term) health effects;
- chronic (long-term) non-cancer effects; and
- cancer risk (also long-term). (Ex. 301, p. 4.7-3.)

Acute health effects result from short-term (one-hour) exposure to relatively high concentrations of pollutants. Chronic health effects are those which arise as a result of long-term exposure to lower concentrations of pollutants. The exposure period is considered to be approximately from twelve to one hundred percent of a lifetime, or from seven to seventy years. (Ex. 301, p. 4.7-3.)

The analysis for non-cancer health effects compares the maximum project contaminant levels to safe levels called "reference exposure levels" or RELs. These are amounts of toxic substances to which even sensitive people can be exposed and suffer no adverse health effects. These exposure levels are designed to protect the most sensitive individuals in the population such as infants, the aged, and people suffering from illness or disease which make them more sensitive to the effects of toxic substance exposure. The RELs are based on the most sensitive adverse health effects reported, and include margins of safety. (Ex. 301, p. 4.7-3.)

For carcinogenic substances, the health assessment considers the risk of developing cancer and conservatively includes the previously noted assumption that the individual would be continuously exposed over a 70-year lifetime. The risk that is calculated is not meant to project the actual expected incidence of cancer, but rather a theoretical upper-bound number based on worst-case assumptions. (Ex. 301, p. 4.7-4.)

Cancer risk is expressed in terms of chances per million of developing cancer and is a function of the maximum expected pollutant concentration, the probability that a particular pollutant will cause cancer (known as "potency factor", and established by the California Office of Environmental Health Hazard Assessment), and the length of the exposure period. Cancer risks for individual carcinogens are added together to yield the total cancer risk from the source being considered. The conservative nature of the screening assumptions used means that actual cancer risks are likely to be considerably lower than those estimated. (Ex. 301, p. 4.7-4.)

If the screening analysis predicts no significant risks, then no further analysis is required. However, if the predicted risk is significant then further analysis, using more realistic, site-specific assumptions, is performed to obtain a more accurate assessment of potential public health risks. If this analysis confirms that the risk exceeds the significance level of 10 in one million, we would require appropriate measures to reduce the risk to less than significant. If, after all risk reduction measures have been considered, a refined analysis still identifies a cancer risk of greater than ten in one million, the Commission would not approve a project. (Ex. 301, pp. 4.7-4 - 4.7-5.)

Toxic emissions will be attributable to the project during its construction and operation phases. The Applicant performed an analysis of the construction and operation impacts of the MEP which evaluated potential cancer and non-cancer health risks to the public. (Ex. 301, pp. 4.7-8 - 4.7-11.)

Possible construction-phase health impacts are those from human exposure to the windblown dust from site excavation and grading, and emissions from construction-related diesel-fueled equipment. The Applicant has specified mitigation measures to minimize construction-related fugitive dust. The requirements for these mitigation measures are adopted as Conditions of Certification in the **Air Quality** section of this Decision. (Ex. 301, p. 4.7-8.)

It is well established that the exhaust from diesel-fueled construction and other equipment is a potent human carcinogen. Thus, construction-related emission levels could possibly add to the carcinogenic risk of specific concern in this analysis. The Applicant presented the diesel emissions from the different types of equipment to be used in the construction phase (Ex. 1, Appendix 5.14A J) and the evidence established that the recommended control measures specified in the **Air Quality** section Conditions of Certification **AQ-SC3** and **AQ-SC4** are adequate to minimize any cancer risk during the relatively short construction period. (Ex. 301, p. 4.7-8.)

Intervenor, Robert Sarvey argued that the Applicant has not met the burden of proof that the project's particulate matter emissions will not be a significant impact to the health of residents near the project area because the BAAQMD did not conduct a health risk assessment for particulate matter. (Sarvey Opening Brief, pp. 13 – 14.) Particulate matter, in the form of PM10 and PM2.5, is not a toxic air contaminant and therefore, not subject to health risk assessment. The District testified that there are no approved tools for conducting such an analysis. (2/24/11RT 379:7 – 15; Ex. 302, Appendix D, p. 15.) As we explained in the **Air Quality** section of this Decision, CEQA does not require speculation and we found that the FDOC is not deficient for failing to include particulate matter in its health risk assessment. (Tit. 14 Cal. Code Regs. § 15145.)

The main health risk from MEP during operation would be associated with emissions from its four gas-fired combustion turbines and the diesel-fired fire pump. The record explains, in depth, the methodology used in identifying and quantifying the emission rates of the toxic non-criteria pollutants which could adversely affect public health. (Ex. 301, pp. 4.7-9 - 4.7-11.) **Public Health Table 1** lists the project's toxic emissions and shows how each contributes to the risk estimated from the health risk analysis. (Ex. 301, p. 4.7-11.)

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**PUBLIC HEALTH TABLE 1**
**Types of Health Impacts and Exposure Routes Attributed to Toxic Emissions**

| Substance | Oral Cancer | Oral Non-cancer | Inhalation Cancer | Non-cancer (Chronic) | Non-cancer (Acute) |
|---|---|---|---|---|---|
| Acetaldehyde | | | ✔ | ✔ | |
| Acrolein | | | | ✔ | ✔ |
| Ammonia | | | | ✔ | ✔ |
| Arsenic | ✔ | ✔ | ✔ | ✔ | ✔ |
| Benzene | | | ✔ | ✔ | ✔ |
| 1,3-Butadiene | | | ✔ | ✔ | |
| Cadmium | | ✔ | ✔ | ✔ | |
| Chromium | | | ✔ | ✔ | |
| Copper | | | | ✔ | ✔ |
| Ethylbenzene | | | | ✔ | |
| Formaldehyde | | | ✔ | ✔ | ✔ |
| Hexane | | | | ✔ | |
| Lead | ✔ | ✔ | ✔ | ✔ | |
| Mercury | | ✔ | | ✔ | ✔ |
| Naphthalene | | ✔ | | ✔ | |
| Nickel | | | ✔ | ✔ | ✔ |
| Polynuclear Aromatic Hydrocarbons (PAHs) | ✔ | ✔ | ✔ | ✔ | |
| Propylene | | | | ✔ | |
| Propylene oxide | | | ✔ | ✔ | ✔ |
| Toluene | | | | ✔ | ✔ |
| Xylene | | | | ✔ | ✔ |
| Zinc | | | | ✔ | |

Source: Prepared by staff using reference exposure levels and cancer unit risks from CAPCOA Air Toxics "Hot Spots" Program Revised 1992 Risk Assessment Guidelines, October 1993, SRP 1998. (Ex. 301, p. 4.7-11.)

The estimates of the project's potential contribution to the area's carcinogenic and non-carcinogenic pollutants were obtained from a screening-level health risk assessment conducted according to procedures specified in the 1993 California Air Pollution Control Officers Association (CAPCOA) guidelines. (Ex. 301, p. 4.7-9.)

The results from this assessment, expressed as the "hazard index," are summarized in **Public Health Table 2**. The chronic noncancer hazard index for the maximally exposed individual is 0.00088 while the maximum hazard index for acute noncancer effects is 0.070. These values are well below the Commission's significance criterion of 1.0, suggesting that the pollutants in question are unlikely

to pose a significant risk of chronic or acute noncancer health effects anywhere in the project area. The cancer risk to the maximally exposed individual from normal project operation is shown as 0.77 in one million, which is well below the Commission's significance criterion of 10 in one million for this screening-level assessment. (Ex. 301, p. 4.7-11.)

**Public Health Table 2**
**Operational Hazard/Risk**

| Type of Hazard/Risk | **Hazard Index/Risk** | Significance Level | Significant? |
|---|---|---|---|
| Acute Noncancer | 0.070 | 1.0 | No |
| Chronic Noncancer | 0.00088 | 1.0 | No |
| Individual Cancer | $0.77 \times 10^{-6}$ | $10.0 \times 10^{-6}$ | No |

Staff's summary of information from Mariposa Energy Project 2009a pp. 5.9-2 - 5.9-10 and Appendix 5.9A. (Ex. 301, p. 4.7-11.)

The potential for aviation-related impacts from short-term human pollutant exposure during any normal aircraft flight over the plume from the MEP's stack was also considered. Based on the evidence, the acute hazard index of 0.07 for MEP's toxic pollutants with immediate-onset effects suggests a potential lack of effects within the short term overflight period. The potential for the obstruction hazard to area aircraft (from the physical presence of the project's structures potentially intruding into the navigable space) was also assessed. The structures of potential significance in this regard are the stack, and project's transmission lines. As reflected in the **Transmission Line Safety and Nuisance** section of this Decision, the Federal Aviation Administration (FAA) assesses the aviation hazards from these structures before issuing the related permit for operation. The Applicant has filed for the required FAA permit for all these structures and received no hazard determinations. Therefore, the issue of aviation-related hazards is not considered a significant issue for MEP. (Ex. 301, p. 4.7-12.)

## CUMULATIVE IMPACTS

The record contains an assessment of the cumulative impacts from the MEP and other significant pollutant sources within a six-mile radius as a way of estimating the cumulative impacts of emissions from identifiable pollutant sources in the immediate project vicinity. (Ex. 1, pp. 5.9-10 and 5.9-11.) MEP and the existing or proposed area sources could thus be seen as contributing to the existing background levels thereby adding to the normal background cancer and noncancer impacts. The present approach to regulating such carcinogenic and non-carcinogenic additions is to ensure that they are maintained within insignificant levels from any new source. Such cumulative impacts are best

assessed in terms of their potential for cancer and noncancer health impacts. (Ex. 301, pp. 4.7-12 – 4.7-13.)

As previously noted, the maximum impact locations for the proposed MEP and similar sources would be the spot where pollutant concentrations would theoretically be highest. Even at this location, the record does not disclose any significant MEP-related changes in the lifetime risk to any person including an individual within the Mountain House community, given the calculated incremental cancer risk of only 0.77 in one million, which the record shows as not potentially contributing significantly to the previously noted average lifetime individual cancer risk of 330,000 in one million. (Ex. 301, p. 4.7-13; 2/24/11 RT 401:18-23.)

The worst-case long-term noncancer health impact from the project (represented as a chronic hazard index of 0.00088) is well below the significance level of 1.0 at the location of maximum impact suggesting an insignificant contribution to the incidence of the area's noncancer health symptoms from cumulative toxic exposures. The cumulative impacts from emission of the criteria pollutants are addressed in the **Air Quality** section. As discussed in that section, compliance with the respective health-protective air quality standards is achieved through the use of the most effective pollution technology and ensuring corresponding emission reduction to minimize the overall effects of emissions from project operations. (Ex. 301, p. 4.7-13.)

The cumulative impact analysis establishes that the MEP will constitute an insignificant addition to the area's cancer and noncancer health risks. The cumulative impacts from emission of the criteria pollutants are fully addressed in the **Air Quality** section. We find that the MEP's contributions to health risks are well below the level of significance and therefore will not contribute to a cumulatively considerable health impact.

**PUBLIC COMMENT**

**Jason Yao**, a resident from Mountain House commented that there are three elementary schools, now they are full with kids. So what is the impact for pollutant to the kids? (2/24/11 RT: 259:13 -261:6.)

**Tina Zihui** a resident of Mountain House commented that, "the power plant will effect our health probably because of the air pollution. Also it effects our house value. So we don't like this plant". (2/24/11 RT: 272:14 -272:22.)

**Hui Chen** commented, “I live in Mountain House. My main concern is about how this is going to put our kids’ health at big risk. And also decrease house values. It's going to ruin our community. I'm against this power plant”. (2/24/11 RT: 273:1 -273:7.)

**Bing Zhang** from Mountain House commented, “when I heard somebody were being built power plant nearby my house, I am very, very strong against it”. (2/24/11 RT: 273:13 -273:17.)

**Aaron Pennington** commented: “I'm a resident of Mountain House, California, and I'm here to oppose the Mariposa power plant. Part of my concerns obviously, are health concerns for my family.” (2/24/11 RT: 281:6-283:11.)

**Chris Gray**, Chief of Staff for Supervisor Scott Haggerty of Alameda County commented that this is the best type of peaker plant safety wise, health wise for this area that they are addressing the impacts in Alameda County. So we are speaking in favor of approving the plant at this time. (2/24/11 RT: 284:16-286:10.)

**Steve Ormonde** commented, “I'm a Mountain House resident. Oppose it. I just don't want to open up my windows and have a nice breath of pollutant air”. (2/24/11 RT: 287:1-288:11.)

**Mathew Van Der Voort** commented, “All the negative consequences are going to effect Mountain House and the surrounding community. The decline in property values, the pollution, and we share none of the benefits”. (2/24/11 RT: 288:22 -289:14.)

**Teresa Nava-Anderson** a resident of Mountain House commented, “We have real lives and we have real children. And you know the heavy toxins fall first and they'll fall right on our neighborhood. And on windy season they'll certainly fall right on our schools”. (2/24/11 RT: 293:21-294:24.)

**Peter Lieu** from Mountain House commented, “Right now it's not health and not lucky. So I don't like it, the power plant”. (2/24/11 RT: 295:10-19.)

**Xin Wang** commented, “I am Mountain House resident. I don't want any pollution. I don't want my kids get any (inaudible). So totally I object”. (2/24/11 RT: 305:5-305:10.)

**Weikun Gou** commented, “I'm a resident of Mountain House. I object this power plant. We don't want our community to be polluted and (inaudible) all over the world many cities because of the pollution many people get many cancer and everything. We don't want to be one of them. So I totally against of this project”. (2/24/11 RT: 305:14-305:21.)

**Wentao Li** commented, “I'm a Mountain House resident. Please stop the power plant. Please save our children. Stop pollution”. (2/24/11 RT: 306:1-305:5.)

**Venkata Mylavarapy** opposed the Mariposa plant because of its close proximity to the Mountain House residential community and was very concerned about the “pollution it will have in the area. I don't want to have to raise my kids in a polluted environment“. (2/24/11 RT: 307:1-307:5.)

**Yegneswara Somayajulo Upadhyayula** commented that the “project is very near to my residence, just three miles away. And the pollution it could have -- I don't want to be near to there. And we already have some problem in the water at this point in time in the area and I don't want to add any more to that list. So I oppose this project”. (2/24/11 RT: 307:17-307:21.)

**Jason Gonce** commented, ‘I'm a Mountain House resident. I'm not looking forward to the pollutants for our children. And we're very concerned about a power plant that is potentially not green and on the border of our civilization”. (2/24/11 RT: 308:4-308:12.)

**Pramid Shab** commented, “I live in Mountain House. If the power plant comes in, then I have to make my exit plans. I don't want to breathe any more carbon dioxide, any more gases that emit out from this place”. (2/24/11 RT: 321:20-322:3.)

**Anyana Dai**, a resident of Mountain House commented, “people don't want this happen because it will influence our environment. We don't want to smell the air which has like dirt, or our children will suffer from the bad environment”. (2/25/11 RT: 318:25-320:11.)

**Huyanh Dangtran**: commented, “I’m a resident of Mountain House. this plant, I read in the binder back there about exhaust pipes, so I would assume there will be some smoke, some fumes; and I'm very concerned about what kind of fume, but I think I have a general idea what those fumes would be. They would be, you

know, unhealthy. And I don't want that fume to be blown this way". (2/25/11 RT: 320:25-322:23.)

**Jack Li** commented, "if they build this power plant, we're going to have to like leave this place. And power plant is also -- like it increases our risk of health damage. It completely destroys the environment". (2/25/11 RT: 340:4-340:12.)

**Hui Chen** commented, "I already told my boy, if they do the power plant here, we are going to leave the home, we are going to abandon the house. We have to. I don't want them put their health in big risk, because like I ask my boy did research online. All these power plant, all the house, the people live very close to power plant, they are -- they get much higher chance to get cancer, especially for kids." (2/25/11 RT: 340:24-342:2.)

**Nikhil Pothuru**, commented, "I'm a Mountain House resident. I'm going to Questa School, and I'm in seventh grade. I believe the power plant is bad for our community since kids can get lung disorder; and it will be bad for the health". (2/25/11 RT: 342:8-342:13.)

**C. Tan** commented, "I would like to voice my opposition to the Mariposa project. It is located within three miles of Questa school, which is a combined middle school and elementary school, in addition to being located near numerous community parks and residents." (3/7/11 RT: 304:25-305:5.)

**Katherine Havener** a Mountain House resident stated, "I live two and a half miles away from this power plant, and I do not want my children poisoned. And I please beg of you to look at the evidence. If there is going to be this horrendous toxic load to please stop this from happening". (2/24/11 RT: 261:16 -262:19.)

The PMPD addressed all of the public comments received prior to publication. The following comments were received after publication of the PMPD during the 30-day comment period.

**Amber Ziegler, Aaron Basilius, Hui Chen, Tony Zhou, Simon Wu, Wentao Li, Sara and Mark** (no last name given), **Elaine Kan**, **Ramkuma Balanbramaiar**, **John Rubin, Smitha Unnikrishnan**, **Rahul Dighe, Rajesh Dighe, Pramit Shah,** and the **Samat family** all submitted comments opposing the project due to their concerns regarding air pollution and the impacts to the health of Mountain House residents. Similar comments were also submitted in writing by **Sylvia and Doug Little, Mrs. Donald Jess, Tina Williams, Daniel Jess, Dolores Kuhn,**

**Jane Peterson** and **Joan Uznay** of the rural area they refer to as the "Original Mountain House Community" in Alameda as distinct from the Mountain House "town" in San Joaquin County.These concerns are addressed and considered above.

All of these comments assume the MEP will have negative health impacts on the Mountain House community. The record establishes a human health risk assessment was conducted using guidance developed by the Office of Environmental Health Hazard Assessment, the U.S. Environmental Protection Agency, and, and California Air Resources Board. According to BAAQMD Regulation 2, Rule 5, Best Available Control Technology for Toxics shall be applied to any new source of toxic air contaminants where the excess cancer risk for each individual source is predicted to be greater than one in a million, while the predicted incremental increase in cancer risk for the entire project must be less than 10 in 1 million individuals. A chronic hazard index less than 0.2 for each individual source and an acute or chronic hazard index of less than 1.0 for the entire project are also considered less than significant by BAAQMD. There is no evidence in this record that MEP poses any threat to the health of the public in general, or to residents of Mountain House in particular. Results of the health risk assessment for MEP indicate that the excess cancer risk from MEP for the nearest resident or offsite worker would be less than 1 in a million and that the acute and chronic hazard indices are significantly less than 1.0. We invite the commenters to consider this evidence upon which this Decision is based.

## FINDINGS OF FACT

Based on the persuasive weight of the evidence, the Commission makes the following findings and conclusions:

1. Construction and normal operation of the project will result in the routine release of criteria and noncriteria pollutants that have the potential to adversely impact public health.

2. Potential construction-related adverse health effects from diesel emissions and fugitive dust will be mitigated to insignificant levels.

3. Emissions of criteria pollutants, which are discussed in the **Air Quality** section of this Decision, will be mitigated to levels consistent with applicable standards.

4. The evidence contains a health risk assessment, using well-established scientific protocol, to analyze potential adverse health effects of toxic air contaminants.

5. The accepted method used by state regulatory agencies in assessing the significance for both acute and chronic noncarcinogenic public health effects is known as the hazard index method.

6. A method similar to the hazard index method is used for assessing the significance of potential carcinogenic effects.

7. Application of the hazard index method establishes that emission of non-criteria pollutants from the MEP will not cause acute or chronic adverse public health effects.

8. The maximum non-cancer and the maximum cancer risks associated with the project are substantially below the significance thresholds commonly accepted for risk analysis purposes.

9. Cumulative impacts from noncriteria pollutants were analyzed in accordance with the provisions of CEQA.

10. Impacts from the MEP's emissions of these pollutants are not cumulatively considerable.

11. Emissions from the construction and operation of the natural gas-burning MEP will not have a significant adverse impact on the public health of the surrounding population.

## CONCLUSIONS OF LAW

1. Project emissions do not pose a significant direct, indirect, or cumulative adverse public health risk.

2. The project will comply with the applicable laws, ordinances, regulations, and standards specified in the appropriate portion of **Appendix A** of this Decision.

3. No Conditions of Certification are adopted in connection with this section of the Decision.

## D. WORKER SAFETY AND FIRE PROTECTION

Industrial workers are exposed to potential health and safety hazards on a daily basis. Implementation of various existing laws and standards suffices to reduce these hazards to minimal levels. (Exs 1, p. 5.16-1; 301, p. 4.14-3.) Therefore, this subsection focuses on whether Applicant's proposed health and safety plans are in accordance with all applicable LORS and thus adequate to protect industrial workers. The record also addresses the availability and adequacy of fire protection and emergency response services, as well as potential threats from wildfires. With the introduction by the Applicant of Exhibit 72 (Condition of Certification **WORKER SAFETY-6**) and its support by various parties, the evidence on this topic was uncontested. (3/7/11 RT 467 - 472; Exs. 1; 4; 6; 10; 11; 14; 72; 301; 407.)

### SUMMARY AND DISCUSSION OF THE EVIDENCE

1. Worker Safety

Power plant construction and operation workers are exposed to many potential dangers during demolition, construction, and operation of facilities[1]. Workers at the proposed Mariposa Energy Project (MEP) would be exposed to loud noises, moving equipment, trenches, and confined space entry and egress problems. The workers may experience falls, trips, burns, lacerations, and numerous other injuries. They have the potential to be exposed to falling equipment or structures, chemical spills, hazardous waste, fires, explosions, and electrical sparks and electrocution. As with any power plant project, in order to protect workers and minimize risks, it is important for the MEP to establish well-defined policies and procedures, training, hazard recognition and control at its facility. If the facility complies with all LORS, workers will be adequately protected from health and safety hazards.

To minimize worker hazards during demolition, construction, and operation, Condition of Certification **WORKER SAFETY-1** requires the project owner to prepare and submit for review a Project Construction Safety and Health Program (Safety and Health Program). This program must include the measures that would be taken to ensure compliance with the applicable LORS during the

[1] Facts reported by the National Institute of Occupational Safety and Health (NIOSH), documenting the historical risks to workers of injury and death are listed in Exhibits 301, p. 4.14-7; 1, p. 5.16-2 and Table 5.16-2, p. 5.16-4.

construction and operational phases of the project. Elements of the Safety and Health Program must include:[2]

- Construction Injury and Illness Prevention Program (8 Cal Code Regs. § 1509);
- Construction Fire Prevention Plan (8 Cal Code Regs. § 1920);
- Personal Protective Equipment Program (8 Cal Code Regs. §§ 1514 -1522); and
- Emergency Action Program and Plan.

In addition, prior to the start of operations at MEP, the Operations and Maintenance Safety and Health Program would be prepared. This would include the following programs and plans:

- Injury and Illness Prevention Program (8 Cal Code Regs. § 3203);
- Fire Protection and Prevention Program (8 Cal Code Regs. § 3221);
- Personal Protective Equipment Program (8 Cal Code Regs. §§ 3401 to 3411); and
- Emergency Action Plan (8 Cal Code Regs. § 3220).

The AFC includes adequate outlines of an Injury and Illness Prevention Program, Emergency Action Plan, Fire Prevention Program, Personal Protective Equipment Program and Emergency Action Plan. The subparts of each of these plans are listed in the Staff Assessment. (Ex. 301, p. 4.14-5 - 4.14-7.) Prior to operation of MEP, all detailed programs and plans would be provided to the CPM and Alameda County Fire Department (ACFD) pursuant to Condition of Certification **WORKER SAFETY-2**.

The hazards associated with the construction industry are well documented. These hazards increase in complexity in the multi-employer worksites typical of large, complex, industrial-type projects such as the construction of gas-fired power plants. In order to reduce and/or eliminate these hazards, it has become standard industry practice to hire a Construction Safety Supervisor to ensure a safe and healthful environment for all personnel. Commission audits have demonstrated that the use of a Construction Safety Supervisor has reduced

[2] Additional elements and programs which must be addressed in the Safety and Health Program are listed in the Commission Staff Assessment, Exhibit 300, p. 4.14-4; and Exhibit 1, pp. 5.16-5 - 5.16-9.

and/or eliminated hazards at power plants under construction. (Ex. 301. p. 4.14-8.) Construction Safety Supervisors work to encourage subcontractors on large, complex construction sites to focus on four important areas:

- to improve their safety and health performance;
- to assist subcontractors in striving for the elimination of the four hazards (falls, electrical, caught in/between and struck-by hazards), which account for the majority of fatalities and injuries in this industry and have been the focus of targeted OSHA inspections;
- to prevent serious accidents in the construction industry through implementation of enhanced safety and health programs and increased employee training; and
- to recognize those subcontractors with exemplary safety and health programs.

At this time, there are no OSHA or Cal/OSHA requirements that an employer hire or provide for a Construction Safety Officer. However, OSHA and Cal/OSHA regulations do require that safety be provided by an employer and the term *Competent Person* is used in many OSHA and Cal/OSHA standards, documents, and directives. Therefore, in order to meet the intent of the OSHA standard, to ensure the presence of a *Competent Person* at the construction site, and to provide for a safe workplace during power plant construction, we have adopted Condition of Certification **WORKER SAFETY-3**. This measure requires the Applicant/project owner to designate and provide for a power plant site Construction Safety Supervisor (CSS).

In order to reduce the specific risks and hazards the Commission has documented to exist at power plant construction sites, we believe it is also necessary for the Energy Commission to have a professional Safety Monitor on site to track compliance with Cal/OSHA regulations and periodically audit safety compliance during construction, commissioning, and the transition to operational status. The Safety Monitor will be hired by the project owner, but will report directly to the Chief Building Officer (CBO) and the CPM. The Safety Monitor will verify and ensure compliance with all safety procedures contained in this decision. The requirements for this position are set forth in Condition of Certification **WORKER SAFETY-4**.

2. Fire Hazards

The potential exists for both small fires and major structural fires during construction and operation of a gas-fired power plant such as the proposed MEP project. These fires may be caused in numerous ways such as from electrical sparks, combustion of fuel oil, natural gas, hydraulic fluid, mineral oil, insulating fluid at the power plant switchyard or flammable liquids, explosions, and over-heated equipment. However, major structural fires in areas without automatic fire detection and suppression systems are unlikely to develop at power plants. Fires and explosions of natural gas or other flammable gasses or liquids are likewise rare. Compliance with all LORS would be adequate to assure protection from all significant fire hazards. (Exs. 1, pp. 5.10-12, 5.16-15; 300, p. 4.14-10.)

The project will rely on both on-site fire protection systems and local fire protection services. The on-site fire protection system provides the first line of defense for small fires. In the event of a major fire, fire support services to the site would be under the jurisdiction of the Alameda County Fire Department (ACFD). Station #8 in Livermore would provide first response to the facility. The evidence establishes that the response time to the facility would be approximately 30 minutes. (Exs. 1; 300, p. 4.14-2.) The facility may also be serviced by the Tracy Fire Department through a mutual aid agreement.

During construction, portable fire extinguishers and small hose lines would be placed throughout the site at appropriate intervals and periodically maintained. The permanent fire protection system would be installed as soon as practical during the construction phase of the project. When the project begins operation, fire suppression elements in the plant would include both fixed and portable fire extinguishing systems. The proposed underground firewater loop would supply hydrants and fixed suppression systems installed for the MEP structures. The fixed fire protection system would have fire detection sensors and monitoring equipment that would trigger alarms and automatically actuate the suppression systems.

In addition to the fixed fire protection system, appropriate portable extinguishers and fire hydrants/hose stations would be located throughout the facility at code-approved intervals. Sprinkler systems or waterless FM-200 systems would be installed in administrative and control buildings as per National Fire Protection Association (NFPA) standards. A carbon dioxide fire protection system would be provided for the combustion turbine generators and accessory equipment. The $CO_2$ system would be equipped with fire detection sensors that would

automatically trigger alarms, shut down the turbines, stop ventilation, and release the $CO_2$. (Ex. 301, p. 4.14-10.)

The site will have both a primary and a secondary access point for fire and emergency services. In addition, to improve responses for cardiac emergencies, Condition of Certification **WORKER SAFETY-5** would require that a portable automatic external defibrillator (AED) be located on site, that all power plant employees on site during operations be trained in its use, and that a representative number of workers on site during demolition, construction, and commissioning also be trained in its use.

Analysis submitted by the Commission staff examined the potential for the construction and operation of the MEP combined with existing industrial facilities and expected new facilities to have significant impacts on the fire and emergency service capabilities of the ACFD. The analysis concluded that due to the low risk profile and low historic need for fire department response to gas-fired power plants, the proposed facility will not create a significant direct, incremental or cumulative burden on the department's ability to respond to a fire or medical emergency. (Ex. 300, p. 4.14-11.) In addition, the Tracy Fire department may be called upon to provide mutual aid related to fire protection at the MEP. Accordingly, Applicant consulted with the Tracy Fire Department and proposed Condition of Certification **WORKER SAFETY-6**. Under this condition the project owner will provide a one-time payment of $70,000 to the Tracy Fire Department. (3/7/11 RT 470:23; Ex. 72.)

**Public Comment**

Director **Celest Farron** from the Mountain House Community Service District requested on behalf of the District's General Manager that the CEC make the Mariposa Energy Project compensate Tracy Fire Department for MEP costs to the District. The Mountain House Community Services District contracts with the Tracy Fire Department for fire and emergency services. She stated that the fire station located in Mountain House is the closest station to the MEP site and therefore the greatest number of medical calls from the MEP are likely to be directed to that fire station. (2/24/11 RT 251.)

Additional comments and discussions regarding worker safety matters concerned the question of whether the MEP would adequately compensate the Tracy Fire Department for additional fire protection costs associated with the project. On March 7, 2011, the Applicant announced that it had reached an agreement with the Tracy Fire depart provide a one-time payment of $70,000 to address potential

fire protection impacts from the project. (3/7/11 RT 467-468.) This agreement was adopted by the Commission in the form of **WORKER SAFETY-6**.

**FINDINGS OF FACT**

Based on the uncontroverted evidence, the Commission makes the following findings:

1. Industrial workers, particularly those at complex, multi-employer power plant construction sites, are exposed to potential health and safety hazards on a daily basis.

2. To protect workers from job-related injuries and illnesses, the project owner will implement comprehensive Safety and Health Programs for both the construction and the operation phases of the project.

3. A Project Construction Safety and Health Program and a Project Operations and Maintenance Safety and Health Program, as required by Conditions of Certification **WORKER SAFETY-1** and **-2** will incorporate sufficient measures to ensure adequate levels of industrial safety.

4. Condition of Certification **WORKER SAFETY- 3** will ensure that the project owner will employ a power plant site Construction Safety Supervisor capable of identifying workplace hazards and having the authority to take appropriate corrective action.

5. Condition of Certification **WORKER SAFETY- 4** will ensure that the project will employ an on-site professional Safety Monitor during construction, who will report to the CBO and to the CPM. This condition will ensure that safety procedures and practices are fully implemented.

6. The Mariposa Energy Project will include on-site fire protection and suppression systems as the first line of defense in the event of a fire.

7. The Alameda County Fire Department (ACFD) will provide fire protection and emergency response services to the project during construction and operation phases of the project.

8. The Mariposa Energy Project will have both a primary access point and secondary access point for fire and emergency services.

9. Response time to the facility will be approximately 30 minutes.

10. Condition of Certification **WORKER SAFETY-5** requires the project owner to ensure that a portable automatic external defibrillator (AED) is located

11. Condition of Certification **WORKER SAFETY-6** requires the project owner to provide a one-time payment of $70,000 to the Tracy Fire Department to compensate for potential fire and emergency services related to construction and operation of the MEP.

12. The project will not have significant impacts on local fire protection services.

13. Construction and operation of the Mariposa Energy Project will not result in any direct, indirect, or cumulative impacts on fire protection services in the project vicinity.

## CONCLUSION OF LAW

1. We therefore conclude that the Mariposa Energy Project will not create significant health and safety impacts to workers, and will comply with all applicable laws, ordinances, regulations, and standards listed in the appropriate portion of **Appendix A** of this Decision.

## CONDITIONS OF CERTIFICATION

**WORKER SAFETY-1** The project owner shall submit to the Compliance Project Manager (CPM) a copy of the Project Construction Safety and Health Program containing the following:

- a Construction Personal Protective Equipment Program;
- a Construction Exposure Monitoring Program;
- a Construction Injury and Illness Prevention Program;
- a Construction Emergency Action Plan; and
- a Construction Fire Prevention Plan.

The Personal Protective Equipment Program, the Exposure Monitoring Program, and the Injury and Illness Prevention Program shall be submitted to the CPM for review and approval concerning compliance of the program with all applicable safety orders. The Construction Emergency Action Plan and the Fire Prevention Plan shall be submitted to the Alameda County Fire Department for review and comment prior to submittal to the CPM for approval.

**Verification:** At least 30 days prior to the start of construction, the project owner shall submit to the CPM for review and approval a copy of the Project

Construction Safety and Health Program. The project owner shall provide a copy of a letter to the CPM from the Alameda County Fire Department stating the fire department's comments on the Construction Fire Prevention Plan and Emergency Action Plan.

**WORKER SAFETY-2** The project owner shall submit to the CPM a copy of the Project Operations and Maintenance Safety and Health Program containing the following:

- an Operation Injury and Illness Prevention Plan;
- an Emergency Action Plan;
- Hazardous Materials Management Program;
- Fire Prevention Plan (8 Cal Code Regs. § 3221); and
- Personal Protective Equipment Program (8 Cal Code Regs, §§ 3401—3411).

The Operation Injury and Illness Prevention Plan, Emergency Action Plan, and Personal Protective Equipment Program shall be submitted to the CPM for review and comment concerning compliance of the programs with all applicable safety orders. The Fire Prevention Plan and the Emergency Action Plan shall also be submitted to the Alameda County Fire Department for review and comment.

**Verification:** At least 30 days prior to the start of first-fire or commissioning, the project owner shall submit to the CPM for approval a copy of the Project Operations and Maintenance Safety and Health Program. The project owner shall provide a copy of a letter to the CPM from the Alameda County Fire Department stating the fire department's comments on the Operations Fire Prevention Plan and Emergency Action Plan.

**WORKER SAFETY-3** The project owner shall provide a site Construction Safety Supervisor (CSS) who, by way of training and/or experience, is knowledgeable of power plant construction activities and relevant laws, ordinances, regulations, and standards; is capable of identifying workplace hazards relating to the construction activities; and has authority to take appropriate action to assure compliance and mitigate hazards. The CSS shall:

- have overall authority for coordination and implementation of all occupational safety and health practices, policies, and programs;
- assure that the safety program for the project complies with Cal/OSHA and federal regulations related to power plant projects;
- assure that all construction and commissioning workers and supervisors receive adequate safety training;

- complete accident and safety-related incident investigations and emergency response reports for injuries and inform the CPM of safety-related incidents; and
- assure that all the plans identified in Conditions of Certification Worker Safety-1 and -2 are implemented.

**Verification:** At least 30 days prior to the start of construction, the project owner shall submit to the CPM the name and contact information for the Construction Safety Supervisor (CSS). The contact information of any replacement CSS shall be submitted to the CPM within one business day.

The CSS shall submit in the Monthly Compliance Report a monthly safety inspection report to include:

- record of all employees trained for that month (all records shall be kept on site for the duration of the project);
- summary report of safety management actions and safety-related incidents that occurred during the month;
- report of any continuing or unresolved situations and incidents that may pose danger to life or health; and
- report of accidents and injuries that occurred during the month.

**WORKER SAFETY-4** The project owner shall make payments to the Chief Building Official (CBO) for the services of a Safety Monitor based upon a fee schedule to be negotiated between the project owner and the CBO. Those services shall be in addition to other work performed by the CBO. The Safety Monitor shall be selected by and report directly to the CBO and will be responsible for verifying that the Construction Safety Supervisor, as required in Condition of Certification **WORKER SAFETY-3**, implements all appropriate Cal/OSHA and Energy Commission safety requirements. The Safety Monitor shall conduct on-site (including linear facilities) safety inspections at intervals necessary to fulfill those responsibilities.

**Verification:** Prior to the start of construction, the project owner shall provide proof of its agreement to fund the Safety Monitor services to the CPM for review and approval.

**WORKER SAFETY-5** The project owner shall ensure that a portable automatic external defibrillator (AED) is located on site during demolition, construction, and operations and shall implement a program to ensure that workers are properly trained in its use and that the equipment is properly maintained and functioning at all times. During demolition, construction, and commissioning, the following persons shall be trained in its use and shall be on site whenever the workers that they supervise are on site: the Construction Project Manager or delegate,

the Construction Safety Supervisor or delegate, and all shift foremen. During operations, all power plant employees shall be trained in its use. The training program shall be submitted to the CPM for review and approval.

**Verification:** At least 30 days prior to the start of construction, the project owner shall submit to the CPM proof that a portable automatic external defibrillator (AED) exists on site and a copy of the training and maintenance program for review and approval.

**WORKER SAFETY- 6** The project owner shall provide a $70,000.00 payment to the Tracy Fire Department prior to the start of commercial operation. This funding shall fully compensate Tracy Fire Department for any services it may be called to provide the Project over the life of the Project.

**Verification:** Verification: At least five (5) days prior to the start of commercial operation the project owner shall provide documentation of the payment described above to the CPM.

## E. HAZARDOUS MATERIALS MANAGEMENT

This section considers whether the construction and operation of the Mariposa Energy Project (MEP) will create significant impacts to public health and safety resulting from the use, handling, transportation, or storage of hazardous materials. The **Worker Safety and Fire Protection** section of this Decision specifically addresses the protection of workers from such risks.

Several factors affect the potential for project-related hazardous materials to cause adverse impacts. These include meteorological conditions, terrain characteristics, any special site factors, and the proximity of population centers and sensitive receptors. In addition, sensitive subgroups such as the young, the elderly, and those with existing conditions may be at heightened risk from exposure to emitted pollutants. (Ex. 301, p. 4.4-4.)

The evidence presented on this topic was uncontested except for issues surrounding the MEP's potential impacts to PG&E's natural gas pipeline, Line 002. (Exs.1; 4; 6; 11; 61; 68; 71; 301; 303, 405; 413; 415; 2/25/11 RT 243:2 – 292:9; 3/7/11 RT 310:14 – 404:23.)

### SUMMARY AND DISCUSSION OF THE EVIDENCE

1. Potential Risks

The evidence chronicles the method used to assess risks posed by hazardous materials. This method included the following elements:

- A review of chemicals, the amounts proposed for on-site use, and a determination of the need and appropriateness of their use.

- Chemicals which would be used in small amounts, or whose physical state is such that there is virtually no chance that a spill would migrate off the site and impact the public, were removed from further consideration.

- Measures proposed to prevent spills were reviewed and evaluated. These included engineering controls such as automatic shut-off valves and different size transfer-hose couplings, as well as administrative controls such as worker training and safety management programs.

- Measures proposed to respond to accidents were reviewed and evaluated. These included engineering controls such as catchment basins and

methods to keep vapors from spreading, as well as administrative controls such as training emergency response crews.

- An analysis of the theoretical impacts on the public of a worst-case spill of hazardous materials even with the mitigation measures in place. (Ex. 301, pp. 4.4-5 to 4.4-6.)

Hazardous materials used during construction will include gasoline, diesel fuel, motor oil, hydraulic fluid, welding gases, lubricants, solvents, paint, and paint thinner. These will be used in small quantities and any spills or other releases will be confined to the site. No acutely toxic materials will be used on-site during construction. During operations, hazardous materials will be used or stored only in small quantities and present limited off-site dangers because of their low volatility and/or toxicity. (Ex. 301, pp. 4.4-2, 4.4-6.)

**ATTACHMENT A** (incorporated in Condition of Certification **HAZ-1** at the end of this section) lists the hazardous materials that will be used and stored on-site. Condition **HAZ-1** prohibits the project owner from using hazardous materials not listed in **ATTACHMENT A**, or storing them in greater quantities than specified, without prior approval of the Energy Commission's Compliance Project Manager. None of the listed materials, except for natural gas and aqueous ammonia as discussed below, pose significant potential for off-site impacts as a result of the quantities on-site, their relative toxicity, their physical state, and/or their environmental mobility. (Ex. 301, p. 4.4-6.)

a. Natural Gas

Project operations will involve the handling (but not storage) of large quantities of natural gas. The natural gas will be delivered by Pacific Gas & Electric (PG&E) via a new 580-foot long, eight-inch pipeline that would run directly west from PG&E's existing gas pipeline (Line 002). (Ex. 405, p. 1.) The MEP natural gas pipeline will be constructed and operated in accordance with the California Public Utilities Commission (CPUC) General Order (GO) 112 standards and the Federal Department of Transportation (DOT) regulations, Title 49, Code of Federal Regulations (CFR), Parts 190, 191, and 192. The evidence shows that, while natural gas may pose some risk of both fire and explosion, this risk can be reduced to insignificant levels through adherence to applicable codes and the development and implementation of effective safety management practices. For example, National Fire Protection Association (NFPA) Code 85A requires both the use of double-block and bleed valves for gas shut-off and automated combustion controls. These measures significantly reduce the likelihood of an

explosion in gas-fired equipment on site. Additionally, air purging of the gas turbines is required prior to start-up, thereby precluding the presence of an explosive mixture. Condition of Certification **HAZ-8** prohibits flammable gas blows. The safety management plan, required by Condition of Certification **HAZ-3**, will address the handling and use of natural gas, and the evidence establishes that compliance with LORS and Conditions of Certification will significantly reduce the potential for equipment failure because of either improper maintenance or human error. The evidence satisfactorily establishes that conformance with existing codes will ensure minimal risks of pipeline failure. (Ex. 301, p. 4.4-7.)

b. The Interconnection between MEP and PG&E Line 002

Our licensing jurisdiction over related facilities such as fuel lines extends up to the first point of interconnection [20 Cal. Code Regs. § 1702(n)], and our determinations with respect to the safety and reliability of the MEP must include the site and related facilities up to that point. It is undisputed that Line 002 is beyond that point.

However, certification of the MEP must include findings as to whether the MEP potentially significant impacts on the environment beyond our jurisdiction. (See § 1702(u), "impact area" means the area which is potentially affected by the construction, modification and operation of a site and related facilities.) Potentially significant impacts may include those effecting public health and safety.

Intervenor, Robert Sarvey, offered evidence which, from his point of view, indicated that the MEP would increase the risk of failure of Line 002, thus causing a potential significant impact to public health and safety (Exs. 405; 413; 415; 3/7/11 RT 385:10 – 403:7.)

Robert Sarvey earned his B.A. in Business Administration from California State University Hayward in 1975 and his M.B.A. from California State University Hayward in 1985. Although he has participated in numerous proceedings at the Energy Commission and the CPUC, he has only participated in one CPUC Proceeding (C. 07-03-006) specifically addressing gas pipelines, which included Line 002. (Ex. 400.)

At the Prehearing Conference, Mr. Sarvey stated, "I wouldn't say I'm an expert on the PG&E gas system, but I would say I'm an expert on Line 002." (2/7/11 RT

20:19-20.) At the Evidentiary Hearing, Mr. Sarvey testified that he had no academic training in gas pipeline construction and operation, and no professional experience in gas pipeline construction and operation other than participating in the CPUC proceeding involving Line 002 and Line 401. (3/7/11 RT 388:25 – 389:10.)

The CEQA Guidelines define substantial evidence as follows:

(a) Substantial evidence as used in these guidelines means enough relevant information and reasonable inferences from this information that a fair argument can be made to support a conclusion, even though other conclusions might also be reached. Whether a fair argument can be made that the project may have a significant effect on the environment is to be determined by examining the whole record before the lead agency. Argument, speculation, unsubstantiated opinion or narrative, evidence which is clearly erroneous or inaccurate, or evidence of social or economic impacts which do not contribute to or are not caused by physical impacts on the environment does not constitute substantial evidence.

(b) Substantial evidence shall include facts, reasonable assumptions predicated upon facts, and expert opinion supported by facts..." (14 Cal. Code Regs., 15384), (See also *Lucas Valley Homeowners Ass'n v. County of Marin* (1993) 233 Cal.App.3d 130 [real estate agent not qualified to render expert opinion on project's effect on property values and recited no specific experience with similar projects].)

We do not find that Robert Sarvey has the special knowledge, skill, experience, training or education that would qualify him as an expert on impacts from the MEP's interconnection to Line 002. Moreover, the conclusions that Mr. Sarvey draws are based upon old information. Exhibit 413 consists of an email dated February 22, 2001, and an Annual Risk Management Report allegedly from PG&E dated 2000. (Ex. 413.) We also received Mr. Sarvey's Exhibit 415 which is an article from the November 14, 2010 San Francisco Chronicle entitled "*State's Gas Pipeline Inspections Found to Lag*," but there is no mention of Line 002 in the article. (Ex. 415.)

Mr. Sarvey described the condition of Line 002 and testified that in 2001, in-line inspections ("pigging") resulted in observations of some "wall loss" but Mr. Sarvey acknowledged that the pipeline was subsequently repaired. He testified that years before these repairs were made, there were two leaks found in Line 002 in the

1990s, but it later came to light on cross examination that the leaks were caused by gunshots, not corrosion. (Ex. 405, p. 1; Ex. 71, p. 13; 3/7/11 RT 391:5 – 391:23.)

Mr. Sarvey testified that a corridor of three pipelines runs through the community of Mountain House and the proposed Ellis housing subdivision in Tracy. They are PG&E Line 002, PG&E Line 401 (built in 1993) and a liquid petroleum line built by Chevron in 1950. Mr. Sarvey testified to a significant risk when pipelines operate in close proximity to areas occupied by the public but provided no evidentiary support for his conclusion. (Ex. 405, pp. 1 - 2.) We note that the MEP will not interconnect with either PG&E Line 401 or Chevron's liquid petroleum line and Mr. Sarvey offered no evidence on the condition of either of those pipelines.

Mr. Sarvey concluded that the combination of the MEP and Tracy Combined Cycle Power Plant and their impacts to the "degraded" PG&E Line 002 are not analyzed in Staff's testimony. He testified that a significant increase in natural gas volume will occur because of the addition of the MEP and the conversion of the Tracy Peaker Project to combined cycle, but offered no factual basis for this assumption. Mr. Sarvey opined, "that pipeline pressure fluctuations from the cycling of these projects will cause additional stress to Line 002. Given the significant risks of a natural gas line failure as evinced by the recent San Bruno tragedy, this impact needs to be addressed. We certainly cannot rely on PG&E's incomplete and inaccurate records and inadequate safety practices." (Ex. 405, p. 4.)

Applicant proffered the expert testimony of Cesar de Leon. Mr. de Leon has over 40 years of experience in pipeline safety engineering, which included serving as Director of Office of Pipeline Safety in U.S. Department of Transportation (DOT), now known as Pipeline and Hazardous Materials Safety Administration (PHMSA). Among other things, Mr. de Leon directed the issuance and enforcement of design, construction, operation, and maintenance regulations for all gas transmission, gas distribution, and petroleum pipelines, including LNG regulations (includes 49 CFR Parts 190 through 199); directed cooperative Federal/State pipeline safety program & associated grant-in-aid program; directed or co-directed over 60 pipeline research projects; directed DOT inspection of construction & initial operation of the Trans-Alaska Pipeline System and has testified on pipeline safety before U.S. Congress, state legislatures, and U.N. organization. Mr. de Leon's curriculum vitae states that pipeline failures, deaths, & injuries were each reduced about 50 percent during his 23 years with the Office of Pipeline Safety. (2/25/11 RT 244:6 – 246:19; Ex. 68, p. 5-9.)

Mr. de Leon's testimony indicated that he was aware of the pigging results on Line 002. (2/25/11 RT 269:22 – 272:4.) He testified that typically, gas pipelines are not at significant risk of failure from pressure-cycle-induced growth of original manufacturing-related or transportation-related defects. He averred that there are no known incidents involving failure of steel natural gas transmission pipe from pressure-cycle-induced growth of original manufacturing-related or transportation-related defects. Mr. de Leon testified that Line 002 has been pressure tested to establish the Maximum Allowable Operating Pressure (MAOP), so there is no basis to conclude that additional stresses from the cycling of the project would cause the PG&E line 002 to fail. (Ex. 68, p. 5-9.) Mr. de Leon concluded:

a) the combined pressure cycles from MEP and the Tracy Peaker Project will not affect the pipeline (2/25/11 RT 278:14 – 17.);
b) the pipeline is not prone to corrosion (Ex. 68, p. 6.);
c) that reported remedial action in 2001 was in conformance with the Federal regulations and industry practice and does not indicate any problems with Line 002 (2/25/11 RT 279:5 – 22.);
d) notwithstanding the accident in San Bruno (built in 1952 – 20 years before the promulgation of federal pipeline regulations), pipelines have an excellent safety record and the safety record continues to improve (2/25/11 RT 269:22 – 270: 9.);
e) industry standards and practices for pipeline separation within pipeline corridors avoid the concerns that Mr. Sarvey raised regarding the proximity of Line 002 to other nearby lines (Ex. 68, p. 6-7; 2/25/11 RT 252:24 – 253:5.);
f) hot taps (the process of interconnecting gas pipelines) is a common and safe pipeline practice that is subject to requirements in the Federal regulations (Ex. 68, p. 7; 2/25/11 RT 285:12 – 286:20.);
g) pipelines in this country have a good safety record and that safety record continues to improve. (Ex. 68, p. 5-9; 2/25/11 RT 267:15 – 20.); and
h) Line 002 is in very good condition. (2/25/11 RT 270:18 – 271:2; 284:5.)

Finally, Mr. de Leon testified that although a power plant pulling gas from the pipeline (cycling) may decrease transient pressure in the area of the interconnection, it would have no effect on Line 002, regardless of the condition of the pipeline. (2/25/11 RT 277:19 – 280:7.)

Energy Commission staff called Rick Tyler as an expert witness. Mr. Tyler testified that he is a mechanical engineer with the Energy Commission in the field of evaluating hazardous materials and worker safety issues for about 25 years. He deals with flammable materials, toxic materials, and pressurized systems such as

gas pipelines, pressure vessels, and various types of hazardous materials. (3/7/11 RT 311:21 – 312:2; Ex. 301.)

Mr. Tyler testified that MEP's natural gas pipeline will be constructed and operated in accordance with the CPUC General Order 112 standards and the Federal Department of Transportation regulations, Title 49 CFR, Parts 190, 191, and 192. He concluded that existing LORS are sufficient to ensure minimized risk of pipeline failure. Further, he reviewed the gas pipeline route and determined that it is on private land that is in agricultural use. He determined that there is no potential for impact on the public along the new pipeline route. He concluded that the pipeline does not require further mitigation from the MEP. (Ex. 301.)

Mr. Tyler testified that any pressure fluctuations in any pressurized system, and particularly natural gas pipeline, would have no consequence in the absence of pressure fluctuations that exceeded the MAOP or the safe design level of pressure for that pipeline. (3/7/11 RT 317:17 – 317:22.)

He testified further that, in addition to any regulatory program run by the CPUC, the primary responsibility for maintenance and safety of Line 002 lies with PG&E. He described an extensive program that requires pigging and other inspection activities on the part of PG&E, and stated that since Line 002 was built in the 1970s, it complies with modern state of the art codes. Mr. Tyler concluded that there is no significant risk that the MEP interconnection would cause a failure of Line 002. (3/7/11 RT 348:14 – 25.)

The record establishes that California is the second largest natural gas consuming state in the United States. The natural gas used in California is transported through more than 120,000 miles of pipeline that run under every metropolitan area. These pipelines run under and in close proximity to residences, schools, parks, hospitals and businesses of all types and generally range from between two and forty two inches in diameter. Approximately 200 schools and 200 hospitals are within 300 feet of natural gas transmission pipelines maintained by PG&E. Fifty percent of natural gas in California is used for electrical generation. (Ex. 71, p. 5.)

Line 002 has been in operation since the 1930's but between 1972 and 1990, has been completely upgraded and replaced. It was hydrostatically tested in 1972. (3/7/11 RT 273:17 – 18.) It runs 118 miles from Brentwood to Panoche, California. There is no record of a release from Line 002 resulting in a loss of life, injury or property damage. Over the entire 118-mile length of Line 002, only two leaks have been documented since 1972. They occurred in 1997 and 1999 and were attributed to gunshots. The gunshot holes were located near the crossover of the Delta

Mendota canal near Tracy, and no damage or injuries resulted from these leaks. No leaks have ever been reported due to corrosion in Line 002. No significant incidents have occurred over the entire length of Line 002 for its entire working lifetime. (Ex. 71, pp. 13-14.)

The record indicates that the most recent in-line inspection of a 36.6 mile span just west of the City of Tracy was completed on August 30, 2006. A total of 1,431 metal loss features was reported. The maximum estimated loss in wall thickness was 44 percent and most of the losses were associated with external corrosion. The failure pressure calculated at the point with the greatest reduction in wall thickness was 1,640 psig. The MOAP for Line 002 is 890 psig. Thus the calculated burst pressure at the most vulnerable point on Line 002 during this inspection was 755 psig above the MOAP. (Ex. 71, p. 16.)

The Pipeline Safety Assessment (Ex. 71) conducted by Tetra Tech concluded that oversight of Line 002 by PG&E is comprehensive and complies with state and federal standards. The assessment further concludes that Line 002 is well maintained and safe; that the risks associated with Line 002 are low compared to other risks commonly faced by the public and that the risks are mitigated by the oversight and pipeline integrity management of PG&E. (Ex. 71, p. 18.)

The great weight of the evidence convinces us that the MEP will have a negligible effect on gas pipeline Line 002. We have no competent evidence before us to find PG&E Line 002 is currently "degraded" according to any standard. In fact, probative testimony indicates the line is in good condition. Mr. Sarvey argues that PG&E Line 002 is not analyzed in Staff's testimony, but the Staff Analysis focuses on the only relevant question now before us: whether *the MEP's interconnection* will have a significant impact on Line 002. Staff's analysis clearly concludes that it will not.

Mr. Sarvey 's claim that a "significant increase" in natural gas volume will occur because of the addition of the MEP and the conversion of the Tracy Peaker Project to combined cycle is unsubstantiated. He provided neither supporting facts nor any metrics by which to demonstrate significance. His assertion, "that pipeline pressure fluctuations from the cycling of these projects will cause additional stress to Line 002" assumes facts not in evidence and lacks merit in light of the more convincing evidence to the contrary. Expert testimony has established that the impact of MEP's natural gas cycling is negligible. Finally, the evidence describes major differences between the antiquated technology of the pipeline that exploded in San Bruno and Line 002. Mr. Sarvey's comparison of these two pipelines does not conform to proof.

Although we acknowledge the risks inherent in handling hazardous materials such as flammable gas, the record before us establishes that the risks associated with the interconnection between the MEP and Line 002 are contained within a range of acceptable risk and are mitigated by existing LORS. We are convinced that that effect of the interconnection is negligible and find that the any potential impact the MEP may have on Line 002 is below the level of significance.

b. Aqueous Ammonia

Aqueous ammonia will be used to control oxides of nitrogen ($NO_x$) emissions resulting from natural gas combustion. The record shows that aqueous ammonia is the only hazardous material that could realistically, without proper mitigation, pose a significant risk of off-site impact. This could result from the release of ammonia vapor in the event of a spill. The evidence contains a detailed analysis of both the potential impacts resulting from an ammonia spill and the adequacy of measures available to limit the severity of any impacts. (Ex. 301, p. 4.4-7.)

2. Risk Mitigation

Aqueous ammonia will be used to control the emission of oxides of nitrogen ($NO_x$) from the combustion of natural gas at the MEP. The accidental release of aqueous ammonia without proper mitigation can result in significant down-wind concentrations of ammonia gas. MEP would use 19 percent aqueous ammonia solution stored in one stationary 10,000 gallon above-ground storage tank, with a maximum fill quantity of 8,500 gallons to minimize the potential for overflow during filling. (Ex. 301, p. 4.4-7.)

The use of aqueous ammonia can result in the formation and release of toxic gases in the event of a spill even without interaction with other chemicals. This is a result of its moderate vapor pressure and the large amounts of aqueous ammonia that will be used and stored on site. However, the use of aqueous ammonia poses far less risk than the use of the far more hazardous anhydrous ammonia (ammonia that is not diluted with water). (Ex. 301, pp. 4.4-7 - 4.4-8.)

The assessment of the potential for off-site impacts associated with an accidental release of aqueous ammonia utilized several benchmark exposure levels. (Ex. 301, p. 4.4-8.) These include:

a) the lowest concentration posing a risk of lethality, i.e. 2,000 parts per million (ppm);

b) the concentration immediately dangerous to life and health, a level of 300 ppm;

c) the emergency response planning guideline level 2 of 150 ppm; and

d) the level of 75 ppm, considered by the Energy Commission staff to be without serious adverse effects on the public for a one-time exposure.

If the exposure associated with a potential release exceeds 75 ppm at any public receptor, the assessment calculated the probability of occurrence of the release, the severity of the consequences, and the nature of the potentially exposed population in determining whether the likelihood and extent of exposure would be significant. **Hazardous Materials Appendix A** (Ex. 301, pp. 4.4-25 - 4.4-26.) discusses the criteria for ammonia exposure guidelines, their applicability to sensitive populations, and exposure-specific conditions). (Ex. 301, p. 4.4-8.)

The evidence establishes that concentrations exceeding CEC's level of significance of 75 ppm would not extend beyond the facility fence line. The record indicates that the existing aqueous ammonia storage and piping systems and spill prevention and control measures are more than adequate for the proposed MEP. Furthermore, the potential for accidents resulting in the release of hazardous materials is greatly reduced through implementation of a safety management program that would include the use of both engineering and administrative controls. Elements of both facility controls and the safety management plan are summarized below. Therefore, no off-site public would experience a significant risk of an adverse health effect should an accidental release of aqueous ammonia occur due to tank failure or transfer activities.

a. Engineering and Administrative Controls

Engineering controls and administrative controls affect the significance of potential impacts from hazardous materials usage. Engineering controls are those physical or mechanical systems (such as storage tanks or automatic shut-off valves) which can prevent a hazardous material spill from occurring, limit the spill to a small amount, or confine it to a small area. Administrative controls are those rules and procedures that workers at the facility must follow. These are designed to help prevent accidents and keep them small if they do occur. Timely and adequate emergency spill response is also a crucial factor. (Ex. 301, p. 4.4-9.)

The engineered safety features which will be used at the MEP include:

- Storage of containerized hazardous materials in properly labeled original containers within structures protected by a secondary containment berm. Incompatible materials would be separated and flammable materials would be stored in a flammable storage cabinet;

- Installation of a fire protection system for hazardous materials storage areas;

- Construction of a concrete containment area surrounding the aqueous ammonia storage tank with 90 percent covering; and

- Construction of a sloped concrete pad beneath the ammonia truck unloading area that would drain into the storage tank's underground containment sump through a 24-inch-diameter opening; and process protective systems including continuous tank level monitors, automated leak detectors, temperature and pressure monitors, alarms, and emergency block valves. (Ex. 301, p. 4.4-19.)

Worker training programs, process safety management programs, and compliance with all applicable health and safety laws, ordinances, and standards will also reduce risks. The project owner's worker health and safety program will include (but not be limited to) the following elements:

- Worker training regarding chemical hazards, health and safety issues, and hazard communications;

- Procedures to ensure the proper use of personal protective equipment;

- Safety operating procedures for the operation and maintenance of systems utilizing hazardous materials;

- Fire safety and prevention; and

- Emergency response actions including facility evacuation, hazardous material spill clean-up, and fire prevention. (Ex. 301, pp. 4.4-9 - 4.4-10.)

At the facility, the project owner will be required to designate an individual with the responsibility and authority to ensure a safe and healthful work place. The project health and safety official will oversee the health and safety program and have the authority to halt any action or modify any work practice to protect the workers, facility, and the surrounding community in the event of a violation of the health and safety program. (Ex. 301, p. 4.4-10.)

The project owner will also prepare a risk management plan for aqueous ammonia, as required by both the California Accidental Release Program (CalARP) regulations and Condition of Certification **HAZ-2**. This Condition also includes the requirement for a program for the prevention of accidental releases and responses to an accidental release of aqueous ammonia. A hazardous materials business plan will also be prepared by the project owner that would incorporate state requirements for the handling of hazardous materials (Ex. 1, § 5.5). Other administrative controls are required in proposed Conditions of Certification **HAZ-1** (limitations on the use and storage of hazardous materials and their strength and volume) and **HAZ-3** (development of a safety management plan). (Ex. 301, p. 4.4-10.)

In order to address the issue of spill response, the facility will prepare and implement an emergency response plan that includes information on hazardous materials contingency and emergency response procedures, spill containment and prevention systems, personnel training, spill notification, on-site spill containment, and prevention equipment and capabilities, as well as other elements. Emergency procedures will be established which include evacuation, spill cleanup, hazard prevention, and emergency response. The presence of oil in a quantity greater than 1,320 gallons might invoke a requirement to prepare a Spill Prevention, Control, and Countermeasure (SPCC) Plan. The quantity of oil contained in any one of the planned 230/500 kV transformers would be in excess of the minimum quantity that requires such a plan. However, there are known waters of the United States adjoining the site (the San Joaquin River), as well as waters of the state, and therefore a SPCC Plan is required by 40 CFR 112 (and California Health and Safety. Code §§ 25270 - 25270.13 because the project will store 10,000 gallons or more of petroleum on-site). The above regulations would also require the immediate reporting of a spill or release of 42 gallons or more to the California Office of Emergency Services and the Certified Unified Program Agency (CUPA) which is the Alameda County Department of Environmental Health. (Ex. 301, p. 4.4-10.)

In the event of a large spill, a full hazardous materials response would be provided by the Alameda County Fire Department. The record indicates that the Fire Department is capable of handling any hazardous materials-related incident at the proposed facility and would respond within about 30 minutes. Based on the evidence, the County is capable of responding to a hazardous materials emergency call from the MEP within an adequate response time. (Ex. 301, p. 4.4-10.)

We conclude, based on the evidence, that the project's use and storage of hazardous materials, including natural gas and aqueous ammonia, poses a less than significant risk to public health and safety.

b. Transportation Risk Reduction

The evidence shows that transport of aqueous ammonia poses the predominant risk to off-site receptors. Ammonia can be released during a transportation accident; the extent of impact depends upon the location of the accident and the rate of dispersion of ammonia vapor from the surface of the aqueous ammonia pool. The actual likelihood of an accidental release during transport depends upon the tanker driver's skill, the type of transport vehicle, and accident rates. (Ex. 301, p. 4.4-11.)

Aqueous ammonia will be delivered to the facility in DOT-certified vehicles with design capacities of 8,000 gallons. These high-integrity vehicles are designed to DOT Code MC-307 and are suitable for hauling caustic materials such as ammonia. Condition of Certification **HAZ-5** ensures that only tankers which meet or exceed these specifications will be used for ammonia deliveries. (Ex. 301, p. 4.4-11.)

Trucks will travel on I-580 and/or I-205 to Northwest on Byron Bethany Road and south on Burns Road. Deliveries form Contra Costa County will proceed on Byron Bethany to Burns Road. Hazardous materials deliveries along these routes do not pose a significant risk to local sensitive receptors. (Ex. 301, p. 4.4-12.)

Routine operation of the proposed MEP will require a maximum of 33 deliveries per year. Each delivery will travel approximately 8.1 miles after leaving the main highway. This would result in a maximum of 267 miles of delivery tanker truck travel in the project area per year (with a full load). The evidence indicates that the risk over this distance is insignificant. Data from the U.S. DOT show that the actual risk of a fatality over the past five years from all modes of hazardous material transportation (rail, air, boat, and truck) is approximately 0.1 in 1,000,000. (Ex. 301, p. 4.4-12.)

In addition, the evidence included a transportation risk assessment model to calculate the probability of an accident resulting in a release of a hazardous material due to delivery from the freeway to the facility. Results show a risk of .8 in 1,000,000 for one trip from the main highway to the facility and a total annual risk of 274 in 1,000,000 for 33 deliveries. This risk was calculated using accident

rates on various types of roads (in this case, rural two-lane) with distances traveled on each type of road computed separately. Although it is an extremely conservative model in that it includes risk of accidental release from all modes of hazardous materials transportation and does not distinguish between a high-integrity steel tanker truck and other less secure modes, the results still show that the risk of a transportation accident is insignificant. (Ex. 301, p. 4.4-12.)

Based on the evidence, the risk of exposure to significant concentrations of aqueous ammonia during transportation to the facility is insignificant because of the remote possibility that an accidental release of a sufficient quantity could be dangerous to the public. The transportation of similar volumes of hazardous materials on the nation's highways is neither unique nor infrequent. The analysis in the record of the transportation of aqueous ammonia to the proposed facility (along with data from the U.S. DOT) demonstrates that the risk of accident and exposure is less than significant. (Ex. 301, p. 4.4-12.)

3. Site Security

The Applicant proposes to use hazardous materials identified by the U.S. EPA as requiring the development and implementation of special site security measures to prevent unauthorized access. The U.S. EPA published a Chemical Accident Prevention Alert regarding site security, the U.S. Department of Justice published a special report entitled, *Chemical Facility Vulnerability Assessment Methodology*, the North American Electric Reliability Council published *Security Guidelines for the Electricity Sector* in 2002, and the U.S. Department of Energy (DOE) published the draft *Vulnerability Assessment Methodology for Electric Power Infrastructure* in 2002. The energy generation sector is one of 14 areas of critical infrastructure listed by the U.S. Department of Homeland Security. On April 9, 2007, the U.S Department of Homeland Security published in the Federal Register (6 CFR Part 27) an interim final rule requiring that facilities that use or store certain hazardous materials conduct vulnerability assessments and implement certain specified security measures. This rule was implemented with the publication of Appendix A, the list of chemicals, on November 2, 2007. While the rule applies to aqueous ammonia solutions of 20 percent or greater and the MEP plans to utilize a 19 percent aqueous ammonia solution, we are persuaded that all power plants under the jurisdiction of the Energy Commission should implement a minimum level of security consistent with the guidelines listed here. (Ex. 301, p. 4.4-13.)

In order to ensure that neither this project nor a shipment of hazardous material is the target of unauthorized access, Conditions of Certification **HAZ-7** and **HAZ-8** address both construction security and operation security plans. These plans would require implementation of site security measures consistent with the above-referenced guidelines. The goal of these conditions of certification is to provide for the minimum level of security for power plants necessary for the protection of California's electrical infrastructure from malicious mischief, vandalism, or domestic/foreign terrorist attacks. The level of security needed for the MEP is dependent upon the threat imposed, the likelihood of an adversarial attack, the likelihood of success in causing a catastrophic event, and the severity of the consequences of that event. The results of the off-site consequence analysis prepared as part of the Risk Management Plan was used, in part, to determine the severity of consequences of a catastrophic event. (Ex. 301, pp. 4.4-13 - 4.4-14.)

The record includes an internal vulnerability assessment decision matrix modeled after the U.S. Department of Justice Chemical Vulnerability Assessment Methodology (July 2002), the North American Electric Reliability Council's (NERC) 2002 guidelines, the U.S. DOE VAM-CF model, and the U.S. Department of Homeland Security regulations published in the Federal Register (Interim Final Rule 6 CFR Part 27). The evidence shows that this project would fall into the category of low vulnerability due to the industrial setting and lack of nearby sensitive receptors. (Ex. 301, p. 4.4-14.)

4. Cumulative Risks

A significant cumulative hazardous materials impact is defined as the simultaneous uncontrolled release of hazardous materials from multiple locations in a form (gas or liquid) that could cause a significant impact where the release of one hazardous material alone would not cause a significant impact. Existing locations that use or store gaseous or liquid hazardous materials, or locations where such facilities might likely be built, were both considered. While cumulative impacts are theoretically possible, they are not probable because of the many safeguards implemented to both prevent and control an uncontrolled release. The chances of one uncontrolled release occurring are remote. The chance of two or more occurring simultaneously, with resulting airborne plumes mingling to create a significant impact, are even more remote. The evidence indicates that the risk to the public is insignificant.

These accidental or intentional release scenarios are highly unlikely because the project owner will develop and implement a hazardous material storage and

handling program for MEP, independent of any other projects considered for potential cumulative impacts, and implement enhanced site security measures. The evidence shows that the facility poses a less than significant risk of accidental release that could result in off-site impacts. It is unlikely that an accidental release that has very low probability of occurrence (about one in one million per year) would independently occur at the MEP site and another facility at the same time. Therefore, the facility will not contribute to a significant hazardous materials-related cumulative impact.

**PUBLIC COMMENT**

**Brian Stotz**, a Mountain House resident, commented in opposition to the MEP, because he believes that the agency threshold for determining the quantity of dangerous toxic chemicals will continue to be downwardly readjusted. (2/24/11 RT: 256:11-22.)

**ATTACHMENT A** (incorporated in Condition of Certification **HAZ-1** at the end of this section) lists the hazardous materials that will be used and stored on-site. Condition **HAZ-1** prohibits the project owner from using hazardous materials not listed in **ATTACHMENT A**, or storing them in greater quantities than specified, without prior approval of the Energy Commission's Compliance Project Manager. We have found that none of the listed materials, except for natural gas and aqueous ammonia as discussed below, pose significant potential for off-site impacts as a result of the quantities on-site, their relative toxicity, their physical state, and/or their environmental mobility. (Ex. 301, p. 4.4-6.)

**Irene Sundberg**, also a Mountain House resident, commented in opposition to the MEP, and inquired about the location of the gas pipeline shut-off. She also wanted to know what is interconnected to Line 002 within a ten-mile radius. (2/25/11 RT: 315:21-318:24.) The double-block and bleed valves for gas shut-off and automated combustion controls will be located on the MEP site. (Ex. 301, p. 4.4-7.) Interconnections to Line 002 beyond the MEP interconnections are outside of the jurisdiction of the Energy Commission and are not a part of this record. This information can be obtained from PG&E or the CPUC.

Intervenors **Robert Sarvey**, **Rajesh Dighe** and **Rob Simpson** filed written comments essentially claiming that the record contained insufficient analysis of the natural gas pipeline because no expert from PG&E testified. As stated above, expert testimony has established that the impact of MEP's natural gas cycling is negligible. The Decision is based on substantial evidence and there was no

showing that the addition of a witness from PG&E would have been anything other than needlessly cumulative.

## FINDINGS OF FACT

Based on the evidence, we make the following findings:

1. The Mariposa Energy Project will use hazardous materials during construction and operation, including aqueous ammonia and natural gas.

2. The major public health and safety dangers associated with these hazardous materials include the accidental release of aqueous ammonia as well as fire and explosion from natural gas.

3. Compliance with existing LORS will reduce potential risks associated with the interconnection between the MEP and PG&E Line 002 to insignificant levels.

4. Appropriate design measures to contain spilled ammonia are necessary to ensure that no significant off-site public health consequences will result from an accidental release.

5. Compliance with appropriate engineering and regulatory requirements for safe transportation, delivery, handling, and storage of aqueous ammonia will reduce potential risks of accidental release to insignificant levels.

6. The risk of fire and explosion from natural gas will be reduced to insignificant levels through adherence to applicable codes and the implementation of effective safety management practices.

7. Potential impacts from the other hazardous substances used on-site are not significant since quantities will be limited and appropriate storage will be maintained in accordance with applicable law.

8. The likelihood of cumulative impacts originating from simultaneous releases of hazardous materials from the MEP and nearby facilities is statistically remote and considered insignificant.

9. Local emergency responders are adequately equipped and trained to deal with hazardous materials accidents at the MEP.

10. Implementation of the mitigation measures described in the evidence and contained in the Conditions of Certification, below, ensures that the project will not cause significant impacts to public health and safety as the result of handling, use, storage, or transportation of hazardous materials.

11. With implementation of the Conditions of Certification, below, the MEP will comply with all applicable laws, ordinances, regulations, and standards related to hazardous materials management as identified in the evidentiary record and in the pertinent portion of **Appendix A** of this Decision.

## CONCLUSION OF LAW

The Commission concludes, therefore, that the storage, use, and transportation of hazardous materials associated with the Mariposa Energy Project will not result in any significant direct, indirect or cumulative adverse public health and safety impacts.

## CONDITIONS OF CERTIFICATION

**HAZ-1** The project owner shall not use any hazardous materials not listed in **ATTACHMENT A**, below, or in greater quantities or strengths than those identified by chemical name in **ATTACHMENT A**, below, unless approved in advance by the Compliance Project Manager (CPM).

**Verification:** The project owner shall provide to the CPM, in the Annual Compliance Report, a list of hazardous materials contained at the facility.

**HAZ-2** The project owner shall concurrently provide a Business Plan, a Spill Prevention, Control, and Countermeasure Plan (SPCC), and a Risk Management Plan (RMP) prepared pursuant to the California Accidental Release Program (CalARP) to the Alameda County Department of Environmental Health (ACDEH) and the CPM for review. After receiving comments from the ACDEH and the CPM, the project owner shall reflect all recommendations in the final documents. Copies of the final Business Plan, SPCC Plan, and RMP shall then be provided to the ACDEH and the Alameda County Fire Department (ACFD) for information and to the CPM for approval.

**Verification:** At least 30 days prior to receiving any hazardous material on the site for commissioning or operations, the project owner shall provide a copy of a final Business Plan and SPCC Plan to the CPM for approval. At least 30 days prior to delivery of aqueous ammonia to the site, the project owner shall provide the final RMP to the ACDEH and the ACFD for information and to the CPM for approval.

**HAZ-3** The project owner shall develop and implement a Safety Management Plan for delivery of aqueous ammonia and other liquid hazardous materials by tanker truck. The plan shall include procedures, protective equipment requirements, training, and a checklist. It shall also include a section describing all measures to be implemented to prevent mixing of incompatible hazardous materials including provisions to maintain

lockout control by a power plant employee not involved in the delivery or transfer operation. It must also address handling and use of natural gas. This plan shall be applicable during construction, commissioning, and operation of the power plant.

**Verification:** At least 30 days prior to the delivery of any liquid hazardous material to the facility, the project owner shall provide a Safety Management Plan as described above to the CPM for review and approval.

**HAZ-4** The aqueous ammonia storage facility shall be designed to either the ASME Pressure Vessel Code and ANSI K61.6 or to API 620. In either case, the storage tank shall be protected by a secondary containment basin capable of holding 125 percent of the storage volume or the storage volume plus the volume associated with 24 hours of rain assuming the 25-year storm. The final design drawings and specifications for the ammonia storage tank and secondary containment basins shall be submitted to the CPM.

**Verification:** At least 60 days prior to delivery of aqueous ammonia to the facility, the project owner shall submit final design drawings and specifications for the ammonia storage tank and secondary containment basin to the CPM for review and approval.

**HAZ-5** The project owner shall direct all vendors delivering aqueous ammonia to the site to use only tanker truck transport vehicles which meet or exceed the specifications of DOT Code MC-307.

**Verification:** At least 30 days prior to receipt of aqueous ammonia on site, the project owner shall submit copies of the notification letter to supply vendors indicating the transport vehicle specifications to the CPM for review and approval.

**HAZ-6** Prior to commencing construction, a site-specific Construction Site Security Plan for the construction phase shall be prepared and made available to the CPM for review and approval. The Construction Security Plan shall include the following:

1. written standard procedures for employees, contractors and vendors when encountering suspicious objects or packages on site or off site;
2. protocol for contacting law enforcement and the CPM in the event of suspicious activity or emergency; and
3. Evacuation procedures.

**Verification:** At least 30 days prior to commencing construction, the project owner shall notify the CPM that a site-specific Construction Security Plan is available for review and approval.

**HAZ-7** The project owner shall also prepare a site-specific security plan for the commissioning and operational phases that will be available to the CPM for review and approval. The project owner shall implement site security measures that address physical site security and hazardous materials storage. The level of security to be implemented shall not be less than that described below (as per NERC 2002).

The Operation Security Plan shall include the following:

1. Evacuation procedures;
2. Protocol for contacting law enforcement and the CPM in the event of suspicious activity or emergency;
3. Written standard procedures for employees, contractors, and vendors when encountering suspicious objects or packages on site or off site;
4. a. A statement (refer to sample, **Attachment A**), signed by the project owner certifying that background investigations have been conducted on all project personnel. Background investigations shall be conducted in accordance with state and federal laws;

   b. A statement(s) (refer to sample, **Attachment B**), signed by the contractor or authorized representative(s) for any permanent contractors or other technical contractors (as determined by the CPM after consultation with the project owner), that are present at any time on the site to repair, maintain, investigate, or conduct any other technical duties involving critical components (as determined by the CPM after consultation with the project owner) certifying that background investigations have been conducted on contractors who visit the project site. Background investigations shall be restricted to determine the accuracy of employee identity and employment history and shall be conducted in accordance with state and federal laws regarding security and privacy.
5. A statement(s) (refer to sample, **Attachment C**), signed by the owners or authorized representative of hazardous materials transport vendors, certifying that they have prepared and implemented security plans in compliance with 49 CFR 172.802, and that they have conducted employee background investigations in accordance with 49 CFR Part 1572, subparts A and B;
6. Closed circuit TV (CCTV) monitoring system, recordable, and viewable in the power plant control room and security station (if separate from the control room) capable of viewing, the main entrance gate, the outside entrance to the control room, the ammonia storage tank, and the entire boundary of the MEP site.

The project owner shall fully implement the security plans and obtain CPM approval of any substantive modifications to those security plans. The CPM may authorize modifications to these measures, or may require additional measures such as protective barriers for critical power plant components—transformers, gas lines, and compressors—depending upon circumstances unique to the facility or in response to industry-related standards, security concerns, or additional guidance provided by the U.S. Department of Homeland Security, the U.S. Department of Energy, or the North American Electrical Reliability Council, after consultation with both appropriate law enforcement agencies and the applicant.

**Verification:** At least 30 days prior to the initial receipt of hazardous materials on site, the project owner shall notify the CPM that a site-specific operations site security plan is available for review and approval. In the annual compliance report, the project owner shall include a statement that all current project employee and appropriate contractor background investigations have been performed, and that updated certification statements have been appended to the operations security plan. In the annual compliance report, the project owner shall include a statement that the operations security plan includes all current hazardous materials transport vendor certifications for security plans and employee background investigations.

**HAZ-8:** The project owner shall not allow any fuel gas pipe cleaning activities on site, either before placing the pipe into service or at any time during the lifetime of the facility, that involve “flammable gas blows” where natural (or flammable) gas is used to blow out debris from piping and then vented to atmosphere. Instead, an inherently safer method involving a non-flammable gas (e.g. air, nitrogen, steam) or mechanical pigging shall be used. Exceptions to any of these provisions will be made only if no other satisfactory method is available, and then only with the approval of the CPM.

**Verification:** At least 30 days before any fuel gas pipe cleaning activities involving fuel gas pipe of four-inch or greater external diameter, the project owner shall submit a copy of the Fuel Gas Pipe Cleaning Work Plan which shall indicate the method of cleaning to be used, what gas will be used, the source of pressurization, and whether a mechanical PIG will be used, to the CBO for information and to the CPM for review and approval.

## ATTACHMENT A

## HAZARDOUS MATERIALS
## Proposed for Use at the Mariposa Energy Project*

| Chemical | Use | Quantity | Storage Location (GA Location Code) | State |
|---|---|---|---|---|
| Aqueous Ammonia (19% NH3 by weight) | Control oxides of nitrogen (NOx) emissions through selective catalytic reduction | 8,500 gallons | Onsite storage tanks with secondary containment (38) | Liquid |
| R 134A (1-1-1-2-Tetrafluoroethane) | Refrigerant in the inlet air chiller system | 110,000 pounds | Inlet air chiller system (21) | Liquid |
| Cleaning chemicals/detergents | Periodic cleaning of combustion turbine | Varies (less than 300 gallons liquids or 100 pounds solids for each chemical) | Chemical storage tote or drums at a protected temporary storage location onsite (40) | Liquid |
| Diesel No. 2 | Fuel back-up fire pump | 200 gallons | Permanent onsite storage in above ground storage tank with secondary containment (32) | Liquid |
| Hydraulic oil | High-pressure combustion turbine starting system, turbine control valve actuators | 270 gallons | Onsite 55-gallon drums (9), 160 gals in CT tanks | Liquid |
| Laboratory reagents | Water/wastewater laboratory analysis | Varies (less than 5 gallons liquids or 10 pounds solids for each chemical) | Laboratory chemical storage cabinets (stored in original chemical storage containers/bags) (43) | Liquid & granular solid |
| Lubrication oil | Lubricate rotating equipment (e.g., gas turbine and steam turbine bearings) | 3,200 gallons | Onsite 55-gallon drums, 200-gallon waste oil storage tank (5), and 2600 gallons in CT/Gen tanks | Liquid |
| Mineral insulating oil | Transformers/ switchyard | 36,000 gallons | Inside the transformers; no mineral actually stored on site (18) | Liquid |
| Sodium carbonate | Alkalinity source for nitrification reactor | 200 pounds | Dry storage area | Solid Powder |
| Sodium hypochlorite (12.5 % solution) | Biocide/biofilm control for potable, fire, and service water systems | 500 gallons | Water treatment chemical feed storage (40) | Liquid |

| Chemical | Use | Quantity | Storage Location (GA Location Code) | State |
|---|---|---|---|---|
| Acetylene | Welding gas | 185 pounds | Maintenance / warehouse building (40) | Gas |
| Oxygen | Welding gas | 250 pounds | Maintenance / warehouse building (40) | Gas |
| Propane | Torch gas | 300 pounds | Maintenance /warehouse building (40) | Gas |
| EPA protocol gases | Calibration gases | 25 pounds | CEMS enclosures (2), Maintenance Warehouse (40) | Gas |
| Cleaning chemicals | Cleaning | Varies (less than 25 gallons liquids or 100 pounds solids for each chemical) | Admin/control building, maintenance/ware house building (40) | Liquid or solid |
| Paint | Touchup of painted surfaces | Varies (less than 25 gallons liquids or 100 pounds solids for each type) | Maintenance /warehouse building (40) | Liquid |

*Source: Ex. 301. pp. 4.4-33 TO 4.4-34.

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**SAMPLE CERTIFICATION (Attachment B)**

**Affidavit of Compliance for Project Owners**

I,

_____

(Name of person signing affidavit)(Title)

do hereby certify that background investigations to ascertain the accuracy of the identity and employment history of all employees of

_____

(Company name)

for employment at

_____

(Project name and location)

have been conducted as required by the California Energy Commission Decision for the above-named project.

_____

(Signature of officer or agent)

Dated this _____ day of _____, 20 _____.

***THIS AFFIDAVIT OF COMPLIANCE SHALL BE APPENDED TO THE PROJECT SECURITY PLAN AND SHALL BE RETAINED AT ALL TIMES AT THE PROJECT SITE FOR REVIEW BY THE CALIFORNIA ENERGY COMMISSION COMPLIANCE PROJECT MANAGER.***

**SAMPLE CERTIFICATION (Attachment C)**

**Affidavit of Compliance for Contractors**

I,

_____

(Name of person signing affidavit)(Title)

do hereby certify that background investigations to ascertain the accuracy of the identity and employment history of all employees of

_____

(Company name)

for contract work at

_____

(Project name and location)

have been conducted as required by the California Energy Commission Decision for the above-named project.

_____

(Signature of officer or agent)

Dated this _____ day of _____, 20 _____.

***THIS AFFIDAVIT OF COMPLIANCE SHALL BE APPENDED TO THE PROJECT SECURITY PLAN AND SHALL BE RETAINED AT ALL TIMES AT THE PROJECT SITE FOR REVIEW BY THE CALIFORNIA ENERGY COMMISSION COMPLIANCE PROJECT MANAGER.***

**SAMPLE CERTIFICATION (Attachment D)**

**Affidavit of Compliance for Hazardous Materials Transport Vendors**

I,

_____

(Name of person signing affidavit)(Title)

do hereby certify that the below-named company has prepared and implemented security plans in conformity with 49 CFR 172.880 and has conducted employee background investigations in conformity with 49 CFR 172, subparts A and B,

_____

(Company name)

for hazardous materials delivery to

_____

(Project name and location)

as required by the California Energy Commission Decision for the above-named project.

_____

(Signature of officer or agent)

Dated this _____ day of _____, 20 _____.

***THIS AFFIDAVIT OF COMPLIANCE SHALL BE APPENDED TO THE PROJECT SECURITY PLAN AND SHALL BE RETAINED AT ALL TIMES AT THE PROJECT SITE FOR REVIEW BY THE CALIFORNIA ENERGY COMMISSION COMPLIANCE PROJECT MANAGER.***

## F. WASTE MANAGEMENT

The Mariposa Energy Project (MEP) will generate nonhazardous and hazardous wastes during construction and operation. This section reviews the project's waste management plans for reducing the risks and environmental impacts associated with handling, storage, and disposal of project-related nonhazardous and hazardous wastes. The evidence on **Waste Management** was undisputed. (Exs.1; 4; 6; 7; 11; 300.)

Nonhazardous wastes are degradable or inert materials, which do not contain concentrations of soluble pollutants that could degrade water quality and are therefore eligible for disposal at Class II or III disposal facilities. (Cal. Code Regs., tit. 14, § 17200 et seq.)

Hazardous waste consists of materials that exceed criteria for toxicity, corrosivity, ignitability, or reactivity as established by the California Department of Toxic Substances Control (DTSC). (See Cal. Health and Safety Code, § 25100 et seq., Hazardous Waste Control Act of 1972, as amended, and Cal. Code of Regulations, tit. 22, § 66261.1 et seq.) State law requires hazardous waste generators to obtain U.S. EPA identification numbers and contract with registered hazardous waste transporters to transfer hazardous waste to appropriate Class I disposal facilities. (Cal. Code Regs., tit. 22, § 66262.10 et seq.)

### SUMMARY AND DISCUSSION OF THE EVIDENCE

1. Site Excavation

The certification process requires a Phase I Environmental Site Assessment (ESA) to provide the history of how the site has been used and a list of hazardous waste releases on or near the site to document the presence of any actual or potential soil or water contamination. If the Phase I ESA finds a reasonable likelihood that the site contains hazardous substances, a Phase II ESA must be conducted to analyze the contamination and to establish a remediation plan. (Ex. 300, p. 4.13-6.)

Applicant's Phase I ESA for the project site, dated June 20, 2008, was performed by CH2MHILL in accordance with the American Society for Testing and Materials (ASTM) Standard Practice E 1527-05 for ESAs. The Phase I ESA conducted for the MEP site did not identify recognized environmental conditions (REC) associated with the project site. A REC is the presence or likely presence of any

hazardous substances or petroleum products on a property under the conditions that indicates an existing release, past release, or a material threat of a release of any hazardous substance or petroleum products into structures on the property or in the ground, groundwater, or surface water of the property. (Ex. 300, p. 4.13-7.)

The project site was once developed as a windfarm. The windfarm consisted of approximately 38 wind turbines. The wind turbines were taken out of service around 1989. There are remnants of wind turbines throughout the site. Most of the wind turbine equipment has been removed. The Byron Cogen Plant is located at the center of the 160-acre Lee property, directly north of the MEP site, and has operated since 1990. The majority of the 160 acres, including the project site, is currently used for cattle grazing. The Phase I ESA did not identify any RECs, but potential areas of concern are located within the parcel. There may be potential soil and groundwater contamination on the parcel due to historical uses at the project, spills or release of chemical compounds used at the Byron facility, and nitrate from concentrated manure from stockyards that are adjacent to the property. (Ex. 300, pp. 4.13-7 to 4.13-8.)

In the event that contamination is identified during any phase of construction, Condition of Certification **WASTE-1** requires that an experienced and qualified Professional Engineer or Professional Geologist be available for consultation in the event contaminated soil is encountered. If contaminated soil is identified, **WASTE-2** requires that the Professional Engineer or Professional Geologist inspect the site, determine what is required to characterize the nature and extent of contamination, and provide a report to the Energy Commission Compliance Project Manager (CPM) and DTSC with findings and recommended actions. (Ex. 300, p. 4.13-8.)

2. Construction

Site preparation and construction of the power plant and its associated facilities will generate both nonhazardous and hazardous wastes in solid and liquid forms. Condition **WASTE-3** requires the project owner to develop and implement a Construction Waste Management Plan that identifies all waste streams and the methods of managing each waste. (Ex. 300, p. 4.13-8.)

a. Nonhazardous Wastes

Construction of the MEP will generate about 130 tons of scrap wood, concrete, steel/metal, paper, glass, and plastic waste, 120 tons of concrete waste and 10 tons of scrap metal. All non-hazardous wastes would be recycled to the extent possible and non-recyclable wastes would be collected by a licensed hauler and disposed of in a solid waste disposal facility, in accordance with California Code of Regulations, title 14, section 17200 et seq. (Ex. 300, p. 4.13-8.)

Non-hazardous liquid wastes will also be generated during construction, including sanitary wastes, dust suppression drainage, and equipment wash water. Sanitary wastes will be collected in portable, self-contained toilets and pumped periodically for disposal at an appropriate facility. Potentially contaminated equipment wash water will be contained at designated wash areas and transported to a sanitary wastewater treatment facility. Please refer to the **Soil and Water Resources** section of this Decision for more information on the management of project wastewater. (Ex. 300, p. 4.13-8.)

b. Hazardous Wastes

Hazardous wastes anticipated to be generated during construction include empty hazardous material containers, solvents, waste paint, oil absorbents, used oil, oily rags, batteries, and cleaning wastes. The amount of wastes generated would be minor if handled in the manner identified in the AFC. (Ex. 1, § 5.14.1.2.1.)

The project owner would be required to obtain a unique hazardous waste generator identification number for the site prior to starting construction pursuant to Condition of Certification **WASTE-4**. Although the hazardous waste generator number is determined based on site location, both the construction contractor and the project owner could be considered the generator of hazardous wastes at the site. Wastes would be accumulated onsite for less than 90 days and then properly manifested, transported and disposed at a permitted hazardous waste management facility by licensed hazardous waste collection and disposal companies. Based on the evidence, all wastes would be disposed in accordance with all applicable LORS Should any construction waste management-related enforcement action be taken or initiated by a regulatory agency, the project owner would be required by Condition of Certification **WASTE-5** to notify the Energy Commission's Compliance Project Manager (CPM) whenever the owner becomes aware of any such action. (Ex. 300, pp. 4.13-8 to 4.13-9.)

In the event that project construction excavation, grading or trenching comes into contact with potentially contaminated soils, specific handling, disposal, and other precautions may be necessary pursuant to hazardous waste management LORS. Conditions of Certification **WASTE-1** and **WASTE-2** are adequate to address any soil contamination contingency that may be encountered during construction of the project and ensure compliance with LORS. Absent any unusual circumstances, project compliance with LORS is sufficient to ensure that no significant impacts will occur as a result of project waste management activities. (Ex. 300, p. 4.13-9.)

3. Operation

Condition **WASTE-6** requires the project owner to develop and implement an Operation Waste Management Plan to identify all waste streams and the methods of managing each waste. (Ex. 300, p. 4.13-9.)

a. Nonhazardous Wastes

Non-hazardous solid wastes expected to be generated during project operation include routine maintenance wastes (such as used air filters, spent deionization resins, sand and filter media) as well as domestic and office wastes (such as office paper, newsprint, aluminum cans, plastic, and glass). All non-hazardous wastes will be recycled to the extent possible, and non-recyclable wastes would be regularly transported offsite to a local solid waste disposal facility. The applicant estimates the project will generate 39 tons of non-hazardous waste per year. Non-hazardous liquid wastes would be generated during facility operation, and are discussed in the **Soil and Water Resources** section of this Decision. (Ex. 300, 4.13-9.)

b. Hazardous Wastes

The project owner is considered the generator of hazardous wastes at the site during facility operations. Therefore, the project owner's unique hazardous waste generator identification number, obtained prior to construction in accordance with Condition of Certification **WASTE-4**, will be retained and used for one ton per year of hazardous waste generated during facility operation. (Ex. 300, p. 4.13-10.)

Hazardous wastes expected to be generated during routine project operation include used hydraulic fluids, oils, greases, oily filters and rags, spent SCR

catalyst, cleaning solutions and solvents, and batteries. In addition, spills and unauthorized releases of hazardous materials or hazardous wastes may generate contaminated soils or materials that may require corrective action and management as hazardous waste. Proper hazardous material handling and good housekeeping practices will help keep spill wastes to a minimum. However, to ensure proper cleanup and management of any contaminated soils or waste materials generated from hazardous materials spills, Condition of Certification **WASTE-7** requires the project owner to report, clean-up, and remediate as necessary, any hazardous materials spills or releases in accordance with all applicable federal, state, and local requirements. More information on hazardous material management, spill reporting, containment, and spill control and countermeasures plan provisions for the project are provided in the **Hazardous Material Management** section of this Decision. (Ex. 300, p. 4.13-10.)

The amounts of hazardous wastes generated during the operation of the MEP would be minor, with source reduction and recycling of wastes implemented whenever possible. The hazardous wastes would be temporarily stored on-site, transported offsite by licensed hazardous waste haulers, and recycled or disposed at authorized disposal facilities in accordance with established standards applicable to generators of hazardous waste (Title 22, CCR, §66262.10 et seq.). Should any operations waste management-related enforcement action be taken or initiated by a regulatory agency, the project owner would be required by Condition of Certification **WASTE-5** to notify the CPM whenever the owner becomes aware of any such action. (Ex. 300, p. 4.13-10.)

4. Potential Impacts on Waste Disposal Facilities

Construction and operation of the project will respectively generate approximately 795 cubic yards (159 tons) per year and 195 cubic yards (39 tons) of nonhazardous solid waste. The waste will be accumulated onsite for less than 30 days, and then recycled or disposed of in a Class III landfill. (Ex. 300, p. 4.13-10.)

The record identifies four non-hazardous (Class III) waste disposal facilities that could potentially take the non-hazardous construction and operation wastes generated by the MEP. These Class III landfills are all located in northern California in Alameda County. The remaining capacity for the four landfills combined is over 153 million cubic yards. Over 1.8 million tons of solid waste was disposed of in Alameda County Class III landfills in 2008. The total amount

of nonhazardous waste generated from project construction and operation will contribute less than one percent of the available landfill capacity. Based on the evidence, the disposal of the solid wastes generated by the MEP can occur without significantly impacting the capacity or remaining life of any of these facilities. (Ex. 300, p. 4.13-10.)

Hazardous wastes are eligible for transport to two of California's available Class I landfills: Clean Harbors Buttonwillow Landfill in Kern County and the Chemical Waste Management Kettleman Hills Landfill in Kings County. The Kettleman Hills facility also accepts Class II, and III waste. Evidence indicates there is sufficient capacity at these facilities to handle the project's hazardous wastes during its operating lifetime. (Ex. 300, p. 4.13-10.)

5. Cumulative Impacts

Regarding potential cumulative impacts, the quantities of solid and hazardous wastes generated by the MEP will add to the total quantities of waste generated by new residential and commercial development in California. However, the record shows that the MEP's waste stream is relatively low, recycling efforts will be prioritized, and sufficient disposal capacity is available. As a result, the project's cumulative impacts on disposal facilities will be insignificant for both nonhazardous and hazardous waste disposal. (Ex. 300, p. 4.13-11.)

**PUBLIC COMMENT**

The public offered no comment on the subject of Waste Management.

**FINDINGS OF FACT**

Based on the uncontroverted evidence, the Commission makes the following findings:

1. The Phase I Environmental Site Assessment (ESA) found no evidence of any recognized environmental conditions at the project site or along the linear corridors.

2. There may be potential soil and groundwater contamination on the parcel due to historical uses at the project, spills or release of chemical compounds used at the Byron facility, and nitrate from concentrated manure from stockyards that are adjacent to the property.

3. The project owner will implement appropriate characterization, disposal, and remediation measures to ensure that the risk of exposure to previously undetected contaminated soils at the site is reduced to insignificant levels.

4. The project will generate nonhazardous and hazardous wastes during excavation, construction, and operation.

5. The project will recycle nonhazardous and hazardous wastes to the extent feasible and in compliance with applicable law.

6. Hazardous wastes that cannot be recycled will be transported by registered hazardous waste transporters to appropriate Class I landfills.

7. Solid nonhazardous wastes that cannot be recycled will be deposited at Class II and III landfills in the local area.

8. Liquid wastes will be classified for appropriate disposal and managed in accordance with the Conditions of Certification listed in the **Soil and Water Resources** section of this Decision.

9. Disposal of project wastes will not result in any significant direct, indirect, or cumulative impacts on existing waste disposal facilities.

## CONCLUSIONS OF LAW

1. Implementation of the Conditions of Certification, below, and the waste management practices described in the evidentiary record will reduce potential impacts to insignificant levels and ensure that project wastes are handled in an environmentally safe manner.

2. The management of project wastes will comply with all applicable laws, ordinances, regulations, and standards related to waste management as identified in the pertinent portions of **Appendix A** of this Decision.

## CONDITIONS OF CERTIFICATION

**WASTE-1** The project owner shall provide the resume of an experienced and qualified Professional Engineer or Professional Geologist, who shall be available for consultation during site characterization (if needed), excavation and grading activities, to the CPM for review and approval. The resume shall show experience in remedial investigation and feasibility studies.

The Professional Engineer or Professional Geologist shall be given full authority by the project owner to oversee any earth moving activities that have the potential to disturb contaminated soil.

**Verification:** At least 30 days prior to the start of site mobilization, the project owner shall submit the resume to the CPM for review and approval.

**WASTE-2** If potentially contaminated soil is identified during site characterization, demolition, excavation, or grading at either the site or linear facilities, as evidenced by discoloration, odor, detection by handheld instruments, or other signs, the Professional Engineer or Professional Geologist shall inspect the site, determine the need for sampling to confirm the nature and extent of contamination, and provide a written report to the project owner, representatives of Department of Toxic Substances Control, and the CPM stating the recommended course of action.

Depending on the nature and extent of contamination, the Professional Engineer or Professional Geologist shall have the authority to temporarily suspend construction activity at that location for the protection of workers or the public. If, in the opinion of the Professional Engineer or Professional Geologist, significant remediation may be required, the project owner shall contact the CPM and representatives of the Department of Toxic Substances Control for guidance and possible oversight.

**Verification:** The project owner shall submit any final reports filed by the Professional Engineer or Professional Geologist to the CPM within 5 days of their receipt. The project owner shall notify the CPM within 24 hours of any orders issued to halt construction.

**WASTE-3** The project owner shall obtain a hazardous waste generator identification number from the United States Environmental Protection Agency prior to generating any hazardous waste during construction and operations.

**Verification:** The project owner shall keep a copy of the identification number on file at the project site and provide the number to the CPM in the next Monthly Compliance Report.

**WASTE-4** Upon becoming aware of any impending waste management-related enforcement action by any local, state, or federal authority, the project owner shall notify the CPM of any such action taken or proposed to be taken against the project itself, or against any waste hauler or disposal facility or treatment operator with which the owner contracts.

**Verification:** The project owner shall notify the CPM in writing within 10 days of becoming aware of an impending enforcement action. The CPM shall notify

the project owner of any changes that will be required in the way project-related wastes are managed.

**WASTE-5** The project owner shall prepare a Construction Waste Management Plan for all wastes generated during construction of the facility, and shall submit the plan to the CPM for review and approval. The plan shall contain, at a minimum, the following:

- A description of all construction waste streams, including projections of frequency, amounts generated and hazard classifications; and
- Management methods to be used for each waste stream, including temporary onsite storage, housekeeping and best management practices to be employed, treatment methods and companies providing treatment services, waste testing methods to assure correct classification, methods of transportation, disposal requirements and sites, and recycling and waste minimization/source reduction plans.

**Verification:** The project owner shall submit the Construction Waste Management Plan to the CPM for approval no less than 30 days prior to the initiation of construction activities at the site.

**WASTE-6** The project owner shall prepare an Operation Waste Management Plan for all wastes generated during operation of the facility, and shall submit the plan to the CPM for review and approval. The plan shall contain, at a minimum, the following:

- A detailed description of all operation and maintenance waste streams, including projections of amounts to be generated, frequency of generation, and waste hazard classifications;
- Management methods to be used for each waste stream, including temporary onsite storage, housekeeping and best management practices to be employed, treatment methods and companies providing treatment services, waste testing methods to assure correct classification, methods of transportation, disposal requirements and sites, and recycling and waste minimization/source reduction plans;
- Information and summary records of conversations with the local Certified Unified Program Agency and the Department of Toxic Substances Control regarding any waste management requirements necessary for project activities. Copies of all required waste management permits, notices, and/or authorizations shall be included in the plan and updated as necessary;

- A detailed description of how facility wastes will be managed, and any contingency plans to be employed, in the event of an unplanned closure or planned temporary facility closure; and
- A detailed description of how facility wastes will be managed and disposed upon closure of the facility.

**Verification:** The project owner shall submit the Operation Waste Management Plan to the CPM for approval no less than 30 days prior to the start of project operation. The project owner shall submit any required revisions to the CPM within 20 days of notification from the CPM that revisions are necessary.

The project owner shall also document in each Annual Compliance Report the actual volume of wastes generated and the waste management methods used during the year; provide a comparison of the actual waste generation and management methods used to those proposed in the original Operation Waste Management Plan; and update the Operation Waste Management Plan as necessary to address current waste generation and management practices.

**WASTE-7** The project owner shall ensure that all spills or releases of hazardous substances, hazardous materials, or hazardous waste are reported, cleaned-up, and remediated as necessary, in accordance with all applicable federal, state, and local requirements.

**Verification:** The project owner shall document all unauthorized releases and spills of hazardous substances, materials, or wastes that occur on the project property or related pipeline and transmission corridors. The documentation shall include, at a minimum, the following information: location of release; date and time of release; reason for release; volume released; amount of contaminated soil/material generated; how release was managed and material cleaned-up; if the release was reported; to whom the release was reported; release corrective action and cleanup requirements placed by regulating agencies; level of cleanup achieved and actions taken to prevent a similar release or spill; and disposition of any hazardous wastes and/or contaminated soils and materials that may have be generated by the release. Copies of the unauthorized spill documentation shall be provided to the CPM within 30 days of the date the release was discovered.

# VI. ENVIRONMENTAL ASSESSMENT

## A. BIOLOGICAL RESOURCES

The Commission must consider the potential impacts of project-related activities on biological resources, including state and federally listed species, species of special concern, wetlands, and other topics of biological concern such as unique habitats. The review contained in the record describes the biological resources in the vicinity of the project site and linear facilities, assesses the potential for adverse impacts, and determines what measures are necessary to mitigate impacts and ensure compliance with applicable laws, ordinances, regulations, and standards (LORS).

The parties offered the following evidence on biological resources into the record: Exhibits 1; 4; 5; 6; 7; 11; 24; 28; 29; 31; 36; 39; 40; 44; 47; 48; 53; 5 6; 58; 60; 301. [2/24/11 RT 247:8-24; 3/7/11 RT 407:4-25].

### SUMMARY AND DISCUSSION OF THE EVIDENCE

1. Project Site and Vicinity Description

The Mariposa Energy Project (MEP) site is located in low-lying foothills on the lower, eastern slope of the Diablo Range, northeast of Altamont Pass, in eastern Alameda County, California. The project site is approximately 7 miles northeast of Livermore, 7 miles northwest of the Tracy, 6 miles southwest of Byron, and 2.5 miles west of the community of Mountain House. The power plant site is located south of Kelso Road and east of Bruns Road on 10 acres of a 158-acre parcel that consists of non-irrigated grazing land, a former wind-turbine development, and an existing cogeneration (cogen) power plant. (Ex. 301, p. 4.2-5.)

The MEP site consists of the power plant site, construction laydown and staging areas, and all the associated linear facilities. A temporary staging and laydown area will be located immediately east of the power plant site, and will be in use approximately 12 months. Prior to construction, debris from a previous wind farm development, including concrete foundations and underground utility conduit, will be removed from the site. Portions of the laydown area will require gravel or road base with an underlayment of geotextile fabric for stabilization. Topsoil stripped from the laydown area will be stockpiled onsite. A temporary laydown area for the water supply pipeline construction will be located within an existing maintenance

yard at Byron Bethany Irrigation District (BBID) Headquarters. (Ex. 301, pp. 4.2-5 - 4.2-6.)

An existing gravel road from Bruns Road provides access to the parcel. A portion of this road will be improved and used during operation and construction of the project; improvements include widening the road from 10 to 20 feet and adding an asphalt layer. Temporary overland access routes to the transmission line and gas line corridors will originate from this access road. All overland access routes will occur in upland grassland areas only. (Ex. 301, p. 4.2-6.)

The MEP will interconnect with the regional electrical grid by a new, approximately 0.7-mile-long, single-circuit, three-phase, 230 kV transmission line. The transmission line will run north from the project site to connect on the north end of the Kelso Substation. The transmission line will include eight new monopole structures, ranging in height from 84 to 95 feet, which will be located at appropriate intervals. A 10-foot-diameter concrete foundation will support each monopole structure. No new access roads will be needed along the transmission line corridor; access will be from the existing access road and overland within the transmission line construction zone. (Ex. 301, p. 4.2-6.)

A 580-foot-long 8-inch-diameter natural gas pipeline will connect with an existing PG&E high-pressure natural gas pipeline northeast of the power plant site. The project proposes to use water supplied by the BBID through a 1.8-mile water supply pipeline. The water supply pipeline will be placed in or along Bruns Road and run from Canal 45 south to the power plant site. The water supply pipeline will cross seven culverts using either underground tunneling or open-cut trenching. From Bruns Road, the water supply pipeline will follow the existing access road to the power plant site. Associated facilities include a 36-square-foot concrete turnout structure and a 250-square-foot pump station at Canal 45. (Ex. 301, p. 4.2-6.)

The 6.5 MW Byron Power Cogen Power Plant is located on approximately one acre immediately north of the MEP site. A gravel access road connects this power plant and the MEP site. In addition, at the northeast corner of Kelso Road and Bruns Road are PG&E's Bethany Gas Compressor Station and the 230-kV Kelso Substation. These facilities are located on the same site, which totals approximately 17 acres, and are bordered by ornamental landscaping. Several existing transmission lines also occur in the project area and vicinity. (Ex. 301, p. 4.2-13.)

2. Habitats, Wetlands and Wildlife

The majority of the project disturbance area is in annual grassland, including the disturbance area for the power plant site, transmission line, and natural gas supply line. The water supply line is located in annual grassland, along or within existing roads and road shoulders characterized by ruderal vegetation, agricultural areas, and wetlands and ephemeral drainages. Construction and laydown areas will be located in an existing maintenance yard at the Byron Bethany Irrigation District (BBID) headquarters and in annual grassland immediately adjacent to the MEP site. (Ex. 301, p. 4.2-8.)

The record describes wetlands and other waters on or near the MEP site. There are four ephemeral drainages located within the project site which appear to be hydrologically connected to Italian Slough located north of the project site. (Ex. 301, p. 4.2-9.)

There are three seasonal wetlands located within the project site which range in size from small isolated features to alkali sink wetlands. A large alkali sink wetland is located north of and directly abuts an ephemeral drainage. A small seasonal wetland exists along the road to the Byron Power Cogen Power Plant. A third small seasonal wetland is located adjacent to the transmission laydown area and a fourth seasonal wetland is located along the alternate water supply pipeline route. All four seasonal wetlands may potentially be considered United States Army Corp of Engineers (USACE) jurisdictional feature. (Ex. 301, pp. 4.2-9 - 4.2-12.)

Three erosional channels were identified in the project area. All three erosional channels in the project area result from direct runoff from the Kelso Substation. Three weakly expressed swales were also identified in the project area. Swales are not considered wetlands, but can serve as connections between a wetland and some other surface water feature. These features were all determined to be potentially USACE-jurisdictional features. (Ex. 301, pp. 4.2-12 - 4.2-13.)

The BBID Canal 45 is located at the northern end of the water supply pipeline route. The portion of the canal in the project area is routinely maintained and devoid of vegetation. The lower banks of the canal are characterized by cement rip rap. Canal 45 will supply service water to the project. (Ex. 301, p. 4.2-14.)

The power plant site and most of the linear facility alignments provide foraging, cover, and some nesting habitat for a variety of species. Mammals detected

during the 2009 surveys include California ground squirrel (*Spermophilus beecheyi*), black-tailed jackrabbit (*Lepus californicus*), and coyote (*Canis latrans*). California ground squirrel burrows can provide important refuge sites for special-status species, including species expected within the project area. The project site lacks shrubs and trees, but could provide nesting habitat for ground-nesting birds or birds that nest in bulrush or cattail, which are present along the water supply pipeline route. The project area provides foraging or roosting habitat for a variety of bird species; some of the species observed in the project area include mallard (*Anas platyrhynchos*), black-necked stilt (*Himantopus mexicanus*), long-billed curlew (*Numenius americanus*), marsh wren (*Cistothorus palustris*), loggerhead shrike (*Lanius ludovicianus*), red-winged blackbird, and lark sparrow (*Chondestes grammacus*). Raptors detected foraging or roosting at the site include burrowing owl (*Athene cunicularia*), American kestrel (*Falco sparverius*), red-tailed hawk (*Buteo jamaicensis*), golden eagle (*Aquila chrysaetos*), and northern harrier (*Circus cyaneus*). (Ex. 301, p. 4.2-14.)

## 3. Special Status Species

Biological Resources Table 1 lists special-status species that are known to occur or could potentially occur in the project area and vicinity.

**Biological Resources Table 1**
**Special-Status Species Potentially Occurring in Project Area**

| Scientific Name | Status | Habitat | Potential to occur in the Study Area |
|---|---|---|---|
| Plants | | | |
| *Amsinckia grandiflora*<br>large-flowered fiddleneck | FE, SE, G1, S1.1, List 1B.1 | Cismontane woodland, Valley and foothill grassland. Blooms April – May. | Low |
| *Amsinckia lunaris*<br>bent-flowered fiddleneck | G2, S2.2, List 1B.2 | Cismontane woodland, Valley and foothill grassland. Openly wooded or somewhat shaded slopes in the hills, 200 to 1500 feet, San Francisco Bay region; open woods. Blooms March – June. | Low |
| *Arctostaphylos auriculata*<br>Mt. Diablo manzanita | G2, S2.2, List 1B.3 | Chaparral, Cismontane woodland. Mount Diablo manzanita is endemic to Contra Costa County, where it occurs only on Mount Diablo and in the adjacent foothills. It is found between 700 and 1,860 feet above sea level. Blooms January – March. | Absent |
| *Astragalus tener* var. *tener*<br>alkali milk-vetch | G1T1, S1.1, List 1B.2 | Alkali playa, Valley and foothill grassland, Vernal pool, Wetland; Alkali sink, Freshwater wetlands, Wetland-riparian; Habitat includes Playas, Vernal-pools; usually occurs in Wetlands, but occasionally found in non wetlands. Blooms March – June. | Moderate |
| *Atriplex cordulata*<br>heartscale | G2?, S2.2?, List 1B.2 | Chenopod scrub, Meadow and seep, Valley and foothill grassland. Blooms April – October.<br>Observed in alkaline meadow north of PG&E Kelso Substation, just north of the project study area. | Present |

| Scientific Name | Status | Habitat | Potential to occur in the Study Area |
|---|---|---|---|
| *Atriplex depressa*<br>brittlescale | G2Q, S2.2,<br>List 1B.2 | Alkali playa, Chenopod scrub, Meadow and seep, Valley and foothill grassland, Vernal pool, Wetland. Blooms April – October. | Moderate |
| *Atriplex joaquiniana*<br>San Joaquin spearscale | G2, S2,<br>List 1B.2 | Chenopod scrub, Meadow and seep, Valley and foothill grassland. Blooms April – October. | Moderate |
| *Balsamorhiza macrolepis* var. *macrolepis*<br>big-scale balsamroot | G3G4T2,<br>S2.2,<br>List 1B.2 | Cismontane woodland, Ultramafic, Valley and foothill grassland. Blooms March – June. | Low |
| *Blepharizonia plumosa*<br>big tarplant | G1, S1.1, List 1B.1 | Valley and foothill grassland. Blooms July – October. | Moderate |
| *California macrophylla (=Erodium macrophyllum)*<br>Round-leaved filaree | CEQA, G3,<br>S3.1,<br>List 1B.1 | Cismontane woodland, Valley and foothill grassland; friable clay soils. Blooms March – May. | Moderate |
| *Calochortus pulchellus*<br>Mt. Diablo fairy-lantern | G2, S2.1, List 1B.2 | Chaparral, Cismontane woodland, Riparian woodland, Valley and foothill grassland. Blooms April – June. | Absent |
| *Carex comosa*<br>bristly sedge | G5, S2?, List 2.1 | Freshwater marsh, Marsh and swamp, Wetland. Blooms May – September. | Low |
| *Carex vulpinoidea*<br>brown fox sedge | G5, S2.2, List 2.2 | Marshes and swamps, Riparian woodland. Blooms May – June. | Low |
| *Caulanthus coulteri* var. *lemmonii*<br>Lemmon's jewel-flower | G4T2, S2.2,<br>List 1B.2 | Pinon and juniper woodlands, Valley and foothill grassland; dry, exposed slopes. Blooms March – May. | Low |
| *Centromadia parryi* ssp. *congdonii*<br>Congdon's tarplant | G4T3, S3.2,<br>List 1B.2 | Valley and foothill grassland. Blooms May – October (November). | Moderate |
| *Cordylanthus mollis* ssp. *hispidus*<br>hispid bird's-beak | G2T2, S2.1,<br>List 1B.1 | Alkali playa, Meadow and seep, Wetland. Blooms June – September. | Moderate |
| *Cordylanthus palmatus*<br>palmate-bracted bird's-beak | FE, SE, G1,<br>S1.1, List 1B.1 | Chenopod scrub, Meadow and seep, Valley and foothill grassland, Wetland. Blooms May – October. | Moderate |
| *Deinandra bacigalupii*<br>Livermore tarplant | G1, S1.2, List 1B.2 | Meadow and seep. Blooms June – October. | Moderate |
| *Delphinium californicum* ssp. *interius*<br>Hospital Canyon larkspur | G3T2?, S2?,<br>List 1B.2 | Chaparral, Cismontane woodland, Meadow and seep. Blooms April – June. | Low |
| *Delphinium recurvatum*<br>recurved larkspur | G2, S2.2, List 1B.2, | Chenopod scrub, Cismontane woodland, Valley and foothill grassland. Blooms March – June. | High |
| *Eryngium racemosum*<br>Delta button-celery | SE, G2Q,<br>S2.1,<br>List 1B.1 | Riparian scrub, Wetland. Blooms June – October. | Low |
| *Eschscholzia rhombipetala*<br>diamond-petaled California poppy | G1, S1.1, List 1B.1 | Valley and foothill grassland. Blooms March – April. | Moderate |
| *Fritillaria agrestis*<br>stinkbells | G3, S3.2, List 4.2 | Chaparral, Cismontane woodland, Ultramafic soils, Valley and foothill grassland. Blooms March – June. | Moderate |
| *Helianthella castanea*<br>Diablo helianthella | G3, S3.2, List 1B.2 | Broadleaved upland forest, Chaparral, Cismontane woodland, Coastal scrub, Valley and foothill grassland. Blooms March – June. | Moderate |
| *Hesperolinon breweri*<br>Brewer's Dwarf Flax | G2, S2.2, List 1B.2 | Chaparral, Cismontane woodland, Ultramafic, Valley and foothill grassland; dry hill or canyon sides, grassy open areas amongst oaks or brush, 400 to 1700 feet. Blooms May – July. | Low |
| *Hibiscus lasiocarpos* var. *occidentalis*<br>woolly rose-mallow | G4, S2.2, List 2.2 | Freshwater marsh, Marsh and swamp, Wetland. Moist, freshwater-soaked river banks and low peat islands in sloughs. In California, known from the delta watershed, 0 - 500 feet. Blooms June – September. | Low |
| *Isocoma arguta*<br>Carquinez goldenbush | G1, S1.1, List 1B.1 | Valley and foothill grassland. Alkaline soils, Flats, Lower hills. On low benches near drainages and on tops and sides of mounds in swale habitat. 1 to 70 feet. Blooms August – December. | Low |
| *Lasthenia conjugens*<br>Contra Costa goldfields | FE, G1, S1.1,<br>List 1B.1 | Cismontane woodland, Valley and foothill grassland, Vernal pool, Wetland. Blooms March – June. | Low |
| *Lathyrus jepsonii* var. *jepsonii*<br>Delta tule pea | G5T2, S2.2,<br>List 1B.2 | Freshwater marsh, Marsh and swamp, Wetland. Blooms May – July (September). | Low |

| Scientific Name | Status | Habitat | Potential to occur in the Study Area |
|---|---|---|---|
| *Lilaeopsis masonii*<br>Mason's lilaeopsis | Rare, G3, S3.1, List 1B.1 | Freshwater marsh, Marsh and swamp, Riparian scrub, Wetland. Blooms April – November. | Low |
| *Limosella subulata*<br>Delta mudwort | G4?Q, S2.1, List 2.1 | Brackish marsh, Freshwater marsh, Marsh and swamp, Riparian scrub, Wetland. Blooms May – August. | Low |
| *Madia radiata*<br>showy golden madia | G2, S2.1, List 1B.1 | Chenopod scrub, Cismontane woodland, Valley and foothill grassland. Blooms March – May. | Low |
| *Myosurus minimus* ssp. *apus*<br>little mousetail | G5T2Q, S2.2, List 3.1 | Vernal pools. Alkaline soils. 60 to 2100 feet. Blooms March – June.<br><br>*Myosurus minimus* found on Lee Property, east of transmission line alignment study area; this sub-species is not currently recognized as a distinct taxon. | Present (species) |
| *Navarretia nigelliformis* ssp. *nigelliformis*<br>adobe navarretia | G4T3, S3.2, List 4.2 | Valley and foothill grassland, Vernal pool. Occurs in heavy clay soils of vernal pools and other low, seasonally moist areas in grasslands (Hickman 1993). Adobe navarretia appears to be restricted to areas with a vernally moist, summer-dry hydrologic regime 300 to 3,300 feet. Blooms April – June. | Moderate |
| *Plagiobothrys glaber*<br>hairless popcorn-flower | GH, SH, List 1A | Marsh and swamp, Salt marsh, Vernal pool, Wetland. Blooms March – May. | Low |
| *Scutellaria galericulata*<br>marsh skullcap | G5, S2.2?, List 2.2 | Lower montane coniferous forest, Marsh and swamp, Meadow and seep, Wetland. Blooms June – September. | Low |
| *Senecio aphanactis*<br>chaparral ragwort | G3?, S1.2, List 2.2 | Cismontane woodland, Coastal scrub. Blooms January –April. | Low |
| *Symphyotrichum lentum*<br>Suisun Marsh aster | G2, S2, List 1B.2 | Brackish marsh, Freshwater marsh, Marsh and swamp, Wetland. Blooms May – November. | Low |
| *Trifolium depauperatum* var. *hydrophilum*<br>saline clover | G5T2?, S2.2?, List 1B.2 | Marsh and swamp, Valley and foothill grassland, Vernal pool, Wetland. Blooms April – June. | Low |
| *Tropidocarpum capparideum*<br>caper fruited tropidocarpum | G1, S1.1, List 1B.1 | Valley and foothill grassland. Blooms March – April. | Moderate |
| Reptiles and Amphibians | | | |
| *Actinemys marmorata*<br>western pond turtle | CSC | Aquatic, Artificial flowing waters, Klamath/North coast flowing waters, Klamath/North coast standing waters, Marsh and swamp, Sacramento/San Joaquin flowing waters, Sacramento/San Joaquin standing waters, South coast flowing waters, South coast standing waters, Wetland | Moderate |
| *Ambystoma californiense*<br>California tiger salamander | FT, ST | Cismontane woodland, Meadow and seep, Riparian woodland, Valley and foothill grassland, Vernal pool, Wetland | Presumed present |
| *Anniella pulchra pulchra*<br>silvery legless lizard | CSC | Chaparral, Coastal dunes, Coastal scrub | Low |
| *Masticophis flagellum ruddocki*<br>San Joaquin whipsnake | CSC | Chenopod scrub, Valley and foothill grassland | Low |
| *Masticophis lateralis euryxanthus*<br>Alameda whipsnake | FT, ST | Chaparral, Cismontane woodland, Coastal scrub, Valley and foothill grassland | Low |
| *Phrynosoma blainvillii*<br>coast horned lizard | CSC | Chaparral, Cismontane woodland, Coastal bluff scrub, Coastal scrub, Desert wash, Pinon and juniper woodlands, Riparian scrub, Riparian woodland, Valley and foothill grassland | Low |
| *Rana boylii*<br>foothill yellow-legged frog | CSC | Aquatic, Chaparral, Cismontane woodland, Coastal scrub, Klamath/North coast flowing waters, Lower montane coniferous forest, Meadow and seep, Riparian forest, Riparian woodland, Sacramento/San Joaquin flowing waters | Low |

| Scientific Name | Status | Habitat | Potential to occur in the Study Area |
|---|---|---|---|
| *Rana draytonii** California red-legged frog | FT, CSC | Aquatic, Artificial flowing waters, Artificial standing waters, Freshwater marsh, Marsh and swamp, Riparian forest, Riparian scrub, Riparian woodland, Sacramento/San Joaquin flowing waters, Sacramento/San Joaquin standing waters, South coast flowing waters, South coast standing waters, Wetland | Presumed present |
| *Spea hammondii* western spadefoot | CSC | Cismontane woodland, Coastal scrub, Valley and foothill grassland, Vernal pool, Wetland - requires sandy/gravely soils. | Low |
| *Thamnophis gigas* giant garter snake | FT, ST | Marsh and swamp, Riparian scrub, Wetland | Low |
| Mammals | | | |
| *Antrozous pallidus* pallid bat | CSC, WBWG-H | Chaparral, Coastal scrub, Desert wash, Great Basin grassland, Great Basin scrub, Mojavean desert scrub, Riparian woodland, Sonoran desert scrub, Upper montane coniferous forest, Valley and foothill grassland | Low |
| *Corynorhinus townsendii townsendii* Townsend's big-eared bat | CSC, WBWG-H | Broadleaved upland forest, Chaparral, Chenopod scrub, Great Basin grassland, Great Basin scrub, Joshua tree woodland, Lower montane coniferous forest, Meadow and seep, Mojavean desert scrub, Riparian forest, Riparian woodland, Sonoran desert scrub, Sonoran thorn woodland, Upper montane coniferous forest, Valley and foothill grassland | Low |
| *Eumops perotis californicus* western mastiff bat | CSC, WBWG-H | Chaparral, Cismontane woodland, Coastal scrub, Valley and foothill grassland | Low |
| *Lasiurus cinereus* hoary bat | WBWG-M | Broadleaved upland forest, Cismontane woodland, Lower montane coniferous forest, North coast coniferous forest | Low |
| *Perognathus inornatus inornatus* San Joaquin pocket mouse | -- | Coastal scrub, Valley and foothill grassland. Hawbecker (1951) found that the San Joaquin pocket mouse occurred on shrubby ridge tops and hillsides. Grinnell (1933) characterized the habitat as being open, sandy areas with grasses and forbs. (Zeiner et. Al. 1988-1990, updated date unk.) | Low |
| *Sylvilagus bachmani riparius* riparian brush rabbit | FE, SE | Riparian forest. *S. b. riparius* is found only at Caswell Memorial State Park on the Stanislaus River, San Joaquin Co. (Zeiner et al. 1988-1990, updated May 2000). | None |
| *Taxidea taxus* American badger | CSC | Alkali marsh, Alkali playa, Alpine, Alpine dwarf scrub, Bog and fen, Brackish marsh, Broadleaved upland forest, Chaparral, Chenopod scrub, Cismontane woodland, Closed-cone coniferous forest, Coastal bluff scrub, Coastal dunes, Coastal prairie, Coastal scrub, Desert dunes, Desert wash, Freshwater marsh, Great Basin grassland, Great Basin scrub, Interior dunes, Ione formation, Joshua tree woodland, Limestone, Lower montane coniferous forest, Marsh and swamp, Meadow and seep, Mojavean desert scrub, Montane dwarf scrub, North coast coniferous forest, Oldgrowth, Pavement plain, Redwood, Riparian forest, Riparian scrub, Riparian woodland, Salt marsh, Sonoran desert scrub, Sonoran thorn woodland, Ultramafic, Upper montane coniferous forest, Upper Sonoran scrub, Valley and foothill grassland. | Moderate |
| *Vulpes macrotis mutica* San Joaquin kit fox | FE, ST | Chenopod scrub, Valley and foothill grassland | Presumed present |
| Birds | | | |
| *Agelaius tricolor* tricolored blackbird | CSC, USFWS-BCC | Freshwater marsh, Marsh and swamp, Swamp, Wetland | Moderate |

| Scientific Name | Status | Habitat | Potential to occur in the Study Area |
|---|---|---|---|
| *Ammodramus savannarum*<br>Grasshopper sparrow (nesting) | CSC | Native grassland with mix of grasses and forbs for nesting and foraging | Moderate |
| *Aquila chrysaetos*<br>golden eagle | CFP, USFWS-BCC | Broadleaved upland forest, Cismontane woodland, Coastal prairie, Great Basin grassland, Great Basin scrub, Lower montane coniferous forest, Pinon and juniper woodlands, Upper montane coniferous forest, Valley and foothill grassland | Present (foraging) |
| *Ardea herodias*<br>great blue heron<br>(rookery site) | -- | Brackish marsh, Estuary, Freshwater marsh, Marsh and swamp, Riparian forest, Wetland | High (foraging) |
| *Asio flammeus*<br>Short-eared owl<br>(Nesting) | CSC | Usually found in open areas with few trees such as annual and perennial grasslands, prairies, dunes, wetlands, and irrigated lands. | Low |
| *Athene cunicularia*<br>burrowing owl | CSC, USFWS-BCC | Coastal prairie, Coastal scrub, Great Basin grassland, Great Basin scrub, Mojavean desert scrub, Sonoran desert scrub, Valley and foothill grassland | Present |
| *Buteo regalis*<br>ferruginous hawk | USFWS-BCC | Great Basin grassland, Great Basin scrub, Pinon and juniper woodlands, Valley and foothill grassland | Moderate (non-breeding) |
| *Buteo swainsoni*<br>Swainson's hawk | ST, USFWS-BCC | Great Basin grassland, Riparian forest, Riparian woodland, Valley and foothill grassland | High (foraging) |
| *Circus cyaneus*<br>northern harrier | CSC | Coastal scrub, Great Basin grassland, Marsh and swamp, Riparian scrub, Valley and foothill grassland, Wetland | Present (foraging) |
| *Elanus leucurus*<br>white-tailed kite | CFP | Cismontane woodland, Marsh and swamp, Riparian woodland, Valley and foothill grassland, Wetland | High (foraging) |
| *Eremophila alpestris actia*<br>California horned lark | WL | Variety of open habitat where trees and large shrubs are present. | Moderate (foraging) |
| *Falco mexicanus*<br>prairie falcon | USFWS-BCC | Great Basin grassland, Great Basin scrub, Mojavean desert scrub, Sonoran desert scrub, Valley and foothill grassland | Moderate (foraging) |
| *Lanius ludovicianus*<br>loggerhead shrike | CSC, USFWS-BCC | Broadleaved upland forest, Desert wash, Joshua tree woodland, Mojavean desert scrub, Pinon and juniper woodlands, Riparian woodland, Sonoran desert scrub | Present |
| *Laterallus jamaicensis coturniculus*<br>California black rail | ST, CFP, USFWS-BCC | Brackish marsh, Freshwater marsh, Marsh and swamp, Salt marsh, Wetland | None |
| *Xanthocephalus xanthocephalus*<br>Yellow-headed blackbird | CSC | Dense emergent wetland of cattails, tules, and other wetland plants, often along border of lake or pond. | Moderate |
| Invertebrates | | | |
| *Branchinecta conservatio*<br>Conservancy fairy shrimp | FE | Large, cool-water vernal pools with moderately turbid water | Low |
| *Branchinecta longiantenna*<br>*longhorn fairy shrimp* | FE | Valley and foothill grassland, Vernal pool, Wetland | Observed (*Branchinecta* sp.) |
| *Branchinecta lynchi*<br>*vernal pool fairy shrimp* | FT | Valley and foothill grassland, Vernal pool, Wetland | Observed (*Branchinecta* sp.) |
| *Branchinecta mesovallensis*<br>midvalley fairy shrimp | -- | Vernal pool, Wetland | Observed (*Branchinecta* sp.) |
| *Desmocerus californicus dimorphus*<br>valley elderberry longhorn beetle | FT | Riparian scrub | None |
| *Hygrotus curvipes*<br>curved-foot hygrotus diving beetle | -- | Aquatic | Low |
| *Lepidurus packardi*<br>vernal pool tadpole shrimp | FE | Vernal pool wetlands | Low |

| Scientific Name | Status | Habitat | Potential to occur in the Study Area |
|---|---|---|---|
| *Linderiella occidentalis*<br>California linderiella | -- | Vernal pool | Moderate |
| *Lytta molesta*<br>molestan blister beetle | -- | Vernal pool, Wetland | Moderate |
| *Perdita scitula antiochensis*<br>Antioch andrenid bee | -- | Interior dunes | None |
| Fishes | | | |
| *Acipenser medirostris*<br>green sturgeon | FT | Aquatic, Klamath/North coast flowing waters, Sacramento/San Joaquin flowing waters | Absent |
| *Hypomesus transpacificus**<br>*delta smelt* | FT, SE | Aquatic, Estuary | Absent |
| *Oncorhynchus mykiss**<br>*steelhead (Coastal, Central Valley)* | FT | Aquatic | Absent |
| *Oncorhynchus tshawytscha*<br>Central Valley spring-run,<br>winter-run chinook salmon | FT (spring run)<br>FE (winter run) | Aquatic, Sacramento/San Joaquin flowing waters | Absent |

(Ex. 301, pp. 4.2-15 to 4.2-21.)

* Status Legend:

"—" on CDFG's Special Animals List (CDFG 2009) but without other status tracked in this table.

Federal FE = Federally listed endangered: species in danger of extinction throughout a significant portion of its range.
FT = Federally listed, threatened: species likely to become endangered within the foreseeable future.
BCC = Fish and Wildlife Service: Birds of Conservation Concern: identifies migratory and non-migratory bird species (beyond those already designated as federally threatened or endangered) that represent highest conservation priorities <www.fws.gov/migratorybirds/reports/BCC2002.pdf>

State CSC = California Species of Special Concern: species of concern to CDFG because of declining population levels, limited ranges, and/or continuing threats have made them vulnerable to extinction.
CFP = California Fully Protected.
SE = State-listed as Endangered.
ST = State-listed as Threatened.
SCE = State candidate for listing as Endangered.
Rare = State listed as rare.
WL = State watch list.

Western Bat Working Group

WBWG-H = High Priority are imperiled or are at high risk of imperilment based on available information on distribution, status, ecology and known threats.
WBWG-M = Medium Priority medium risk of imperilment based on available information on distribution, status, ecology and known threats.

California Native Plant Society (Plants only)

List 1B = Rare, threatened, or endangered in California and elsewhere.
List 2 = Rare, threatened, or endangered in California but more common elsewhere.
List 3 = Plants which need more information.
List 4 = Limited distribution – a watch list.
0.1 = Seriously threatened in California (high degree/immediacy of threat).
0.2 = Fairly threatened in California (moderate degree/immediacy of threat).
0.3 = Not very threatened in California (low degree/immediacy of threats or no current threats known).

Global Rank/State Rank (Included for plants only)

Global rank (G-rank) and State rank (S-rank) is a reflection of the overall condition of an element throughout its global (or State) range. Subspecies are denoted by a T-Rank; multiple rankings indicate a range of values. State rank (S-rank) is assigned much the same way as the global rank, except state ranks in California often also contain a threat designation attached to the S-rank. An H-rank indicates that all sites are historical.

G1 or S1 = Critically imperiled; Less than 6 viable element occurrences (EOs) OR less than 1,000 individuals.

G2 or S2 = Imperiled; 6-20 EOs OR 1,000-3,000 individuals.

G3 or S3 = Rare, uncommon or threatened, but not immediately imperiled; 21-100 EOs OR 3,000-10,000 individuals.

G4 or S4 = Not rare and apparently secure, but with cause for long-term concern; this rank is clearly lower than G3 but factors exist to cause some concern; i.e., there is some threat, or somewhat narrow habitat.

G5 or S5 = Demonstrably widespread, abundant, and secure.

Q = Questionable taxonomy that may reduce conservation priority.

H = Possibly extinct

? = Inexact numeric rank

Threat Rank

T/ .1 = very threatened

T/.2 = threatened

T/.3 = no current threats known

Definitions Regarding Potential Occurrence:

| | |
|---|---|
| Present: | Species or sign of its presence observed on the site |
| High: | Species or sign not observed on the site, but reasonably certain to occur on the site |
| Moderate: | Species or sign not observed on the site, but conditions suitable for occurrence |
| Low: | Species or sign not observed on the site, conditions marginal for occurrence |
| Absent: | Species or sign not observed on the site, conditions unsuitable for occurrence |

## 4. Sensitive Habitats

### a. Critical Habitat

Critical habitat is a specific geographic area that contains features essential for the conservation of a threatened or endangered species and that may require special management and protection. Under § 7 of the Endangered Species Act, federal agencies (USACE in this project) are required to consult with the United States Fish and Wildlife Service (USFWS) on actions they carry out, fund, or authorize to ensure that their actions will not destroy or adversely modify critical habitat. The majority of the project is located within California red-legged frog Critical Habitat Unit CCS-2B. In the Biological Opinion, USFWS will address the effects of the project including compensation on the primary constituent elements in the CCS-2B Critical Habitat Unit, and on the ability of this unit to function. Impacts to critical habitat would include habitat loss and disturbance, including both temporary and permanent impacts. Primary constituent elements of critical habitat specific to California red-legged frogs include standing bodies of fresh water, seasonal freshwater pond and stream habitats, upland areas adjacent to

riparian habitat up to a distance of 1 mile, and dispersal habitats, which may be natural or altered habitats such as agricultural fields, that do not contain barriers (e.g., heavily traveled roads without bridges or culverts) to dispersal. (Ex. 300, pp. 4.2-7 - 4.2-8.)

b. East Contra Costa Habitat Conservation Plan and Natural Community Conservation Plan

The water supply pipeline route enters into eastern Contra Costa County, which is within the plan area for the East Contra Costa Habitat Conservation Plan and Natural Community Conservation Plan (ECCCHCP/NCCP). The ECCCHCP/NCCP provides a coordinated, regional approach to conservation and regulation. The Final ECCCHCP/NCCP was published in October 2007; implementation of the ECCCHCP/NCCP allows the permittees to control endangered species permitting for activities and projects in the permit area while providing comprehensive species, wetlands, and ecosystem conservation. Within Contra Costa County, the water supply pipeline route is along or adjacent to Bruns Road, or along an agricultural road. The evidence suggests that this is not sensitive habitat, and impacts will be mitigated with the rest of the MEP impacts, so the segment of the water supply pipeline within Contra Costa County is not subject to the ECCCHCP/NCCP. (Ex. 301, p. 4.2-7.)

5. MEP Impacts and Mitigation

a. Power Plant Site

The project site will permanently affect 10.1 acres and temporarily affect 24.2 acres of habitat, including annual grassland, wetlands and ephemeral drainages, and agricultural land. Of the 24.2 acres of temporary impacts, 12.1 acres will be disturbed by construction parking, temporary laydown, and cut and fill for the laydown and access road. This area will be disturbed for an entire breeding season, and therefore requires the same compensation levels as permanent impacts. (Ex. 301, p. 4.2-29.)

**Impacts to Wetlands and Waters**

There will be impacts to the multiple wetlands and other waters within the project vicinity, including ephemeral drainages, seasonal wetlands, alkali meadow, erosional ditches, and swales. Direct impacts include permanent impacts to the entire 0.018-acre seasonal wetland north of the MEP site, along the access road disturbance route; permanent impacts to a 0.0008-acre area of an irrigation

canal; temporary impacts to a 0.0004-acre area of an unvegetated streambed, and; temporary impacts to 0.0008-acre of alkali sink wetland. Other impacts could result from erosion, sedimentation, and discharge of contaminated water into drainages or wetlands. (Ex. 301, p. 4.2-32.)

These direct and indirect impacts are significant impacts to potentially jurisdictional wetlands and other waters. Condition of Certification **BIO-9** (Special-status Invertebrates Impact Avoidance, Minimization, and Mitigation Measures) provides impact avoidance and minimization measures (such as establishing buffer zones, and timing of work) and Condition of Certification **BIO-16** provides mitigation ratio requirements for the permanent impacts to the seasonal wetland. Although, the Alameda County General Plan – East County Area Plan (ECAP) Policy No. 126 calls for “no net loss” of wetlands within the county, the evidence indicates that the county will accept out of county mitigation if it is the highest quality mitigation option. We find the combination of Condition of Certification **BIO-9** and Condition of Certification **BIO-16** will reduce these impacts below a level of significance. (Ex. 301, pp. 4.2-32 - 33.)

Further, Conditions of Certification **BIO-17** (Waters and Wetlands Impact Avoidance and Minimization Measures) and **BIO-18** (Revegetation and Restoration Plan) establish measures to avoid and minimize impacts to the remaining wetlands and waters. These conditions include measures to protect waterways from pollutants including sediment, establish buffer zones, and install erosion control, as well as measures directing revegetation, topsoil storage and use. Implementation of Conditions of Certification **BIO-7, BIO-9, BIO-16, BIO-17,** and **BIO-18** reduce impacts to these resources below a level of significance. The USACE must issue a permit for impacts to waters of the United States from this project before the MEP can be constructed. (Ex. 301, p. 4.2-33.)

The water supply line route will cross several culverts associated with drainages or roadside ditches. Underground tunneling to install the water supply pipeline under these culverts could affect sensitive aquatic habitat and species. This impact is a concern if the project owner utilizes Horizontal Directional Drilling, which would require the lubricant bentonite. Condition of Certification **BIO-17** provides a measure to avoid and minimize this impact. This measure would be triggered by the use of bentonite, and requires an Emergency Spill Response Plan and other monitoring plans. With implementation of this Condition of Certification, this impact will be reduced below a level of significance. (Ex. 301, p. 4.2-33.)

**Impacts to Special Management Areas**

The Byron Conservation Bank is immediately west of a segment of the water supply pipeline route. All project construction must be constrained to the east side of Bruns Road. Potential direct impacts to species moving in and out of the conservation bank are addressed by implementation of workers environmental awareness training contained in Condition of Certification **BIO-5** and of wet-season monitoring and other protective measures contained in Condition of Certification **BIO-10**. Indirect impacts, such as impacts from noise, lighting, and traffic could occur but are mitigated with the implementation of Conditions of Certification **BIO-7**. Condition of Certification **BIO-10** ensures that significant impacts to special status amphibians are avoided. (Ex. 301, pp. 4.2-49 - 4.2-50.)

The project is located within the CCS-2B Critical Habitat Unit for California red-legged frog, and will impact habitat, including primary constituent elements of this species' habitat. Impacts include loss of upland habitat, disturbance of aquatic non-breeding habitat, and loss and disturbance of dispersal habitat. Conditions of Certification **BIO-7** and **BIO-17** include measures to minimize off-site impacts. **BIO-10** includes measures to avoid impacts to California red-legged frog habitat, and **BIO-16** provides for compensatory mitigation for impacts to habitat. With implementation of these Conditions of Certification, impacts to critical habitat will be minimized. These conditions along with the acquisition of and compliance with a Biological Opinion and Incidental Take Statement will reduce impacts below a level of significance. (Ex. 301, p. 4.2-50.)

**Impacts to Special-status Species**

The MEP site provides breeding, cover, foraging, and dispersal habitat for many wildlife species including several special-status wildlife species, and potential habitat for special-status plant species. Conditions of Certification **BIO-1**, **BIO-2**, **BIO-3**, **BIO-4**, **BIO-5**, **BIO-6**, and **BIO-7** impose general measures that apply to both plants and wildlife and reduce the impacts from this project. (Ex. 301, p. 4.2-34.)

***Special-status Invertebrates* (Federal Endangered, Federal Threatened)**

There are three seasonal wetlands within the project disturbance area, and a *Branchinecta* species was observed within one of these wetlands. An additional unidentified branchiopod was observed in a swale near, but not within, the project disturbance area. The record indicates that the Applicant has opted to presume the presence of special-status branchiopods. The seasonal wetland in

which the *Branchinecta* was observed is a small seasonal wetland located south of the Byron Cogen Power Plant, within 250 feet of the power plant site disturbance area. This entire seasonal wetland (0.018 acres) will be permanently affected by power plant site construction. In addition to the occupied seasonal wetland near the power plant site disturbance area, there is additional habitat along the transmission line corridor. Special-status branchiopods and habitat could be subject to indirect impacts from project-related erosion, sedimentation, or contamination from construction materials or equipment. These impacts to federally listed branchiopods would be significant. Condition of Certification **BIO-9** (Special-status Invertebrate Impact Avoidance and Minimization Measures) establishes a construction buffer and a seasonal work window to minimize the risk of these adverse impacts. Condition of Certification **BIO-16** requires the project owner to purchase compensatory wetlands for the branchiopods at a 3:1 ratio and Condition of Certification **BIO-17** imposes waters and wetlands impact avoidance and minimization measures. Implementation of Condition of Certification **BIO-9**, as well as **BIO-16** and **BIO-17**, will reduce impacts to federally listed branchiopods below a level of significance. (Ex. 301, p. 4.2-34.)

***San Joaquin Kit Fox* (Federally Endangered, State Threatened)**

The evidence indicates that no San Joaquin kit fox, natal dens, or burrows were observed on the project site during den and other site surveys. Still, the project is within this species' range and ground squirrel burrows provide an opportunity for this species to establish dens in the future. Therefore, the construction of this project will result in the loss of suitable foraging and potential breeding habitat for this species. If present on the project site during construction, San Joaquin kit fox could be killed by heavy equipment or ground disturbance could entomb them within a den. Construction activities could also result in disturbance or harassment of individuals. These impacts to a federally- and state-listed species are significant. The record contains several impact avoidance, minimization, and mitigation measures, such as exclusion zones, speed limits, and measures to avoid attracting San Joaquin kit fox and to allow individuals on the site to safely escape. Condition of Certification **BIO-14** (San Joaquin Kit Fox Impact Avoidance and Minimization Measures) requires that a qualified biologist perform a pre-construction survey for San Joaquin kit fox dens in the project area, including areas within 200 feet of all project facilities, utility corridors, and access roads. Condition of Certification **BIO-14** also includes impact and avoidance measures if San Joaquin kit fox or their dens are found, such as establishing exclusion zones, methods for den destruction, speed limits, escape routes, and other measures to minimize harassment or other disturbance. Condition of Certification

**BIO-14** and the general avoidance and mitigation measures in Condition of Certification **BIO-7** minimize habitat disturbance and reduce impacts from construction and operation of the MEP. (Ex. 301, p. 4.2-35.)

The project will permanently remove approximately 10.1 acres of foraging and denning habitat for San Joaquin kit foxes and would fragment and reduce the value of foraging and denning habitat adjacent to the project site. An additional 12.1 acres will be lost to this species for longer than one breeding season. The project is within the northern part of the San Joaquin kit fox range, which is heavily threatened by habitat loss and fragmentation. Condition of Certification **BIO-16**, requires acquisition of compensatory mitigation land at a 3:1 ratio to minimize impacts due to loss of habitat. We find, therefore, that Condition of Certification **BIO-7, BIO-14** and **BIO-16** reduce impacts from construction and operation of the MEP below the level of significance. (Ex. 301, p. 4.2-35.)

***American Badger* (California Species of Special Concern)**

American badgers were not detected on the project site, but the site includes moderately suitable foraging and denning habitat for this species. The American badger is protected under Title 14, California Code of Regulations sections 670.2 and 670.5, and potential impacts to individuals of this species must be mitigated to less-than-significant levels. Construction of the project could kill or injure American badgers by crushing them with heavy equipment or could entomb them within a den. Construction activities could also result in disturbance or harassment of individuals. These impacts are considered significant. The record contains several impact avoidance, minimization, and mitigation measures, such as pre-construction surveys and protective buffers. Condition of Certification **BIO-13** (American Badger Impact Avoidance and Minimization) requires that a qualified biologist perform a pre-construction survey for badger dens in the project area, including areas within 200 feet of all project facilities, utility corridors, and access roads, and provides avoidance measures if a den is detected. Implementation of **BIO-13** will reduce impacts to this species below a level of significance. (Ex. 301, p. 4.2-36.)

***California Red-legged Frog* (Federally Threatened, California Species of Special Concern)**

The MEP is located within California red-legged frog Critical Habitat Unit CCS-2B, and there are multiple records for this species within one mile of the MEP including one record on the project parcel. The water supply pipeline route

crosses the drainage known to support California red-legged frogs and other drainages that may provide suitable breeding, dispersal, and cover habitat. Construction of this project will result in the loss of suitable dispersal and upland refugia habitat and disturbance to dispersal habitat for this species. This impact will be significant. Implementation of Condition of Certification **BIO-16**, Compensatory Mitigation, will minimize impacts from habitat loss. (Ex. 301, p. 4.2-36.)

If present on the project site during construction, California red-legged frogs could be killed by heavy equipment. Adults seeking cover in burrows within the boundaries of the exclusion fence could be crushed or entombed during grading, cut and fill activities, or other ground disturbance. Adults seeking cover in burrows within the linear routes could be crushed or entombed during trenching or monopole installation; or transmission line maintenance traffic. Construction activities could also result in disturbance or harassment of individuals and increase the risk of predation. These impacts would be significant. The record contains several impact avoidance, minimization, and mitigation measures, such as pre-construction surveys, on-site biological monitors, worker education, exclusionary fencing, and protective buffers. These measures are contained in conditions of certification. Condition of Certification **BIO-10** includes measures to avoid potential burrows, install exclusionary fencing, conduct clearance surveys, delineate work areas for linear routes, limit off-road access, limit construction and construction activity in the wet season, and minimize access to the power plant site by this species. Conditions of certification **BIO-10** and **BIO-16,** as well as measures in **BIO-7** (such as measures to limit habitat disturbance, to avoid attracting predators, and provide for on-site Biological Monitors) minimize impacts from this project below a level of significance. (Ex. 301, pp. 4.2-36 - 37.)

***California Tiger Salamander* (Federally Threatened, State Threatened)**

There are multiple California tiger salamander breeding sites in close proximity to the MEP, including a site within approximately 100 feet of the water supply pipeline disturbance area. In addition, the water supply pipeline route crosses drainages that may provide suitable dispersal and cover habitat. Construction of MEP will result in the loss of suitable dispersal and upland subterranean burrow habitat and disturbance to subterranean burrowing, dispersal, and potential breeding habitat for this species. These impacts would be significant. Implementation of Condition of Certification **BIO-16**, which requires acquisition of compensatory mitigation land, will minimize impacts from loss of habitat. (Ex. 301, p. 4.2-37.)

Heavy equipment could kill or injure California tiger salamanders during construction by crushing them in subterranean burrows within the boundaries of the exclusion fence along linears during trenching or monopole installation and transmission line maintenance. Construction activities could also increase the risk of predation. These impacts would be significant. The record contains several impact avoidance, minimization, and mitigation measures, such as pre-construction surveys, on-site biological monitors, worker education, exclusionary fencing, and protective buffers. These measures are incorporated into conditions of certification, such as, Condition of Certification **BIO-10** which includes measures to avoid potential burrows, install exclusionary fencing, conduct clearance surveys, delineate work areas for linear routes, limit off-road access, limit construction and construction activity in the wet season, and minimize access to the power plant site by California tiger salamander. Conditions of Certification **BIO-10** and **BIO-7** include measures to limit habitat disturbance, avoid attracting predators, and to provide for on-site biological monitors, thereby mitigating impacts to California tiger salamander below a level of significance (Ex. 300, pp. 4.2-37 - 4.2-38.)

***Western Pond Turtle* (California Species of Special Concern)**

There are multiple California Natural Diversity Database (CNDDB) records of Western pond turtles in the project vicinity, and the water supply pipeline route will cross drainages that may provide suitable dispersal, cover, and foraging habitat. If present on the project site during construction, western pond turtles could be injured or killed by construction equipment. In addition, western pond turtles and habitat could be subject to indirect impacts from project-related erosion, sedimentation, or contamination from construction materials or equipment. The record contains several impact avoidance, minimization, and mitigation measures, such as pre-construction surveys, on-site biological monitors, avoidance, and exclusionary fencing. These measures are incorporated into Condition of Certification **BIO-11** (Western Pond Turtle Impact Avoidance and Minimization Measures) which provides for pre-construction surveys and relocation if western pond turtles are found. Implementation of this condition will ensure impacts to Western pond turtles remain below a level of significance. (Ex. 301, p. 4.2-38.)

***Western Burrowing Owl* (California Species of Special Concern)**

Western burrowing owls have been observed within the MEP site, within the laydown area, and near the natural gas line route. Five burrows, which comprised three burrowing owl territories, were observed adjacent to the project site during Phase III focused surveys completed in June and July of 2010. (Ex. 300, pp. 4.2-38 - 39.)

The potential for direct impacts to burrowing owl includes the loss of nest sites, eggs, and young (unless the birds are evicted prior to breeding season, before ground disturbance); permanent loss of breeding and foraging habitat; and disturbance of nesting and foraging activities for burrowing owls within the project site, buffer, or immediately surrounding area. Indirect impacts to burrowing owls during construction and operation can include increased road kill hazards, modifications to foraging and breeding activities, and loss of prey items and food sources due to a decreased number of fossorial mammals. (Ex. 301, p. 4.2-39.)

Burrowing owls present within the project disturbance area would need to be relocated prior to the nesting season to avoid direct impacts. The record indicates that there is much debate among state, federal, local, and private entities over the most practicable and successful relocation/translocation methods for burrowing owls. When passive relocation is used solely as an impact avoidance measure, it is generally only effective when burrowing owl nesting territories are directly adjacent to permanently protected lands (e.g. military reservation, airport, wildlife reserve, agricultural reserve with appropriate crop type such as alfalfa). Passive relocation has been criticized because relocated or displaced owls are tenacious about returning to their familiar burrows and are inclined to move back to the impact site if the impact site is still visible to the owl and/or if the impact site is not completely graded. Thus, many burrowing owls may die during passive relocations. (Ex. 301, p. 4.2-39.)

California Fish and Game Code § 3503.3 prohibits the active relocation of burrowing owls unless the effort is designed as a research project. The record supports implementation of passive relocation for burrowing owls present within the project disturbance area that need to be relocated to avoid direct impacts. The California Burrowing Owl Consortium guidelines state that offsite suitable habitat for use by burrowing owl must be acquired at one of the following ratios:

- Replacement of occupied habitat with occupied habitat at 9.75 acres (6.5 acres times 1.5 acres) per pair or single bird;

- Replacement of occupied habitat with habitat contiguous to currently occupied habitat at 13.0 (6.5 acres times 2) acres per single pair or single bird, or;

- Replacement of occupied habitat with suitable unoccupied habitat at 19.5 (6.5 acres times 3) acres per pair or single bird.

These ratios are not based on the amount of habitat known to be required by owls, but rather on a minimal buffer area thought to be necessary around a burrow to avoid disturbance from construction activities. The record indicates that this standard does not adequately compensate for habitat loss. In addition, CDFG has indicated they are moving away from recommending the ratios described above. (Ex. 301, p. 4.2-40.)

This species is a state and federal Species of Special Concern, in part because of declines in suitable habitat and population. The record supports the following compensatory mitigation:

- For impacts to foraging habitat, (no active burrows): Compensatory mitigation at a ratio of 2 acres for every 1 acre of habitat lost.

- For impacts to habitat with active burrows: Compensatory mitigation at a ratio of 2 acres for every 1 acre of habitat lost. In addition, if mitigation is fulfilled by acquisition, the acquisition lands must support double the number of owls displaced by the project. If mitigation is fulfilled by purchasing credits in a conservation bank, the same ratio applies but the lands would be presumed to support a sufficient number of owls. (An "active" burrow means any burrow active within the last three years; an active burrow is known to occur in the laydown area). (Ex. 301, pp. 4.2-40 - 41.)

Condition of Certification **BIO-12** (Burrowing Owl Impact Avoidance, Minimization, and Mitigation Measures) requires a pre-construction survey to determine the current number of owls occupying the project disturbance area and surrounding buffer area. Condition of Certification **BIO-12** recommends avoidance and minimization measures to protect owls nesting near but not within the project disturbance area. Implementation of this condition minimizes impacts to this species, and implementation of **BIO-16** requires compensatory mitigation for habitat loss. Implementation of these measures will reduce impacts to this species below a level of significance. (Ex. 301, p. 4.2-41.)

***Swainson's Hawk* (State Threatened)**

MEP grasslands provide Swainson's hawk foraging habitat, and construction of the project will result in the permanent loss of approximately 10.1 acres, and long-term loss of 12.1 acres of this habitat. In addition, certain construction activities within 1/2 mile of an active nest during the breeding season (March 1 - September 15) could cause nest abandonment or forced fledging. Mitigation ratios suggested by CDFG to address foraging habitat loss are outlined in the *Staff Report regarding Mitigation for Impacts to Swainson's Hawks (*Buteo swainsoni*) in the Central Valley of California* (CDFG 1994):

- Projects within one mile of an active nest shall provide one acre of habitat management land for each acre of development authorized (1:1 ratio) or one-half acre of habitat management land for each acre of development authorized (0.5:1 ratio) if lands are actively managed for prey production;

- Projects within 5 miles of an active nest tree but greater than 1 mile from the nest tree shall provide 0.75 acres of habitat management land for each acre of urban development authorized (0.75:1 ratio), and;

Projects within 10 miles of an active nest tree but greater than 5 miles from an active nest tree shall provide 0.5 acres of habitat management land for each acre of urban development authorized (0.5:1 ratio). (Ex. 301, p. 4.2-41.)

CDFG considers active nests to be those used at least once in the past five years. There is a Swainson's hawk nest approximately 0.25 mile from the MEP site, and there are several nests recorded in the CNDDB within five miles of the project site that are presumed extant. Condition of Certification **BIO-15** (Swainson's Hawk Impact Avoidance, Minimization, and Mitigation Measure) specifies pre-construction surveys and directs the project owner to follow impact avoidance and minimization measures recommended by CDFG. The impact avoidance and minimization measures in the report include limiting new disturbances within specified buffers, and timing if the disturbance cannot be avoided. Implementation of Condition of Certification **BIO-15**, along with the compensatory mitigation contained in Condition of Certification **BIO-16,** will reduce impacts to this species below a level of significance. (Ex. 301, pp. 4.2-41 - 42.)

***Golden Eagle* (California Fully Protected, Bird of Conservation Concern)**

The record shows that Golden eagles can be extremely susceptible to disturbance during the breeding season, and adverse effects are possible from

various human activities up to (and in some cases exceeding) one mile from a nest site. While Golden eagles are known to occur in the region and have been observed foraging on the project site, the closest known nest is approximately 4 1/2 miles west of the project site. (Ex. 301, p. 4.2-42.)

Recent guidance from the USFWS Migratory Bird Office (MBO) indicates that if a nest is within up to 2 miles (depending on topography) of the MEP, construction could cause disturbance to Golden eagles. The Applicant conducted a survey of the project vicinity, and did not detect any potential Golden eagles nests within the line-of-sight of the project. (Ex. 301, p. 4.2-42.)

The MEP will contribute to the loss of foraging habitat for this species. Implementation of Condition of Certification **BIO-16**, Compensatory Mitigation, provides for habitat compensation for several special-status species (such as upland habitat for California tiger salamander and California red-legged frog, San Joaquin kit fox, and western burrowing owl) at a 3:1 mitigation ratio. The compensatory mitigation habitat required for these species is also Golden eagle foraging habitat. Implementation of Condition of Certification **BIO-16** ensures impacts to Golden eagles are less than significant. (Ex. 301, pp. 4.2-42 - 43.)

***Special-status and Migratory Birds***

Special-status and migratory birds will be affected by the permanent and long-term temporary loss of nesting, overwintering, and foraging habitat. Several special-status or migratory species, such as loggerhead shrike and white-tailed kite breed in the region, but would not breed on the site due to lack of suitable habitat. Other species, such as ferruginous hawk, would not breed in the region but may use the site as overwintering habitat or during migration. Ground or marsh nesting birds, such as grasshopper sparrow or marsh wren, may use the site for breeding. Condition of Certification **BIO-16**, Compensatory Mitigation, reduces impacts from loss of habitat for these species to below a level of significance. (Ex. 301, p. 4.2-43.)

The loss of active bird nests or young is regulated by the federal Migratory Bird Treaty Act and Fish and Game Code section 3503, which protects active nests or eggs of California birds. Condition of Certification **BIO-7** limits disturbance off-site. Condition of Certification **BIO-8** contains impact avoidance and minimization measures and requires pre-construction bird surveys and buffers if nests are found. Implementation of conditions of certification avoids direct impacts to nests, eggs, or young of migratory birds, and reduces the impacts from construction

disturbance to resident and migratory birds below a level of significance. (Ex. 301, p. 4.2-43.)

***Special-status Plants***

No special-status plants were observed within the MEP disturbance area, though one species, heartscale, was observed immediately adjacent to the transmission line route. Heartscale is a California Native Plant Society (CNPS) List 1B.2 species and a California endemic. Plants of List 1B are rare, threatened, or endangered in California but more common elsewhere, and plants with a 0.2 rating are considered fairly threatened in California. All of the plants on List 1B meet the criteria for protection under § 1901, Chapter 10 (Native Plant Protection Act) or §§ 2062 and 2067 (California Endangered Species Act) of the California Department of Fish and Game Code, and are eligible for state listing. Therefore, impacts to this species are considered significant. Potential direct impacts to this plant include accidental harm during construction or maintenance; alteration of drainage patterns during construction or maintenance; alteration of water quality from construction or maintenance activities; impact from herbicide drift; spread of noxious weeds; and, disruption of photosynthesis and other metabolic processes from fugitive dust during construction or maintenance. (Ex. 301, p. 4.2-43.)

An additional species, little mousetail, was found within the project vicinity. The subspecies *Myosurus minimus* ssp. *apus* is a CNPS List 3.1 species. Some of the plants constituting List 3 meet the criteria for protection under section 1901, Chapter 10 (Native Plant Protection Act) or Sections 2062 and 2067 (California Endangered Species Act) of the California Department of Fish and Game Code, and are eligible for state listing, and therefore List 3 plants should be evaluated for consideration during preparation of environmental documents relating to CEQA. In addition to these species found during project surveys, adjacent habitat, such as the alkali sink wetland east of the water supply route, is known to provide habitat for several special-status plant species including recurved larkspur. Impact avoidance and minimization measures contained in Conditions of Certification **BIO-7**, **BIO-17**, and the revegetation and restoration plan contained in Condition of Certification **BIO-18** protect adjacent habitat, off-site special-status plant species, and water quality, such as limiting off-road disturbance, establishing buffer zones to protect resources, and prevention of the introduction of sediment and other pollutants into waterways. We find that implementation of Conditions of Certification **BIO-7**, **BIO-17**, and **BIO-18** reduce impacts to special-status plant species to less-than-significant levels. (Ex. 301, p. 4.2-44.)

**Construction Traffic, Lighting, and Noise**

During peak construction, traffic will more than double along Bruns Road between Kelso Road and Christenson Road; from 286 to 622 Average Annual Daily Trips (see the **Traffic and Transportation** section of this Decision for more information). Traffic will also increase on Bruns Road adjacent to the Byron Conservation Bank, which provides habitat for several species that will be vulnerable to impacts from increases in traffic, such as direct mortality from vehicles. Conditions of Certification **BIO-7** and **BIO-10** include measures to minimize impacts from construction traffic, such as restricting off-road access, defining work areas, requiring protective buffers, and requiring wet-season monitoring when construction traffic would arrive or depart before dawn or after dusk. Implementation of these conditions will reduce impacts from construction traffic below a level of significance. (Ex. 301, p. 4.2-44.)

Noise and construction activities during construction could temporarily displace wildlife from foraging and nesting in the project area and vicinity. Conditions of Certification **VIS-3** and **BIO-7** limit the amount of light from construction that is shed off-site, and **BIO-7** and **BIO-8** requires pre-construction surveys and protective buffers if nests are found. Implementation of these conditions will reduce impacts from construction noise and lighting below a level of significance. (Ex. 301, p. 4.2-45.)

**Operation Impacts and Mitigation**

Potential operation-related impacts include impacts to birds due to collision with and/or electrocution by the transmission line, disturbance to wildlife due to increased noise and lighting, and impacts to special-status plant and wildlife through impacts to habitat disturbance from maintenance activities. (Ex. 301, p. 4.2-45.)

**Avian Collision and Electrocution**

The MEP will include four 80-foot tall stacks and a new 0.7-mile 230-kV transmission line.

***Collision***

Birds are known to collide with transmission lines, exhaust stacks, and other structures, causing mortality to the birds. Bird collisions with power lines and structures generally occur when a power line or other structure transects a daily

flight path used by a concentration of birds and these birds are traveling at reduced altitudes and encounter tall structures in their path. Collision rates generally increase in low light conditions, during inclement weather, during strong winds, and during panic flushes when birds are startled by a disturbance or are fleeing danger. Collisions are more probable near wetlands, within valleys that are bisected by power lines, and within narrow passes where power lines run perpendicular to flight paths; aside from the wetland, these features are not present near the project area. The wetland in the project vicinity is north of the transmission line, and north of an existing substation. (Ex. 301, pp. 4.2-45 - 46.)

The four exhaust stacks will be approximately 80 feet tall, placed in a small valley next to existing transmission lines. The 230-kV transmission line monopoles range in height from 84 to 95 feet. Structures over 500 feet tall present a greater risk to migratory birds than shorter structures; bird mortality is significantly lower at towers shorter than 350 feet. Because the project exhaust stacks and transmission lines will be significantly shorter than 350 feet tall, these project features pose a relatively low height-related collision risk to migrating birds. We find the MEP structures do not pose a significant collision threat to resident or migratory bird populations. (Ex. 301, pp. 4.2-45 - 46.)

***Electrocution***

Raptors, and other large aerial perching birds, including those accorded state and/or federal protection, are susceptible to transmission line electrocution if they simultaneously contact two energized phase conductors or an energized conductor and grounded hardware. This happens most frequently when a bird attempts to perch on a transmission tower or pole with insufficient clearance between these energized elements. The majority of bird electrocutions are caused by lines that are energized at voltage levels between 1-kV and 60-kV, and the likelihood of electrocutions occurring at voltages greater than 60-kV is low because phase-to-phase and phase-to-ground clearances for lines greater than 60-kV are typically sufficient to prevent bird electrocution. The MEP transmission line would be 230-kV; therefore, phase-to-phase and phase-to-ground clearances are expected to be sufficient to minimize bird electrocutions. (Ex. 301, pp. 4.2-46 - 4.2-47.)

Condition of Certification **BIO-7** specifies that all electrical components of the project, including transmission lines, be designed, installed, and maintained in accordance with the Avian Power Line Interaction committee (APLIC), *Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 2006* to reduce the likelihood of electrocutions of large birds. Among other requirements, these guidelines require that the phase conductors be separated by a minimum

of 60 inches and bird perch diverters and/or specifically designed avian protection materials be used to cover electrical equipment where adequate separation is not feasible. Implementation of Condition of Certification **BIO-7** ensures that significant impacts from electrocution will be avoided. (Ex. 301, p. 4.2-47.)

**Thermal Plumes**

The MEP is a gas-fired peaker power plant that, during operation, will emit high velocity thermal plumes from four 80-foot high exhaust stacks (for more information, see the **Traffic and Transportation** section of this Decision). The project will only generate a plume during operation, which is projected to be approximately 600 hours annually, although the MEP will be permitted to operate for up to 4,000 hours annually. In a data request to the applicant, the Contra Costa Airport Land Use Commission posed three questions related to avian interactions with the thermal plume: 1) would birds be diverted away from the power plant by the thermal plume, and would such a diversion concentrate birds near the main runway approach path to the Byron Airport; 2) would birds of prey try to ride the rising plume; and 3) would the plume kill small birds, upon which birds of prey would feed? Additionally, further questions focused on whether ravens would be attracted to the power plant site because of the thermal plume. (Ex. 301, p. 4.2-47.)

The record indicates that birds would not be diverted by the thermal plume to such an extent that they would concentrate birds near the Byron Airport approach path, which is approximately 1 mile away. Instead, birds would be expected to minimally alter their flight path around the plume, but continue on the same overall flight path. There is no evidence in the record to suggest that the thermal plume will result in direct mortality to small birds. (Ex. 301, p. 4.2-47.)

The record indicates that both raptors and ravens may use the thermal plume to gain lift, however there are several features of both the region and the MEP that make it unlikely that the thermal plume would serve to attract birds to the area. The region, in general, has naturally occurring updrafts, so this plume would provide neither a unique nor an unusual feature in the landscape. The project is within a wind resource area; under typical conditions wind would serve to dissipate plume buoyancy. As a peaker, one of the typical times the power plant would be expected to run (hot afternoons) is the time when wind is usually higher. Because this plume will be neither a consistent nor unique feature of the landscape, it is unlikely to attract birds to the area. A power plant near Anchorage, Alaska is known to attract ravens. The reason this power plant

attracts ravens appears to be because it is between the night roost site and Anchorage (where the ravens spend their days) and provides a powerful updraft. This situation does not correspond to the MEP site because the thermal plume will not be a consistent resource and there is no evidence indicating that the plume lies on a well used path between raven roosting and foraging sites. (Ex. 301, pp. 4.2-72 - 4.2-48.)

**Nitrogen Deposition**

Nitrogen deposition is the input of nitrogen oxide (NOx) and ammonia (NH3) derived pollutants from the atmosphere to the biosphere. Nitrogen deposition can lead to impacts to sensitive species from direct toxicity, changes in species composition among native plants, and enhancement of invasive species. The nearest occurrences of nitrogen-limited habitat in the region are serpentine outcrops along Bald Ridge in the Mount Diablo State Park located approximately 20 miles west of the MEP site. The project site is located in an area with predominantly westerly prevailing winds, and therefore this habitat will not be affected by the project operations due to both the distance and direction from the project. (Ex. 301, p. 4.2-48.)

**Lighting**

Bright lighting at night could disturb the resting, foraging, or mating activities of wildlife and make wildlife more visible to predators. Also, night lighting could be disorienting to migratory birds. The project may operate 24 hours per day and a slight resultant increase in light is expected to occur during operation. To avoid and minimize backscatter, outdoor lighting must be directed downwards toward the center of the power plant, be shielded, and be the minimum wattage required for safety. These measures have been incorporated into Conditions of Certification **VIS-3** and **BIO-7** which ensure significant impacts from operation lighting will be avoided. (Ex. 301, p. 4.2-48.)

**Noise**

A substantial increase in noise during operation could disturb sensitive wildlife species. Studies have shown that noise levels over 60 dBA can affect the behavior of certain bird species. The MEP site is located in a small valley immediately south of the 6.5-MW Byron Cogen Power Plant, which produces some noise, but is otherwise isolated from traffic or urban noise. Average noise levels at the project site currently range from 43 to 57 dBA; predicted noise levels during power plant operation will be 65 to 90 dBA. The record indicates that noise will attenuate to less than 60 dBA at a distance of 1/4 mile from the MEP. Noise from the power plant operation will not be expected to affect sensitive breeding or nesting areas, such as nest trees or freshwater marshes, which are

further than 1/4 mile away and shielded by site topography, and therefore will not affect listed bird species. (Ex. 301, pp. 4.2-83 - 4.2-49.)

Birds that nest within annual grassland could be affected by noise from the power plant. The MEP will be a peaker power plant, and will operate intermittently. Based on the frequency of operation, the record indicates that birds in the vicinity will become habituated to the power plant operation noise. We find that there will be no significant impacts to biological resources by increased operational noise and no mitigation beyond Condition of Certification **NOISE-1** (in the **Noise** section of this Decision) is necessary. (Ex. 301, p. 4.2-49.)

**Operation Traffic**

Operation of the MEP will result in a maximum of 16 daily trips (see the **Traffic and Transportation** section for more details). This is a minimal increase in traffic, and implementation of conditions of certification **BIO-5**, which provides for worker education, **BIO-6**, which includes exclusionary fencing, **BIO-7**, which will minimize off-site impacts and restrict off-road access, and **BIO-10**, which establishes speed limits, will ensure significant impacts are avoided. (Ex. 301, p. 4.2-49.)

**Permanent Water Supply**

To mitigate for loss of grazing land, Condition of Certification **Land-2** requires installation of a permanent water source near the MEP site. In some situations, such as when water is scarce, installing a water source could attract predators to an area which could affect native wildlife. However, there are currently several permanent water sources within 1 mile of the project and this water source will not be a unique or even unusual feature in the landscape. Therefore, we find impacts from this water source will be less than significant. (Ex. 301, p. 4.2-49.)

**Cumulative impacts**

A project could result in a significant adverse cumulative impact where its effects are cumulatively considerable. Cumulatively considerable means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, of other current projects, and of probable future projects (Cal. Code Regs., tit.14, § 15130). (Ex. 301, p. 4.2-50.)

The MEP is located adjacent to the 1-acre Byron Cogen Power Plant and near the approximately 17-acre PG&E's Bethany Gas Compressor Station and the 230-kV Kelso Substation site. In addition, there are several structures in the vicinity related to the Central Valley Project and California State Water Project. The residential subdivision Mountain House Community is located approximately

2.5 miles from the project site. The Mountain House Master Plan was approved in 1994 and construction started in 2001. The maximum geographic extent of growth for the community, estimated to be completed by 2022, is 4,784 acres. A review of proposed projects within or bordering the foothills of southern Contra Costa, Alameda, San Joaquin, and northern Stanislaus counties identified two proposed power plant projects: the East Altamont Energy Center (EAEC) and the GWF Tracy Combined-Cycle Power Plant (GWF Tracy). EAEC is approximately 1 mile to the east of the project and would occupy 40 acres. GWF Tracy is approximately 8 miles to the southeast, and would occupy 16.38 acres.

Both projects were approved by the Energy Commission, but neither project was built. Both the GWF Tracy and EAEC projects include mitigation measures to reduce project impacts below a level of significance. The Final Environmental Impact Report for the Mountain House includes mitigation to reduce project impacts, but identifies unavoidable significant impacts including loss of wildlife habitat. (Ex. 301, pp. 4.2-50 - 4.2-51.)

These projects may result in additional loss of habitat for western burrowing owl, Swainson's hawk, California red-legged frog, California tiger salamander, American badger, San Joaquin kit fox, and western pond turtle. The MEP will result in potentially significant cumulative adverse impacts to terrestrial habitat for special-status species, including California tiger salamander and San Joaquin kit fox. The MEP, when considered with past, present, and reasonable foreseeable future projects, will contribute to the cumulative loss and degradation of habitats essential to the persistence and recovery of special-status wildlife species. However, we find that the project's contribution to cumulative impacts to special-status species will be mitigated below a cumulatively considerable level by implementation of the conditions of certification below. (Ex. 301, p. 4.2-51.)

**Compliance with LORS**

The MEP must comply with state and federal laws, ordinances, regulations, and standards that address state and federally listed species, as well as other sensitive species and their habitats. Under the Warren-Alquist Act (Pub. Res. Code § 25500) the Energy Commission's certificate for thermal power plants 50 MW and more is "in lieu of" other state, local, and regional permits. We incorporate all required terms and conditions that might otherwise be included in state permits into the Energy Commission's certification process. When conditions of certification are implemented they will satisfy the LORS and take the place of terms and conditions that, but for the Commission's exclusive authority, would have been included in state permits. The Mariposa Energy

Project is subject to the federal, state, and local LORS included in **Biological Resources Table 2**. (Ex. 301, pp. 4.2-52 - 55.)

**Biological Resources Table 2**
**Compliance with Federal, State, and Local LORS**

| Applicable LORS | In Compliance | Discussion |
|---|---|---|
| **Federal** | | |
| Section 404 of the Clean Water Act of 1977 (33 USC 1344) | Yes | Discharge of dredged or fill material into the waters of the United States requires a permit from the U.S. Army Corps of Engineers (USACE). The applicant has completed a wetland delineation report and amendment, and has received a preliminary jurisdictional determination from the USACE Sacramento District. The USACE is currently drafting the CWA 404 authorization to construct the project under Nationwide Permit #12, but the permit cannot be issued to Mariposa Energy until Section 7 ESA consultation is finished (i.e., Biological Opinion sent to the USACE). |
| Section 401 of the Clean Water Act of 1977 (33 USC 1341) | Yes | Any applicant for a federal license or permit to conduct any activity that may result in a discharge of a pollutant into waters of the United States must obtain a certification from the State in which the discharge originates or would originate, that the discharge would comply with the applicable effluent limitations and water quality standards. A certification obtained for the construction of any facility must also pertain to the subsequent operation of the facility. The applicant has submitted a Section 401 Water Quality Certification Application to the California Regional Water Quality Control Board (CRWQCB) Central Valley Region, and will also submit a memo outlining changes to the original application. Certification from the CRWQCB is pending. |
| Endangered Species Act (Title 16, United States Code, sections 1531 et seq.; Title 50, Code of Federal Regulations, part 17.1 et seq.) | Yes | Potential take of California tiger salamander, California red-legged frog, San Joaquin kit fox, and branchiopods (federally-listed species), requires compliance with the federal Endangered Species Act (ESA). "Take" of a federally-listed species is prohibited without an Incidental Take Statement, which would be obtained through a Section 7 consultation between the USACE and USFWS. The applicant has submitted a Biological Assessment and updates for the project to the USFWS, and the USFWS is currently reviewing this information. |
| Eagle Act (Title 50, Code of Federal Regulations, sections 22.26 and 22.27) and Bald and Golden Eagle Protection Act (Title 16, United States Code section 668) | Yes | Condition of Certification BIO-16 requires protection of compensation habitat for California tiger salamander, California red-legged frog, San Joaquin kit fox, western burrowing owl, and other special-status species. Habitat preserved for these species would also serve as golden eagle foraging habitat. |
| Migratory Bird Treaty Act (Title 16, United States Code, sections 703–711) | Yes | Condition of Certification BIO-8 provides for pre-construction nest surveys, protective buffers, and monitoring if nests are found, and Condition of Certification BIO-7 limits off-site disturbance. |

| Applicable LORS | In Compliance | Discussion |
|---|---|---|
| Executive Order 11312 | Yes | Conditions of certification BIO-7 and BIO-18 limit species used in revegetation, and also call for a revegetation plan for disturbed areas. |
| **State** | | |
| California Endangered Species Act (Fish and Game Code, sections 2050 et seq.) | Yes | Construction and operation of the proposed project could result in the "take" of Swainson's hawk, California tiger salamander, and San Joaquin kit fox, listed under CESA. Condition of Certification BIO-16 specifies compensatory mitigation for loss of habitat for these species. Conditions of certification BIO-10, BIO-14, and BIO-15 provide measures to avoid and minimize impacts to these species. This funding and mitigation approach would reduce impacts below a level of significance in regards to CESA. |
| Fully Protected Species (Fish and Game Code, sections 3511, 4700, 5050, and 5515) | Yes | Golden eagles and other bird species that may use the site are California Fully Protected species. Condition of Certification BIO-8 provides for pre-construction nest surveys, protective buffers, and monitoring if nests are found, and Condition of Certification BIO-7 limits off-site disturbance. |
| Native Plant Protection Act (Fish and Game Code, section 1900 et seq.) | Yes | No special-status plants were observed on-site. Special-status plants do occur, or are known to historically occur, adjacent to the proposed project. Condition of Certification BIO-7 would require pre-construction surveys and includes a provision if special-status plant species are observed, and BIO-7 and BIO-17 provide measures to limit off-site disturbance. |
| Nest or Eggs (Fish and Game Code, section 3503) | Yes | Condition of Certification BIO-8 provides for pre-construction nest surveys, protective buffers, and monitoring if nests are found, Condition of Certification BIO-7 limits off-site disturbance, and BIO-5 includes a Worker Environmental Awareness Program to educate workers about compliance with environmental regulations, including Fish and Game Code section 3503. |
| Birds of Prey (Fish and Game Code, section 3503.5) | Yes | Condition of Certification BIO-8 provides for pre-construction nest surveys, protective buffers, and monitoring if nests are found, Condition of Certification BIO-7 limits off-site disturbance, and BIO-5 includes a Worker Environmental Awareness Program to educate workers about compliance with environmental regulations, including Fish and Game Code section 3503.5. |
| Migratory Birds (Fish and Game Code, section 3513) | Yes | Condition of Certification BIO-8 provides for pre-construction nest surveys, protective buffers, and monitoring if nests are found, and Condition of Certification BIO-7 limits off-site disturbance, and BIO-5 includes a Worker Environmental Awareness Program to educate workers about compliance with environmental regulations, including Fish and Game Code section 3513. |
| Nongame mammals (Fish and Game Code section 4150) | Yes | BIO-7, which provides for pre-construction surveys and exclusionary fencing, would ensure compliance with this provision. |

| Applicable LORS | In Compliance | Discussion |
|---|---|---|
| Streambed Alteration Notification (Fish and Game Code sections 1600 et seq.) | Yes | Condition of Certification BIO-17 includes measures to minimize, avoid, and compensate for impacts to jurisdictional waters of the State. |
| California Environmental Quality Act (CEQA), CEQA Guidelines section 15380 | Yes | Implementation of conditions of certification BIO-1 through BIO-19 would serve to reduce the projects impacts to biological resources below a level of significance under CEQA. |
| Public Resources Code, sections 25500 and 25527 | Yes | The proposed project is not sited in an area of critical concern for biological resources. |
| **Local** | | |
| Alameda County General Plan - East County Area Plan (ECAP) | Yes | Condition of Certification BIO-16 requires that permanent impacts to wetlands be mitigated. ECAP Policy No. 126 encourages no net loss of wetlands within the county. However, Alameda County has determined that the mitigation proposed in BIO-9, including compensation ratios, and BIO-10, which provides for compensatory mitigation and agency approval, fulfills the needs of this policy. |
| Contra Costa General Plan | Yes | Impacts within Contra Costa County are within previously disturbed lands. |

## PUBLIC COMMENT

Intervenor, **Rob Simpson**, comments that The CEC has illegally attempted to usurp the exclusive authority of the United States Fish and Wildlife Service in making conclusions regarding the application of the Endangered Species Act. We disagree. The record reflects that Energy Commission staff and Applicant have worked cooperatively with other agencies such as USFWS and CDFG. We have found that implementation of the conditions of certification below, along with the acquisition of and compliance with a Biological Opinion and Incidental Take Statement will reduce impacts below a level of significance. (Ex. 301, p. 4.2-50.)

## FINDINGS OF FACT

Based on the evidence, we find as follows:

1. The MEP site and most of the linear facility alignments provide foraging, cover, and some nesting habitat for a variety of species.

2. The majority of the project disturbance area is in annual grassland, including the disturbance area for the MEP site, transmission line, and natural gas supply line.

3. The project site will permanently affect 10.1 acres and temporarily affect 24.2 acres of habitat, including annual grassland, wetlands and ephemeral drainages, and agricultural land.

4. There are three seasonal wetlands located within the MEP site which range in size from small isolated features to alkali sink wetlands.

5. There are four ephemeral drainages located within the MEP site.

6. There are three erosional channels and three weakly expressed swales identified in the project area.

7. There will be impacts to the multiple wetlands and other waters within the project vicinity, including ephemeral drainages, seasonal wetlands, alkali meadow, erosional ditches, and swales.

8. Implementation of Conditions of Certification **BIO-7, BIO-9, BIO-16, BIO-17, and BIO-18** reduce impacts to jurisdictional wetlands and other waters below a level of significance.

9. Underground tunneling to install the water supply pipeline under these culverts could affect sensitive aquatic habitat and species.

10. With implementation of Condition of Certification **BIO-17**, impacts from underground tunneling which would require the lubricant bentonite will be reduced below a level of significance.

11. The majority of the MEP is located within California red-legged frog Critical Habitat Unit CCS-2B.

12. The segment of the water supply pipeline within Contra Costa County is not subject to the East Contra Costa Habitat Conservation Plan and Natural Community Conservation Plan (ECCCHCP/NCCP).

13. The Byron Conservation Bank is immediately west of a segment of the water supply pipeline route.

14. Conditions of Certification **BIO-5, BIO-7, BIO-10, BIO-16** and **BIO-17** ensure that significant impacts to special status amphibians including the California red-legged frog are reduced below significance.

15. The MEP site provides breeding, cover, foraging, and dispersal habitat for many wildlife species including several special-status wildlife species, and potential habitat for special-status plant species.

16. Conditions of Certification **BIO-1**, **BIO-2**, **BIO-3**, **BIO-4**, **BIO-5**, **BIO-6**, and **BIO-7** impose general measures that apply to both plants and wildlife and reduce the impacts from this project.

17. Implementation of Condition of Certification **BIO-9**, as well as **BIO-16** and **BIO-17**, will reduce impacts to federally listed branchiopods below a level of significance.

18. Conditions of Certification **BIO-7, BIO-14** and **BIO-16** reduce impacts to the San Joaquin Kit Fox from construction and operation of the MEP below the level of significance.

19. Condition of Certification **BIO-13** will reduce impacts to the American Badger from construction and operation of the MEP below the level of significance.

20. Conditions of Certification **BIO-7, BIO-10** and **BIO-16** reduce impacts to the California Tiger Salamander from construction and operation of the MEP below the level of significance.

21. Condition of Certification **BIO-11** will reduce impacts to the Western Pond Turtle from construction and operation of the MEP below the level of significance.

22. Conditions of Certification **BIO-12** and **BIO-16** reduce impacts to the Western Burrowing Owl from construction and operation of the MEP below the level of significance.

23. Conditions of Certification **BIO-15** and **BIO-16** reduce impacts to the Swainson' Hawk from construction and operation of the MEP below the level of significance.

24. Condition of Certification **BIO-16** will reduce potential impacts to the Golden Eagle from construction and operation of the MEP below the level of significance.

25. Conditions of Certification **BIO-7, BIO-8** and **BIO-16** reduce impacts to the special status and migratory birds from construction and operation of the MEP below the level of significance.

26. No special-status plants were observed within the MEP disturbance area, although one species, heartscale, was observed immediately adjacent to the transmission line route and, an additional species, little mousetail, was found within the project vicinity.

27. Implementation of Conditions of Certification **BIO-7**, **BIO-17**, and **BIO-18** reduce impacts to special-status plant species to less-than-significant levels.

28. Conditions of Certification **BIO-7** and **BIO-10** which include measures to minimize impacts from construction traffic, such as restricting off-road access, defining work areas, requiring protective buffers, and requiring wet-season monitoring when construction traffic would arrive or depart before dawn or after dusk will reduce impacts from construction traffic below a level of significance.

29. Since the project exhaust stacks and transmission lines will be significantly shorter than 350 feet tall, the MEP structures do not pose a significant collision threat to resident or migratory bird populations.

30. Phase-to-phase and phase-to-ground clearances will be sufficient to minimize bird electrocutions.

31. Avian protection measures contained in Condition of Certification **BIO-7** ensures that significant impacts from electrocution will be avoided.

32. The project will only generate a plume during operation, which is projected to be approximately 600 hours annually, although the MEP will be permitted to operate for up to 4,000 hours annually.

33. The thermal plume will not result in direct mortality to small birds or redirect birds toward Byron Airport.

34. The MEP is located in an area with predominantly westerly prevailing winds and the nearest occurrences of nitrogen-limited habitat in the region are located approximately 20 miles west of the MEP site, therefore this habitat will not be impacted by nitrogen deposition from the MEP operations.

35. Limitations on lighting contained in Conditions of Certification **VIS-3** and **BIO-7** prevent significant impacts from operation lighting to migratory birds and wildlife.

36. Noise will attenuate to less than 60 dBA at a distance of 1/4 mile from the MEP.

37. There will be no significant impacts to biological resources by increased operational noise and no mitigation beyond Condition of Certification **NOISE-1** is necessary.

38. Impacts to biological resources from the installed water source required in Condition of Certification **LAND-2** will be less than significant.
39. The MEP's contribution to cumulative impacts to special-status species will be mitigated below a cumulatively considerable level by implementation of the conditions of certification below.

## CONCLUSIONS OF LAW

1. We therefore conclude that with implementation of the Conditions of Certification set forth below, construction and operation of the MEP will not create any significant direct, indirect, or cumulative impacts to biological resources.

2. Further, implementation of the Conditions of Certification, below, will ensure the MEP conforms to all applicable laws, ordinances, regulations, and standards relating to biological resources as identified in the pertinent portions of **Appendix A** of this Decision.

## CONDITIONS OF CERTIFICATION

### DESIGNATED BIOLOGIST SELECTION

**BIO-1** The project owner shall assign a Designated Biologist to the project. The project owner shall submit the resume of the proposed Designated Biologist, with at least 3 references and contact information, to the Energy Commission Compliance Project Manager (CPM) for approval, in consultation with CDFG and USFWS. The Designated Biologist must meet the following minimum qualifications:

1. Bachelor's Degree in biological sciences, zoology, botany, ecology, or a closely related field; and
2. Three years of experience in field biology or current certification of a nationally recognized biological society, such as The Ecological Society of America or The Wildlife Society; and
3. Demonstrated field experience in the identification and life history of California tiger salamander, California red-legged frog, and San Joaquin kit fox, and demonstrated field experience identifying burrowing owl burrows and other burrowing owl sign, and demonstrated experience in identifying Swainson's hawks, and;
4. Be in possession of required state and federal permits and/or approvals from CDFG and USFWS.

In lieu of the above requirements (excepting the permit requirements), the resume shall demonstrate to the satisfaction of the CPM, that the proposed Designated Biologist or alternate has the appropriate training and background to effectively implement the conditions of certification.

**Verification:** The project owner shall submit the specified information at least 60 days prior to the start of any site (or related facilities) mobilization. No site or related facility activities, including pre-construction debris removal, shall commence until an approved Designated Biologist is available to be on site.

If a Designated Biologist needs to be replaced, the specified information of the proposed replacement must be submitted to the CPM at least ten (10) working days prior to the termination or release of the preceding Designated Biologist. In an emergency, the project owner shall immediately notify the CPM to discuss the qualifications and approval of a short-term replacement while a permanent Designated Biologist is proposed to the CPM for consideration.

**DESIGNATED BIOLOGIST DUTIES**

**BIO-2** The project owner shall ensure that the Designated Biologist performs the following duties during any site (or related facilities) pre-construction debris removal, mobilization, ground disturbance, grading, construction, operation, and closure activities. The Designated Biologist may be assisted by the approved Biological Monitor(s), but remains the contact for the project owner and CPM.

1. Advise the project owner's Construction and Operation Managers on the implementation of the biological resources Conditions of Certification;
2. Consult on the preparation of the Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP), to be submitted by the project owner;
3. Supervise, conduct, and coordinate mitigation, monitoring, and other biological resources compliance efforts, particularly in areas requiring avoidance or containing sensitive biological resources, such as special-status species or their habitat;
4. Clearly mark sensitive biological resource areas, if present, and inspect these areas at appropriate intervals for compliance with regulatory terms and conditions;
5. Inspect active construction areas where animals may have become trapped prior to construction commencing each day. At the end of the day, inspect for the installation of structures that prevent entrapment or allow escape during periods of construction inactivity. Periodically inspect areas with high vehicle activity (i.e. parking lots) for animals in harm’s way;
6. Notify the project owner and the CPM of any non-compliance with any biological resources conditions of certification;
7. Respond directly to inquiries of the CPM regarding biological resource issues;
8. Maintain written records of the tasks specified above and those included in the BRMIMP. Summaries of these records shall be submitted in the Monthly Compliance Report and the Annual Report; and

9. Train the Biological Monitors as appropriate, and ensure their familiarity with the BRMIMP, Worker Environmental Awareness Program (WEAP) training and all permits.

**Verification:** The Designated Biologist shall submit in the Monthly Construction Compliance Report to the CPM copies of all written reports and summaries that document biological resources activities. If actions may affect biological resources during operation, a Designated Biologist shall be available for monitoring and reporting. During project operation, the Designated Biologist shall submit record summaries in the Annual Compliance Report unless their duties are determined to be unnecessary by the CPM.

**BIOLOGICAL MONITOR QUALIFICATIONS**

**BIO-3** The project owner's CPM-approved Designated Biologist shall submit the resume, including at least 3 references and contact information, of the proposed Biological Monitors to the CPM for approval, in consultation with CDFG and USFWS.

Enough biological monitors must be on site during pre-construction debris removal, before and during, water supply pipeline, natural gas pipeline, and transmission line construction and prior to fencing the power plant site to collectively meet the minimum qualifications:

Demonstrated field experience in the identification and life history of:

California tiger salamander;

California red-legged frog;

San Joaquin kit fox; and

Demonstrated field experience identifying burrowing owls burrows and other burrowing owl sign.

All biological monitors on site during pre-construction debris removal, before and during, water supply pipeline, natural gas pipeline, and transmission line construction and prior to fencing the power plant site must meet the following minimum qualification:

Be in possession of required state and federal permits and/or approvals from CDFG and USFWS.

**Verification:** The project owner shall submit the specified information to the CDFG and USFWS for review and comment and the CPM for approval no less than 30 days prior to the start of any site (or related facilities) mobilization. The Designated Biologist shall submit a written statement to the CPM confirming that the individual Biological Monitor(s) have been trained including the date when training was completed. If additional biological monitors are needed during construction, the specified information shall be submitted to the CDFG and USFWS for review and comment and the CPM for approval no less than 14 days prior to their first day of monitoring activities.

## DESIGNATED BIOLOGIST AND BIOLOGICAL MONITOR AUTHORITY

**BIO-4** The project owner's Construction/Operation Manager shall act on the advice of the Designated Biologist and Biological Monitor(s) to ensure conformance with the biological resources Conditions of Certification.

If required by the Designated Biologist and Biological Monitor(s) the project owner's Construction/Operation Manager shall halt all site mobilization, pre-construction debris removal, ground disturbance, grading, construction, and operation activities in areas specified by the Designated Biologist.

The Designated Biologist shall:

1. Require a halt to all activities in any area when determined that there would be an unauthorized adverse impact to biological resources if the activities continued;
2. Inform the project owner and the Construction/Operation Manager when to resume activities; and
3. Notify the CPM if there is a halt of any activities, and advise the CPM of any corrective actions that have been taken, or will be instituted, as a result of the work stoppage.
4. If the Designated Biologist is unavailable for direct consultation, the Biological Monitor shall act on behalf of the Designated Biologist.

**Verification:** The project owner shall ensure that the Designated Biologist or Biological Monitor notifies the CPM immediately (and no later than the following morning of the incident, or Monday morning in the case of a weekend) of any non-compliance or a halt of any site mobilization, pre-construction debris removal, ground disturbance, grading, construction, and operation activities. The project owner shall notify the CPM of the circumstances and actions being taken to resolve the problem.

Whenever corrective action is taken by the project owner, a determination of success or failure will be made by the CPM within 5 working days after receipt of notice that corrective action is completed, or the project owner will be notified by the CPM that coordination with other agencies will require additional time before a determination can be made.

## WORKER ENVIRONMENTAL AWARENESS PROGRAM

**BIO-5** The project owner shall develop and implement a CPM-approved Worker Environmental Awareness Program (WEAP) in which each of its employees, as well as employees of contractors and subcontractors who work on the project site or any related facilities during site mobilization, pre-construction debris removal, ground disturbance, grading, construction, operation, and closure are informed about sensitive biological resources associated with the project.

The WEAP must:

- Be developed by or in consultation with the Designated Biologist and consist of an on-site or training center presentation in which supporting written material and electronic media is made available to all participants;
- Discuss the locations and types of sensitive biological resources on the project site and adjacent areas;
- Present the reasons for protecting these resources;
- Present the meaning of various temporary and permanent habitat protection measures as necessary;
- Discuss penalties for violation of applicable LORS (e.g., federal and state endangered species acts);
- Identify whom to contact if there are further comments and questions about the material discussed in the program; and
- Include a training acknowledgment form to be signed by each worker indicating that they received training and shall abide by the guidelines.

The specific program can be administered by a competent individual(s) acceptable to the Designated Biologist.

**Verification:** No less than 30 days prior to the start of any site (or related facilities) mobilization, the project owner shall provide to the CPM the final WEAP and all supporting written materials and electronic media prepared or reviewed by the Designated Biologist and a resume of the person(s) administering the program.

The project owner shall provide in the Monthly Compliance Report the number of persons who have completed the training in the prior month and a running total of all persons who have completed the training to date. No less than 10 days prior to site and related facilities mobilization submit two copies of the CPM-approved materials.

Training acknowledgement forms signed during construction shall be kept on file by the project owner for a period of at least 6 months after the start of commercial operation.

During project operation, signed statements for operational personnel shall be kept on file for 6 months following the termination of an individual's employment.

**BIOLOGICAL RESOURCES MITIGATION IMPLEMENTATION AND MONITORING PLAN (BRMIMP)**

**BIO-6** The project owner shall develop a BRMIMP and submit two copies of the proposed BRMIMP to the CDFG and USFWS for review and

comment and the CPM for approval and shall implement the measures identified in the approved BRMIMP.

The BRMIMP shall be prepared in consultation with the Designated Biologist and shall identify:

a. All biological resource mitigation, monitoring, and compliance measures proposed and agreed to by the project owner;

b. All biological resource conditions of certification in the Commission Decision;

c. All biological resource mitigation, monitoring and compliance measures required in other state agency terms and conditions, such as those provided in the CWA 404 permits and the USFWS Biological Opinion;

d. All biological resource mitigation, monitoring, and compliance measures required in local agency permits, such as site grading and landscaping requirements;

e. A list all sensitive biological resources to be impacted, avoided, or mitigated by project construction, operation, and closure;

f. All required mitigation measures for each sensitive biological resource;

g. A detailed description of measures that shall be taken to avoid or mitigate temporary disturbances from construction activities;

h. All locations on a map, at an approved scale, of sensitive biological resource areas subject to disturbance and areas requiring temporary protection and avoidance during construction;

i. Aerial photographs (at an approved scale), a GPS foot survey, or other verifiable means (as approved by the CPM) to document all areas to be disturbed during project construction activities — one set prior to any site (and related facilities) mobilization disturbance and one set subsequent to completion of project construction. Include planned timing of aerial photography or other method and a description of why times were chosen;

j. Duration for each type of monitoring and a description of monitoring methodologies and frequency;

k. Performance standards to be used to help decide if/when proposed mitigation is or is not successful;

l. All performance standards and remedial measures to be implemented if performance standards are not met;

m. A preliminary discussion of biological resources-related facility closure measures; and

n. A process for proposing plan modifications to the CPM and appropriate agencies for review and approval.

**Verification:** The project owner shall provide the specified draft document at least 60 days prior to start of any site (or related facilities) mobilization.

The CPM will determine the BRMIMP's acceptability within 45 days of receipt. If there are any permits that have not yet been received when the BRMIMP is first submitted, these permits shall be submitted to the CPM within 5 days of their receipt, and the BRMIMP shall be revised or supplemented to reflect the permit condition within 10 days of their receipt by the project owner. 10 days prior to site and related facilities mobilization the revised BRMIMP shall be resubmitted to the CPM.

The project owner shall notify the CPM no less than 5 working days before implementing any modifications to the approved BRMIMP to obtain CPM approval.

Any changes to the approved BRMIMP must also be approved by the CPM in consultation with other appropriate agencies to ensure no conflicts exist.

Implementation of BRMIMP measures will be reported in the Monthly Compliance Reports by the Designated Biologist (i.e., survey results, construction activities that were monitored, species observed). Within 30 days after completion of project construction, the project owner shall provide to the CPM, for review and approval, a written construction closure report identifying which items of the BRMIMP have been completed, a summary of all modifications to mitigation measures made during the project's site mobilization, ground disturbance, grading, and construction phases, and which mitigation and monitoring items are still outstanding.

## GENERAL IMPACT AVOIDANCE AND MINIMIZATION MEASURES

**BIO-7** The following measures shall be implemented to avoid and minimize impacts to biological resources from the proposed project during site mobilization, pre-construction debris removal, ground disturbance, grading, construction, operation, maintenance, and closure.

1. Design, install, and maintain natural gas supply pipelines, water supply pipelines, transmission lines, access roads, and laydown and parking areas to avoid or minimize impacts to identified sensitive resources;
2. Design, install, and maintain the transmission lines and all other electrical components in accordance with the Avian Power Line Interaction Committee (APLIC), Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 2006 to reduce the likelihood of electrocutions of large birds;

3. Eliminate from landscaping plans any List A California exotic pest plants of concern as defined by the California Exotic Pest Plant Council;
4. Prescribe a road sealant that is non-toxic to wildlife and plants;
5. Design, install, and maintain construction and facility lighting to minimize the amount of light off-site, including directing and shielding lights to prevent side casting of light towards wildlife habitat, and using the minimum wattage required for safety;
6. Pre- and post-construction photo-documentation of all habitats shall be prepared and made part of the project report;
7. The project site shall be surveyed for the special-status species prior to ground disturbing activities including pre-construction debris removal or construction equipment staging.
    a. If special-status wildlife species are found within the construction area, species-specific contingencies described in **BIO-8, 9, 10, 11, 12, 13, 14,** and **15** shall be followed. If the species is not covered under these conditions, the CPM and the CDFG and/or USFWS shall be contacted for further guidance.
    b. If special-status plant species are found within the construction area, they shall be avoided and the CPM and the CDFG and/or USFWS shall be contacted for further guidance.
    c. Once it has been sufficiently determined that there are no special-status wildlife species present, the power plant site, laydown, and access road construction areas shall be fenced with USFWS- and CDFG-approved exclusion fencing to ensure that no special-status wildlife species enter the site.
8. Clearly demarcate construction exclusion zones around biologically sensitive areas and any nests or other sensitive resources identified during surveys;
9. The Designated Biologist (or approved designee) shall be onsite during any construction activity near sensitive habitat and shall ensure implementation of, and compliance with, mitigation measures. The Designated Biologist (or approved designee) has the authority to stop work and determine alternative work practices in consultation with construction personnel if construction activities are likely to impact sensitive biological resources.
10. Vehicles shall be confined to established roadways and pre-approved overland access routes. Limit access routes and the number and size of staging areas and work areas to the minimum

necessary to achieve the project goals. Routes and boundaries of work areas, including access roads, shall be clearly marked prior to initiating project construction.

11. Construction along the project linears shall be constrained within a designated temporary construction corridor.
12. Trash dumping, firearms, open fires (such as barbecues), hunting, and pets shall be prohibited in the project area.
13. To avoid attracting predators of the target species of concern, the project site shall be kept as clean of debris as possible. All food-related trash items shall be enclosed in sealed containers and regularly removed from the site(s).
14. Road-killed animals or other carcasses detected by personnel on roads associated with the project area will be reported immediately to a Biological Monitor or Designated Biologists, who will remove the road-kill promptly. For special-status species road-kill, the Biological Monitor shall contact CDFG and USFWS within 1 working day of receipt of the carcass for guidance on disposal or storage of the carcass. Species name, physical characteristics of the animal (sex, age class, length, weight), and other pertinent information shall be noted and reported in the Monthly Compliance Reports. Injured animals shall be reported to CDFG or USFWS and the project owner shall follow instructions that are provided by CDFG or USFWS;

**Verification:** No less than 10 days prior to the start of any ground disturbing activities or construction equipment staging, the project owner shall provide the CPM a letter-report describing the findings of the pre-construction surveys; e-mails or letter reports may be used to document the findings of the pre-construction surveys conducted 1 day and immediately prior to construction. The letter shall describe survey personnel, dates, and conditions; specific area surveyed (with figure); species included in the survey, and; results of the survey.

All mitigation measures and their implementation methods shall be included in the BRMIMP. Implementation of the measures will be reported in the Monthly Compliance Reports by the Designated Biologist. Within 30 days after completion of project construction, the project owner shall provide to the CPM, for review and approval, a written construction termination report identifying how measures have been completed.

## PRE-CONSTRUCTION NEST SURVEYS AND IMPACT AVOIDANCE AND MINIMIZATION MEASURES

**BIO-8** Pre-construction nest surveys shall be conducted if construction activities will occur from February 1 through August 31. The Designated Biologist or Biological Monitor shall perform surveys in accordance with the following guidelines:

1. Surveys shall cover all potential nesting habitat in the project site and within 500 feet of the boundaries of the power plant site and linear facilities (except for Swainson's Hawk, see **BIO-15**);
2. At least two pre-construction surveys shall be conducted, separated by a minimum 10-day interval. One of the surveys needs to be conducted within the 14-day period preceding initiation of construction activity. Additional follow-up surveys may be required if periods of construction inactivity exceed three weeks in any given area, an interval during which birds may establish a nesting territory and initiate egg laying and incubation;
3. If active nests are detected during the survey, a no-disturbance buffer zone (protected area surrounding the nest, the size of which is to be determined by the Designated Biologist in consultation with CDFG and USFWS Migratory Bird Office) and monitoring plan shall be developed. The monitoring plan shall include avoidance measures and remedial actions if the avoidance measures are not successful. Nest locations shall be mapped using GPS technology and submitted, along with a weekly report stating the survey results, to the CPM; and
4. The Designated Biologist shall monitor the nest until he or she determines that nestlings have fledged and dispersed; activities that might, in the opinion of the Designated Biologist, disturb nesting activities, shall be prohibited within the buffer zone until such a determination is made.

**Verification:** No less than 2 days prior to the start of any ground disturbing activities or construction equipment staging, the project owner shall provide the CPM a letter-report describing the findings of the pre-construction nest surveys, including the time, date, and duration of the survey; identity and qualifications of the surveyor(s); and a list of species observed.

If active nests are detected during the survey, the report shall include a map or aerial photo identifying the location of the nest and shall depict the boundaries of the no-disturbance buffer zone around the nest, and a monitoring plan shall be submitted to the CDFG and USFWS Migratory Bird Office for review and comment and the CPM for approval. Approval of the plan is required before construction may commence.

### SPECIAL-STATUS INVERTEBRATE IMPACT AVOIDANCE AND MINIMIZATION MEASURES

**BIO-9** The project owner shall implement the following measures to manage their construction site, and related facilities, in a manner to avoid or minimize impacts to listed fairy shrimp or tadpole shrimp species and habitat.

1. Avoidance and Minimization:

a. A buffer zone of 250 feet or the limit of the immediate watershed supporting the seasonal wetland (whichever is larger) shall be established around all known and potentially occupied branchiopod habitat. The buffer zone shall be delineated with temporary fencing. The fencing shall be kept in good repair and remain installed for the duration of MEP construction. If this buffer zone is not feasible for any potential habitat, a buffer zone shall be delineated in consultation with CDFG and USFWS.

b. A biological monitor will be onsite during all ground disturbing work within 250 feet of potential branchiopod habitat, and will oversee all off-road vehicle access for the project.

c. To the extent possible, construction of the linear projects will occur during the dry summer season to minimize the potential for indirect effects on nearby branchiopod habitat.

**Verification:** No less than 10 days prior to ground disturbance, the project owner shall provide a report detailing the locations of buffer zone fencing, and that includes both a figure and photographs showing the location of the fencing. The project owner shall report monthly to the CPM, CDFG, and USFWS for the duration of construction on the implementation of listed branchiopod habitat avoidance and minimization measures. Within 30 days after completion of construction the project owner shall provide to the CDFG, USFWS, and CPM a written construction termination report identifying how impact minimization measures have been completed.

**CALIFORNIA TIGER SALAMANDER AND CALIFORNIA RED-LEGGED FROG IMPACT AVOIDANCE AND MINIMIZATION MEASURES AND MANAGEMENT PLAN**

**BIO-10** The project owner, in consultation with the Designated Biologist, shall prepare and implement a California Tiger Salamander and California Red-legged Frog Management Plan that presents measures to manage the construction site, and related facilities, in a manner to avoid and minimize impacts to California red-legged frogs (CRLF) and California tiger salamanders (CTS). The measures should be developed in coordination with the CDFG and USFWS, shall be approved by the CPM (in consultation with the USFWS and CDFG), and shall include, at a minimum, the following:

1. Minimize Construction Impacts.

   a. Avoidance: During project implementation, concentrations of small mammal burrows and other refugia that may support CRLF or CTS shall be avoided to the extent feasible.

   b. Install Exclusionary Fencing: Prior to any site work, including debris removal, a solid barrier fence will be installed around the power plant site, and laydown area, and shall remain in place

for the duration of the project. The biological monitor shall survey and delineate the fence route, and shall be present during fence installation. Ramps or other means of escape for CTS and CRLF shall be provided. This exclusionary fence shall be routinely inspected for good repair for the duration of MEP construction; any damage, such as holes or gaps, shall be repaired immediately.

c. Clearance surveys. Clearance surveys within the exclusionary fence shall be conducted by a qualified biologist 48 hours to 1 week prior to ground disturbance. In addition, after the first major rain event (as agreed upon with the CPM, in consultation with the CDFG and USFWS), clearance surveys must be conducted within the exclusionary fence before construction can commence. If CRLF or CTS are discovered during pre-construction surveys, individuals shall be relocated to a CPM-(in consultation with CDFG) and USFWS-approved site. Only biologists with the appropriate permits or those approved by the CPM, USFWS, and CDFG for the project shall capture and relocate these species.

d. Linear Routes:

   i. Prior to ground disturbance, linear routes will be mapped, marked in the field, and surveyed for burrows. Burrows will be avoided to the extent possible as described above. Burrows within a vehicle access route that cannot be avoided will be temporarily reinforced with pvc pipe or by other measures as deemed effective by the biological monitor, and approved by the CPM (in consultation with CDFG and USFWS), (dry season only) prior to allowing vehicle access, and removed immediately after access is completed. A biological monitor shall be present during all linear route construction.

   ii. Before disturbance to aquatic habitat, the Designated Biologist or biological monitor shall check for CRLF and CTS within the aquatic habitat or surrounding area.

   iii. Before the start of linear work each morning, the designated biologist or biological monitor shall check for CRLF and CTS under any equipment such as vehicles and stored pipes. The biological monitor shall check all excavated steep-walled holes or trenches greater than 6 inches each morning before sunrise for any CRLF and CTS. CRLF and CTS shall be removed by the Designated Biologist or Biological Monitor and relocated to the USFWS and CDFG-approved relocation site. All excavated holes or trenches located outside the MEP site

shall be ramped at the end of the work day, or escape boards will be placed in the trench to allow the animals to escape.

e. Timing: Construction outside of fenced areas shall be scheduled to occur during the dry summer months between June 15 and October 15. Work shall not take place outside of fenced areas during the wet season, unless approved by the CPM (in consultation with CDFG) and USFWS.

f. Off-road access: Prior to off-road vehicle access for construction or maintenance, the vehicle route shall be mapped and marked. Burrows within the route will be avoided to the extent possible. Burrows that cannot be avoided shall be reinforced with pvc pipe (dry season only) to prevent collapse.

g. Environmentally Sensitive Areas: An environmentally sensitive area fence shall be installed along linear routes to protect potential breeding sites. Construction personnel shall not enter the environmentally sensitive areas.

h. Speed limit: A 10-mile-per-hour speed limit shall be enforced at all construction sites, except on roads with a posted speed limit. On roads with posted speed limits, construction traffic shall go the minimum safe speed.

i. Bruns Road and Access Road Monitoring:

   i. During wet-season construction (October through April, though earlier or later if conditions are wet and CTS are observed) if there will be large volumes of construction traffic (25 vehicles or more) scheduled to arrive or depart after dusk or before dawn. CTS moving between breeding sites and burrows shall be protected by one of these methods:

      1) Biological monitors shall walk (or slowly drive if deemed necessary for personnel safety) along Bruns Road from Canal 45 to the project site access road, and along the access road, to detect and move any CTS (or CRLF). This shall be completed prior to the expected construction traffic arrival time before dawn, and prior to departure after dusk. If the survey is done by driving, the vehicle must avoid pulling off the road unless the shoulder or pull-out is clear of CTS and CRLF.

         a. Any CTS or CRLF that are detected will be moved by the biologist only if, in the

biologist's judgment, the animal would be in danger from vehicles.

b. The project owner shall contact the CPM to indicate when the construction traffic threshold is anticipated to be met, and therefore when surveys are anticipated.

2. During wet-season construction, construction worker traffic may be directed away from Bruns Road north of Kelso Road, and be directed to use Kelso Road and Mountain House Road east of the project site. If this option is selected, surveys need only be done along the access road and Bruns Road to Kelso Road.

3. Alterations to the protective measure described in (1) and (2) above may be made if they will provide for more efficient or greater protection of CTS and CRLF, and if the alteration is approved by the CPM (in consultation with CDFG) and USFWS. An alternative means of protection (such as protective barriers) may also be implemented in lieu of or in conjunction with either (1) or (2) with approval from the CPM (in consultation with CDFG) and USFWS.

ii. Throughout wet-season construction (including when surveys have not been conducted) as soon as practicable after the work crew arrives or departs, the biologist shall drive slowly along the survey route to determine if any CTS or CRLF have been affected. Any dead or injured CTS or CRLF shall be reported as described in **BIO-7, #14**. In the event that dead or injured CTS or CRLF are found, the biologist shall consult with the CPM, CDFG, and USFWS to determine which, if any, adaptive management measures shall be implemented. These measures may include more frequent surveys (lower traffic threshold), more intensive surveys, or controlled arrival and departures for construction-crew traffic.

j. Best Management Practices: Best Management Practices (BMPs) listed in the Stormwater Pollution Prevention Plan (**BIO-17**) shall be implemented during project construction to protect against adverse affects on sensitive aquatic areas. Dust control measures shall be implemented during construction in the dry season. Work areas and dirt access roads shall be watered regularly to minimize airborne dust and soil particles generated by construction.

2) Minimize Operation Impacts:

a. Include a barrier on the permanent fence sufficient to block access to the power plant site by CRLF and CTS.

**Verification:** No less than 30 days prior to the start of any project-related ground disturbance, the project owner shall provide a final Management Plan to the CPM, CDFG, and USFWS. The final, approved Management Plan shall be incorporated into the BRMIMP within 10 days of completion of the plan, and implemented. Prior to the start of any ground disturbing activities or construction equipment staging, the project owner shall provide the CPM a letter-report describing the findings of the pre-construction surveys, including the time, date, and duration of the survey; identity and qualifications of the surveyor(s); and a list of species observed, number of CTS and CRLF observed and moved, and location to which they were moved. The project owner shall report monthly to the CPM, CDFG and USFWS for the duration of construction on the implementation of CTS and CRLF avoidance and minimization measures. Within 30 days after completion of construction the project owner shall provide to the CDFG and CPM a written construction termination report identifying how mitigation measures described in the plan have been completed.

Within 60 days of completion of the permanent power plant site fence, the project owner shall submit a figure and photographs to the CPM, CDFG, and USFWS of the CTS and CRLF barrier fence.

**WESTERN POND TURTLE IMPACT AVOIDANCE AND MINIMIZATION MEASURES**

**BIO-11** To avoid direct impacts to western pond turtles, pre-construction surveys shall be conducted concurrent with the California red-legged frog and California tiger salamander pre-construction surveys. Western pond turtles shall be avoided to the extent possible. Avoidance areas shall be delineated by exclusionary fencing. If western pond turtles are found within the project Disturbance area that cannot be avoided, the western pond turtles shall be relocated to the CPM (in consultation with CDFG)-approved relocation site.

**Verification:** The project owner shall submit a report to the CPM and CDFG no less than 10 days prior to the start of any ground disturbing activities or construction equipment staging that describes when surveys were completed, observations, and proposed impact minimization measures. Within 30 days after completion of construction of the project linears, the project owner shall provide to the CDFG and CPM a written construction termination report identifying how impact minimization measures have been completed.

**BURROWING OWL IMPACT AVOIDANCE AND MINIMIZATION MEASURES AND MANAGEMENT PLAN**

**BIO-12** The project owner shall implement the following measures to manage their construction site, and related facilities, in a manner to avoid or minimize impacts to breeding and foraging burrowing owls.

1. Pre-Construction Surveys. The Designated Biologist or Biological Monitor shall conduct pre-construction surveys for burrowing owls in accordance with CDFG guidelines (California Burrowing Owl Consortium 1993). The survey area shall include the project disturbance area and surrounding 500 foot survey buffer. If ground-disturbing activities are delayed or suspended for more than 30 days after the pre-construction survey, the site will be resurveyed.

2. Implement Avoidance Measures. If an active burrowing owl burrow is detected within 500 feet from the project disturbance area the following avoidance and minimization measures shall be implemented:

   a. Establish Non-Disturbance Buffer. Fencing shall be installed at a 250-foot radius from the occupied burrow to create a non-disturbance buffer around the burrow. The non-disturbance buffer and fence line may be reduced to 160 feet if all project-related activities that might disturb burrowing owls would be conducted during the non-breeding season (September 1st through January 31st). Signs shall be posted in English and Spanish at the fence line indicating no entry or disturbance is permitted within the fenced buffer.

   b. Monitoring: If construction activities would occur within 500 feet of the occupied burrow during the nesting season (February 1 – August 31st), the Designated Biologist or Biological Monitor shall monitor to determine if these activities have potential to adversely affect nesting efforts, and shall implement measures to minimize or avoid such disturbance.

3. Implement Burrowing Owl Mitigation Plan. If pre-construction surveys indicate the presence of burrowing owls or active burrowing owl burrows within the project disturbance area, the project owner shall prepare and implement a Burrowing Owl Mitigation Plan, in addition to the avoidance measures described above. The final Burrowing Owl Mitigation Plan shall be approved by the CPM, in consultation with CDFG, and shall:

   a. Identify and describe suitable relocation sites within 1 mile of the project disturbance area, and describe measures to ensure that burrow installation or improvements would not affect sensitive species habitat or existing burrowing owl colonies in the relocation area;

b. Provide guidelines for creation or enhancement of at least two natural or artificial burrows per relocated owl, including a discussion of timing of burrow improvements, specific location of burrow installation, and burrow design. Design of the artificial burrows shall be consistent with CDFG guidelines (CDFG 1995) and shall be approved by the CPM in consultation with CDFG;

c. Provide detailed methods and guidance for passive relocation of burrowing owls occurring within the project disturbance area (including burrow destruction); and

d. Describe monitoring and management of the relocated burrowing owl site, and provide a reporting plan.

**Verification:** The Designated Biologist shall provide to the CPM and CDFG pre-construction survey results within 10 days of the completion of the survey.

If pre-construction surveys detect burrowing owls within 500 feet of proposed construction activities, the Designated Biologist shall provide to the CPM and CDFG documentation indicating that non-disturbance buffer fencing has been installed no less than 10 days prior to the start of any project-related site disturbance activities. The documentation shall include both a figure and photographs showing the location of the fencing.

If pre-construction surveys detect burrowing owls or active burrowing owl burrows within the project disturbance area, the project owner shall provide to the CPM and CDFG a final Burrowing Owl Mitigation Plan no less than 10 days prior to the start of construction. The measures described in the plan shall be incorporated into the BRMIMP no less than 10 days of completion of the plan, and implemented.

The project owner shall report monthly to the CPM and CDFG for the duration of construction on the implementation of burrowing owl avoidance and minimization measures. Within 30 days after completion of construction the project owner shall provide to the CDFG and CPM a written construction termination report identifying how mitigation measures, including those measures described in the plan if a plan was required, have been completed.

**AMERICAN BADGER IMPACT AVOIDANCE AND MINIMIZATION MEASURES**

**BIO-13** To avoid direct impacts to American badgers, pre-construction surveys shall be conducted concurrent with the San Joaquin kit fox and burrowing owl pre-construction surveys. Surveys shall be conducted as described below:

The Designated Biologist shall perform pre-construction surveys for badger dens in the project area, including areas within 200 feet of all project facilities, utility corridors, and access roads. If dens are

detected each den shall be classified as inactive, potentially active, or definitely active. Den avoidance, monitoring, and destruction methods shall adhere to those prescribed for San Joaquin kit fox avoidance and minimization in Condition of Certification **BIO-14**.

**Verification:** The project owner shall submit a report to the CPM and CDFG no less than 10 days prior to the start of any ground disturbing activities or construction equipment staging that describes when surveys were completed, observations, and proposed impact minimization measures. Within 30 days after completion of construction of the project, the project owner shall provide to the CDFG and CPM a written construction termination report identifying how impact minimization measures have been completed.

**SAN JOAQUIN KIT FOX IMPACT AVOIDANCE AND MINIMIZATION MEASURES AND MANAGEMENT PLAN**

**BIO-14** The project owner shall prepare and implement a San Joaquin kit fox Management Plan that includes the following measures, developed in cooperation with USFWS and CDFG.

1. Pre-construction Surveys. Before project construction begins, a USFWS- and CPM-(in consultation with CDFG)approved biologist will conduct a pre-construction survey for San Joaquin kit fox dens in the project area, including areas within 200 feet of all project facilities, utility corridors, and access roads. If dens are detected each den shall be classified as a known, potential, atypical, or natal/pupping den. Den avoidance, monitoring, and destruction methods are described below.

2. Exclusion Zones. The configuration of exclusion zones around the San Joaquin kit fox dens should have a radius measured outward from the entrance or cluster of entrances. The following radii are minimums, and if they cannot be followed the CPM, USFWS, and CDFG must be contacted:

   - Known den: 100 feet
   - Potential den: 50 feet
   - Atypical den: 50 feet
   - Natal/pupping den (occupied and unoccupied): the CPM, USFWS, and CDFG must be contacted

   a. Known den: To ensure protection, the exclusion zone should be demarcated by fencing that encircles each den at the appropriate distance and does not prevent access to the den by San Joaquin kit foxes. Exclusion zone fencing should be maintained until all construction related or operational disturbances have been terminated. At that time, all fencing shall be removed to avoid attracting subsequent attention to the dens.

b. Potential and Atypical dens: Placement of 4-5 flagged stakes 50 feet from the den entrance(s) will suffice to identify the den location; fencing will not be required, but the exclusion zone must be observed.

c. Construction and other project activities should be prohibited or greatly restricted within these exclusion zones. Only essential vehicle operation on existing roads and foot traffic should be permitted. Otherwise, all construction, vehicle operation, material storage, or any other type of surface-disturbing activity should be prohibited within the exclusion zones.

3. Destruction of Dens. Disturbance to all San Joaquin kit fox dens should be avoided to the maximum extent possible. Protection provided by San Joaquin kit fox dens for use as shelter, escape, cover, and reproduction is vital to the survival of the species. Limited destruction of San Joaquin kit fox dens may be allowed, if avoidance is not a reasonable alternative, provided the following procedures are observed. Potential, Known, and/or occupied San Joaquin kit fox dens shall not be destroyed unless the project owner has an Incidental Take Statement from the USFWS. The following measures will be implemented for any natal/pupping dens, active dens (non natal), and potential dens observed during pre-construction project surveys:

   a. Natal/pupping dens will be avoided and USFWS contacted for further guidance. Natal/pupping dens will not be disturbed by the proposed project.

   b. Known dens occurring within the footprint of the activity must be monitored for three days with tracking medium or an infra-red beam camera to determine the current use. If no San Joaquin kit fox activity is observed during this period, the den should be destroyed immediately to preclude subsequent use. If San Joaquin kit fox activity is observed at the den during this period, the den should be monitored for at least five consecutive days from the time of the observation to allow any resident animal to move to another den during its normal activity. Use of the den can be discouraged during this period by partially plugging its entrances(s) with soil in such a manner that any resident animal can escape easily. Only when the den is determined to be unoccupied may the den be excavated under the direction of the biologist. If the animal is still present after five or more consecutive days of plugging and monitoring, the den may have to be excavated when, in the judgment of a biologist, it is temporarily vacant, for example during the animal's normal foraging activities. Energy Commission staff, USFWS, and CDFG encourage hand excavation, but realize that soil conditions may

necessitate the use of excavating equipment. However, extreme caution must be exercised.

c. Destruction of the den should be accomplished by careful excavation until it is certain that no San Joaquin kit foxes are inside. The den should be fully excavated, filled with dirt and compacted to ensure that San Joaquin kit foxes cannot reenter or use the den during the construction period. If at any point during excavation a San Joaquin kit fox is discovered inside the den, the excavation activity shall cease immediately and monitoring of the den as described above should be resumed. Destruction of the den may be completed when in the judgment of the biologist, the animal has escaped from the partially destroyed den.

d. If any den was considered unoccupied, but upon commencement of den destruction determined to be occupied, then destruction shall cease and the CPM, USFWS, and CDFG shall be notified immediately.

4. Construction and Operational Requirements. Habitat subject to permanent and temporary construction disturbances and other types of project-related disturbance should be minimized. Project designs should limit or cluster permanent project features to the smallest area possible while still permitting project goals to be achieved. To minimize temporary disturbances, all project-related vehicle traffic should be restricted to established roads, construction areas, and other designated areas. These areas should also be included in pre-construction surveys and, to the extent possible, should be established in locations disturbed by previous activities to prevent further impacts. The following measures shall also be implemented:

Procedure for San Joaquin Kit Fox Discovery Onsite. If construction personnel encounter a San Joaquin kit fox or any animal that construction personnel believe may be San Joaquin kit fox, the following protocol shall be followed:

i. All work that could result in direct injury, disturbance, or harassment of the individual animal will immediately cease.

ii. The construction manager will be immediately notified.

iii. The construction manager will notify the approved onsite biologist.

iv. The animal will be allowed to leave the site on its own.

a. Before any ground is disturbed, the boundaries of the construction zone will be clearly delineated with orange colored plastic construction fencing or solid barriers (for example, a

wildlife exclusion fence) to discourage workers or equipment from inadvertently straying from the project area.

b. Project-related vehicles should observe a 10-mph speed limit in all project areas, except on county roads and state and federal highways; this is particularly important at night when San Joaquin kit foxes are most active. To the extent possible, night-time construction should be minimized. Off-road traffic outside of designated project areas should be prohibited.

c. To prevent inadvertent entrapment of San Joaquin kit foxes or other animals during the construction phase of a project, all excavated, steep-walled holes or trenches more than 2 feet deep should be covered at the close of each working day by plywood or similar materials, or provided with one or more escape ramps constructed of earth fill or wooden planks. Before such holes or trenches are filled, they should be thoroughly inspected for trapped animals. If at any time a trapped or injured San Joaquin kit fox is discovered, the procedures under item “m” below must be followed.

d. San Joaquin kit foxes are attracted to den-like structures such as pipes and may enter stored pipe becoming trapped or injured. All construction pipes, culverts, or similar structures with a diameter of 4 inches or greater that are stored at a construction site for one or more overnight periods should be thoroughly inspected for San Joaquin kit foxes before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a San Joaquin kit fox is discovered inside a pipe, that section of pipe should not be moved until the CPM, USFWS, and CDFG have been consulted. If necessary, and under the direct supervision of the biologist, the pipe may be moved once to remove it from the path of construction activity, until the San Joaquin kit fox has escaped.

e. All food-related trash items such as wrappers, cans, bottles, and food scraps should be disposed of in closed containers and removed at least once a week from a construction or project site.

f. No firearms shall be allowed on the project site.

g. To prevent harassment, mortality of San Joaquin kit foxes, or destruction of dens by dogs or cats, no pets shall be permitted on project sites.

h. A representative shall be appointed by the project proponent who will be the contact source for any employee or contractor who might inadvertently kill or injure a San Joaquin kit fox or who finds a dead, injured or entrapped individual, including

animals struck by project vehicles. The representative will be identified during the employee education program. The representative's name and telephone number shall be provided to the CPM, CDFG, and USFWS.

i. An employee education program should be conducted for any project that has expected impacts to San Joaquin kit fox or other endangered species. The program should consist of a brief presentation by persons knowledgeable in San Joaquin kit fox biology and legislative protection to explain endangered species concerns to contractors, their employees, and military and agency personnel involved in the project. The program should include the following: a description of the San Joaquin kit fox and its habitat needs; a report of the occurrence of San Joaquin kit fox in the project area; an explanation of the status of the species and its protection under the Endangered Species Acts; and a list of measures being taken to reduce impacts to the species during project construction and implementation. A fact sheet conveying this information should be prepared for distribution to the above-mentioned people and anyone else who may enter the project site.

j. Upon completion of the project, all areas subject to temporary ground disturbances, including storage and staging areas, temporary roads, pipeline corridors, etc. should be re-contoured if necessary, and revegetated to promote restoration of the area to pre-project conditions. An area subject to "temporary" disturbance means any area that is disturbed during project construction, but that after completion of project construction will not be subject to further disturbance and has the potential to be revegetated. Appropriate methods and plant species used to revegetate such areas should be determined on a site-specific basis in consultation with the CPM, USFWS, CDFG, and revegetation experts.

k. In the case of trapped animals, escape ramps or structures should be installed immediately to allow the animal(s) to escape, or the USFWS, CPM, and CDFG should be contacted for advice.

l. The CPM, USFWS, and CDFG will be notified immediately within three working days of the accidental death or injury to a San Joaquin kit fox during project related activities. Notification must include the date, time, and location of the incident or of the finding of a dead or injured animal and any other pertinent information. The USFWS contact is the Chief of the Division of Endangered Species, 2800 Cottage Way, Room W-2605, Sacramento, CA 95825, (916) 414-6600. The CDFG contact for immediate assistance is State Dispatch at (831) 649-2817.

They will contact the local warden or biologist. Also contact Ms. Marcia Grefsrud at PO Box 47, Yountville, California, 94599, (707) 644-2812.

**Verification:** The project owner shall submit to the CPM, CDFG, and USFWS the final San Joaquin Kit Fox Management Plan no less than 30 days prior to the start of ground disturbing activities or construction equipment staging. The mitigation measures in the plan shall be incorporated into the BRMIMP within 10 days of completion of the plan, and implemented.

The project owner shall submit the resume and qualifications of the proposed biologist(s) to the CDFG and USFWS for review and comment and the CPM for approval no less than 30 days prior to the start of preconstruction surveys.

The project owner shall submit a report to the CPM and CDFG at least 10 days prior to the start of any ground disturbing activities or construction equipment staging that describes when surveys were completed, observations, and proposed minimization measures. No less than 30 days after completion of construction of the project linears, the project owner shall provide to the USFWS, CDFG, and CPM a written construction termination report identifying how impact minimization measures in the plan have been completed.

## SWAINSON'S HAWK IMPACT AVOIDANCE AND MINIMIZATION MEASURES

**BIO-15** If construction is proposed during the Swainson's hawk breeding season (March-August), a pre-construction nest survey shall be conducted within 30 days prior to the beginning of construction activities by a qualified biologist in order to identify active nests in the project site vicinity.

Surveys shall be conducted according to the *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley* (Swainson's Hawk Technical Advisory Committee 2000).

If active nests are found within 1/2 mile of the project disturbance area, an initial temporary nest disturbance buffer shall be established. If project related activities within the temporary nest disturbance buffer are determined to be necessary during the nesting season (approximately March 1 and September 1), then a biologist experienced with raptor behavior shall be retained by the project owner to monitor the nest, and shall along with the project owner, consult with the CPM and CDFG to determine the best course of action necessary to avoid nest abandonment or take of individuals. Work may be allowed to proceed within the temporary nest disturbance buffer if raptors are not exhibiting agitated behavior such as defensive flights at intruders, getting up from a brooding position, or flying off the nest. The biological monitor or designated biologist approved for raptor

monitoring shall be on-site daily while construction related activities are taking place and shall have the authority to stop work if raptors are exhibiting agitated behavior. In consultation with the CPM and CDFG and depending on the behavior of the raptors, over time it may be determined that the on-site biologist/monitor may no longer be necessary due to the raptors' acclimation to construction related activities.

**Verification:** The project owner shall submit a report to the CPM and CDFG no less than 10 days prior to the start of any ground disturbing activities or construction equipment staging, that describes when Swainson's hawk surveys were completed, identification and qualifications of the biologist conducting the surveys, observations, and, if required, updates to the BRMIMP based upon findings. If project-related work is required within a Swainson's hawk nest buffer, the project owner shall submit the name and qualification of the proposed monitor to the CDFG for comment and the CPM for approval no less than 30 days prior to disturbance within the nest buffer. The designated biologist shall contact the CPM and CDFG within 2 days of a work stoppage due to disturbance to the nesting Swainson's hawks. No less than 30 days after completion of construction within the nest buffer, the project owner shall provide to the CDFG and CPM a written construction termination report identifying the results of monitoring during disturbance within the nest buffer.

**COMPENSATORY MITIGATION FOR IMPACTS TO SPECIAL-STATUS WILDLIFE SPECIES AND WETLANDS**

**BIO-16** To mitigate for impacts to wetlands and habitat loss and potential take of listed branchiopods, San Joaquin kit fox, California red-legged frog, California tiger salamander, western burrowing owl, Swainson's hawk, and wetlands, the project owner shall provide compensatory mitigation for permanent, long-term temporary, and short-term temporary impacts at the following ratios:

**BIO-16 Table 1**

| Species | Mitigation Ratios for Impacts | | |
|---|---|---|---|
| | Permanent | Long-term Temporary | Short-term Temporary |
| Wetlands | 1:1 | -- | -- |
| Branchiopod | 3:1 | 3:1 | -- |
| California tiger salamander | 3:1 | 3:1 | 1.1:1 |
| California red-legged frog | 3:1 | 3:1 | 1.1:1 |
| San Joaquin kit fox | 3:1 | 3:1 | 1.1:1 |
| Western burrowing owl | 2:1 | 2:1 | -- |
| Swainson's hawk | 1:1 | 1:1 | -- |

The project owner shall provide Security as described in **Section A** below. The project owner shall acquire, initially improve, endow, and transfer to CDFG (or a qualified non-profit organization), as described in **Section A** below, the acreages listed below (final costs will be adjusted to reflect final project footprint).

**BIO-16 Table 2**

| Species | Compensation (Acres) |
|---|---|
| Wetland | 0.018 |
| Branchiopod | 0.054 |
| California tiger salamander | 79.9 |
| California red-legged frog | 79.9 |
| San Joaquin kit fox | 79.9 |
| Western burrowing owl | 44.2 |
| Swainson's hawk | 19.3 |

In lieu of acquiring lands itself, the project owner may purchase credits in an approved conservation bank, as described in **Section B**, below.

**A.** The acquisition and management of compensation lands shall include the following elements:

1. General Selection Criteria for Compensation Lands. Compensation lands may be purchased to cover acquisition requirements for more than one species only if all criteria for each species included in the acquisition are met. Compensation lands must be approved by the CPM, CDFG, and USFWS. Compensation lands shall:

    a. provide comparable or better value habitat than that of the affected area, and with capacity to improve in quality and value for the species;

    b. be adjacent to, or in close proximity to, larger blocks of lands that are already protected such that there is connectivity between the acquired lands and the protected lands;

    c. be as close to the impact site as feasible, and within the geographical range approved by the CPM, CDFG, and USFWS;

    d. not have a history of intensive recreational use or other disturbance that might make habitat recovery and restoration infeasible;

    e. not be characterized by high densities of invasive species, either on or immediately adjacent to the parcels under consideration, that might jeopardize habitat recovery and restoration;

    f. not be encumbered by easements or uses that would preclude fencing of the site or preclude or unacceptably constrain management of the site for the primary benefit of

the species and their habitat for which compensation mitigation lands were secured, and;

g. not contain hazardous wastes.

2. Specific Selection Criteria for Compensation Lands.

   a. *San Joaquin kit fox*: In addition to the measures described above, compensation lands selected for acquisition shall:

   b. Compensation lands should be occupied by, or be connected to lands currently occupied by the San Joaquin kit fox, however, due to the scarcity of known occurrences in this region, compensation lands with historical occurrences, or connected to lands with a historical occurrence, or other lands approved by the CPM, CDFG, and USFWS, are acceptable. Connection must be free of barriers, and have features of suitable dispersal habitat for this species.

   c. *California red-legged frog*: In addition to the measures described above, compensation lands selected for acquisition shall:

      - Be within California red-legged frog Critical Habitat Unit CCS-2B.
      - Contain known California red-legged frog breeding habitat or, with approval from the CPM and USFWS, contain potential California red-legged frog breeding habitat and be within 1 mile (with a barrier-free connection qualifying as dispersal habitat) of known California red-legged frog breeding habitat.
      - Contain suitable California red-legged frog upland habitat

   *d.* *California tiger salamander*: In addition to the measures described above, compensation lands selected for acquisition shall:

      - Contain known California tiger salamander breeding habitat or, with approval of the CPM, CDFG, and USFWS,, contain potential California tiger salamander breeding habitat and be within 1 mile (with a barrier-free connection qualifying as dispersal habitat) of known protected California tiger salamander breeding sites, and;
      - Contain suitable upland habitat.

   *e.* *Western burrowing owl*: In addition to the measures described above, compensation lands selected for acquisition shall:

- Currently supports burrowing owls at twice the number of owls displaced by the project site. This requirement will be presumed to be met if compensation is through a conservation bank.
- If no owls displaced by the project, the compensatory lands must currently support burrowing owls or be within 1-mile of an active burrowing owl colony, or as approved by the CPM and CDFG.

*f.* *Swainson's hawk*: In addition to the measures described above, compensation lands selected for acquisition shall:

- Either currently support a nesting site or be within 5 miles of a documented Swainson's hawk nest.

*g.* *Branchiopods:* In addition to the measures described above, compensation lands selected for acquisition shall**:**

- Currently support either vernal pool fairy shrimp and/or longhorn fairy shrimp, based upon agency approval.

3. Review and Approval of Compensation Lands Prior to Acquisition. The project owner shall submit a formal acquisition proposal to the CPM, CDFG, and USFWS describing the parcel(s) intended for purchase. This acquisition proposal shall discuss the suitability of the proposed parcel(s) as compensation lands for the target species in relation to the criteria listed above. Approval from the CPM, CDFG, and USFWS, shall be required for acquisition of all parcels comprising the compensation lands.

4. Compensation Lands Acquisition Requirements. The project owner shall comply with the following requirements relating to acquisition of the compensation lands after the CPM, CDFG, and, USFWS, has approved the proposed compensation lands:

   a. Preliminary Report. The project owner, or approved third party, shall provide a recent preliminary title report, initial hazardous materials survey report, biological analysis, draft conservation easement and other necessary or requested documents for the proposed compensation land to the CPM, CDFG, and USFWS. All documents conveying or conserving compensation lands and all conditions of title are subject to review and approval by the CPM, CDFG, and USFWS. For conveyances to the State, approval may also be required from the California Department of General Services, the Fish and Game Commission and the Wildlife Conservation Board.

   b. Title/Conveyance. The project owner shall transfer fee title to the compensation lands, a conservation easement over the

lands, or both fee title and conservation easement as required by the CPM, CDFG, and USFWS. Any transfer of a conservation easement or fee title must be to CDFG or a non-profit organization qualified to hold title to and manage compensation lands (pursuant to California Government Code section 65965) and must be approved by CDFG. If an approved non-profit organization holds title to the compensation lands, the conservation easement shall be recorded in favor of CDFG, or a non-profit approved by the CDFG and CPM, in a form approved by CDFG. If an approved non-profit holds the conservation easement, CDFG shall be named a third party beneficiary.

c. Initial Habitat Improvement Fund. The project owner shall fund the initial protection and habitat improvement of the compensation lands by an irrevocable letter of credit or other mechanism approved by the CPM and CDFG. Alternatively, a non-profit organization may hold the habitat improvement funds if it is qualified to manage the compensation lands (pursuant to California Government Code section 65965) and if it meets the approval of the CPM, CDFG, and USFWS. If CDFG takes fee title to the compensation lands, the habitat improvement fund must be paid to CDFG or its designee.

d. Property Analysis Record. Upon identification of the compensation lands, the project owner shall conduct a Property Analysis Record (PAR) or PAR-like analysis to establish the appropriate long-term maintenance and management fee to fund the in-perpetuity management of the acquired mitigation lands.

e. Long-term Maintenance and Management Fund. The project owner shall provide to CDFG, or approved non-profit organization, a fee for maintenance and management, in perpetuity, of the compensation lands in the amount determined through the PAR or PAR-like analysis conducted for the compensation lands. Long-term maintenance and management fees will be determined through a PAR or PAR-like analysis that will be based upon an approved Management Plan. The project owner must cover the full amount of the fee for this long-term maintenance and management. If the fee is less than the Security described in **BIO-16 Table 3**, the excess money shall be returned to the project owner. The CPM, CDFG, and USFWS, may designate another non-profit organization to hold the long-term maintenance and management fee if the organization is qualified to manage the compensation lands in perpetuity. If CDFG takes fee title to the compensation lands, CDFG shall

determine whether it will hold the long-term management endowment fee in the special deposit fund or designate another entity to manage the long-term maintenance and management fee for CDFG and with CDFG supervision.

f. Interest and Principal. The project owner, with approval from the CPM, CDFG, and USFWS, shall ensure that an agreement is in place with the long-term maintenance and management fee holder/manager to ensure the following conditions:

   i. Interest. Interest generated from the initial capital long-term maintenance and management fee shall be available for reinvestment into the principal and for the operation, management, and protection, in perpetuity, of the approved compensation lands, including reasonable administrative overhead, biological monitoring, improvements to carrying capacity, law enforcement measures, and any other action approved by the CPM, CDFG, and USFWS, designed to protect or improve the habitat values of the compensation lands.

   ii. Withdrawal of Principal. The long-term maintenance and management fee principal shall not be drawn upon unless such withdrawal is deemed necessary by the CDFG or the approved third-party long-term maintenance and management fee manager to ensure the continued viability of the species on the compensation lands. If CDFG takes fee title to the compensation lands, monies received by CDFG pursuant to this provision shall be deposited in a special deposit fund established solely for the purpose to manage lands in perpetuity unless CDFG designates another entity to manage the long-term maintenance and management fee for CDFG.

g. Other expenses. In addition to the costs listed above, the project owner shall be responsible for all other costs related to acquisition of compensation lands and conservation easements, including but not limited to title and document review costs, expenses incurred from other state agency reviews, and overhead related to providing compensation lands to CDFG or an approved third party; escrow fees or costs; environmental contaminants clearance; and other site cleanup measures. An estimate of this cost is included in the Security, **BIO-16 Table 3**. The project owner shall be responsible for the full cost of other expenses; if the other expenses are less than the Security

described in **BIO-16 Table 3**, the excess money shall be returned to the project owner.

h. Mitigation Security. The project owner shall provide financial assurances to the CPM with copies of the document(s) to CDFG and the USFWS, to guarantee that an adequate level of funding is available to implement the mitigation measures described in this condition. These funds shall be used solely for implementation of the measures associated with the project in the event the project owner fails to comply with the requirements specified in this condition, or shall be returned to the project owner upon successful compliance with the requirements in **Section A**. The CPM's use of the Security to implement measures in this condition may not fully satisfy the project owner's obligations under this condition. Financial assurance can be provided to the CPM in the form of an irrevocable letter of credit or another form of security ("Security") approved by the CPM. Prior to submitting the Security to the CPM, the project owner shall obtain approval from the CPM, CDFG, and USFWS, of the form of the Security. Security shall be provided in the amount as follows:

**BIO-16 Table 3**

| Security for: | Cost |
|---|---|
| Acquisition ($10,000/acre) | $799,000 |
| Initial protection and improvement activities | $100,000 |
| Long-term management ($22,000/year at 3% interest) | $733,333 |
| Other fees | $44,000 |
| **Total Security:** | **$1,676,333** |

Source: CDFG (CEC 2010v); estimate for acquisition, enhancement, and long-term management endowment of 79.9 acres.
1 – Other fees include conservation easement fee, accounting, copying, tracking, documents fee, fee for PAR review, grantee orientation, initiation of management, etc.

The amount of Security shall be adjusted for any change in the project footprint.

i. The project owner may elect to fund the acquisition and initial improvement of compensation lands through an approved third party. Approval is by written agreement from the CPM. Such delegation shall be subject to approval by the CPM, CDFG, and USFWS, prior to land acquisition, enhancement or management activities.

Initial deposits for this purpose must be made in the same amounts as the acquisition, initial protection and improvement, and other expenses Securities required in **BIO-16 Table 3**, above, and may be provided in lieu of these Securities. If this option is used for the acquisition and initial improvement, the project owner must cover the actual acquisition costs and administrative costs and fees

of the compensation land proposed for purchase once land is identified and the actual costs are known. If the total actual costs for and fees are less than the Security described in **BIO-16 Table 3**, the excess money shall be returned to the project owner.

**B.** In lieu of the requirements of **Section A**, the project owner may purchase compensatory mitigation credits in an approved conservation bank.

1. Credits must be purchased in the amounts equivalent to the compensatory mitigation acreage requirements included in **BIO-16 Table 2.**
2. The conservation bank must be approved by the CPM, CDFG, and USFWS.
3. Multiple conservation banks, if necessary, may be used to fulfill compensatory mitigation requirements.

**Verification:** If the mitigation actions required under **Section A** or **Section B** of this condition are not completed prior to the start of ground-disturbing activities, the project owner shall provide the CPM with an approved Security in accordance with this condition of certification, no less than 30 days prior to beginning project ground-disturbing activities.

*If the project owner chooses to mitigate under **Section A** of this Condition:*

Agreements to delegate land acquisition to an approved third party shall be implemented within 6 months of the start of project ground-disturbing activities. If the project owner elects to delegate land acquisition prior to project construction, the project owner shall provide to the CPM, CDFG, and USFWS a delegation proposal that identifies the third party and includes their qualifications to complete land acquisition and initial protection and improvement, and shall obtain approval from the CPM, CDFG, and USFWS, prior to delegation or transfer of funds. The project owner shall remain responsible for demonstrating compliance with the timelines and requirements described below.

No less than 90 days prior to acquisition of the property, the project owner shall submit a formal acquisition proposal to the CPM, CDFG, USFWS, describing the parcels intended for purchase and shall obtain approval from the CPM, CDFG, and USFWS prior to the acquisition.

The project owner, or an approved third party, shall complete and provide written verification to the CPM, CDFG, and USFWS of the compensation lands acquisition and transfer within 18 months of the start of project ground-disturbing activities, or prior to commercial operation, whichever occurs first.

The project owner, or an approved third party, shall provide the CPM, CDFG, and USFWS with a Compensation Lands Management Plan, for approval, within 180

days of the land or easement purchase, as determined by the date on the title. If additional long-term management fees are required, these fees shall be paid by the project owner no more than 90 days from approval of the Management Plan.

*If the project owner chooses to mitigate under **Section B** of this Condition:*

No less than 90 days prior to purchase of credits, the project owner shall submit to the CPM and CDFG for review and approval, and the USFWS for review and comment, the proposed conservation bank(s), species to be mitigated at the bank, and evidence that credits are available for purchase.

The project owner shall complete and provide written verification to the CPM, CDFG, and USFWS of the credit purchase within 18 months of the start of project ground-disturbing activities, or prior to commercial operation, whichever occurs first. The verification shall be a letter from the conservation bank, or other method approved by the CPM and CDFG, in consultation with the USFWS, and shall include the name of the conservation bank, number of credits purchased, and the species covered under the purchase.

*Under either Section A or B of this Condition:*

Within 90 days after completion of all project related ground disturbance, the project owner shall provide to the CPM, CDFG, and USFWS an analysis, based on aerial photography, with the final accounting of the amount of habitat disturbed during project construction. This shall be the basis for the final number of acres required to be acquired.

## WATERS AND WETLANDS IMPACT AVOIDANCE AND MINIMIZATION MEASURES

**BIO-17** To avoid and minimize impacts to wetlands and waters, the project owner shall implement the following measures:

1. Waters, wetlands, and drainage or channel shall be avoided to the maximum extent possible.
2. For all wetlands and waters to be avoided, a buffer zone shall be established to protect the resource and the immediate watershed. The buffer zone shall be delineated with temporary protective fencing.
3. A Stormwater Pollution Prevention Plan (SWPPP) shall be developed that describes sediment and hazardous materials control, fueling and equipment management practices, and other factors deemed necessary for the project.
4. If bentonite is required to install pipeline under a drainage, an Emergency Spill Response Plan, “Frac out” Monitoring Plan, and a Biological Monitoring Plan shall be developed for approval by the CPM in

consultation with the CDFG. A designated biologist must be onsite during the installation.

5. Erosion control measures shall be monitored on a regularly scheduled basis, particularly during times of heavy rainfall. Corrective measures shall be implemented in the event erosion control strategies are inadequate. Sediment/erosion control measures shall be continued at the project site until such time as the revegetation efforts are successful at soil stabilization.
6. All equipment will be maintained so that there will be no leaks of automotive fluids such as fuels, solvents, or oils. Hazardous materials such as these will be stored in sealable containers in a designated location that is at least 250 feet from aquatic habitats. All refueling and maintenance of vehicles and other construction equipment and staging areas shall occur at least 250 feet from any aquatic habitat.
7. No discharge of sediment-laden water from project-related work will be allowed into storm drains, wetlands, or water courses.
8. Erodible fill material shall not be deposited into water courses. Brush, loose soils, or other similar debris material will not be stockpiled in the drainage channel or on its banks.
9. Equipment and personnel will not be allowed to enter aquatic habitats or be on the banks unless otherwise authorized by the resource agencies.
10. Erosion and sedimentation control devices (such as silt fences and fiber rolls) shall be implemented as necessary during the wet season and before forecasted rain events.
11. Dust control shall be implemented, including the use of water trucks to control dust in disturbed areas, rocking of temporary access road entrances and exits, and placement of geotextile mats and rock on access road areas to be used in the wet season.

**Verification:** No less than 10 days prior to ground disturbance, the project owner shall provide the CPM, CDFG, and USFWS with a report identifying the location of any protective fencing, including a figure and photographs that show the fencing.

If bentonite will be used, an Emergency Spill Response Plan, “Frac out” Monitoring Plan, and a Biological Monitoring Plan shall be submitted to the CDFG for review and comment and to the CPM for approval no less than 30 days prior to the start of project ground-disturbing activities involving bentonite. Plan approval shall be required before construction using bentonite may commence.

The project owner shall report monthly to the CPM, CDFG and USFWS for the duration of construction on the implementation avoidance and minimization measures. Within 30 days after completion of construction the project owner shall

provide to the USFWS, CDFG and CPM a written construction termination report identifying how mitigation measures have been completed.

**REVEGETATION AND RESTORATION**

**BIO-18** The project owner shall revegetate all temporarily affected areas:

a. Topsoil stripped from the project site shall be stockpiled onsite for later use during restoration of the temporary impact areas.

b. In areas subject to compaction, ripping will be performed to facilitate restoration. Ripping will be to a depth no less than 2 feet.

c. Affected areas will be reseeded with species typical of annual grassland.

d. Temporary erosion control measures including silt fences, erosion control blankets, and fiber rolls will be installed as necessary to prevent any observed erosion until revegetation measures are fully implemented.

**Verification:** Within 30 days after completion of restoration the project owner shall provide to the USFWS, CDFG and CPM a written report identifying revegetation has been completed.

## B. SOIL AND WATER RESOURCES

This section focuses on the soil and water resources associated with the Mariposa Energy Project (MEP), including the project's potential to induce erosion and sedimentation, adversely affect water supplies, and degrade water quality. The analysis also considers site contamination and any potential cumulative impacts to water quality in the vicinity of the project. Mitigation measures are included in the Conditions of Certification to ensure that the project will have no significant impacts on the environment and that it will comply with all LORS. The evidence contained in the record is undisputed. (Exs. 1; 4; 6; 7; 11: 14; 17; 18; 27; 55; 61; 63; 64; 66; 301.)

### SUMMARY AND DISCUSSION OF THE EVIDENCE

The proposed MEP facility would be located 5.5 miles southeast of Byron, California on a 10-acre portion of a 158-acre parcel, known as the Lee Property in the northeast corner of Alameda County. This property is south of the Pacific Gas and Electric Company's (PG&E) Bethany Compressor Station and Kelso Substation. The Lee Property was formerly the site of a windmill farm. The MEP facility will be built between two small hills on the parcel. (Ex. 301, p. 4.12-5.)

The construction laydown area for proposed facility will be approximately 9.2 acres and will be adjacent to the east side of the project site. Additional laydown areas will be needed for the construction of linears (water supply pipeline, transmission line, and natural gas pipeline) for the proposed facility. The proposed water supply pipeline and laydown areas will extend north into Contra Costa County. (Ex. 301, p. 4.12-5.)

Byron-Bethany Irrigation District (BBID) will supply raw surface water for process water, safety showers, fire protection, service water, and domestic water for the MEP site via Canal 45. A new 10 inch-diameter, 1.8 mile-long water supply pipeline will be built along the east side of Bruns Road from Canal 45 to the proposed project site. The pipeline will traverse the BBID property from the pump station to the BBID headquarters facility in Contra Costa County and travel south within the right-of-ways of both Contra Costa and Alameda Counties and just outside the edge of Bruns Road pavement before following the MEP site access road to the project site in Alameda County. Additional facilities to complement the new pipeline will include a concrete turnout structure and a small pump station at the canal bank, redundant vertical turbine pumps, pipe manifold and

valving, pad-mounted transformer, and an electrical cabinet with instrumentation. (Ex. 301, pp. 4.12-5 - 4.12-6.)

The raw surface water supplier, BBID, is a public agency operating under the California Water Code. BBID is a multi-county special district encompassing approximately 30,000 acres, with lands in Alameda, Contra Costa and San Joaquin Counties and is the jurisdictional water purveyor in the area. The source of BBID's water supply for MEP will be pre-1914 water rights that were established by the Byron-Bethany Irrigation Company and acquired with the formation of BBID in 1921. BBID's original point of diversion on Italian Slough was destroyed by the California Department of Water Resources (DWR) for the construction of the Harvey O. Banks Pumping Plant. To compensate BBID, DWR granted BBID the use of the Banks Pumping Plant Intake Channel as a replacement point of diversion. Accordingly, BBID diverts water under its pre-1914 water right at its facilities located on the Banks Pumping Plant Intake Channel. (Ex. 301, p. 4.12-6.)

1. Soil and Erosion

The soils at the MEP site vary from finer soils formed in residuum to coarser soils formed in alluvium. They are medium to fine-grained with textures ranging from fine sandy loam to clay with moderately well drainage in the upland rolling portions of the project area to moderately well and somewhat poorly drained in the more level areas of the proposed project site. The site has 0 to 30 percent slopes and existing vegetation in the form of pasture grasses. The erosion potential of these soils in the construction and laydown areas will vary based on soil moisture and compaction, as well as the size of the soil particles; however, the sloping nature of the property suggests the soils will have a high water erosion potential and moderate wind erosion potential. However, since the project area was previously the site of a wind turbine development and has buried natural gas pipe lines that run through the area, it is possible that soil conditions may vary slightly from those listed in the USDA-NRCS soil survey. (Ex. 301, p. 4.12-10.)

The linear route areas and construction laydown location overlay clay loams and fine sandy loams with 0 to 15 percent slopes. These soils may have a moderate to high potential for shrinking and swelling due to their clay content. These soils may not be suitable as a bearing surface for structures and pipelines. Additionally, these soils may not be suitable for backfilling in areas where post-

construction soil movements could adversely affect linear features. (Ex. 301, pp. 4.12-10 - 4.12-11.)

Construction activity will increase short-term soil erosion. With the implementation of Best Management Practices (BMPs) including stabilizing construction entrances, applying water for dust suppression, placement of silt fencing, berms, and revegetation as needed, erosion will be reduced to less than significant and water quality will not be adversely affected by runoff from the site. (Ex. 301, p. 4.12-13.)

Finished grade slopes will drain into one of two constructed swales routing upgradient stormwater around the site. To reestablish grass vegetation, finished grade slopes and swales will be hydroseeded with a native grass mixture, and mulched to keep seeds in place and to moderate soil moisture and temperature until the seeds germinate and grow. Controlled watering will be applied if seasonal rainfall is not sufficient. The entire area will be regularly monitored for signs of erosion; areas will be re-vegetated as necessary to maintain adequate soil protection. Vegetating disturbed soil soon after construction is an effective stabilization measures for controlling erosion. (Ex. 301, p. 4.12-13.)

Condition of Certification **SOIL&WATER-1** will require the Mariposa Energy LLC (Mariposa) to comply with all of the requirements of the General National Pollutant Discharge Elimination System (NPDES) Permit for Discharges of Storm Water Associated with Construction Activity, including the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP) for Construction. (Ex. 301, p. 4.12-13.)

To qualify for the NPDES statewide General Permit for Storm Water Discharges Associated with Construction Activity (General Construction Permit), prior to construction, Mariposa will be required to develop a Construction SWPPP to prevent the offsite migration of sediment and other pollutants, and to reduce the effects of runoff from the laydown sites and linears to offsite areas. Successful implementation of the SWPPP will ensure that construction impacts to soil resources are mitigated to a less-than-significant level. SWPPP procedures include submitting a Notice of Intent (NOI) to the State Water Resources Control Board (SWRCB) and developing the SWPPP prior to the start of construction activities. The construction SWPPP will also be submitted to both the Alameda County Flood Control and Water Conservation District and Contra Costa County Grading Division for review. (Ex. 301, p. 4.12-13.)

Condition of Certification **SOIL&WATER-2** requires the project owner to obtain Compliance Project Manager (CPM) approval for a site-specific final Drainage, Erosion and Sedimentation Control Plan (DESCP) that addresses all project elements. Compliance with the requirements of this condition will reduce potential soil erosion and stormwater quality impacts to less than significant for the construction phase of the project. (Ex. 301, p. 4.12-13.)

During construction of the MEP project, activities such as grading could potentially destroy habitat and increase rates of erosion during construction. Additionally, construction materials could contaminate runoff or groundwater if not properly stored and used. Mariposa will implement erosion and sediment control BMPs to follow the progress of grading and construction throughout the entire construction period. (Ex. 301, pp. 4.12-13 - 4.12-14.)

Temporary erosion and sediment control measures will be implemented at the start of construction, and will be evaluated, inspected and maintained during construction. Mariposa proposes BMP measures to include silt fences, mulching, and revegetation. These measures will be removed from the site after the completion of construction or converted to permanent BMPs. (Ex. 301, p. 4.12-14.)

Disturbed areas will be stabilized with plastic covers, erosion control blankets, or mulch before rain events. In addition, linear sediment controls will be used along the toe of the slope, face of the slope and at the grade breaks of exposed slopes. Placement of linear sediment controls at grade breaks of exposed slopes will interrupt the length of the slope and reduce erosion by reducing runoff velocity. (Ex. 301, p. 4.12-14.)

Sediment barriers will be used to prevent water erosion by slowing runoff and trapping sediment. Sediment barriers include straw bales, sand bags, straw wattles, and silt fences. They will be placed downstream of disturbed areas, at the base of exposed slopes, and along streets and property lines below the disturbed area. Since the site will be constructed on rolling terrain, sediment barriers will also be placed along the entire site perimeter. Sediment barriers will be properly installed (staked and keyed), then removed or used as mulch after construction. Any soil stockpiles, including sediment barriers around the base of the stockpiles, will be stabilized and covered. (Ex. 301, p. 4.12-14.)

Non-active areas will be stabilized as soon as feasible after the cessation of construction activities and no later than 14 days after construction has ceased in

that portion of the site. These temporary erosion control measures, along with the specific locations where they will be used onsite, must be included in the final construction SWPPP and submitted to both the Alameda County Flood Control and Water Conservation District and Contra Costa County Grading Division prior to construction as specified in Condition of Certification **SOIL&WATER-1**. (Ex. 301, p. 4.12-14.)

Laydown areas are proposed during construction of the MEP site and its associated linears. Vehicle traffic and equipment staging associated with these areas will result in soil compaction. Soil compaction increases soil density by reducing soil pore space. This, in turn, exacerbates the ability of the soil to absorb precipitation and transmit gases for respiration of soil microfauna. Soil compaction can result in increased runoff, erosion, and sedimentation. (Ex. 301, p. 4.12-14.)

The MEP site laydown area will need to be graded prior to use; therefore, it will be covered with gravel to minimize soil erosion and allow for wet season use. Laydown areas associated with the linears will not require grading and will not utilize gravel covering. Heavy equipment in the laydown areas will be stored on dunnage (loose scrap material that provides ventilation) to protect it from ground moisture. Compaction beneath the laydown area will be mitigated by removing and stockpiling topsoil for later reuse and by deep ripping the subsoil after removing construction materials and gravel covering. Given the limited area over which permanent compaction will occur, it is considered that this impact will be less than significant. It is also assumed that soil loss will be negligible from the laydown areas once it is revegetated. (Ex. 301, pp. 4.12-14 - 4.12-15.)

The highest potential for soil loss will occur immediately following grading or during the period following the end of construction. Mariposa has described the existing condition of the proposed laydown area as vegetated with non-irrigated grazing grasses and stated that this area will be returned to its current condition. With the implementation of Conditions of Certification **SOIL&WATER-1** and **SOIL&WATER-2**, potentially significant impacts caused by erosion or storm water discharge during MEP construction will be mitigated. (Ex. 301, p. 4.12-15.)

Linear features associated with the MEP facility include water, natural gas, and transmission lines. Associated construction activities include grading for all linear features and trench excavation for underground pipelines. Linear elements will be installed in 4-foot wide trenches using a ten-foot construction corridor. Overhead transmission lines will utilize poles with a 4-ft by 4-ft footprint. The

linear areas will include soils with 3 to 15 percent slopes along both right-of-ways and agricultural area. Mariposa has submitted a request to the U.S. Army Corps of Engineers (USACE) requesting a jurisdictional determination of Waters of the U.S. for several ephemeral streams and drainage areas that cross the proposed alignment of the project linears, including the alternative water supply pipeline to the Mountain House Community Services District Wastewater Treatment Plant. The USACE has not yet responded with their determination. (Ex. 301, p. 4.12-15.)

Mitigation efforts associated with linear areas will be similar to those for the laydown areas and project site. Graded areas will be graveled immediately following completion and silt fences will be installed to prevent runoff out of the linear construction areas. Implementation of **SOIL&WATER-1** and **SOIL&WATER-2** will mitigate construction impacts in the linear areas. Per **SOIL&WATER-1**, the construction SWPPP should be submitted to the Contra Costa County Grading Inspector for comment and review of impacts specifically related to the water supply pipeline. (Ex. 301, p. 4.12-15.)

2. Surface Hydrology, Storm Water Management, and Flooding

The MEP site will be located in the San Joaquin River Basin, about 10 miles south of the Sacramento-San Joaquin Delta. In addition to many sloughs, major waterways near the site include: the San Joaquin, Mokelumne, Stanislaus, Tuolumne, and Merced rivers. Runoff from the Sierra Nevada range supplies water to the major reservoirs of the San Joaquin Basin which eventually drain into the Delta. (Ex. 301, p. 4.12-4.)

The MEP site will be located adjacent to primary water supply canals which import fresh surface water to the San Joaquin Basin via the State Water Project (SWP) and the Central Valley Project (CVP). The California Aqueduct (SWP) is adjacent to the MEP site. The Delta-Mendota Canal is less than 0.5 miles northeast of the MEP site. These larger canals carry fresh water from the Sacramento and San Joaquin Rivers to a vast network of canals for both agricultural irrigation and industrial uses across the state. (Ex. 301, p. 4.12-4.)

Surface water runoff from the undeveloped project location flows overland and converges within man-made ditches. The site runoff eventually discharges into Italian Slough, located about 3.5 miles north of the MEP site. (Ex. 301, p. 4.12-5.)

Since the existing site includes no active stormwater management system, the MEP site will control runoff such that discharge rates from the site will remain comparable to pre-construction rates. Existing runoff from the rolling hills of the MEP site is in the form of sheetflow to the north into ephemeral drainages that converge into a single constructed linear channel. The channel eventually discharges into Italian Slough (3.5 miles from the project site). When complete, the project site will be partially covered with impervious surfaces, which will increase runoff (compared to existing conditions) during moderate and large storm events. The facility will manage stormwater runoff with a series of inlets and storm drain pipes that will convey the runoff to an on-site extended detention basin located at the north end of the site. (Ex. 301, p. 4.12-17.)

The extended detention basin will be sized to contain the facility site 100-year storm event and will release the volume over a minimum 48-hour period, such that the peak discharge rate is similar to that of the pre-construction condition. The extended detention basin will discharge into the northeasterly-aligned constructed swale. The swale will transition through a 36-inch diameter culvert and discharge offsite to the north into the ephemeral drainage areas. With implementation of Conditions of Certification **SOIL&WATER-2** and **SOIL&WATER-3**, operational impacts on drainage patterns will be less than significant. **SOIL&WATER-2** requires the project owner to identify results of stormwater BMP monitoring and maintenance activities and **SOIL&WATER-3** requires that Mariposa comply with all requirements of the General NPDES Permit for Discharges of Storm Water Associated with Industrial Activity. (Ex. 301, p. 4.12-17.)

Areas with potential oil water contamination will be sited within containment to prevent mixing of oily water with stormwater flowing to the extended detention basin. Impervious areas on the site will be limited to paved loop and equipment access roads and the equipment to operate the plant. Forty-four percent of the MEP site will have impervious surfaces for equipment siting and roads. Runoff will increase between pre- and post-development due to the impervious structures and shortened drainage basin time of concentration on the developed site; however, the extended detention basin outfall discharge rates will not be greater than pre-development site stormwater discharge rates. (Ex. 301, p. 4.12-10.)

3. Water Resources and Supply

As discussed previously, Mariposa's source of construction water is from BBID Canal 45. Prior to completion of the new water supply pipeline, water will be

obtained from BBID Canal 45 via pumping into tanker trucks. The water will be trucked about 1.3 miles to the MEP site where it will be used for dust suppression, concrete washout, soil compaction, and hydrostatic testing. As shown in **Soil and Water Table 1**, approximately 2,500 gallons of water per day (gpd) will be required during the construction period. Assuming an anticipated construction period of eight to nine months, the total amount of water required for construction is between 600,000 and 675,000 gallons (1.8 to 2.1 acre-feet). (Ex. 301, p. 4.12-15.)

MEP has included a water conservation program that funds water conservation measures within BBID that will offset all freshwater used for construction. The water conservation program includes a voluntary contribution of $15,000 to BBID to offset water used for construction. BBID's water conservation efforts include improvements to its irrigation ditches and pump station upgrades that will significantly reduce losses to seepage, evaporation and operational spills. Based on the $1,000 per acre-foot water conservation funding mechanism established for the Marsh Landing Generating Station, the funding for construction water use should more than offset MEP's construction water requirements resulting in no net increase in freshwater use within BBID. (Ex. 301, pp. 4.12-15 - 4.12-16.)

Condition of Certification **SOIL&WATER-4** requires MEP to work with BBID (or secondarily, through Contra Costa Water District or Alameda Zone 9) to develop and implement a local water conservation program that will offset the use of fresh water for construction purposes. (Ex. 301, p. 4.12-16.) Intervenor Robert Sarvey suggested that recycled water should be trucked in for dust suppression at the MEP during construction. (3/7/11 RT 456:15 – 17). We prefer the use of recycled water to fresh water for power plant construction uses and encourage the project owner to supplant fresh water use with recycled water wherever possible. However, in light of the 100 percent offset of construction water usage, we will not require it. We find that since the MEP's minor consumption of fresh water during construction is wholly offset, there will be no impact to water resources.

Based on the evidence, the MEP facility will use an average of 34.8 acre-feet of fresh water per year provided that the facility runs a projected 600 total hours per year. Alternatively, should increased water be needed, the plant will use a maximum of 187 acre-feet per year during 4,000 hours of operation. BBID confirmed that they have the ability to meet the MEP facility demand. Mariposa proposes to obtain raw water from BBID via a 10-inch-diameter, 1.8-mile-long water supply pipeline planned for construction in or along the east side of Bruns Road from existing Canal 45 south to the plant site. (Ex. 301, p. 4.12-17.)

At the evidentiary hearing, Staff's water expert reiterated in testimony that BBID has confirmed that they are able to supply the water needs of the MEP. However, Intervenor Robert Sarvey argued that BBID's total allotment of 50,000 AFY of water was fully allocated. (Sarvey, Op. Brief, pp. 18-19). Staff's expert noted that Mountain House's allotment of 9,415 AFY was based upon the capacity of the community once it is fully developed. (3/7/11 RT 452:5 – 454:20). Mr. Sarvey points out in his brief that, according to footnote (e) of Table 5.15-2, the Mountain House Community currently uses 2,810 AFY (*Id*.) No party has offered any evidence to explain how BBID has allotted its water rights. Table 5.5-12 merely lists potential water users within the BBID. Nevertheless, the record shows that the Applicant will voluntarily fund a program designed to conserve a volume of raw water equal to the volume of water consumed by MEP annually for process needs. As a result of this commitment, MEP will not result in a net increase in consumption of raw water within BBID. Because MEP will not result in an increase in raw water consumption, we have found according to the testimony of Applicant's and Staff's experts, that MEP will have no significant impact on water supply. Notwithstanding the speculation regarding BBID's allocation of it 50,000 AFY of water, we are satisfied that BBID's ability to supply the relatively modest water needs of the MEP (35 to 187 AFY) is adequately established in the record.

Mariposa considered other water supply options and performed an analysis for recycled water alternatives to determine the economic and environmental feasibility of constructing those pipelines. They determined that the closest recycled water sources were the Mountain House Community Services District (MHCSD) Wastewater Treatment Plant (WWTP) and the City of Tracy WWTP. (Ex. 301, p. 4.12-17.)

The MHCSD WWTP is approximately 5.5 miles from the site and, while future effluent from this facility may potentially be sufficient to meet MEP's needs, the current effluent is not enough to meet the priority recycled water use rights for the planned Mountain House golf course. MHCSD WWTP recycled water was also previously allocated to the East Altamont Energy Center should it be constructed. The City of Tracy WWTP is 11.5 miles from the site and has a sufficient supply of recycled water for potential use at MEP; however, the environmental impact and prohibitive cost associated with the pipeline discouraged this water supply source. (3/7/11 RT 447:4 – 449:8; 461:2 - 462:15; 463:19 -464:1; Ex. 301, pp. 4.12-17 - 4.12-18.) BBID is prepared to use recycled water to meet the MEP water supply demands provided that a sufficiently reliable supply of tertiary recycled water may be obtained from MHCSD at a reasonable cost. (Ex. 301, p. 6-14.)

Operational use of freshwater will be offset through the implementation of MEP's water conservation program. As discussed previously, Mariposa will fund water conservation efforts within BBID. The implementation of these conservation efforts will offset MEP operational fresh water use ensuring that the project will not result in an increase in the diversions of freshwater supplied by the Sacramento-San Joaquin Delta. (Ex. 301, p. 4.12-18.)

Condition of Certification **SOIL&WATER-4** will limit the MEP facility to maximum water use of 187 AFY. **SOIL&WATER-4** requires the project owner to install metering devices on all water supply pipelines and submit monthly water usage to confirm the site is in compliance with the annual water use limit. Condition of Certification **SOIL&WATER-4** also requires Mariposa to fund a local water conservation program implemented by BBID (or secondarily Contra Costa Water District or Alameda Zone 7) to offset MEP's use of freshwater from the Sacramento-San Joaquin Delta. MEP and BBID will need to identify specific projects that will be funded (in-part or wholly) by the water conservation funding contribution, will need to estimate the water savings resulting from the funded projects, and the costs per acre-foot to determine the appropriate contribution. Funding of current and future improvements within BBID as part of a water conservation program will offset water used by MEP during operations resulting in a no-net increase in fresh water consumption within BBID as a result of MEP. Since the MEP will have no significant impact on water resources, we will not require it to utilize recycled water. (Ex. 301, p. 4.12-18.)

Alternatively, if BBID cannot develop a verifiable, cost effective water conservation program, the water conservation funding could be paid to local water agencies including the Contra Costa Water District or Alameda Zone 7. These agencies are currently developing and implementing plans to meet the water conservation goals of SBx7-7, a statewide 20 percent reduction in urban per capita water use by 2020. Contra Costa Water District has indicated that it has existing conservation programs in place that result in real water conservation through cash for grass programs and rebates for water efficient washers and toilet replacement. Contra Costa Water District water conservation program has been achieving water conservation at a rate of $1,000 per acre-foot or less. (3/7/11 RT 456:23 – 467:9; Ex. 301, p. 4.12-18.)

During construction, the MEP site will not directly impact groundwater resources with the implementation of Condition of Certification **SOIL&WATER-1**. The construction SWPPP will provide specific guidelines for protecting groundwater

resources should groundwater be encountered during construction. Excavation dewatering water will be contained in portable tanks and sampled prior to disposal offsite. (Ex. 301, p. 4.12-16.)

4. Wastewater

The MEP facility will have a zero liquid discharge (ZLD) system. The primary wastewater collection system will collect process wastewater and stormwater runoff from all plant equipment process contact areas. This water will be routed through sumps and an oil/water separator before treatment through an activated carbon filtration ZLD system. The truck-mounted ZLD system will include a walnut shell activated carbon vessel followed by a surge tank and 5 micron bag filters and pH adjustment if necessary. The treated ZLD reclaimed water (approximately 1.48 gpm in the winter and 1.29 gpm in the summer or approximately 2.3 AFY) will then be recycled to the raw water storage tank for plant process water usage. (Ex. 301, pp. 4.12-8 - 4.12-9.)

The secondary wastewater collection system will collect sanitary wastewater from sinks, toilets, showers, and other sanitary facilities, and route the wastewater to an onsite septic tank prior to transport by a licensed sanitary waste management contractor to an offsite disposal facility. Based on the evidence, the onsite septic system will receive approximately 478 gallons per day. (Ex. 301. p. 4.12-9.)

General plant drains will collect containment area washdown, sample drain water, and facility equipment drainage. Water from these areas will be collected in a system of floor drains, hub drains, sumps, and piping and routed through an oil/water separator prior to ZLD treatment. (Ex. 301. p. 4.12-9.)

The non-oily oil/water separator effluent stream will pass through the truck-mounted ZLD treatment system before being sent to the 50,000-gallon wastewater tank and eventually recycled back to the 520,000-gallon raw water storage tank. Any oily waste collected in the oil/water separator will be transferred to 55-gallon drums and hauled offsite for proper disposal. (Ex. 301. p. 4.12-9.)

Wastewater from infrequent combustion turbine water washes and from the fuel filtration skid(s) will be collected in holding tanks or sumps. MEP will generate between 667 to 3,583 gallons of wastewater per month during turbine washing. The high value is based on the maximum permitted operating scenario (4,000

hours per year plus 300 start and stop cycles). Wastewater will be trucked offsite for disposal at an approved wastewater disposal facility, based on operating or regulatory compliance requirements. MEP turbine wash water may require disposal at a Class I landfill (Kettleman Hills). Final disposal location determinations will be made for MEP based on waste profile analyses performed following wastewater generation during MEP operations. (Ex. 301. p. 4.12-9.)

Condition of Certification **SOIL&WATER-5** requires the project owner to submit proof of proper wastewater disposal, in accordance with waste discharge requirements of the Clean Water Act (CWA). We find that the containment and disposal of wastewater at the MEP will reduce the potential impacts from wastewater below the level of significance.

5. Cumulative Impacts and Mitigation

Cumulative impacts consist of impacts that may occur as a result of the project in combination with impacts from other past, present and reasonably foreseeable future projects. Cumulative impacts can result from individually minor, but collectively significant actions taking place over time.

Temporary and permanent disturbances associated with construction of the project will cause accelerated wind- and water-induced erosion. However, the implementation of mitigation measures, the SWPPP and the DESCP will ensure that the project will not contribute significantly to cumulative erosion and sedimentation impacts. (Ex. 301, p. 4.12-19.)

The industrial wastewater and contact stormwater from the MEP site will be routed to an onsite holding tank and hauled offsite for disposal at a licensed facility. All sanitary waste water will be discharged into a septic tank then hauled offsite for disposal. Therefore, no wastewater-related cumulative impacts are expected. The stormwater discharge will be retained on site by the extended detention basin such that the outfall discharge rates will not be greater than pre-development conditions; therefore, MEP will not exacerbate flooding conditions in the area. (Ex. 301, p. 4.12-19.)

MEP has included a water conservation plan to offset all water use for construction and plant process requirements. The water conservation plan will result in a no-net increase in freshwater consumption within BBID as a result of the construction and operation of MEP. As proposed, MEP will not increase freshwater diversions from the Delta. (Ex. 301, p. 4.12-19.)

6. Compliance with LORS

a. CLEAN WATER ACT

MEP will satisfy the requirements of the NPDES permits and DESCP with the adoption of Conditions of Certification **SOIL&WATER-1** and **-3**. These Conditions require the development and implementation of a Storm Water Control Plan in conjunction with the construction SWPPP, (**SOIL&WATER-1**) and the industrial SWPPP, (**SOIL&WATER-3**).

b. PORTER-COLOGNE WATER QUALITY CONTROL ACT

MEP will satisfy the applicable requirements of the Porter-Cologne Water Quality Control Act and adequately protect the beneficial uses of waters of the state through implementation of federal, state, and local requirements for management of storm water discharges and pollution prevention and compliance with local grading and erosion control requirements, and compliance with local on-site wastewater treatment system (septic system) requirements.

c. SWRCB POLICY 75-58 AND ENERGY COMISSION – INTEGRATED ENERGY POLICY REPORT (IEPR)-POWER PLANT WATER USE AND WASTEWATER DISCHARGE POLICY

The California Energy Commission, under legislative mandate specified in the *2003 Integrated Energy Policy Report*, (policy) and State Water Resources Control Board Resolution 75-58, will approve the use of fresh water for cooling purposes by power plants it licenses only where alternative water supply sources and alternative cooling technologies are shown to be environmentally undesirable or economically unsound. The IEPR policy also requires the use of zero-liquid discharge (ZLD) technologies unless such technologies are shown to be “environmentally undesirable” or “economically unsound.”

MEP will utilize ZLD technologies. The primary wastewater collection system will collect process wastewater and stormwater runoff from all plant equipment process areas. The collected wastewater and stormwater will then be routed to sumps followed by the onsite oil/water separator before treatment by the activated carbon filtration ZLD system. The treated ZLD reclaim water will then be recycled to the raw water storage tank for plant process water usage.

Additionally, MEP proposes to use an alternative cooling technology to reduce the amount of water required for plant operation: an air-cooled radiator will reject

heat from the combustion turbine inlet air chiller refrigeration system. The use of an air cooled radiator is an economically sound practice that provides environmental benefits from significantly reduced water use.

The record contains a review of the East Altamont Energy Center (EAEC) (Docket No. 01-AFC-4), the Tesla Power Plant (Tesla PP) (Docket No. 01-AFC-21), and the GWF Tracy Combined Cycle Power Plant (GWF Tracy) (Docket No. 08-AFC-07) documents on the use and availability of recycled water supplies. These three facilities are planned in the vicinity of MEP. In the case of the EAEC, the Commission accepted the judgment of BBID that sufficient supplies of fresh water would be available to meet all district needs, including EAEC, without the use of recycled water. The Commission also noted that it is to the benefit of all parties to find a cost effective manner of utilizing the increasing amounts of recycled water that would result from development in the district.

The record suggests that there are limited recycled water resources in the area. The Mountain House Community Services District Waste Water Treatment Plant (MHCSD WWTP), in San Joaquin County, is the nearest potential source of recycled water for MEP (about 5.5 miles away) and is being built out in phases. The MHCSD WWTP is currently designed with a process daily flow of 3.0 million gallons per day (MGD); however, the average 2008 effluent was only 0.483 MGD. The total tertiary-treated water available from the MHCSD WWTP was 560 acre-feet. The City of Tracy WWTP plant has a much greater supply of recycled water; however, the evidence indicates that the conveyance costs required for the 11.5 mile-long pipeline would be an economically unsound alternative.

The fresh water used for construction and plant processes will be offset through the implementation of a voluntary water conservation program resulting in a no-net increase in fresh water use within BBID. The record suggests that the project will be in compliance with the intent of the Energy Commission water use policy with project implementation of facility-specific water conservation measures and development and implementation of a regional water conservation program that would conserve a volume of raw surface water equivalent to the volume used by the project for process requirements.

In addition, the Energy Commission's water policy also seeks to protect water resources from power plant wastewater discharges. To that end, the water policy specifies that the Energy Commission will require zero liquid discharge technologies (for management of power plant wastewaters) unless such technologies are shown to be 'environmentally undesirable' or 'economically

unsound.' MEP proposes to use a zero liquid discharge system where the minimal sanitary waste will be handled with an onsite septic tank and all contact stormwater and plant industrial wastewater will be routed to an onsite storage tank. All tanks will be hauled offsite and properly disposed. Therefore, the wastewater management will be in compliance with the intent of the water policy because it eliminates the significant portion of process wastewater discharge from the facility.

d. Local LORS

With the implementation of Conditions of Certification **SOIL&WATER-1** and **SOIL&WATER-2**, MEP will satisfy the applicable requirements of all local LORS. The Construction SWPPP and DESCP must contain all information relative to grading and erosion control in order to prevent discharge and pollution to downstream drainages in Alameda and Contra Costa Counties.

**PUBLIC COMMENT**

**Susan Sarvey** commented that irrigation districts are selling farmers' water to power plants. It's not a question of we don't have enough water; they're selling the water for profit, and then they don't have the water for the farmers, and they're saying we need to change the environmental law because they don't have water when they're making mega bank. (2/25/11 RT: 309:4-309:9.)

Robert Sarvey submitted written comments arguing that the water conservation measures are too "speculative" to mitigate MEP's fresh water use. We disagree. Condition of Certification **SOIL&WATER-4** (below) includes a performance standard and specifies exactly how the conservation fund is to be created, implemented, prioritized and verified. The verification specifies the time-line and steps required for the fulfillment of this condition. Moreover, the record establishes that local and regional water agencies are successfully implementing water conservation programs which underscore the feasibility of achieving additional water savings under this condition. We are satisfied that the project will have a zero net consumption of water.

**FINDINGS OF FACT**

1. Adherence to the procedures in the construction SWPPP and DESCP will limit both erosion and the migration of contaminants that may be disturbed by construction from entering adjacent surface water bodies.

2. The implementation of BMPs contained in Conditions of Certification **SOIL&WATER-1 and -2** will reduce the impact of water and wind erosion to soil resources to a level that is less than significant.

3. Condition of Certification **SOIL&WATER-3** requires the preparation of an industrial SWPPP which will render the impacts of storm water runoff during LEC operation less than significant.

4. Construction of the MEP is anticipated to last 14 months and will require approximately 2,500 gallons per day of water.

5. Stormwater runoff from the 10-acre site will not cause significant impacts with the implementation of the stormwater runoff swales and extended detention basin.

6. The project's freshwater supply offset by implementation of a water conservation program will result in no net increase in freshwater use in the region, and the project will not cause an impact on current or future users of the water supply.

7. The use of a zero liquid discharge (ZLD) system will be utilized to manage wastewater at the MEP facility.

8. The MEP will be constructed to comply with 100-year flood requirements and will not exacerbate flood conditions in the vicinity of the project.

9. During construction, the MEP site will not directly impact groundwater resources with the implementation of Condition of Certification **SOIL&WATER-1.**

10. Compliance with Conditions of Certification **SOIL&WATER-1, -2 and -3** will reduce construction impacts to water quality to a less-than-significant level.

11. Containment and disposal of wastewater at the MEP will reduce the potential impacts from wastewater below the level of significance.

12. The MEP will neither cause nor contribute to cumulative impacts to soil and water resources.

## CONCLUSIONS OF LAW

1. The MEP will not result in any unmitigated, significant project-specific or cumulative adverse impacts to Soil or Water Resources.

2. The MEP will comply with all applicable LORS with implementation of the Conditions of Certification set forth herein.

3. With the inclusion of facility-specific water conservation measures, the use of a freshwater supply for inlet air cooling and other industrial uses is consistent with the SWRCB Policy 75-58 and the Energy Commission's policy because recycled water supplies will not be economically feasible or environmentally desirable alternatives due to the distance between the potential recycled water supplies and the project site.

## CONDITIONS OF CERTIFICATION

**SOIL&WATER-1**: The project owner shall comply with the requirements of the General National Pollutant Discharge Elimination System (NPDES) permit for discharges of storm water associated with Mariposa Energy Project (MEP) construction activity. In order to comply, the project owner shall develop and implement a Storm Water Pollution Prevention Plan (SWPPP) for the construction of the entire proposed project site, laydown areas, and linear areas.

**Verification:** At least 60 days before construction begins, the project owner shall submit a copy of the construction SWPPP to the Alameda County Flood Control and Water Conservation District and the Contra Costa County Grading Division for review. At least 30 days before construction begins, the project owner shall submit copies to the Compliance Project Manager (CPM) of all correspondence between the project owner and the Central Valley Regional Water Quality Control Board (RWQCB) regarding the General NPDES permit for the discharge of storm water associated with construction activities. This information shall include copies of the Notice of Intent and the Notice of Termination sent to the State Water Resources Control Board for the project construction.

**SOIL&WATER-2:** Prior to site mobilization, the project owner shall obtain CPM approval for a site-specific Drainage, Erosion, and Sedimentation Control Plan (DESCP) that ensures protection of water quality and soil resources of the project site and all linear facilities for both the construction and operation phases of the project. This plan shall address appropriate methods and actions, both temporary and permanent, for the protection of water quality and soil resources, demonstrate no increase in offsite flooding potential, meet local requirements, and identify all monitoring and maintenance activities. Monitoring activities shall include routine measurement of the volume of accumulated sediment in the stormwater extended-detention basin. Maintenance activities must include removal of accumulated sediment from the extended-detention basin when an average depth of 0.5 feet of sediment has accumulated in the detention basin. The plan shall be consistent with the grading and drainage plan as required by Condition of Certification **CIVIL-1**. The DESCP shall contain the following

elements. All maps shall be presented at a legible scale no less than 1 inch = 200 feet.

- ***Vicinity Map*** – A map shall be provided indicating the location of all project elements with depictions of all significant geographic features to include watercourses, washes, irrigation and drainage canals, and sensitive areas.
- ***Site Delineation*** – The site and all project elements (linears and laydown areas) shall be delineated showing boundary lines of all construction areas and the location of all existing and proposed structures, pipelines, roads, and drainage facilities.
- ***Watercourses and Critical Areas*** – The DESCP shall show the location of all nearby watercourses including washes, irrigation and drainage canals, and drainage ditches, and shall indicate the proximity of those features to the construction site. Critical areas mapped by the USACE shall also be shown.
- ***Drainage*** – The DESCP shall include hydrologic calculations for onsite areas and offsite areas that drain to the site; include maps showing the drainage area boundaries and sizes in acres, topography and typical overland flow directions, and show all existing, interim, and proposed drainage infrastructure and their intended direction of flow. Provide hydraulic calculations to support the selection and sizing of the drainage network, retention facilities and best management practices (BMPs). Spot elevations shall be required where relatively flat conditions exist. The spot elevations and contours shall be extended off site for a minimum distance of 100 feet in flat terrain or to the limits of the offsite drainage basins.
- ***Clearing and Grading*** – The plan shall provide a delineation of all areas to be cleared of vegetation. The plan shall provide elevations, slopes, locations, and extent of all proposed grading as shown by contours, cross sections, cut/fill depths or other means. The locations of any disposal areas, fills, or other special features shall also be shown. Existing and proposed topography tying in proposed contours with existing topography shall be illustrated. The DESCP shall include a statement of the quantities of material excavated at the site, whether such excavations or fill is temporary or permanent, and the amount of such material to be imported or exported or a statement explaining that there would be no clearing and/or grading conducted for each element of the project. Areas of no disturbance or areas to be preserved shall be properly identified and delineated on the plan maps.
- ***Project Schedule*** – The DESCP shall identify on the topographic site map the location of the site-specific BMPs to be employed during each phase of construction (initial grading, project element excavation and construction, and final grading/stabilization).

Separate BMP implementation schedules shall be provided for each project element for each phase of construction.

- ***Best Management Practices*** – The DESCP shall show the location, timing, and maintenance schedule of all erosion- and sediment-control BMPs to be used prior to initial grading, during project element excavation and construction, during final grading/stabilization, and after construction. BMPs shall include measures designed to control dust and stabilize construction access roads and entrances. The maintenance schedule shall include post-construction maintenance of treatment-control BMPs applied to disturbed areas following construction.
- ***Erosion Control Drawings*** – The erosion-control drawings and narrative shall be designed, stamped, and sealed by a professional engineer, a Certified Professional in Erosion and Sediment Control (CPESC), or a Certified Professional in Storm Water Quality (CPSWQ).

**Verification:** No later than 90 days prior to start of site mobilization, the project owner shall submit a copy of the DESCP to Alameda County for review and comment. A copy shall be submitted to the CPM no later than 60 days prior to the start of site mobilization for review and approval. The CPM shall consider comments received from Alameda County. During construction, the project owner shall provide an analysis in the monthly compliance report on the effectiveness of the drainage-, erosion- and sediment-control measures and the results of monitoring and maintenance activities. Once operational, the project owner shall provide in the annual compliance report information on the results of stormwater BMP monitoring and maintenance activities.

**SOIL&WATER-3:** The project owner shall comply with the requirements of the General NPDES permit for discharges of storm water associated with industrial activity. The project owner shall develop and implement a Storm Water Pollution Prevention Plan (SWPPP) for the operation of the site. The project owner shall ensure that only stormwater is discharged onto the site. The project owner shall comply with the requirements of the general NPDES permit for discharges of storm water associated with industrial activity.

**Verification:** At least 30 days prior to commercial operation, the project owner shall submit the MEP operational SWPPP to the CPM. Within 10 days of its mailing or receipt, the project owner shall submit to the CPM any correspondence between the project owner and the RWQCB about the general NPDES permit for discharge of storm water associated with industrial activity. This information shall include a copy of the notice of intent sent by the project owner to the State Water Resources Control Board. A letter from the RWQCB indicating that there is no requirement for a general NPDES permit for discharges of storm water associated with industrial activity would satisfy this condition.

**SOIL&WATER-4:** Water used for project operation for process, sanitary, and landscape irrigation purposes shall exclusively be raw surface water from Byron-Bethany Irrigation District (BBID). Pumping or purchasing groundwater is prohibited. Water use shall not exceed the annual water-use limit of 187 acre-feet per year. The project owner shall monitor and record the total water used on a monthly basis. For calculating the annual water use, the term "year" will correspond to the date established for the annual compliance report (ACR) submittal.
Prior to using raw surface water for process needs, the project owner shall install and maintain metering devices as part of the water supply and distribution systems to monitor and record, in gallons per day, the total volume(s) of water supplied to MEP from BBID. Those metering devices shall be operational for the life of the project.

For the first year of operation, the project owner shall prepare an annual Water Use Summary, which will include the monthly range and monthly average of daily raw surface water usage in gallons per day, and total water used by the project on a monthly and annual basis in acre-feet. For subsequent years, the annual Water Use Summary shall also include the yearly range and yearly average water use by the project. The annual Water Use Summary shall be submitted to the CPM as part of the ACR.

The project owner shall work with BBID to implement a water conservation program to offset water used during construction and for plant process requirements. To fund the implementation of the water conservation program, the project owner shall either: (1) contribute to BBID's water conservation program to implement new water conservation measures on a per acre foot basis of BBID freshwater consumed annually (potable water for personnel consumption, eyewash stations, showers, and sanitary needs not included), (2) contribute to BBID an amount necessary to fund a one-time capital investment that is reasonably expected to result in water conservation that will offset the project's maximum annual raw water usage of 187 acre-feet, or (3) subject to approval by the CPM, implement a combination of the two previous options based on recorded annual water usage. A payment of $15,000 shall be made to BBID to offset water used for construction and to fund the creation of the water conservation program.

BBID shall have the first priority to develop a water conservation program including the methods for conservation, verification of the volume of water conserved, and the water conservation costs (per acre-foot) to be charged to MEP. The Contra Costa Water District or Alameda Zone 9 shall have a second priority to develop an acceptable water conservation program including methods, verification, and costs.

The water conservation program(s) shall be provided to the CPM for review and approval. Contributions to a water conservation program are not required for use of recycled water during construction or operation.

**Verification:** At least 60 days prior to commercial operation of MEP, the project owner shall submit to the CPM evidence that metering devices have been installed and are operational on the water supply and distribution systems. When the metering devices are serviced, tested and calibrated, the project owner shall provide a report summarizing these activities in the next annual compliance report. The project owner, in the annual compliance report, shall provide a Water Use Summary that states the source and quantity of raw surface water used on a monthly basis and on an annual basis in units of acre-feet. Prior annual water use including yearly range and yearly average shall be reported in subsequent annual compliance reports (ACR).

At least 30 days prior to construction, the project owner shall submit the water conservation program(s) by the selected local water agency(s) to the CPM for review and approval. The water conservation program shall include:

a. Identification of the methods intended to achieve water conservation, including how the total volume of water conserved in a given year will be measured or estimated.

b. Verification that the water conservation methods that have been funded by MEP have been implemented and that the intended water conservation has been achieved.

c. Water Conservation Fees required on a per acre foot basis shall be calculated based on the estimated costs to implement, maintain, and monitor the water conservation efforts. For longer return period projects, water conservation fees may be aggregated to support financing or matched by other sources.

d. Reporting to the Project Owner and the CEC on an annual basis to demonstrate that the water conservation program has resulted in a conservation of water equal to or greater than the total water use at MEP from the previous year. For longer return period projects involving a one-time capital investment, water conservation shall be allocated based on the portion of funding provided by MEP.

The project owner shall provide proof that the initial contribution to the water conservation program was paid to a CPM-approved water conservation program prior to site operations. Annual use payments shall be determined based upon the approved rate on per acre-foot of fresh water reported annually in the ACR. Annual use payments to a water conservation program, confirmed by the CPM, shall be made no later than 60 days following CPM approval of the ACR. The project owner shall provide data and a report to the CPM describing the water

conservation program with estimates of the annual “calculated” water saved in acre-feet in the subsequent ACR.

Payments for longer return period capital improvements should be accounted for using standard engineering economic analysis. Water use at MEP should also be tracked in an annual water use account. Once a long return period project is implemented and water conservation begins, water conservation should also be tracked on an annual basis. Conserved water from MEP funded projects should be deducted from the MEP water use account on an annual basis. Payment history, project funding, and MEP water use and conservation accounting shall be documented in the ACR.

**SOIL&WATER-5:** The project owner shall not discharge wastewater, other than non-contact stormwater, and shall provide evidence that industrial wastewater and contact stormwater are being disposed of at an appropriately licensed facility.

**Verification:** The project owner shall provide evidence to the CPM of proper industrial wastewater disposal, via a licensed hauler to an appropriately licensed facility, in the annual compliance report.

## C. CULTURAL RESOURCES

The potential for impacts to cultural resources depends upon whether such resources are present and whether they would actually be encountered during project development and construction activities. Cultural resource materials such as artifacts, structures, or land modifications reflect the history of human development. Certain places that are important to Native Americans or local national/ethnic groups are also considered valuable cultural resources. Analysis in this topic area pertains to the structural and cultural evidence of human development in the project vicinity, as well as appropriate mitigation measures should cultural resources be disturbed by project excavation and construction.

The term "cultural resource" is used broadly to include the following categories of resources: buildings, sites, structures, objects, and historic districts. When a cultural resource is determined to be significant, it is eligible for inclusion in the California Register of Historic Resources (CRHR). (Pub. Res. Code, § 5024.1; Cal. Code Regs., tit. 14, § 4850 et seq.) An archaeological resource that does not qualify as an historic resource may be considered a "unique" archaeological resource under California Environmental Quality (CEQA) (*see* Pub. Res. Code, § 21083.2.) In addition, structures older than 50 years (or less if the resource is deemed exceptional) can be considered for listing as significant historic structures. The Office of Historic Preservation's Instructions for Recording Historical Resources (1995) endorses recording and evaluating resources over 45 years of age to accommodate a five-year lag in the planning process. (Ex. 300, p. 5.3-18.)

The CEQA Guidelines provide a definition of a historical resource as a "resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the CRHR," or "a resource listed in a local register of historical resources or identified as significant in a historical resource survey meeting the requirements of section 5024.1(g) of the Public Resources Code," or "any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California, provided the agency's determination is supported by substantial evidence in light of the whole record." [Cal. Code Regs., tit. 14, § 15064.5(a).] Historical resources that are automatically listed in the CRHR include California historical resources listed in or formally determined eligible for the National Register of Historic Places

(NRHP) and California Registered Historical Landmarks from No. 770 onward. [Pub. Res. Code, § 5024.1(d).] (Ex. 300, pp. 5.3-18 – 5.3-19).

Under the CEQA Guidelines, a resource is generally considered to be historically significant if it meets the criteria for listing in the CRHR. These criteria are essentially the same as the eligibility criteria for the NRHP. In addition to being at least 50 years old, a resource must meet at least one of the following four criteria: it is associated with events that have made a significant contribution to the broad patterns of our history (Criterion 1); or, it is associated with the lives of persons significant in our past (Criterion 2); or, that the resource embodies the distinctive characteristics of a type, period, or method of construction, or that it represents the work of a master, or possesses high artistic values (Criterion 3); or, that it has yielded, or may be likely to yield, information important to history or prehistory (Criterion 4). (Pub. Res. Code § 5024.1.) In addition, historical resources must also possess integrity of location, design, setting, materials, workmanship, feeling, and association (Cal. Code Regs., tit. 14, § 4852(c); Pub. Res. Code § 5020.1 (j) or § 5024.1). Even if a resource is not listed or determined to be eligible for listing in the CRHR, CEQA allows the lead agency to make a determination as to whether the resource is a historical resource. (Ex. 300, p. 5.3-19.)

The evidence received into the record regarding Cultural Resources is undisputed. (Exs. 1; 4; 5; 6; 7; 8; 11; 26; 30; and 300.)

## SUMMARY AND DISCUSSION OF THE EVIDENCE

### 1. Setting

The proposed Mariposa Energy Project (MEP) area is located along the border between the physiographic provinces of the Central Valley to the east and the Mount Diablo area of the Coast Range to the west. The project area is situated at an elevation of approximately 125 feet above mean sea level within very gently rolling terrain on the leeward side of the Diablo Range just above the Central Valley floor. The Sacramento San Joaquin River Delta region lies to the north of the project area, and the San Francisco Bay area lies to the west on the windward side of the Diablo Range. The project site is located in an unincorporated area of northeastern Alameda County with portions of the project's linear facilities (water pipeline) extending into the adjacent southeastern Contra Costa County. The San Joaquin County line and the community of Mountain House lie just to the east of the project area. (Ex. 300, p. 5.3-3.)

The project site and most of the surrounding vicinity is zoned for Large Parcel Agriculture by the Alameda East County Area Plan. Cattle grazing occurs on the majority of land within a 1-mile radius of the project site. In addition to grazing, other current land uses and developments in the project area and vicinity include power generation, power transmission, natural gas compression, water management facilities, the Bethany Reservoir State Recreation Area, and the Byron Airport. A buried PG&E natural gas pipeline and remnants of a former wind turbine development, including concrete foundations, wood poles, and dismantled wind turbine housings, exist within portions of the project area. The closest structure to the project site is the Byron Power Cogeneration Plant, which occupies approximately 2 acres directly adjacent to the north side of the project site. An existing 1,100-foot-long graded gravel road provides access to the Byron Power Cogeneration Plant (Ex. 300, pp. 5.3-3 to 5.3-4.)

The project site will occupy a 10-acre area in the southeastern portion of a 158-acre parcel, known as the Lee Property (assessor parcel 099B-7050-001-10), in northeastern Alameda County. Portions of the project's linear facilities extend north into adjacent southeastern Contra Costa County. The project site is located just southeast of the intersection of Bruns Road and Kelso Road. (Ex. 300, p. 5.3-4.)

Primary equipment for the generating facility includes four natural gas-fired combustion turbine generators and associated equipment within the 10-acre project site. Power will be transmitted to the grid through a proposed new 0.7-mile-long transmission line that will connect to the existing Kelso Substation, located north of the project site. A proposed new 580-foot-long natural gas pipeline will connect the project site to PG&E's Line 2, which is an existing high-pressure natural gas pipeline located just northeast of the project site. Service and process water will be provided from a new connection to the Byron-Bethany Irrigation District (BBID) via a new 1.8-mile long water pipeline, including a new pump station and turnout structure. In addition, the existing access road serving the adjacent 6.5-MW cogen facility will be improved from a 10-foot-wide gravel road to a 20-foot-wide asphalt paved road and extended to the plant entrance. (Ex. 300, p. 5.3-4.)

Temporary construction facilities include: 1) a 5-acre worker parking and laydown area immediately adjacent to the east side of the MEP site; 2) a one-acre parking and laydown area located at the BBID headquarters facility to serve water pipeline construction needs; and 3) a 0.6-acre laydown area near the northern

end of the transmission line route to serve transmission line construction needs. (Ex. 300, p. 5.3-4.)

The MEP area is located near the border between two distinct archaeological regions: the San Francisco Bay archaeological region and the Delta subregion of the Central Valley archaeological region. The key archaeological sites with dated components that are critical to the interpretations of prehistory in both the San Francisco Bay area and the Sacramento-San Joaquin Delta area are more centrally located within each respective archaeological region, relative to where the MEP is located. Thus, given its location just above the valley floor at the eastern (leeward) base of the Diablo Range away from any major waterways, the record shows that the MEP site is somewhat peripheral to both major archaeological regions, though it technically lies within the limits of the Central Valley Delta region. (Ex. 300, p. 5.3-7.)

Based on the evidence, well-grounded chronologies for large portions of the Central Valley are still lacking, and few recent studies have sought to rectify past errors in interpretation or synthesize the body of archaeological information available for this region. Recognizing that the Central Valley archaeological record is biased by both sampling techniques and the natural processes of landscape evolution, a simple classification system with which to explain culture change in the Central Valley is used as follows: Paleo-Indian (11,550–8850 cal BC); Lower Archaic (8550–5550 cal BC); Middle Archaic (5550–550 cal BC); Upper Archaic (550 cal BC–cal AD 1100); and Emergent (cal AD 1100–Historic period). (Ex. 300, p. 5.3-7.)

Erosion and deposition have removed or buried most of the Late Pleistocene landscape in which the earliest evidence of human occupation in California might have been found. Currently, the earliest accepted evidence of human occupation within the Central Valley during the Paleo-Indian period comes from isolated finds of distinctive basally-thinned and fluted projectile points recovered from remnant features of the Pleistocene landscape at only three locations in the Central Valley. (Ex. 300, p. 5.3-7.)

Similarly, evidence from the Lower Archaic period within the valley is also represented by mostly isolated finds, including distinctive flaked stone artifacts, such as fluted or stemmed points and crescents. Given the occurrences of large heavily reworked projectile points in Lower Archaic sites, large game (artiodactyls) hunting is thought to be a focus of early archaic economies. Milling implements and evidence of plant processing are largely absent from Lower

Archaic sites down in the valley; however, such remains have been found in Lower Archaic sites in the foothills, including abundant millingstone equipment and other indicators of a reliance on plant foods. (Ex. 300, p. 5.3-7.)

During the Middle Archaic, archaeological evidence suggests that there were two distinct settlement-subsistence adaptations occurring in central California, one in the foothills and the other on the valley floor. Early in the Middle Archaic, cultural deposits are more abundant in the foothills, but rare down in the valley; however, in the latter part of the Middle Archaic (post-2250 cal BC), cultural deposits are well represented down in the southern Sacramento Valley, the Delta, and the northern San Joaquin Valley. Artifact assemblages of the foothill tradition almost exclusively include flaked and ground stone tools used for food procurement and processing, although a few bone and shell artifacts, beads, or ornaments have also been recovered. (Ex. 300, pp. 5.3-7 to 5.3-8.)

The Upper Archaic archaeological record is better represented and understood than previous time periods. Many specialized technologies emerged during the Upper Archaic, including new types of bone tools and implements, as well as widespread manufactured goods, such as saucer and saddle-shaped Olivella beads, Haliotis ornaments, obsidian bifacial rough-outs, well-made ceremonial blades, and polished and ground stone plummets are common in regions surrounding the rivers and marshlands of the delta and southern San Joaquin Valley. Large mounded villages developed in the delta region of the lower Sacramento Valley beginning around 700 BC and contain extensive accumulations of habitation debris and features, including heaps of fire-affected rock, shallow hearths, rock-lined ovens, house floors, and flexed burials, all reflecting long-term residential occupation. (Ex. 300, p. 5.3-8.)

During the Emergent Period, cultural traditions similar to those observed at the time of Euroamerican contact developed. The archaeological record for the Emergent Period is the most substantial and comprehensive available for any period, and the assemblages and adaptations represented are the most diverse. It is during the Emergent Period that many of the archaic technologies and cultural traditions disappear throughout the Central Valley. Notably, the dart and atlatl are replaced by the bow and arrow as the preferred hunting implement between cal AD 1000 and 1300. (Ex. 300, p. 5.3-8.)

The MEP area lies within the ethnographic territory attributed to the Northern Valley Yokuts near where it borders the territories of the Costanoan people to the west and the Miwok groups to the north and east. The Yokuts general mode of

life was closely tied to their unique lake-slough-marsh environment. The Northern Yokuts had greater access to both salmon and acorns than did the Southern Yokuts and, therefore, relied more heavily on these resources. Fishing and fowling, as well as the harvesting of wild plant foods were important subsistence means, while big game hunting was probably of marginal importance. Dwellings were primarily small lightly built structures covered with tule stalks that were woven into mats. Archaeological evidence suggests that sweathouses and ceremonial assembly chambers may also have been constructed among the Yokuts. Settlements tended to be sedentary and situated primarily atop low mounds on or near the banks of large watercourses. (Ex. 300, pp. 5.3-9 − 5.3-10.)

During the Spanish Period (1769–1821), the policy of the Spanish government was focused on the establishment of presidios, missions, and towns with the lands held by the Spanish crown. Spanish exploratory parties reached the vicinity of the MEP by 1772, and by the 1790s, the process of missionization and displacement of native lifeways in the area was well under way. Mexico achieved independence from Spain in 1821, and the policy of the newly-created Mexican government focused on secularization of the missions and individual ownership of land. Between 1834 and 1846, more than 800 land patents, comprising more than 12 million acres, were issued to individuals by the Mexican government. The MEP is situated in ungranted lands; however, Rancho El Pescadero or Paso del Pescadero (named after the aboriginal Yokuts village at Union Island) is located just east of the project area, primarily within San Joaquin County, but portions of it extend into Contra Costa and Alameda Counties. In addition, the Cañada de los Vaqueros is located just to the north of the MEP, primarily in Contra Costa County, but portions of it extend south into Alameda County. (Ex. 300. p. 5.3-10.)

Throughout the Spanish and Mexican Periods, land was abundant and settlers were few in number, so land had a minimal value at the time. It was not until the American period that land began to be coveted and valued. The United States officially obtained California from Mexico in 1848. That same year, the discovery of gold at Captain Sutter's saw mill near Sacramento marked the onset of the California Gold Rush. Reclamation and agricultural land use patterns in the project vicinity and surrounding areas intensified during the late nineteenth century. The San Joaquin/Sacramento Delta area was the focal point of much activity during the early American Period, including themes such as farming/agriculture, levee building, land reclamation, and water/flood control projects. Alameda County was first established in 1853 from portions of Contra Costa and Santa Clara Counties. Alameda County expanded rapidly following

the completion of the Central Pacific Railroad terminus in Oakland in 1868. (Ex. 300, pp. 5.3-10 − 5.3-11.)

2. Cultural Resources

Applicant's records search included all known cultural resources within a one-half-mile radius of the plant site, laydown area, and appurtenant linear facilities. Sources checked included:

- The California Historical Resources Information System (CHRIS);
- Previously documented cultural resources or archaeological studies in the project area;
- National Register of Historic Places (NHRP);
- California Register of Historical Resources (CRHR);
- California Historical Landmarks;
- California Points of Historical Interest;
- East Contra Costa Historical Society and Museum;
- Tracy Historical Museum;
- Alameda County Historical Society; and
- Amador Livermore Valley Historical Society.

On January 7, 2009, consultants for MEP contacted the Native American Heritage Commission (NAHC) by letter requesting a search of the Sacred Lands File and a list of local Native American representatives who could be contacted regarding the proposed MEP. A response was received from the NAHC on February 5, 2009, indicating that a search of the Sacred Lands File failed to indicate the presence of Native American cultural resources in the immediate project area. The NAHC also provided a list of eight individuals/tribal groups who may have knowledge of cultural resources in the project area. On April 2, 2009, consultants for MEP sent letters, including maps and a description of the proposed MEP, to the eight Native American representatives requesting input as to whether or not there were any concerns regarding cultural resources within the proposed MEP. To date, the record indicates that no responses from the Native American representatives have been received. (Ex. 300, p. 5.3-14.)

Energy Commission staff also contacted the NAHC by letter on January 14, 2010, to request information about sacred lands in the project vicinity and to

obtain contact information for local Native Americans having heritage ties in the region of the MEP. The NAHC responded by fax on February 3, 2010, with a negative report on the presence of Native American cultural resources in the project vicinity. The NAHC also provided a list of Native Americans interested in development projects in the region of the MEP. Staff sent a letter requesting input regarding the proposed project to each of the individuals/groups on March 11, 2010; however, the record indicates that no responses were received prior to the close of evidence. (Ex. 300, p. 5.3-14.)

The record shows that the literature research and archaeological field surveys failed to identify any prehistoric or historic-period archaeological sites within the MEP area of analysis. A geoarchaeological assessment of buried site potential concluded that there is a low likelihood that buried archaeological deposits would be encountered within the MEP area during project construction. To date, local Native American representatives, who were contacted about the proposed project, have provided no input regarding concerns for ethnographic resources on or near the MEP area of analysis, nor have any historic preservation interest groups/organizations identified any resources of concern. MEP identified four built-environment cultural resources within a 0.5-mile radius of the MEP area that met the age criteria for consideration as a potential historical resource, including three historic ranch properties and one irrigation canal, as summarized in **Table 1.**

**CULTURAL RESOURCES Table 1**
**Known Cultural Resources Located in the Vicinity of the Project**

| Resource Type and Designation | Resource Description | Previously Known/New | Information Source |
|---|---|---|---|
| Residential/Agricultural Jess Property (P-01-10436) | Circa 1940s residential/agricultural property | Previously recorded 2001 | NWIC |
| Residential/Agricultural The Clark Ranch (P-01-10437) | 1942 residential/agricultural property | Previously recorded 2001 | NWIC |
| Agricultural Infrastructure The Byron-Bethany Irrigation District Main Canal (P-01-010445) | Irrigation Canal, constructed in 1919 | Previously recorded 2001 | NWIC |
| Residential/Agricultural The Former Reese Property (No primary number) | Late nineteenth century residential/agricultural property | Newly recorded 2009 | MEP Built-environment field survey |

Source: Ex. 300, p. 5.3-18

Based on the evidence, we find the four built-environment resources identified within the 0.5-mile built-environment area of analysis do not meet the eligibility criteria for inclusion in the CRHR. (Ex. 300, pp. 5.3-19 − 5.3-21.)

3. Potential Impacts

No significant archaeological, ethnographic, or built-environment cultural resources were identified within the MEP area of analysis. In addition, a geoarchaeological assessment of buried site potential concluded that there is a very low probability that buried archaeological deposits would be encountered in the MEP area. The MEP will, therefore, have no direct, indirect, or cumulative impacts to significant cultural resources. (Ex. 300, p. 5.3-21.)

The undisputed evidence indicates that the likelihood that the MEP would affect as-yet-unknown buried archaeological deposits during construction-related ground-disturbing activities is low; however, a very slight possibility exists that such resources could be encountered. In order to address the possibility of inadvertent discoveries during construction, Conditions of Certification **CUL-1** through **CUL-8** will ensure that cultural resources are properly identified, evaluated, and if necessary, mitigated to below the level of significance, if inadvertently encountered during construction activities. (Ex. 300, p. 5.3-22.)

**CUL-1** requires a Cultural Resources Specialist (CRS) to be retained and available on an on-call basis during MEP construction-related excavations to evaluate any potential inadvertent discovery of buried archaeological resources and, if necessary, to conduct data recovery as mitigation for the project's unavoidable impacts on them. **CUL-2** requires that the project owner provide the CRS with all relevant cultural resources information and maps. **CUL-3** requires that the CRS write, and submit for Compliance Project Manager (CPM) approval, a Cultural Resources Monitoring and Mitigation Plan (CRMMP), if determined to be necessary, to address the treatment of any buried archaeological deposits inadvertently encountered during construction; the CRMMP shall include data recovery plans for any evaluated archaeological deposits determined CRHR-eligible by the CPM. **CUL-4** requires the submittal of a final Cultural Resources Report (CRR) to the CPM for approval, if preparation of a CRR becomes necessary. **CUL-5** requires the project owner to train project construction workers to recognize cultural resources and instruct them to halt construction if any cultural resources are discovered during MEP construction activities. **CUL-6** requires that the project owner ensure that the CRS, alternate CRS, or CRM monitor full-time all ground disturbing activities in the area where a CRHR-eligible

cultural resource has been discovered, if applicable. **CUL-7** requires that the project owner halt ground-disturbing activities in the area of an archaeological discovery until it can be evaluated by a qualified CRS and, if necessary, to fund data recovery, if it is evaluated as a CRHR-eligible resource. **CUL-8** will cover the possibility that the project would need to make use of a soil borrow site that had not been surveyed for cultural resources in the past five years. (Ex. 300, pp. 5.3-22 − 5.3-23.)

During operation of the power plant, if a leak should develop in the gas or water pipelines supplying the plant, repair of the buried utility could require the excavation of a large hole and the possible disturbance of previously undisturbed soils and sediments. Such repairs could impact previously unknown subsurface archaeological resources in areas unaffected by the original trench excavation. The measures proposed for mitigating impacts to previously unknown CRHR-eligible archaeological resources discovered during the original project-related ground disturbance at the main project site and along linear facilities, Conditions of Certification **CUL-1** through **CUL-8**, will continue to apply and also serve to mitigate impacts from repairs occurring during the later operation of the plant. (Ex. 300, p. 5.3-23.)

4. Cumulative Impacts

A cumulative impact refers to a proposed project's incremental effects considered over time and together with those of other, nearby, past, present, and reasonably foreseeable future projects whose impacts may compound or increase the incremental effect of the proposed project (Pub. Resources Code § 21083; Cal. Code Regs., tit. 14, §§ 15064(h), 15065(a)(3), 15130 and 15355). Cumulative impacts to cultural resources in the MEP vicinity could occur if any other existing or proposed projects, in conjunction with the MEP, had or will have impacts on cultural resources that, considered together, will be significant. (Ex. 300, p. 5.3-23.)

The cultural resources investigation for the MEP identified no CRHR-eligible resources within the project’s area of analysis. Based on the literature and records search conducted for the MEP, the entire project area, as well as the one-mile radius and beyond, has been previously surveyed for cultural resources multiple times; yet no archaeological sites were identified as a result of those prior survey efforts. In addition, the geoarchaeological investigation conducted for the MEP concluded that the likelihood of encountering as-yet-unknown buried archaeological sites within the MEP area during construction is low to very low. It

is, therefore, unlikely that the project has any potential to compound or contribute to a cumulative impact to cultural resources in the area. (Ex. 300, pp. 5.3-23 − 5.3-24.)

In the unlikely event that any buried archaeological deposits are encountered during construction, any impacts from the MEP project will be mitigated to a less-than-significant level by the project's compliance with Conditions of Certification **CUL-1** through **CUL-8**. Since similar protocols could be applied to other projects in the area, we do not find any incremental effects on cultural resources from the MEP to be cumulatively considerable when viewed in conjunction with other projects. (Ex. 300, p. 5.3-24.)

## PUBLIC COMMENT

No public comment was offered on the subject of Cultural Resources.

## FINDINGS OF FACT

Based on the uncontroverted evidence, the Commission makes the following findings and reaches the following conclusions:

1. The "Sacred Lands" database did not indicate the presence of Native American cultural resources in the immediate MEP vicinity.
2. Background research and archaeological field surveys showed an absence of prehistoric and historic-period archaeological sites in the MEP area of analysis.
3. No ethnographic resources have been identified on or near the MEP areas.
4. Four built-environment cultural resources within a 0.5-mile radius of the MEP area were identified that met the age criteria for consideration as a potential historical resource, including three historic ranch properties and one irrigation canal.
5. There are no known CRHR-eligible archaeological resources, ethnographic resources, built-environment resources, historic districts, or cultural landscapes in or near the MEP area.
6. Based on a geoarchaeological assessment of the project area, the potential for the project to encounter as-yet-unknown buried archaeological deposits is low.

7. Conditions of Certification **CUL-1** through **CUL-8** ensure that all impacts to cultural resources discovered during construction and operation are mitigated below the level of significance.

8. The incremental effects on cultural resources of the MEP will not be cumulatively considerable when viewed in conjunction with other projects.

## CONCLUSIONS OF LAW

1. With implementation of the Conditions of Certification below, the MEP will conform to all applicable laws, ordinances, regulations, and standards relating to cultural resources as set forth in the pertinent portion of **Appendix A** of this Decision.

2. Through implementation of the Conditions of Certification below, the project will have no significant environmental impacts.

## CONDITIONS OF CERTIFICATION

**CUL-1** Prior to the start of ground disturbance (includes "preconstruction site mobilization," "construction ground disturbance," and "construction grading, boring and trenching," as defined in the General Conditions for this project) the project owner shall obtain the services of an on-call Cultural Resources Specialist (CRS), and one or more alternate CRSs, if alternates are needed. The CRS shall manage all evaluations, mitigation, curation, and reporting activities required in accordance with the Conditions of Certification (Conditions). The CRS may elect to obtain the services of Cultural Resources Monitors (CRMs) and other technical specialists, if needed, to assist in potential evaluation, monitoring, mitigation, and curation activities. The project owner shall ensure that the CRS makes recommendations regarding the eligibility for listing in the California Register of Historical Resources (CRHR) of any cultural resources that are newly discovered or that may be affected in an unanticipated manner. No ground disturbance shall occur prior to CPM (Compliance Project Manager) approval of the CRS and alternates, unless such activities are specifically approved by the CPM. Approval of a CRS may be denied or revoked for reasons including but not limited to non-compliance on this or other Energy Commission projects.

### Cultural Resources Specialist

The resumes for the CRS and alternate(s) shall include information demonstrating to the satisfaction of the CPM that their training and backgrounds conform to the U.S. Secretary of Interior's Professional Qualifications Standards, as published in Title 36, Code of Federal Regulations, part 61 (36 C.F.R., part 61). In addition, the CRS shall have the following qualifications:

1. The CRS's qualifications shall be appropriate to the needs of the project and shall include a background in anthropology, archaeology, history, architectural history, or a related field;
2. At least three years of archaeological and/or historical (as appropriate per the nature of predominant cultural resources on the project site) resource identification, evaluation, and mitigation field and reporting experience in California; and
3. At least one year of experience in a decision-making capacity on cultural resources projects in California and the appropriate training and experience to knowledgably make recommendations regarding the significance of cultural resources.

The resumes of the CRS and alternate CRS shall include the names and telephone numbers of contacts familiar with the work of the CRS/alternate CRS on referenced projects and demonstrate to the satisfaction of the CPM that the CRS/alternate CRS has the appropriate training and experience to implement effectively the Conditions.

**Cultural Resources Monitors**

CRMs shall have the following qualifications:

1. A B.S. or B.A. degree in anthropology, archaeology, historical archaeology or a related field and one year experience monitoring in California; or
2. An A.S. or A.A. degree in anthropology, archaeology, historical archaeology or a related field, and four years experience monitoring in California; or
3. Enrollment in upper division classes pursuing a degree in the fields of anthropology, archaeology, historical archaeology or a related field, and two years of monitoring experience in California.

**Cultural Resources Technical Specialist**

The resume(s) of any additional technical specialist(s), e.g., historical archaeologist, historian, architectural historian, and/or physical anthropologist, shall be submitted to the CPM for approval.

**Verification:**

1. At least 45 days prior to the start of ground disturbance, the project owner shall submit the resume for the CRS, and alternate(s) if desired, to the CPM for review and approval.
2. At least 10 days prior to a termination or release of the CRS, or within 10 days after the resignation of a CRS, the project owner shall submit the resume of the proposed new CRS to the CPM for review and approval. At the same time, the project owner shall also provide to the proposed new

CRS the AFC and all cultural resources documents, field notes, photographs, and other cultural resources materials generated by the project. If there is no alternate CRS in place to conduct the duties of the CRS, a previously approved monitor may serve in place of a CRS so that project-related ground disturbance may continue up to a maximum of 3 days without a CRS. If cultural resources are discovered then ground disturbance will remain halted until there is a CRS or alternate CRS to make a recommendation regarding significance.

3. At least 20 days prior to ground disturbance, the CRS shall provide a letter naming anticipated CRMs for the project and stating that the identified CRMs meet the minimum qualifications for cultural resources monitoring required by this Condition.
4. At least 5 days prior to additional CRMs beginning on-site duties during the project, the CRS shall provide additional letters to the CPM identifying the CRMs and attesting to their qualifications.
5. At least 10 days prior to any technical specialists beginning tasks, the resume(s) of the specialists shall be provided to the CPM for review and approval.
6. At least 10 days prior to the start of ground disturbance, the project owner shall confirm in writing to the CPM that the approved CRS will be available for onsite work and is prepared to implement the cultural resources conditions.

**CUL-2** Prior to the start of ground disturbance, if the CRS has not previously worked on the project, the project owner shall provide the CRS with copies of the AFC, data responses, and confidential cultural resources reports for the project. The project owner shall also provide the CRS and the CPM with maps and drawings showing the footprints of the power plant, all linear facility routes, all access roads, and all laydown areas. Maps shall include the appropriate USGS quadrangles and a map at an appropriate scale (e.g., 1:2000 or 1” = 200’) for plotting cultural features or materials. If the CRS requests enlargements or strip maps for linear facility routes, the project owner shall provide copies to the CRS and CPM. The CPM shall review map submittals and, in consultation with the CRS, approve those that are appropriate for use in cultural resources planning activities. No ground disturbance shall occur prior to CPM approval of maps and drawings, unless such activities are specifically approved by the CPM.

If construction of the project would proceed in phases, maps and drawings not previously provided shall be provided to the CRS and CPM prior to the start of each phase. Written notice identifying the proposed schedule of each project phase shall be provided to the CRS and CPM.

Weekly, until ground disturbance is completed, the project construction manager shall provide to the CRS and CPM a schedule of project activities for the following week, including the identification of area(s) where ground disturbance will occur during that week.

The project owner shall notify the CRS and CPM of any changes to the scheduling of the construction phases.

**Verification:**

1. At least 40 days prior to the start of ground disturbance, the project owner shall provide the AFC, data responses, and confidential cultural resources documents to the CRS, if needed, and the subject maps and drawings to the CRS and CPM. The CPM will review submittals in consultation with the CRS and approve maps and drawings suitable for cultural resources planning activities.
2. At least 15 days prior to the start of ground disturbance, if there are changes to any project-related footprint, the project owner shall provide revised maps and drawings for the changes to the CRS and CPM.
3. At least 15 days prior to the start of each phase of a phased project, the project owner shall submit the appropriate maps and drawings, if not previously provided, to the CRS and CPM.
4. Weekly. during ground disturbance, a current schedule of anticipated project activity shall be provided to the CRS and CPM by letter, e-mail, or fax.
5. Within 5 days of changing the scheduling of phases of a phased project, the project owner shall provide written notice of the changes to the CRS and CPM.

**CUL-3** Prior to the start of ground disturbance, the project owner shall submit the Cultural Resources Monitoring and Mitigation Plan (CRMMP), as prepared by or under the direction of the CRS, to the CPM for review and approval. The CRMMP shall follow the content and organization of the draft model CRMMP, provided by the CPM, and the authors' name(s) shall appear on the title page of the CRMMP. The CRMMP shall identify general and specific measures to minimize potential impacts to sensitive cultural resources. Implementation of the CRMMP shall be the responsibility of the CRS and the project owner. Copies of the CRMMP shall reside with the CRS, alternate CRS, each CRM, and the project owner's on-site construction manager. No ground disturbance shall occur prior to CPM approval of the CRMMP, unless such activities are specifically approved by the CPM.

The CRMMP shall include, but not be limited to, the following elements and measures:

1. The following statement included in the Introduction: "Any discussion, summary, or paraphrasing of the Conditions of Certification in this

CRMMP is intended as general guidance and as an aid to the user in understanding the Conditions and their implementation. The conditions, as written in the Commission Decision, shall supersede any summarization, description, or interpretation of the conditions in the CRMMP. The Cultural Resources Conditions of Certification from the Commission Decision are contained in Appendix A."

2. A proposed general research design that includes a discussion of archaeological research questions and testable hypotheses specifically applicable to the project area, and a discussion of artifact collection, retention/disposal, and curation policies as related to the research questions formulated in the research design. The research design will specify that the preferred treatment strategy for any buried archaeological deposits is avoidance. A specific mitigation plan shall be prepared for any unavoidable impacts to any CRHR-eligible (as determined by the CPM) resources. A prescriptive treatment plan may be included in the CRMMP for limited data types.
3. Specification of the implementation sequence and the estimated time frames needed to accomplish all project-related tasks during the ground-disturbance and post-ground–disturbance analysis phases of the project.
4. Identification of the person(s) expected to perform each of the tasks, their responsibilities, and the reporting relationships between project construction management and the mitigation and monitoring team.
5. A description of the manner in which Native American observers or monitors, if needed, will be included, the procedures to be used to select them, and their role and responsibilities.
6. A description of all impact-avoidance measures (such as flagging or fencing) to prohibit or otherwise restrict access to sensitive resource areas identified during construction ground disturbance. The description shall address how these measures would be implemented once sensitive areas are identified and how long they would be needed to protect the resources from project-related effects.
7. A statement that all encountered cultural resources over 50 years old shall be recorded on a DPR form 523 and mapped and photographed. In addition, all archaeological materials retained as a result of the archaeological investigations (survey, monitoring, testing, data recovery) shall be curated in accordance with the California State Historical Resources Commission's *Guidelines for the Curation of Archaeological Collections*, into a retrievable storage collection in a public repository or museum.
8. A statement that the project owner will pay all curation fees for artifacts recovered and for related documentation produced during

cultural resources investigations conducted for the project. The project owner shall identify three possible curation facilities that could accept cultural resources materials resulting from project activities.

9. A statement that the CRS has access to equipment and supplies necessary for site mapping, photography, and recovery of any cultural resource materials that are encountered during ground disturbance and cannot be treated prescriptively..

10. A description of the contents and format of the final Cultural Resource Report (CRR), which shall be prepared according to ARMR guidelines.

**Verification:**

1. Upon approval of the CRS proposed by the project owner, the CPM will provide to the CRS an electronic copy of the draft model CRMMP.

2. At least 30 days prior to the start of ground disturbance, the project owner shall submit the CRMMP to the CPM for review and approval.

3. At least 30 days prior to the start of ground disturbance, a letter shall be provided to the CPM indicating that the project owner agrees to pay curation fees for any materials collected as a result of the archaeological investigations (survey, monitoring, testing, data recovery).

**CUL-4** The project owner shall submit the final Cultural Resources Report (CRR) to the CPM for approval, if preparation of a CRR becomes necessary. The final CRR shall be written by or under the direction of the CRS and shall be provided in the Archaeological Resource Management Report (ARMR) format. The final CRR shall report on all field activities including dates, times and locations, results, samplings, and analyses. All survey reports, Department of Parks and Recreation (DPR) forms, data recovery reports, and any additional research reports not previously submitted to the California Historical Resource Information System (CHRIS) and the State Historic Preservation Officer (SHPO) shall be included as appendices to the final CRR.

If the project owner requests a suspension of ground disturbance and/or construction activities, then a draft CRR that covers all cultural resources activities associated with the project shall be prepared by the CRS and submitted to the CPM for review and approval on the same day as the suspension/extension request. The draft CRR shall be retained at the project site in a secure facility until ground disturbance and/or construction resumes or the project is withdrawn. If the project is withdrawn, then a final CRR shall be submitted to the CPM for review and approval at the same time as the withdrawal request.

**Verification:**

1. Within 30 days after requesting a suspension of construction activities, the project owner shall submit a draft CRR to the CPM for review and approval.
2. Within 90 days after completion of ground disturbance (including landscaping), the project owner shall submit the final CRR to the CPM for review and approval. If any reports have previously been sent to the CHRIS, then receipt letters from the CHRIS or other verification of receipt shall be included in an appendix.
3. Within 90 days after completion of ground disturbance (including landscaping), if cultural materials requiring curation were collected, the project owner shall provide to the CPM a copy of an agreement with, or other written commitment from, a curation facility that meets the standards stated in the California State Historical Resources Commission's *Guidelines for the Curation of Archaeological Collections*, to accept cultural materials, if any, from this project. Any agreements concerning curation will be retained and available for audit for the life of the project.
4. Within 10 days after CPM approval of the CRR, the project owner shall provide documentation to the CPM confirming that copies of the final CRR have been provided to the SHPO, the CHRIS, the curating institution, if archaeological materials were collected, and to the Tribal Chairpersons of any Native American groups requesting copies of project-related reports.

**CUL-5** Prior to and for the duration of ground disturbance, the project owner shall provide Worker Environmental Awareness Program (WEAP) training to all new workers within their first week of employment at the project site, along the linear facilities routes, and at laydown areas, roads, and other ancillary areas. The training shall be prepared by the CRS, may be conducted by any member of the archaeological team, and may be presented in the form of a video. The CRS shall be available (by telephone or in person) to answer questions posed by employees. The training may be discontinued when ground disturbance is completed or suspended, but must be resumed when ground disturbance, such as landscaping, resumes. The training shall include:

1. A discussion of applicable laws and penalties under the law;
2. Samples or visuals of artifacts that might be found in the project vicinity;
3. A discussion of what such artifacts may look like when partially buried, or wholly buried and then freshly exposed;
4. A discussion of what prehistoric and historical archaeological deposits look like at the surface and when exposed during construction, and the range of variation in the appearance of such deposits;

5. Instruction that the CRS, alternate CRS, and CRMs have the authority to halt project-related ground disturbance in the area of a discovery to an extent sufficient to ensure that the resource is protected from further impacts, as determined by the CRS;
6. Instruction that employees are to halt work on their own in the vicinity of a potential cultural resources discovery and shall contact their supervisor and the CRS or CRM, and that redirection of work would be determined by the construction supervisor and the CRS;
7. An informational brochure that identifies reporting procedures in the event of a discovery;
8. An acknowledgement form signed by each worker indicating that they have received the training; and
9. A sticker that shall be placed on hard hats indicating that environmental training has been completed.
10. No ground disturbance shall occur prior to implementation of the WEAP program, unless such activities are specifically approved by the CPM.

**Verification:**

1. At least 30 days prior to the beginning of ground disturbance, the CRS shall provide the training program draft text and graphics and the informational brochure to the CPM for review and approval.
2. At least 15 days prior to the beginning of ground disturbance, the CPM will provide to the project owner a WEAP Training Acknowledgement form for each WEAP-trained worker to sign.
3. Monthly, until ground disturbance is completed, the project owner shall provide in the Monthly Compliance Report (MCR) the WEAP Training Acknowledgement forms of workers who have completed the training in the prior month and a running total of all persons who have completed training to date.

**CUL-6** At the direction of the CPM, the project owner shall ensure that the CRS, alternate CRS, or CRMs monitor full time all ground disturbances in the area where a CRHR-eligible (as determined by the CPM) cultural resources discovery has been made. The level, duration, and spatial extent of monitoring shall be determined by the CPM. In the event that the CRS believes that a current level of monitoring is not appropriate, a letter or e-mail detailing the justification for changing the level of monitoring shall be provided to the CPM for review and approval prior to any change in the level of monitoring.

Full-time archaeological monitoring for the project, if deemed necessary, shall be the archaeological monitoring of all earth-moving activities in the areas specified in the previous paragraph, for as long as the CPM

requires. Where excavation equipment is actively removing dirt and hauling the excavated material to a location farther than fifty feet from the location of active excavation, full-time archaeological monitoring shall require at least two monitors per excavation area. In this circumstance, one monitor shall observe the location of active excavation and a second monitor shall inspect the disposal of the excavated soil. For excavation areas where the excavated soil is disposed of no farther than fifty feet from the location of active excavation, one monitor is sufficient to observe both the excavation and soil disposal.

An effort shall be made to obtain a Native American representative to monitor ground disturbance in areas where Native American artifacts may be discovered. Contact lists of interested Native Americans and guidelines for monitoring shall be obtained from the Native American Heritage Commission. Preference in selecting a monitor shall be given to Native Americans with traditional ties to the area that shall be monitored. If efforts to obtain the services of a qualified Native American monitor are unsuccessful, the project owner shall immediately inform the CPM. The CPM will either identify potential monitors or will allow ground disturbance to proceed without a Native American monitor.

The research design in the CRMMP shall govern the collection, treatment, retention/disposal, and curation of any archaeological materials encountered during archaeological monitoring.

If monitoring should be needed, as determined by the CPM, CRMs shall keep a daily log of any monitoring and other cultural resources activities and any instances of non-compliance with the Conditions and/or applicable LORS on forms provided by the CPM. Copies of the daily monitoring logs shall be provided by the CRS to the CPM, if requested by the CPM. From these logs, the CRS shall compile a monthly monitoring summary report to be included in the MCR. If there are no monitoring activities, the summary report shall specify why monitoring has been suspended.

The CRS or alternate CRS shall report daily to the CPM on the status of the project's cultural resources-related activities, unless reducing or ending daily reporting is requested by the CRS and approved by the CPM.

The CRS, at his or her discretion, or at the request of the CPM, may informally discuss cultural resource monitoring and mitigation activities with Energy Commission technical staff.

Cultural resources monitoring activities are the responsibility of the CRS. Any interference with monitoring activities, removal of a monitor from

duties assigned by the CRS, or direction to a monitor to relocate monitoring activities by anyone other than the CRS shall be considered non-compliance with these Conditions.

Upon becoming aware of any incidents of non-compliance with the Conditions and/or applicable LORS, the CRS and/or the project owner shall notify the CPM by telephone or e-mail within 24 hours. The CRS shall also recommend corrective action to resolve the problem or achieve compliance with the Conditions. When the issue is resolved, the CRS shall write a report describing the issue, the resolution of the issue, and the effectiveness of the resolution measures. This report shall be provided in the next MCR for the review of the CPM.

**Verification:**

1. At least 30 days prior to the start of ground disturbance, the CPM will provide to the CRS an electronic copy of a form to be used as a daily monitoring log.
2. Monthly, while monitoring is on-going, the project owner shall include in each MCR a copy of the monthly summary report of cultural resources-related monitoring prepared by the CRS and shall attach any new DPR 523A forms completed for finds treated prescriptively, as specified in the CRMMP.
3. At least 24 hours prior to implementing a proposed change in monitoring level, the project owner shall submit to the CPM, for review and approval, a letter or e-mail (or some other form of communication acceptable to the CPM) detailing the CRS's justification for changing the monitoring level.
4. Daily, as long as no cultural resources are found, the CRS shall provide a statement that "no cultural resources over 50 years of age were discovered" to the CPM as an e-mail or in some other form of communication acceptable to the CPM.
5. At least 24 hours prior to reducing or ending daily reporting, the project owner shall submit to the CPM, for review and approval, a letter or e-mail (or some other form of communication acceptable to the CPM) detailing the CRS's justification for reducing or ending daily reporting.
6. No later than 30 days following the discovery of any Native American cultural materials, the project owner shall submit to the CPM copies of the information transmittal letters sent to the Chairpersons of the Native American tribes or groups who requested the information. Additionally, the project owner shall submit to the CPM copies of letters of transmittal for all subsequent responses to Native American requests for notification, consultation, and reports and records.
7. Within 15 days of receiving them, the project owner shall submit to the CPM copies of any comments or information provided by Native Americans in response to the project owner's transmittals of information.

**CUL-7** The project owner shall grant authority to halt project-related ground disturbance to the CRS, alternate CRS, and the CRMs in the event of a discovery. Redirection of ground disturbance shall be accomplished under the direction of the construction supervisor in consultation with the CRS. Employees are to halt work on their own in the vicinity of a potential cultural resource discovery and shall contact their supervisor and the CRS or CRM. Redirection of work would be determined by the construction supervisor and the CRS;

In the event that a cultural resource over 50 years of age is found (or if younger, determined exceptionally significant by the CPM), or impacts to such a resource can be anticipated, ground disturbance shall be halted or redirected in the immediate vicinity of the discovery sufficient to ensure that the resource is protected from further impacts. Monitoring and daily reporting as provided in other conditions shall continue during the project's ground-disturbing activities elsewhere. The halting or redirection of ground disturbance shall remain in effect until the CRS has visited the discovery, and all of the following have occurred:

1. The CRS has notified the project owner, and the CPM has been notified within 24 hours of the discovery, or by Monday morning if the cultural resources discovery occurs between 8:00 AM on Friday and 8:00 AM on Sunday morning, including a description of the discovery (or changes in character or attributes), the action taken (i.e., work stoppage or redirection), a recommendation of CRHR eligibility, and recommendations for data recovery from any cultural resources discoveries, whether or not a determination of CRHR eligibility has been made.
2. If the discovery would be of interest to Native Americans, the CRS has notified all Native American groups that expressed a desire to be notified in the event of such a discovery.
3. The CRS has completed field notes, measurements, and photography for a DPR 523 "Primary" form. Unless the find can be treated prescriptively, as specified in the CRMMP, the "Description" entry of the DPR 523 "Primary" form shall include a recommendation on the CRHR eligibility of the discovery. The project owner shall submit completed forms to the CPM.
4. The CRS, the project owner, and the CPM have conferred, and the CPM has concurred with the recommended eligibility of the discovery and approved the CRS's proposed data recovery, if any, including the curation of the artifacts, or other appropriate mitigation; and any necessary data recovery and mitigation have been completed.

**Verification:**

1. At least 30 days prior to the start of ground disturbance, the project owner shall provide the CPM and CRS with a letter confirming that the CRS, alternate CRS, and CRMs have the authority to halt project-related ground disturbance in the vicinity of a cultural resources discovery, and that the project owner shall ensure that the CRS notifies the CPM within 24 hours of a discovery, or by Monday morning if the cultural resources discovery occurs between 8:00 AM on Friday and 8:00 AM on Sunday morning.
2. Within 48 hours of the discovery of an archaeological or ethnographic resource, the project owner shall ensure that the CRS notifies all Native American groups that expressed a desire to be notified in the event of such a discovery.
3. Unless the discovery can be treated prescriptively, as specified in the CRMMP, completed DPR 523 forms for resources newly discovered during ground disturbance shall be submitted to the CPM for review and approval no later than 24 hours following the notification of the CPM, or 48 hours following the completion of data recordation/recovery, whichever the CRS decides is more appropriate for the subject cultural resource.

**CUL-8** If fill soils must be acquired from a non-commercial borrow site or disposed of to a non-commercial disposal site, unless less-than-five-year-old surveys of these sites for archaeological resources are documented to and approved by the CPM, the CRS shall survey the borrow and/or disposal site/s for cultural resources and record on DPR 523 forms any that are identified. When the survey is completed, the CRS shall convey the results and recommendations for further action to the project owner and the CPM, who will determine what, if any, further action is required. If the CPM determines that significant archaeological resources that cannot be avoided are present at the borrow site, other conditions shall apply. The CRS shall report on the methods and results of these surveys in the final CRR.

**Verification:**

1. As soon as the project owner knows that a non-commercial borrow site and/or disposal site will be used, he/she shall notify the CRS and CPM and provide documentation of previous archaeological survey, if any, dating within the past five years, for CPM approval.

2. In the absence of documentation of recent archaeological survey, at least 30 days prior to any soil borrow or disposal activities on the non-commercial borrow and/or disposal sites, the CRS shall survey the site/s for archaeological resources. The CRS shall notify the project owner and the CPM of the results of the cultural resources survey, with recommendations, if any, for further action.

## D. GEOLOGY AND PALEONTOLOGY

This section reviews the project's potential impacts on significant geological and paleontological resources. It also evaluates whether project-related activities could result in exposure to geological hazards, whether the facility design and construction can avoid any such hazards, and whether geologic or mineralogic resources are present. The analysis also examines whether fossilized remains or trace remnants of prehistoric plants or animals are present. The parties did not dispute any matters in geology or paleontology. (Exs. 1; 4; 5; 6; 7; 11; and 300.)

This section considers two types of impacts: 1) geologic hazards, which could impact proper functioning of the proposed facility and include faulting and seismicity, liquefaction, dynamic compaction, hydrocompaction, subsidence, expansive soils, landslides, and tsunamis and seiches, and 2) potential impacts the proposed facility could have on existing geologic, mineralogic, and paleontologic resources.

### SUMMARY AND DISCUSSION OF THE EVIDENCE

1. Site and Regional Geology

The project site is in northeast Alameda , California, approximately seven miles east of the City of Livermore and seven miles northwest of the City of Tracy. More particularly, the MEP site is located at the northwest end of the San Joaquin Valley, a sub-basin of the Great (Central) Valley of California, along the boundary between the Great Valley and Coast Ranges physiographic provinces. The Great Valley is approximately 400 miles long and 60 miles wide. It is bounded to the north by low-lying hills, to the northeast by the volcanic plateau of the Cascade Range, on the west side by the Coast Ranges, on the east side by the Sierra Nevada, and to the south by the Coast Ranges and Tehachapi Mountains. The northern one-third and southern two-thirds of the valley are known as the Sacramento and San Joaquin Valleys, respectively. The boundary between the two sub-basins is located at the confluence of the Sacramento and San Joaquin Rivers in the delta area near Suisun Bay and the city of Stockton, just north and northeast of the proposed MEP site. (Ex. 300, p. 5.2-3.)

The Great Valley physiographic province is characterized by dissected uplands, and relatively undeformed low alluvial plains and fans, river flood plains and channels, and lake bottoms. The Coast Ranges are characterized by elongated, northwest-striking mountains and narrow valleys that formed from regional strike-

slip faulting related to the San Andreas Fault system. In the late Cenozoic era, much of the San Joaquin Valley was occupied by shallow brackish and freshwater lakes, which had receded by the Pliocene-Pleistocene epochs. Basement beneath Cenozoic marine to terrestrial sediments in the Great Valley is composed primarily of Mesozoic crystalline rocks similar to the Sierra Nevada Range. Deep marine graywackes and ophiolite sequences underlie younger sediments in the Eastern Franciscan Block of the Coast Ranges physiographic province, which borders the east side of the Great Valley physiographic province. The boundary zone between the two major physiographic provinces is generally defined by the Coast Range Thrust Zone. Sedimentary rocks in the vicinity of the fault zone, including those underlying the proposed MEP site, have been tilted and folded as a result of the thrust faulting, which began in the middle Jurassic period and is still active today. Structure in the Diablo Range west of the proposed project site, which is characterized by a series of en echelon anticlines composed of Franciscan Complex rocks (deep marine deposits), intervening synclines containing younger rocks, and major strike-slip faults, developed in response to both compressional and San Andreas-style tectonics. (Ex. 300, p. 5.2-4.)

The proposed site is located in the lower foothills of the Diablo Range, which consist of a relatively shallow northeast-facing slope dissected by northeast-flowing drainages. The plant site is situated within a north-northeast-flowing drainage between to moderately steep-sided ridges. The existing elevation on the proposed power plant pad ranges from 110 feet above mean sea level (msl) at the north end to 155 feet above msl at the south end. (Ex. 300, p. 5.2-4.)

The proposed MEP plant site and project linears are immediately underlain by Quaternary alluvial and fluvial deposits and Cretaceous marine deposits. The evidence shows that Quaternary sediments shown by most recent mapping are Holocene in age at the surface; however, Pleistocene-age deposits are mapped within 100 feet of the proposed facilities in several locations such that older alluvium could be encountered within several feet of the surface. Miocene to Pliocene-age, non-marine sedimentary rocks are exposed at the surface less than 1,500 feet southeast of the proposed plant site and construction laydown area. (Ex. 300, pp. 5.2-4 to 5.2-5.)

Based on the evidence, soils in the upper three to ten feet of test pits and borings on the proposed plant site are reportedly stiff to very stiff, moderately to highly expansive clays. These fine grained soils, which probably represent Quaternary-age sediments and/or intensely weathered Cretaceous bedrock (possibly Moreno

Shale), are deepest within the existing drainage along the west side of the proposed plant site. The surficial clay soils have been classified as slightly moist to moist lean to fat clay, and as containing medium to high plasticity fines. The surface clay layer is underlain by pedogenic soils formed by weathering of sandstone and interbedded mudstone bedrock, which likely represents Cretaceous-age Panoche Formation. The weathered bedrock persists to depths of 23 feet or more. Weathering of sandstone and mudstone yields highly to very highly expansive clay soils with plasticity indices up to 63. Hardness, primary cementation, and fractures increase as degree of weathering decreases with depth. Moderately to strongly cemented, slightly altered to unaltered sandstone with interbedded mudstone is present below the weathered bedrock to the maximum depth of exploration, approximately 100 feet below the existing ground surface. (Ex. 300, pp. 5.2-5 to 5.2-6.)

2. Paleontologic Resources

Based on the evidence, numerous vertebrate fossil localities have been recorded within four miles of the proposed MEP site. Although no paleontological resources were discovered within the proposed project boundaries during field reconnaissance conducted for the AFC, the documented specimens were recovered from geological units of Cretaceous and Quaternary-age that are present at the surface and at shallow depths on the plant site, laydown area and along project linears. Most of the recorded fossil finds were discovered during excavation for the nearby California Aqueduct, Delta Mendota Canal, and other facilities associated with the regional aqueduct system. Of particular interest are a tooth specimen of an undetermined Cretaceous age marine reptile (*Reptilia*) uncovered during construction of the Delta Pumping Plant, and two localities that contained remains of *Mammuthus* from areas mapped as Quaternary alluvium. (Ex. 300, p. 5.2-9.)

The upper one to two feet of the plant site and laydown area has been disturbed by agricultural activities, and is unlikely to produce fossil specimens within their natural context. However, cuts up to 30 feet deep are anticipated during site grading and trenching. Therefore, the potential to encounter significant paleontological resources during construction of the MEP project is high in excavations below one to two feet of the surface. Potential impacts to such resources can be effectively mitigated through the Conditions of Certification **PAL-1** through **PAL-7**. These conditions essentially require a worker education program in conjunction with the monitoring of earthwork activities by a qualified professional paleontologist (a paleontologic resource specialist [PRS]). (Ex. 300, pp. 5.2-9 to 5.2-10.)

3. Seismicity

There are no documented active faults within or near the MEP site or its transmission routes. As a result, the Alquist-Priolo Act of 1973 and related California law do not require the project to have setbacks from occupied structures. (Ex. 300, pp. 5.2-10 to 5.2-11.)

4. Liquefaction

Liquefaction is a condition in which cohesionless soils lose shear strength due to a sudden increase in pore water pressure and as a result, act as a liquid. Submerged fine-grained, poorly graded, sands and silts are most prone to liquefaction during earthquakes but testing at the MEP site indicates the surface soils are comprised of stiff to very stiff clay soils which are underlain by intensely weathered shallow bedrock to approximately 23 feet and unweathered sandstone and mudstone bedrock below. No ground water was encountered during the exploration and is expected to be present greater than 100 feet below the existing ground surface. Based on the presence of clay soils and shallow bedrock, and the absence of ground water within the upper 30 feet of the site, liquefaction potential at the MEP site is negligible. (Ex. 300, p. 5.2-11.)

5. Dynamic Compaction

Dynamic compaction of soils results when relatively unconsolidated granular materials experience vibration associated with seismic events. The vibration causes a decrease in soil volume as the soil grains rearrange into a more dense state causing an increase in soil density. Since the MEP site is underlain by clays and shallow bedrock, the potential for dynamic compaction of site soils during an earthquake is low. (Ex. 300, p. 5.2-11.)

6. Subsidence

Local subsidence or settlement may occur when areas containing compressible soils are subjected to surcharge loads. Regional subsidence could occur due to future changes in ground water pumping or development of hydrocarbon resources in the area. Based on the evidence, the clay soils at the MEP site are moderately to highly compressible. Recommendations for mitigating the effects of subsidence due to foundation loads on compressible soils must be provided in a project-specific geotechnical report as required by the CBC and **Facility Design** Conditions of Certification **GEN-1**, **GEN-5** and **CIVIL-1**. When necessary,

mitigation is normally accomplished by over-excavation and replacement of the compressible soils for lightly-loaded foundations. For heavily loaded foundations, deep foundations are commonly used to support the loads. The closest oil or gas deposits are at least eight miles from the MEP site, and service water for the project would be supplied from a nearby canal rather than a well, so no fluid extraction in the vicinity of the MEP is expected that would cause local subsidence. (Ex. 300, p. 5.2-12.)

7. Corrosive Soils

Fine-grain soils with high in-situ moisture contents that contain sulfides can be corrosive to buried metal pipe, which can lead to premature pipe failure and leaking. Based on the evidence, such soils are present the MEP site and could be potentially corrosive to metal pipe. The effects of corrosive soils can be effectively mitigated through final design by incorporating the recommendations of the site-specific project geotechnical report required by the CBC and **Facility Design** Conditions of Certification **GEN-1**, **GEN-5** and **CIVIL-1**. Mitigation of corrosive soils with respect to metal pipe typically involves cathodic protection or polyethylene encasement of the pipe. (Ex. 300, p. 5.2-12.)

8. Expansive Soils

Soil expansion occurs when clay-rich soils with an affinity for water exist at moisture content below their plastic limit. The addition of moisture from irrigation, precipitation, capillary tension, water line breaks, etc. causes the clay soils to absorb water molecules into their structure, which in turn causes an increase in the overall volume of the soil. This increase in volume can correspond to excessive movement (heave) of overlying structural improvements. Plasticity index, expansion index and swell tests, which are indicators of the expansive potential and clay content in soils, have been performed on representative samples of the surficial clay soils at the MEP site. The test results indicate the surficial clay soils exhibit medium to high plasticity and are moderately to highly expansive. The surficial clays are underlain by intensely weathered sandstone or mudstone with high to very high plasticity fines, which indicates a high to very high expansion potential. Recommendations for mitigating the effects of expansive clays soils must be provided in a project-specific, design-level geotechnical report as required by CBC requirements and **Facility Design** Conditions of Certification **GEN-1**, **GEN-5** and **CIVIL-1**. When necessary, mitigation is normally accomplished by over-excavation and replacement of the expansive soils beneath structural improvements, although lime treatment of the

expansive soils is commonly used beneath pavements. (Ex. 300, pp. 5.2-12 to 5.2-13.)

9. Landslides

Based on the evidence, the Coast Ranges and Diablo Range are well known for their landslide deposits. However, no landslides are mapped in the vicinity of the MEP site. The maximum gradient of existing slopes at the site is approximately 13 percent. Significant cuts and fills are planned for construction of the MEP pad. Stable cut and fill slopes can be designed to prevent potential landslides according to recommendations presented in a design-level, site-specific geotechnical report as required by CBC requirements and **Facility Design** Conditions of Certification **GEN-1**, **GEN-5** and **CIVIL-1**. (Ex. 300, p. 5.2-13.)

10. Hydrocompaction, Landslides, and Related Matters

The evidence further reflects that the potential for hydrocompaction is minimal and the potential for impacts to the site from tsunamis or seiches are negligible. The MEP site's considerable distance from bodies of water subject to tsunamis such as the Pacific Ocean or San Francisco Bay, and distance from bodies of water subject to seiches such as a large lake or reservoir, leads us to conclude that there is negligible potential for significant impact. (Ex. 300, p. 5.2-12 to 5.2-13.)

11. Geologic, Mineralogic, and Paleontologic Resources

The evidence further shows that there are no known viable geologic or mineralogic resources located at or immediately adjacent to the MEP site and none are expected along the transmission line route. Nor do the MEP site and associated linears lie within a designated Mineral Resource Zone (MRZ). (Ex. 300, p. 5.2-14.)

Since the MEP site construction would include significant amounts of grading, excavation, and utility trenching, we consider the probability that highly sensitive paleontological resources would be encountered during such activities to be high anytime excavation activities fully penetrate disturbed ground, Holocene alluvium and the Moreno Shale, and encounter undisturbed Pleistocene alluvium and Panoche Formation. Conditions of Certification **PAL-1** to **PAL-7** are designed to mitigate direct impacts to paleontological resources, as discussed above, to less than significant levels. These conditions essentially require a worker education

program in conjunction with the monitoring of earthwork activities by a qualified professional paleontologist PRS. (Ex. 300, p. 5.2-15.)

Finally, facility closure activities are not anticipated to impact geologic, mineralogic, or paleontologic resources because no such resources are known to exist at the power plant location or along its linear facilities. In addition, decommissioning and closure of the power plant should not negatively affect geologic, mineralogic, or paleontologic resources since the majority of the ground disturbed in plant decommissioning and closure will be disturbed during construction and operation of the facility. (Ex. 300, p. 5.2-17.)

12. Cumulative Impacts

The evidence shows that potential cumulative impacts, as they pertain to geologic hazards, are essentially limited to regional subsidence due to ground water or hydrocarbon (oil and gas) extraction. As this project would not involve pumping of ground water, and the nearest known producing oil or gas field is located at least eight miles from the site, the MEP will not contribute to any increase of this potential hazard. In addition, a significant number of large-scale ground water, oil or gas pumping operations would have to be constructed to have any significant impact on the facility. Since heavily loaded foundations would most likely include deep foundations to mitigate potential settlement due to foundation loads, potential effects due to regional subsidence under such conditions would also be effectively mitigated. (Ex. 300, pp. 5.2-16 to 5.2-17.)

Although not encountered during site-specific exploration, viable industrial mineral or other geologic resources may be present in the local region; however, the regional geologic units that have the most potential to be viable resources are widespread alluvial deposits that occur throughout the northern San Joaquin Valley and are therefore not unique in terms of recreational, commercial, or scientific value. As a result, the MEP should have negligible cumulative effect on these resources. (Ex. 300, p. 5.2-17.)

Paleontological resources have been documented within four miles of the project, and have been discovered during construction of the nearby California Aqueduct, Delta Mendota Canal, Delta Pumping Plant, and other facilities associated with the regional aqueduct system. As the value of paleontological resources is associated with their discovery within a specific geologic host unit, the potential impacts to paleontological resources due to construction activities would be mitigated as required by Conditions of Certification **PAL-1** to **PAL-7**.

Implementation of these conditions should result in a net gain to the science of paleontology by allowing fossils that would not otherwise have been found, to be recovered, identified, studied, and preserved. (Ex. 300, p. 5.2-17.)

Based on the above discussion of the evidence, we find the potential for significant adverse cumulative impacts to the project from geologic hazards, during the project's design life, will be low, and that the potential for impacts to geologic, mineralogic, and paleontological resources will also be low.

## PUBLIC COMMENT

The public offered no comment on geology or paleontology.

## FINDINGS OF FACT

Based on the uncontroverted evidence, we make the following findings and reach the following conclusions:

1. Numerous vertebrate fossil localities have been recorded within four miles of the MEP site.

2. The potential to encounter significant paleontological resources during construction of the MEP project is high in excavations below one to two feet of the surface.

3. Potential impacts to paleontological resources below one to two feet of the surface will be effectively mitigated through the Conditions of Certification **PAL-1** through **PAL-7**.

4. Potential geologic hazards to the project are effectively mitigated by standard engineering design measures as specified in Conditions **GEN-1, GEN-5,** and **CIVIL-1** of the **Facility Design** section of this Decision.

5. The Conditions of Certification ensure that activities associated with construction and operation of the project will cause no significant adverse impacts to geological or paleontological resources.

## CONCLUSION OF LAW

1. The Conditions of Certification are sufficient to ensure that the project complies with all applicable laws, ordinances, regulations, and standards identified in the appropriate portion of **Appendix A** of this Decision.

2. We therefore conclude that the project will not cause any significant adverse direct, indirect, or cumulative impacts to geological, mineralogic, or paleontological resources.

## CONDITIONS OF CERTIFICATION

General conditions of certification with respect to engineering geology are under Conditions of Certification **GEN-1**, **GEN-5**, and **CIVIL-1** in the **Facility Design** section of this Decision.

**PAL-1** The project owner shall provide the CPM with the resume and qualifications of its PRS for review and approval. If the approved PRS is replaced prior to completion of project mitigation and submittal of the Paleontological Resources Report, the project owner shall obtain CPM approval of the replacement PRS. The project owner shall keep resumes on file for qualified Paleontological Resource Monitors (PRMs). If a PRM is replaced, the resume of the replacement PRM shall also be provided to the CPM.

The PRS resume shall include the names and phone numbers of references. The resume shall also demonstrate to the satisfaction of the CPM the appropriate education and experience to accomplish the required paleontological resource tasks.

As determined by the CPM, the PRS shall meet the minimum qualifications for a vertebrate paleontologist as described in the SVP guidelines of 1995. The experience of the PRS shall include the following:

1. Institutional affiliations, appropriate credentials, and college degree;
2. Ability to recognize and collect fossils in the field;
3. Local geological and biostratigraphic expertise;
4. Proficiency in identifying vertebrate and invertebrate fossils; and
5. At least three years of paleontological resource mitigation and field experience in California and at least one year of experience leading paleontological resource mitigation and field activities.

The project owner shall ensure that the PRS obtains qualified PRMs to monitor as he or she deems necessary on the project. Paleontologic Resource Monitors shall have the equivalent of the following qualifications:

- BS or BA degree in geology or paleontology and one year of experience monitoring in California; or

- AS or AA in geology, paleontology, or biology and four years' experience monitoring in California; or
- Enrollment in upper division classes pursuing a degree in the fields of geology or paleontology and two years of monitoring experience in California.

**Verification:** (1) At least 60 days prior to the start of ground disturbance, the project owner shall submit a resume and statement of availability of its designated PRS for on-site work.

(2) At least 20 days prior to ground disturbance, the PRS or project owner shall provide a letter with resumes naming anticipated monitors for the project, stating that the identified monitors meet the minimum qualifications for paleontological resource monitoring required by the condition. If additional monitors are obtained during the project, the PRS shall provide additional letters and resumes to the CPM. The letter shall be provided to the CPM no later than one week prior to the monitor's beginning on-site duties.

(3) Prior to the termination or release of a PRS, the project owner shall submit the resume of the new proposed PRS to the CPM for review and approval.

**PAL-2** The project owner shall provide to the PRS and the CPM, for approval, maps and drawings showing the footprint of the power plant, construction lay down areas, and all related facilities. Maps shall identify all areas of the project where ground disturbance is anticipated. If the PRS requests enlargements or strip maps for linear facility routes, the project owner shall provide copies to the PRS and CPM. The site grading plan and plan and profile drawings for the utility lines would be acceptable for this purpose. The plan drawings should show the location, depth, and extent of all ground disturbances and be at a scale between 1 inch = 40 feet and 1 inch = 100 feet range. If the footprint of the project or its linear facilities change, the project owner shall provide maps and drawings reflecting those changes to the PRS and CPM.

If construction of the project proceeds in phases, maps and drawings may be submitted prior to the start of each phase. A letter identifying the proposed schedule of each project phase shall be provided to the PRS and CPM. Before work commences on affected phases, the project owner shall notify the PRS and CPM of any construction phase scheduling changes.

At a minimum, the project owner shall ensure that the PRS or PRM consults weekly with the project superintendent or construction field manager to confirm area(s) to be worked the following week, and until ground disturbance is completed.

**Verification:** (1) At least 30 days prior to the start of ground disturbance, the project owner shall provide the maps and drawings to the PRS and CPM.

(2) If there are changes to the footprint of the project, revised maps and drawings shall be provided to the PRS and CPM at least 15 days prior to the start of ground disturbance.

(3) If there are changes to the scheduling of the construction phases, the project owner shall submit a letter to the CPM within 5 days of identifying the changes.

**PAL-3** The project owner shall ensure that the PRS prepares, and the project owner submits to the CPM for review and approval, a paleontological resources monitoring and mitigation plan (PRMMP) to identify general and specific measures to minimize potential impacts to significant paleontological resources. Approval of the PRMMP by the CPM shall occur prior to any ground disturbance. The PRMMP shall function as the formal guide for monitoring, collecting, and sampling activities, and may be modified with CPM approval. This document shall be used as the basis of discussion when on-site decisions or changes are proposed. Copies of the PRMMP shall reside with the PRS, each monitor, the project owner's on-site manager, and the CPM.

The PRMMP shall be developed in accordance with the guidelines of the SVP (1995) and shall include, but not be limited, to the following:

1. Assurance that the performance and sequence of project-related tasks, such as any literature searches, pre-construction surveys, worker environmental training, fieldwork, flagging or staking, construction monitoring, mapping and data recovery, fossil preparation and collection, identification and inventory, preparation of final reports, and transmittal of materials for curation will be performed according to PRMMP procedures;
2. Identification of the person(s) expected to assist with each of the tasks identified within the PRMMP and the conditions of certification;
3. A thorough discussion of the anticipated geologic units expected to be encountered, the location and depth of the units relative to the project when known, and the known sensitivity of those units based on the occurrence of fossils either in that unit or in correlative units;
4. An explanation of why, how, and how much sampling is expected to take place and in what units. Include descriptions of different sampling procedures that shall be used for fine-grained and coarse-grained units;
5. A discussion of the locations of where the monitoring of project construction activities is deemed necessary, and a proposed plan for monitoring and sampling;

6. A discussion of procedures to be followed in the event of a significant fossil discovery, halting construction, resuming construction, and how notifications will be performed;
7. A discussion of equipment and supplies necessary for collection of fossil materials and any specialized equipment needed to prepare, remove, load, transport, and analyze large-sized fossils or extensive fossil deposits;
8. Procedures for inventory, preparation, and delivery for curation into a retrievable storage collection in a public repository or museum, which meet the Society of Vertebrate Paleontology's standards and requirements for the curation of paleontological resources;
9. Identification of the institution that has agreed to receive data and fossil materials collected, requirements or specifications for materials delivered for curation, and how they will be met, and the name and phone number of the contact person at the institution; and
10. A copy of the paleontological Conditions of Certification.

**Verification:** At least 30 days prior to ground disturbance, the project owner shall provide a copy of the PRMMP to the CPM. The PRMMP shall include an affidavit of authorship by the PRS, and acceptance of the PRMMP by the project owner evidenced by a signature.

**PAL-4** Prior to ground disturbance and for the duration of construction activities involving ground disturbance, the project owner and the PRS shall prepare and conduct weekly CPM-approved training for the following workers: project managers, construction supervisors, foremen and general workers involved with or who operate ground-disturbing equipment or tools. Workers shall not excavate in sensitive units prior to receiving CPM-approved worker training. Worker training shall consist of an initial PRS training, or may utilize a CPM-approved video or other presentation format, during the project kick off for those mentioned above. Following initial training, a CPM-approved video or other approved training presentation/materials, or in-person training may be used for new employees. The training program may be combined with other training programs prepared for cultural and biological resources, hazardous materials, or other areas of interest or concern. No ground disturbance shall occur prior to CPM approval of the Worker Environmental Awareness Program (WEAP), unless specifically approved by the CPM.

The WEAP shall address the possibility of encountering paleontological resources in the field, the sensitivity and importance of these resources, and legal obligations to preserve and protect those resources.

The training shall include:

1. A discussion of applicable laws and penalties under the law;
2. Good quality photographs or physical examples of vertebrate fossils for project sites containing units of high paleontologic sensitivity;
3. Information that the PRS or PRM has the authority to halt or redirect construction in the event of a discovery or unanticipated impact to a paleontological resource;
4. Instruction that employees are to halt or redirect work in the vicinity of a find and to contact their supervisor and the PRS or PRM;
5. An informational brochure that identifies reporting procedures in the event of a discovery;
6. A WEAP certification of completion form signed by each worker indicating that he/she has received the training; and
7. A sticker that shall be placed on hard hats indicating that environmental training has been completed.

**Verification**: (1) At least 30 days prior to ground disturbance, the project owner shall submit the proposed WEAP, including the brochure, with the set of reporting procedures for workers to follow.

(2) At least 30 days prior to ground disturbance, the project owner shall submit the training program presentation/materials to the CPM for approval if the project owner is planning to use a presentation format other than an in-person trainer for training.

(3) If the owner requests an alternate paleontological trainer, the resume and qualifications of the trainer shall be submitted to the CPM for review and approval prior to installation of an alternate trainer. Alternate trainers shall not conduct training prior to CPM authorization.

(4) In the monthly compliance report (MCR, the project owner shall provide copies of the WEAP certification of completion forms with the names of those trained and the trainer or type of training (in-person or other approved presentation format) offered that month. The MCR shall also include a running total of all persons who have completed the training to date.

**PAL-5** The project owner shall ensure that the PRS and PRM(s) monitor consistent with the PRMMP all construction-related grading, excavation, trenching, and augering in areas where potential fossil-bearing materials have been identified, both at the site and along any constructed linear facilities associated with the project. In the event that the PRS determines full-time monitoring is not necessary in locations that were identified as potentially fossil-bearing in the

PRMMP, the project owner shall notify and seek the concurrence of the CPM.

The project owner shall ensure that the PRS and PRM(s) have the authority to halt or redirect construction if paleontological resources are encountered. The project owner shall ensure that there is no interference with monitoring activities unless directed by the PRS. Monitoring activities shall be conducted as follows:

1. Any change of monitoring from the accepted schedule in the PRMMP shall be proposed in a letter or email from the PRS and the project owner to the CPM prior to the change in monitoring and will be included in the monthly compliance report. The letter or email shall include the justification for the change in monitoring and be submitted to the CPM for review and approval.
2. The project owner shall ensure that the PRM(s) keep a daily monitoring log of paleontological resource activities. The PRS may informally discuss paleontological resource monitoring and mitigation activities with the CPM at any time.
3. The project owner shall ensure that the PRS notifies the CPM within 24 hours of the occurrence of any incidents of non-compliance with any paleontological resources conditions of certification. The PRS shall recommend corrective action to resolve the issues or achieve compliance with the conditions of certification.
4. For any significant paleontological resources encountered, either the project owner or the PRS shall notify the CPM within 24 hours, or Monday morning in the case of a weekend event where construction has been halted because of a paleontological find.

The project owner shall ensure that the PRS prepares a summary of monitoring and other paleontological activities placed in the monthly compliance reports. The summary will include the name(s) of PRS or PRM(s) active during the month, general descriptions of training and monitored construction activities, and general locations of excavations, grading, and other activities. A section of the report shall include the geologic units or subunits encountered, descriptions of samplings within each unit, and a list of identified fossils. A final section of the report will address any issues or concerns about the project relating to paleontologic monitoring, including any incidents of non-compliance or any changes to the monitoring plan that have been approved by the CPM. If no monitoring took place during the month, the report shall include an explanation in the summary as to why monitoring was not conducted.

**Verification**: The project owner shall ensure that the PRS submits the summary of monitoring and paleontological activities in the MCR. When feasible, the CPM

shall be notified 10 days in advance of any proposed changes in monitoring different from the plan identified in the PRMMP. If there is any unforeseen change in monitoring, the notice shall be given as soon as possible prior to implementation of the change.

**PAL-6** The project owner, through the designated PRS, shall ensure that all components of the PRMMP are adequately performed including collection of fossil materials, preparation of fossil materials for analysis, analysis of fossils, identification and inventory of fossils, the preparation of fossils for curation, and the delivery for curation of all significant paleontological resource materials encountered and collected during project construction.

**Verification**: The project owner shall maintain in his/her compliance file copies of signed contracts or agreements with the designated PRS and other qualified research specialists. The project owner shall maintain these files for a period of three years after project completion and approval of the CPM-approved paleontological resource report (see **PAL-7**). The project owner shall be responsible for paying any curation fees charged by the museum for fossils collected and curated as a result of paleontological mitigation. A copy of the letter of transmittal submitting the fossils to the curating institution shall be provided to the CPM.

**PAL-7** The project owner shall ensure preparation of a Paleontological Resources Report (PRR) by the designated PRS. The PRR shall be prepared following completion of the ground-disturbing activities. The PRR shall include an analysis of the collected fossil materials and related information, and submit it to the CPM for review and approval.

The report shall include, but is not limited to, a description and inventory of recovered fossil materials; a map showing the location of paleontological resources encountered; determinations of sensitivity and significance; and a statement by the PRS that project impacts to paleontological resources have been mitigated below the level of significance.

**Verification**: Within 90 days after completion of ground-disturbing activities, including landscaping, the project owner shall submit the PRR under confidential cover to the CPM.

## Certification of Completion
## Worker Environmental Awareness Program
## Mariposa Energy Project (09-AFC-03)

This is to certify these individuals have completed a mandatory California Energy Commission-approved Worker Environmental Awareness Program (WEAP). The WEAP includes pertinent information on cultural, paleontological, and biological resources for all personnel (that is, construction supervisors, crews, and plant operators) working on site or at related facilities. By signing below, the participant indicates that he/she understands and shall abide by the guidelines set forth in the program materials. Include this completed form in the Monthly Compliance Report.

| No. | Employee Name | Title/Company | Signature |
|---|---|---|---|
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Cultural Trainer: _____ Signature:_____ Date: ___/___/____

PaleoTrainer: _____ Signature:_____ Date: ___/___/____

Biological Trainer: _____Signature:_____ Date:___/___/____

# VII. LOCAL IMPACT ASSESSMENT

In the following sections of this Decision, we review whether the Mariposa Energy Project (MEP or "project") will result in significant local impacts such as public health or safety hazards, adverse traffic or visual effects, unmitigated noise, or an excessive burden on local community services. These potential impacts are discussed under the technical topics of land use, traffic and transportation, socioeconomics, noise, and visual resources.

## A. LAND USE

This section analyzes the potential effects on land use that would occur by construction and operation of the MEP. Based on the evidence of record we have determined that the proposed project would not convert any farmland to non-agricultural use or conflict with existing agricultural zoning or Williamson Act contracts. Furthermore, we find that the MEP would not disrupt or divide the physical arrangement of an established community; would not disrupt an existing or recently approved land use, and by implementing Conditions of Certification **LAND-1**, **LAND-2**, **LAND-3**, and **LAND-4,** would be consistent with applicable Alameda and Contra Costa County laws, ordinances, regulations, and standards; and would not contribute to significant adverse cumulative land use impacts.

The public record on land use in this case included evidence submitted by the parties in advance and entered in evidence at the evidentiary hearing: Exs. 1; 4; 5; 6; 9; 11; 12; 13; 19; 20; 32; 38; 41; 42; 43; 45; 49; 54; 61; and 67 (Applicant); Ex. 301 (Staff); Exs. 402; 404; 414 (Sarvey) as well as testimony, cross-examination and public comment provided at the hearing on February 24, 2011(2/24/11 RT 1 through 369.)

### SUMMARY AND DISCUSSION OF THE EVIDENCE

In order to evaluate the potential impacts of the MEP concerning land use matters, we have applied the relevant CEQA guidelines and the laws, ordinances, regulations, and standards (LORS) listed below and in Appendix A of this Decision.

According to CEQA Guidelines[1], a project results in significant land use impacts if it would:

- Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use;
- Conflict with existing zoning for agricultural use or a Williamson Act contract;
- Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural uses;
- Physically disrupt or divide an established community;
- Conflict with any applicable habitat conservation plan or natural community conservation plan;
- Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction, or that would normally have jurisdiction, over the project. This includes, but is not limited to, a General Plan, community or specific plan, local coastal program, airport land use compatibility plan, or zoning ordinance; and
- Create individual environmental effects which, when considered with other impacts from the same project or in conjunction with impacts from other closely related past, present, and reasonably foreseeable future projects, are considerable, compound, or increase other environmental impacts. (Ex. 300, p. 4.5-5.)

Local ordinances and policies applicable to the project include the:

- Williamson Act[2]
- East County Area Plan (ECAP)[3]
- Alameda County Ordinance Code, Title 17: Zoning
- Contra Costa County General Plan
- Contra Costa Airport Land Use Compatibility Plan (CCALUCP) (Byron Airport)[4]

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[1] Title 14, Cal. Code Regs., section 15000 et seq. App. G sections II, IX, XVI.

[2] California Land Conservation Act of 1965 Gov. Code sec. 51283.1(a)

[3] Section of the Alameda County General Plan.

[4] The applicable subparts of these LORS are set forth in LAND USE Table 1 (Ex. 301), and can be found in Appendix A of this Decision.

1. The Site

The proposed project is a natural gas-fired simple cycle peaking facility to be located on a ten-acre portion of a 158-acre parcel[5] in the unincorporated area of Alameda County. The parcel is located southeast of the intersection of Bruns Road and Kelso Road and the power plant project site is proposed in the middle portion of the parcel. The project also includes an adjacent 9.2-acre temporary off-site construction laydown and worker parking area. The MEP site is directly southwest of the existing 6.5-megawat Byron Power Cogen Plant which sits on 2 acres in the middle of the 158-acre parcel.

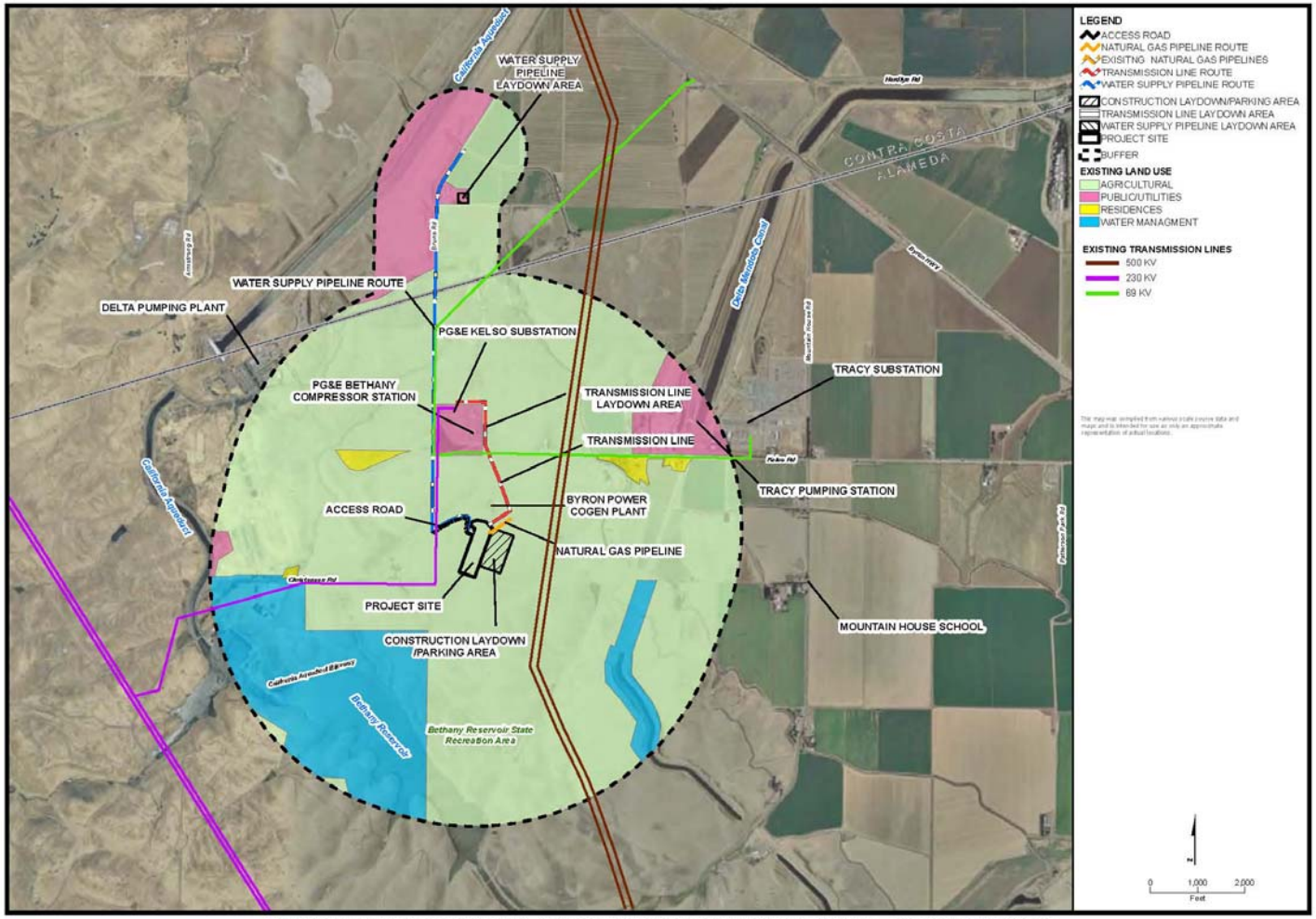
The project site location is proposed approximately six miles south of Byron (Contra Costa County), approximately 2.5 miles west of the community of Mountain House (San Joaquin County), seven miles northwest of Tracy (San Joaquin County), and seven miles east of Livermore (Alameda County). The site is approximately 2.7 miles south of the Byron Airport in Contra Costa County, one mile from the nearest runway approach centerline, and within the Byron Airport area of influence. (Ex. 301, p. 4.12-5.)

The proposed site is currently used for cattle grazing on non-irrigated non-native annual grassland. **Land Use Figure 1,** below**,** presents the existing land use on the project site and adjacent land within a one mile radius of the project site and within 0.25 mile of the water supply pipeline route. The land uses in this area include agricultural, public/utilities, residences, and water management. (Ex. 301, p. 4.12-5.)

The 200 MW facility would consist of four power blocks. A portion of the area would be paved for internal access to project facilities and buildings. The remaining areas around the equipment would have a gravel surface. The 10-acre fenced generating site would also contain a detention pond, a warehouse and maintenance building, and a control/administration building (Ex. 1, Figure 2.3-1.)

[5] Assessor Parcel Number [APN] 99B-7050-001-10.

**LAND USE - FIGURE 1**
Mariposa Energy Project - Existing Land Use




LAND USE

**CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION**
SOURCE: AFC Supplement B Additional Laydown Area anlaysis

Exhaust stacks 80 feet in height and transmission towers, ranging from 84 to 95 feet would be the tallest facilities at the MEP. Access to the site would be from Bruns Road, via a new 1,100-foot long road using the route of the existing unpaved access road that connects the Byron Power Cogeneration Plant to Bruns Road. Temporary construction facilities would include a 9.2-acre worker parking and laydown area immediately east of the project site on the project property, a 1-acre water supply pipeline parking and laydown area located at the Byron Bethany Irrigation District (BBID) headquarters facility and a 0.6-acre laydown area along the transmission line route on PG&E property. (Ex. 301, p. 4.12-5.)

A new transmission line approximately 0.7-mile-long carrying 230-kilovolt (kV) would connect the plant with the regional electrical grid at the Pacific Gas and Electric (PG&E) Kelso Substation, directly across Kelso Road to the north. The transmission line would be within a new 100-foot wide easement along a route extending from the plant; staying east of the Byron Power Cogeneration Plant, and crossing Kelso Road onto PG&E property. The project will receive natural gas via a new 580-footlong natural gas pipeline that would connect the project site to PG&E's Line 2, an existing high-pressure natural gas pipeline located northeast of the project site. The new 10 inch diameter pipeline would be located outside the edge of Bruns Road. (Ex. 301, p. 4.12-6.) Service and process water for the site would be supplied via a concrete turnout structure, a new pump station, and a 1.8-mile pipeline, ten inches in diameter. Most of the water pipeline would be located outside the edge of the Bruns Road pavement. A 1,000-foot section of the pipeline would be on BBID property. (*Id*.)

a. Surrounding Area

The area surrounding the project site includes existing 230 kV and 500 kV transmission lines, shown in **Land Use Figure 1**. There are a few scattered residences within one mile of the project site, with the closest located approximately 0.4 mile to the northwest. The community of Mountain House in San Joaquin County is located approximately 2.5 miles east of the project site (**Land Use Figure 3**). Mountain House is a partially developed master plan community proposed for between 14,000 and 16,000 homes. It is located within a 4,780-acre area adjacent to the Alameda County/San Joaquin County boundary and bordered by Great Valley Parkway to the west, Mountain House Parkway to the east, Interstate 205 to the south, and by Old River to the north.

There are numerous industrial uses in the project area which include the Byron Power Cogeneration Plant (on the project property, 0.1 mile northeast of the power plant), PG&E Bethany Compressor (0.4 mile north of the power plant) and Kelso Substation (0.5 mile north of the power plant), Tracy Pumping Station (one mile northeast of the power plant), Tracy Substation (one mile northeast of the power plant), and Delta Pumping Plant (one mile northwest of the power plant). Other similar land uses include the California Aqueduct, 1.3 miles to the northwest, the Delta Mendota Canal 0.8 mile to the east, and Bethany Reservoir 0.8 mile to the south. (Ex. 301, p. 4.12-6.)

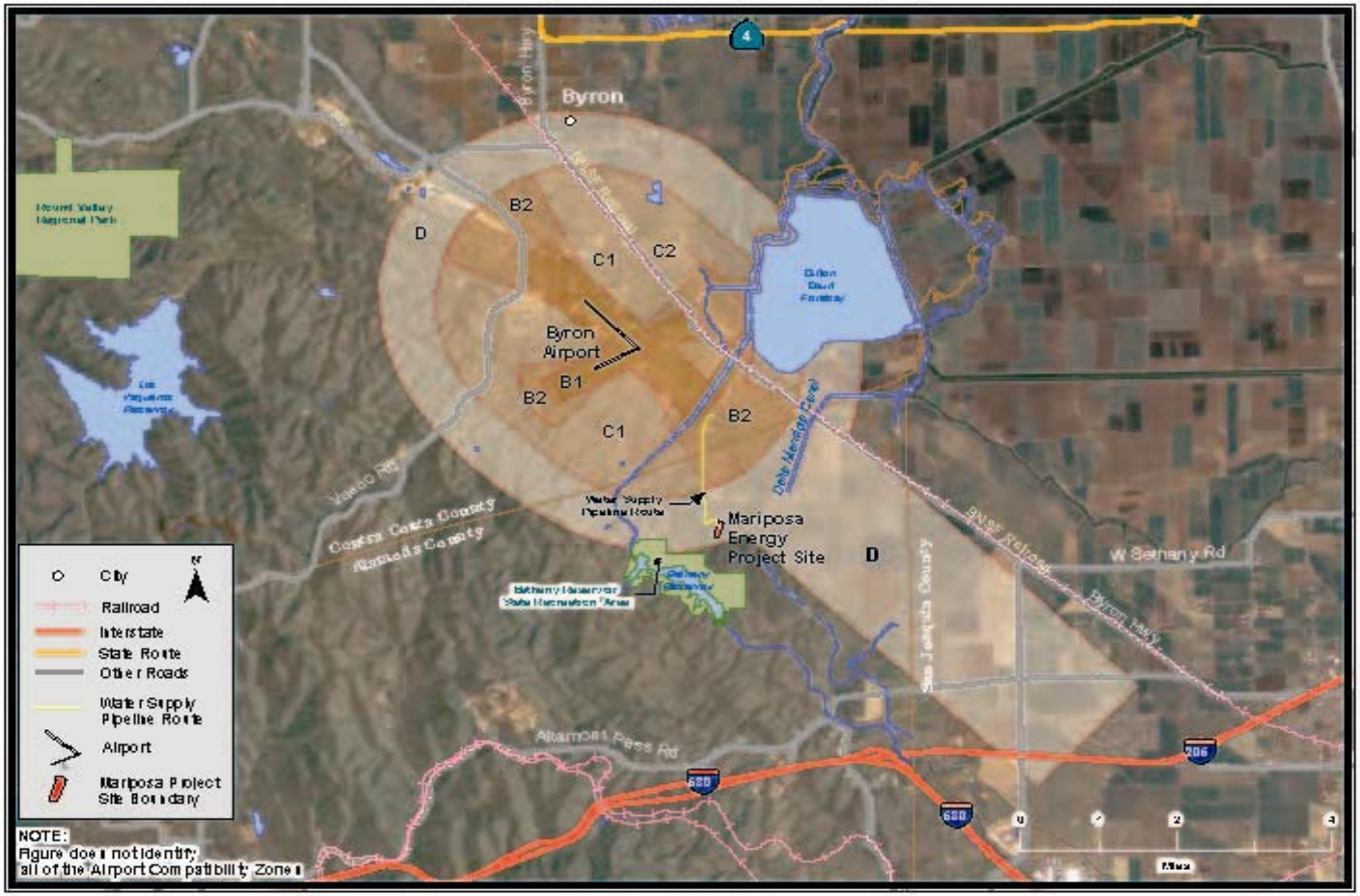
The Byron Airport is in southeast Contra Costa County, approximately 2.7 miles northwest of the MEP. The MEP site is located about 1 mile southwest of the airport's primary runway's approach centerline (runway 12-30) and within 0.65 mile of the closest approach boundary. The Byron Airport is a general aviation public airport catering to general aircraft operations, sky diving, gliders, and ultralight aircraft. The Contra Costa County Airport Land Use Compatibility Plan (CCCALUCP) includes policies for the Byron Airport to ensure compatibility between new development in the airport influence area and the airport. **Land Use Figure 2** shows the proposed project with respect to the Byron Airport compatibility zones. The MEP site is located in Compatibility Zone D.

The Byron Bethany Irrigation District is a multi-county special district formed under the provisions of the California Water Code (§ 20500 et. seq.) and serves Alameda, Contra Costa, and San Joaquin counties. BBID is an independent public agency statutorily authorized to serve water to lands within its boundaries for any beneficial use, including municipal and industrial uses. Two BBID properties are the only lands the project would directly use that are classified as Farmland of Local Significance. In contrast, both the project site and the transmission tie-in site are designated grazing land.[6] The project site is grazed by a neighbor's cattle and is not currently irrigated. The properties adjacent to the project site are also designated as grazing land according to the Farmland Monitoring and Mapping Program (FMMP). (Id., p. 4.12-7.)

[6] Classification of these properties is done by the Farmland Monitoring and Mapping Program (FMMP), managed by the California Department of Conservation.

LAND USE - FIGURE 2

Mariposa Energy Project - Byron Airport Compatibility Map




CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION

SOURCE: California Energy Commission - Tele Atlas Data & Contra Costa County Airport Land Use Compatibility Plan, Figure 4B Compatibility Map

LAND USE

2. Potential Impacts and Mitigation

a. Will the MEP cause a conversion of farmland to non-agricultural use?

CEQA Guidelines require us to determine whether the MEP will convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, to non-agricultural use.

The MEP site itself site and its transmission tie-in are not designated as farmland by the Farmland Monitoring and Mapping Program, but rather are designated as "Grazing Lands". Thus, MEP will not result in the conversion of farmland to non-agricultural uses. (Exs. 1; 4; 301, p. 4.12-11.) Furthermore, Conditions of Certification **LAND-2** and **LAND-3** will ensure that existing grazing uses can continue by providing year-round irrigation for grazing cattle and allow more flexible agricultural management of the grazing lands, a longer grazing season, and likely increased agricultural productivity on the land. Impacted laydown areas will be reseeded. (Ex. 13, p. 5.)

The project's pump station would be located near an existing, similar pumping structure on BBID land. The pump station would be a permanent structure that would convert the underlying farmland to non-agricultural use. However, the station's footprint would be approximately 250 square feet. The BBID lands are designated "Farmland of Local Importance". Staff analysis concluded that the conversion of 250 square feet of "Farmland of Local Importance" to the non-agricultural use of a pump station on a 23-acre property would not be substantial and would be a less than significant impact. (Ex. 301, p. 4.12-11.) The turnout structure for the pumping station would be located along the inside bank of canal 45. Apart from the insubstantial conversion of Farmland of Local Importance resulting from the pump station and turnout structure, there are no other project components which cause the conversion of additional farmland to non-agricultural use. (*Id.*)

Construction of the section of the water supply pipeline on BBID property will have only temporary impacts during its construction period, and will be done in compliance with BBID standards for pipeline construction. These standards require a minimum three foot cover over the pipeline. This part of pipeline construction will be scheduled and carried out so as not to conflict with agricultural operations on the property. Once construction has been completed, the land shall be returned to pre-construction site conditions. Condition of

Certification **LAND-1** will ensure that these pipeline construction techniques are followed during project construction.

As a result of the limitations noted above, project impacts to farmland will be less than significant.

b. Will the project conflict with existing zoning for agricultural use or the Williamson Act?

The Williamson Act was passed by the Legislature to preserve open space and agricultural lands from premature development.[7] Under the Act, local governments are authorized to enter into contracts with local land owners. The land owners voluntarily agree to restrict the uses of their property to agricultural or compatible uses in exchange for tax benefits. (Ex. 9.) The Williamson Act allows certain types of compatible uses on the contracted land. One of the allowed uses which is applicable to the MEP is established by statute. It states that unless the local jurisdiction makes a finding to the contrary, "compatible uses" under the Williamson Act include the, "…erection, construction alteration, or maintenance of gas, electric…facilities …within an agricultural preserve."[8] Alameda County has not, to date, made a finding to exclude electrical facilities as a compatible use. (Exs. 9, 41.)

Compatible use is determined by the local agency as long as the agency determination is consistent with the Act's principles of compatibility.[9] These principles require that a new use not compromise, impair, or displace current or foreseeable agricultural uses on the property in question or on nearby contracted properties, nor harm the long-term productive agricultural capability of the property or nearby properties. Alameda County determined that the MEP would be consistent with these principles and, through mitigation found in the Conditions of Certification, would improve productivity on a portion of the parcel equal to the area the project would occupy. (Ex. 41, p. 3.)

In addition, the County determined that the scale of the MEP would be subordinate and incidental to the agricultural use of the contracted parcel. This is because MEP would occupy 10 acres out of the 156-acre parcel, or 7.6 percent of the total parcel size, leaving 146 acres available for agriculture. Alameda

[7] The Williamson Act is formally known as the "California Land Conservation Act of 1965" Cal. Gov. Code section 51243(a).

[8] Cal. Gov. Code, section 51238(a)(1); 2/24/11 RT 70.

[9] Cal Gov. Code, section 51201(e); 51238.1.

County considered this a small change consistent with the Williamson Act, thus requiring neither cancellation nor non-renewal of the Land Conservation Agreement (LCA) for the MEP parcel[10]. (*Id*., p. 4.)

The MEP site and the transmission line tie-in site are zoned Agricultural District (or A District). This designation allows "public utility building or use" as a conditional use approved by the Board of Zoning Adjustments. (Ex. 301 p. 4.12-11; Alameda County Ordinance Code, November 10, 2009.) However, the MEP site is part of a larger property that has continuously been within an Alameda County Agricultural Preserve since 1971 (No. 1971-34) and is currently subject to Land Conservation Agreement (LCA) or Williamson Act contract with Alameda County.[11]

The LCA for the MEP site does not specifically identify the proposed power plant, associated facilities, and associated linear features (water supply line, gas supply line, and transmission towers and lines) as a compatible use. (*Id*, 4.12-12.) Nevertheless, the Department of Conservation (DOC) considers the proposed MEP to be consistent with the three required principles of compatibility contained in section 51238.1 of the Williamson Act. In a July 15, 2009 letter, the DOC noted that: (1) the MEP will not significantly compromise the long-term productive agricultural capability of the contracted parcel; (2) the project will not significantly displace or impair current or reasonably foreseeable agricultural operations on the contracted parcel; and (3) the MEP will not result in the significant removal of adjacent contracted land from agricultural or open-space use. Accordingly, DOC determined that the MEP would be a use compatible with the on-going agricultural activities occurring on the 158-acre parcel and that the DOC considers the proposed use by the MEP to be consistent with the required principles of compatibility with Williamson Act contracts. (Exs. 20; 301, p. 4.12-12.)

At the evidentiary hearing held on February 24, 2011, the Committee asked why cancellation of the Williamson Act contract was not required to allow MEP development of the project site. Applicant's witness responded that in communicating with the DOC, that agency preferred the approach where, so long as the use of the property met compatibility criteria in the Act, the property should remain under its Williamson Act contract. (2/24/11 RT 154.)

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[10] As a policy, California Department of Conservation discourages cancellation of a Williamson Act contract. (Ex. 9, Att. RSDR4-1, p. 4.)

[11] Alameda County Land Conservation Agreement # C-89-1195, Ex. 12, attachment DR-1.

As noted above, Alameda County staff communications with the Commission also state that the project is compatible and consistent with the Williamson Act. (Ex. 41; 2/24/11 RT 32.) Energy Commission staff evaluated input from DOC, Alameda County staff, and the Commission staff's own analysis and concluded the MEP is compatible with the Williamson Act because the project falls within the one of the compatible uses enumerated in the Williamson Act (Cal. Gov. Code § 51238(a)(1)) and because the MEP meets the three principles of compatibility identified in the section 51238.1(a) of the California Land Conservation Act. (*Id*, p. 12-13.)

Expressing an opposite view were intervenors Bob Sarvey[12], and the Sierra Club California [13] who each argued that the MEP is not compatible with applicable Williamson Act contract provisions and therefore violates the existing contract. (*Id*., p.4-12.45; Ex. 402.) Mr. Sarvey argues that, because the MEP is not consistent with the agricultural uses specified in the LCA for the site, Alameda County must rescind or modify the Williamson Act contract for the MEP parcel. However, the contract itself is not a LORS, but an agreement between the landowner and the county. The Energy Commission is not a party to the contract, and has no role in the enforcement of the contract between the landowner and the county. The weight of the evidence provided by Alameda County staff, DOC opinions, Applicant's expert witnesses and the Energy Commission staff supports our determination that the MEP will not conflict with the existing Williamson Act requirements.

The project site does not involve forest land and is not zoned for timberland production, nor is there timberland within one mile of the site. (Ex. 301, p. 4.12-13.) We consider together the evidence that no agricultural or timberland zoning is in conflict with the project and the persuasive evidence that MEP will not conflict with the existing Land Conservation Act contract. We therefore find that the project will not conflict with existing zoning for agricultural use or a Williamson Act contract.

c. Will MEP physically disrupt or divide an established community?

As discussed above under the subtitle "Setting", land uses within one mile of the project site are primarily agricultural plus some electric utilities and water management infrastructure. No existing community exists within one mile of the

[12] Bob Sarvey's Opening Brief, 2/30/11, pp. 5-7.

[13] Opening Brief of the Sierra Club of California, 2/30/11, p. 10.

project site; only a few scattered residences are present. The MEP will not establish permanent physical barriers in the community. Mitigation measures noted above will ensure that the existing grazing use of the site parcel will continue. Therefore, we find that the MEP project would not result in new development that would physically divide an existing community. (Exs. 13; 301, p. 4.12-16.)

d. Will the project conflict with any applicable habitat conservation plan or natural community conservation plan?

The project site is covered by two developing habitat conservation plans or natural community conservation plans (HCP/NCCP); the East County Parks HCP/NCCP and the East Alameda County Conservation Strategy. The Bethany Reservoir State Recreation area, located approximately 0.76 mile south of the power plant site, is governed by the Bethany Reservoir State Recreation Area Resource Management Plan and General Development Plan. The MEP would be about 0.76 mile north of the recreation area and would therefore have no direct impact to the resource area. Indirect impacts which could result from changes to the visual quality or noise level experienced at the area are discussed under the **Visual Resources** and the **Noise** sections of this Decision.

The East Contra Costa County habitat conservation plan and natural community conservation plan (HCP/NCCP) apply to the area where a section of the MEP water supply pipeline, pump station, concrete turnout structure, and pipeline construction laydown and parking area are proposed. The East Contra Costa County Habitat Conservancy oversees the East Contra Costa County HCP/NCP. The HCP/NCP provides regional conservation and development guidelines to protect natural resources.

Both the pipeline and associated structures and the construction area are proposed in an area designated by the HCP/NCCP as being a lower acquisition priority. Furthermore, because under the plan public lands do not count toward land acquisition requirements, the section of water supply pipeline, laydown, parking and other peripheral facilities that are proposed on land owned by BBID would not conflict with the HCP/NCCP's acquisition efforts. The **Biological Resources** section of this Decision notes that no sensitive habitat would be affected by portions of the water supply lime located in Contra Costa County. (Ex. 301, 4.12- 14.)

Based on the less than significant impacts that the MEP would have on the areas covered by the HCP/NCCPs noted above, we find that the project would not conflict with any applicable habitat conservation plan or natural community conservation plan.

e. Will MEP conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction, or that would normally have jurisdiction, over the project? This includes, but is not limited to, a General Plan, community or specific plan, local coastal program, airport land use compatibility plan, or zoning ordinance.

1) East County Area Plan (ECAP)

The project site lies within the East County Area Plan (ECAP) of the Alameda County General Plan. The ECAP was last amended in November 2002 by Measure D, which imposed new policies restricting development, including Policy 13. Policy 13 allows for the construction of public facilities and infrastructure required for permitted development. However, the policy prevents Alameda County from permitting facilities in excess of those needed for permissible development which complies with Measure D. The measure also allows, "New, expanded or replacement infrastructure necessary to create adequate service for the East County; and infrastructure[14] such as pipelines, canals, and power transmission lines which have no excessive growth-inducing effect on the East County area and have permit conditions to ensure that no service can be provided beyond that consistent with development allowed [by Measure D]" (Ex.67.)

Commission staff analyzed MEP compliance with each of the applicable policies contained in the ECAP. (Ex. 301, pp. 4.12-19 − 4.12-23, **Land Use Table 2**.) The Staff analysis is based in part on advice from Alameda County staff which has been reviewing the MEP since 2008, to determine its compliance with the ECAP and Measure D[15]. (2/24/11 RT 29.) The Alameda County staff determined that the ECAP does not preclude construction of a power plant on lands designated for Large Parcel Agricultural (LPA) use and determined that the MEP is consistent with the ECAP as amended by Measure D. (*Id*.).

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[14] Policy 13 of the ECAP says infrastructure shall include all development necessary to the provision of public services and utilities. (2/24/11 RT 149-150.)

[15] Whenever an AFC is filed for a power plant project, the Commission staff seeks advice and recommendations from interested agencies on matters within the jurisdiction and expertise of those agencies. Commission regulations require Staff to give "due deference" to such advice. (20 C.C.R. section 1744(e).

The Alameda County considers a power generation facility a land use allowed under the Large Parcel Agriculture description of the ECAP, provided that mitigation is required for agricultural land permanently removed from production as a result of the construction and the presence of the facility. The evidence shows that the MEP would reduce current grazing areas by 10 acres, or about 6 percent of the grazing acreage available on the project parcel. Both Applicant and Staff assert that this is a less than significant reduction. County staff informed the Commission that Applicant's plan for re-seeding the construction laydown area and providing a permanent water supply for livestock is adequate mitigation in the County's view. Condition of Certification **LAND-2** is designed to ensure that the existing livestock water supply is maintained on a year-round basis. Condition of Certification **LAND-3** requires reseeding the construction laydown area with an improved seed mix over current site conditions. (*Id.* p. 4.12-18.)

Other restrictions under Measure D explicitly allow public infrastructure so long as the required floor to area ratio (FAR) of the project is not exceeded. The County found that in the case of the MEP, the FAR is not exceeded. (2/24/11 RT 29.) Alameda County staff therefore advised the Commission that the project is in compliance with its building intensity policy. Furthermore, the County considers the project a 'public facility' because it would substantially serve a key need of the public at large in order to provide electrical services. For this reason, the County considers the MEP to be serving a 'public utility" function under the definitions of the ECAP and Measure D. (Exs. 41, 67; 2/24/11 RT 129-130.) The project would therefore be consistent with the specifications of the Large Parcel Agriculture land use designation and is considered "infrastructure" under Policy 13 of the ECAP, according to Alameda County.[16] (*Id*. p. 4.12-19.)

However, intervenors Sarvey, Dighe, and the Sierra Club California argued that MEP should not be evaluated as allowable infrastructure under the ECAP because it is a private, not a public industrial facility. (See Opening Briefs of Bob Sarvey, Rajesh Dighe, and Sierra Club California.) We must reject this narrow interpretation, since MEP through its power purchase agreement with Pacific Gas & Electric Company (PG&E) will sell electricity to a public utility for public consumption and benefit.[17] MEP can therefore be reasonably considered a

[16] This determination is consistent with the Commission previous decisions in both the Tesla Power Plant case (01-AFC-21, p. 388 and the decision on the East Altamont Energy Center (01-AFC-4, p. 369.)

[17] PG&E is an electricity provider for Alameda County. (2/24/11 RT 135.)

public facility because it serves the needs of the public at large. (Exs. 41; 67; 2/24/11 130,135.)

As noted above, the ECAP as modified by Measure D prevents Alameda County from permitting facilities in excess of those needed for permissible development which complies with Measure D. Applicant provided substantial evidence that the amount of local generation in Eastern Alameda County is only a fraction of the current load. (Ex. 1, App. 5.6A, p. 1.) However, Intervenor Sarvey disputed this assertion. (Bob Sarvey's Op. Br. p. 4.) Applicant also points out that most of the local generation in Eastern Alameda County is comprised of intermittent resources such as solar and wind. (Ex. 1, App. 5.6A, p. 9.) This type of generation requires dispatchable peaking power during times when intermittent resources are not generating or at time of peak load. (*Id*.; Ex. 301, p. 4.1-72.) While the generation from MEP would send electricity into the PG&E grid, it would provide peaking power to meet the loads in Eastern Alameda County. (2/24/11 RT 30, 31, 89, 115, 128.) Therefore, we find that MEP does not constitute infrastructure in excess of that allowed by the ECAP. Further, since MEP will generate into the electricity transmission grid, it will not have a growth-inducing impact at the local distribution level. (2/24/11 RT 128.)

We find that the MEP is in conformance with the ECAP.

2) Alameda County Ordinance Code

The Alameda County Ordinance Code contains zoning ordinances for the unincorporated areas of the county and is divided into parts or districts. The power plant site, construction laydown area, and the natural gas pipeline are proposed on land zoned in the Agricultural District or "A" District. Alameda County staff advised the Commission that infrastructure, such as power plants and transmission line facilities, are permitted in the 'A' – Agriculture Zoning District. In the absence of the Commission's power plant licensing jurisdiction under the Warren-Alquist Act, a power plant such as the MEP would be permitted by Alameda County with a Conditional Use Permit (CUP.) The evidence submitted by Staff in its assessment of the project examined each of the relevant zoning ordinances and determined that, with various conditions of certification,[18] the MEP complies the county zoning. (Exs. 1, p. 5.6-11 − 13; 4;, 41; 301, p. 4.12-11 and 4.12-12,. 4.12-23 − 4.12-27; **Land Use Table 2**.) Alameda County stated

[18] Conditions of Certification **TLSN-1** through **TLSN-4, HAZ-1** through **HAZ-7; WORKER SAFETY-1** through **WORKER SAFETY-5** and **VIS-5**.

in its consistency determination that "infrastructure such as power plants are permitted in the "A"-Agriculture Zoning District. (Ex. 41, p. 3.)

The project is properly related to other land uses and transportation and service facilities in the vicinity. MEP would not materially affect adversely the health or safety of persons residing or working in the vicinity, would not be materially detrimental to the public welfare or injurious to property or improvements in the neighborhood, and would not be contrary to the specific intent clauses or performance standards established for the "A" District. We find that the project would meet all finding requirements required by Alameda County for issuance of a conditional use permit.

3) Contra Costa County General Plan

The Contra Costa County General Plan expresses the broad goals, policies, and specific implementation measures which guide the decisions on development, future growth, and the conservation of resources through 2020. Approximately 0.7 miles of the MEP's water supply pipeline will be located in Contra Costa County. In addition, a temporary pipeline construction laydown and parking area would support pipeline construction. BBID would construct the water supply infrastructure. Staff concluded that the pipeline construction laydown area would be consistent with the PS (Public/Semi-Public) land use designation because the area would be used by a construction team affiliated with a public entity BBID. Staff concluded the water supply pipeline would be consistent with the AL (Agricultural Lands) land use designation because the loss of agricultural land would not be substantial (250 square feet) and the loss would be at the northern margin of the property. Also, Condition of Certification **LAND-1** ensures no additional loss of agricultural land will occur. (Ex. 301, p. 4.12-28.) Staff also presented analysis showing MEP's consistency with four specific policies in the Contra Costa County General Plan.[19]

4) Contra Costa Airport Land Use Compatibility Plan (Byron Airport)

The Contra Costa County Airport Land Use Compatibility Plan (ALUCP) contains criteria for assessing whether a land use plan, ordinance, or development proposal is compatible with the operation of Byron Airport. The MEP site is located within the Byron Airport influence area, within the conical surface air

[19] Contra Costa County General Plan Policies: 3-10, 3-69, 8-29, 8-32. (Ex. 301, pp. 4.12-28 − 4.12-30.)

protection surface, and within the area designated as Compatibility Zone D. The water supply pipeline, pump station and turnout structure are closer to the airport, within Compatibility Zone C1. However, because these are underground facilities, they would not impact the airport. **Land Use Figure 2** presents the proposed project in relation to the Byron Airport and compatibility zones as designated on the Byron Airport Compatibility Map.

ALUP section 6.7.4 sets 100-foot height limitation criteria near the Byron airport. The MEP will have overhead transmission towers which are less than 100 feet in height, ranging from 84 to 95 feet. The four proposed exhaust stacks would be 80 feet in height. For this reason both the Contra Costa County Airport Land Use Commission and the Energy Commission staff determined that the MEP complies with applicable height criteria. (Ex. 301, p. 4.12-30.) Intervenor CALPILOTS argues that the MEP will exceed this height limitation because thermal plumes from the power plant will rise above 100 feet. This is a misreading of the height limitation criteria, which applies to solid objects, such as an antenna or tower. (*Id*.) We find the MEP complies with applicable height limitations for the Byron Airport because the maximum height of its tallest towers and stacks is less than 100 feet and not more than 35 feet taller than other nearby objects.

The record also contains analysis of MEP's compliance with policy 6.9.3, which restricts land uses that pose a hazard to flight. Examples of such hazards would be: glare, dust, electrical interference, and the attraction of birds. Commission staff made the following determinations in light of the applicable Conditions of Certification, which mitigate any potential impacts:

- The project would not generate glare or distracting lights which could be mistaken for airport lights; Conditions of Certification **VIS-1**, **VIS-3**, and **VIS-4**.
- The project would not be a source of dust, steam, or smoke which may impair pilot visibility; Conditions of Certification **AQ-SQ3** and **AQ-SQ4**.
- The project would not be a source of electrical interference with aircraft communications or navigation; Condition of Certification **LAND-4**.
- The project is unlikely to attract birds to the area; Condition of Certification **BIO-7**.

CALPILOTs points out in its testimony (Ex. 700) that the Contra Costa Airport Land Use Commission (ALUC) issued a letter stating that the MEP is inconsistent with the Contra Costa Airport Land Use Compatibility Plan, based on

a lack of authoritative scientific data showing the absence of hazards to aircraft. CALPILOTS safety concerns are addressed in the aviation discussion contained within the **Traffic and Transportation** section of this Decision. However, the evidence is clear that MEP complies with height requirements within Alameda County and that FAA jurisdiction over the Byron airport preempts most local airport policies. (2/24/11 RT 52-53.) Commission staff also made clear that they gave consideration to the Contra Costa County ALUC's letter but did not detect anything in the letter pertaining to land use compatibility and the policies in the ALUCP. Alameda County assessed the project's compatibility with each applicable ALUCP policy in their September 2010 letter. Staff reported and considered this information in the Land Use SSA. (Ex. 301 pp.4.12-30.) The Contra Costa County ALUC letter identified potential project impacts from plumes on aircraft operations and pilot safety which were analyzed in the Traffic and Transportation section of the SSA. (2/24/11 RT 202-206.)

Although CCALUC issued a letter stating that the project is inconsistent with the CCALUCP, we cannot make a finding to that effect. Not only did CCALUC fail to identify a specific section of the CCALUCP that would be violated by this project, the basis for its recommendation (that there is a lack of authoritative scientific data showing the absence of hazards to aircraft) is simply not supported by the evidentiary record in this case. In fact, ample evidence that is well documented and was gathered using standard scientific methods demonstrates that this project will not create aviation safety impacts. Since safety is the basis of CCALUP recommendation, we could not make a finding accepting it without violating our own responsibility to make decisions based on the evidence provided in our proceeding.

Regarding MEP's impacts on future expansion of the Byron airport, the FAA was expressly required to consider future expansion plans in its analysis before issuing its Determination of No Hazard to Air Navigation[20]. (Ex. 7.)

With the Conditions of Certification noted above, we can conclude that the project would be consistent with policies contained in the ALUCP. In addition, the record contains substantial evidence that the project does not pose a significant risk to pilots from project-related thermal plumes. This subject is discussed in the section of this Decision entitled **Traffic and Transportation**.

[20] The potential impact of the MEP on the Byron Airport was also considered by the Contra Costa Planning Commission and the Contra Costa County Board of Supervisors. The County is owner and operator of the Byron Airport. Both agencies took a position in support of the MEP. (2/24/11 RT 255-257, 268-272.)

3. Consistency with LORS

In its testimony, Staff identified the various laws, ordinances, regulations, and standards (LORS) applicable to the MEP, determined the project's consistency with those LORS, and provided the basis for determination. We have included the summary of these determinations in **Land Use Table 2** which follows. (Ex. 301, pp. 4.12-36 − 4.12-39.) We conclude that, with the inclusion of Conditions of Certification **LAND-1, LAND-2, LAND-3** and **LAND-4,** the MEP will comply with applicable land use policies and LORS.

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## LAND USE Table 2

## Project Compliance with Adopted Applicable Land Use LORS

| Applicable LORS | Consistency Determination | Basis for Determination |
|---|---|---|
| **State** | | |
| California Land Conservation Act of 1965 (Williamson Act) (Gov. Code §51238.1(a) ) | Yes, as conditioned | Staff agrees with Alameda County and the DOC that the MEP would be consistent with the three principles of compatibility identified in GC § 51238.1(a) of the California land Conservation Act (CLCA). Staff has concluded the MEP is compatible with the CLCA with the inclusion of the proposed Condition of Certification **LAND-2 and LAND-3**. |
| **Local** | | |
| East County Area Plan (ECAP) (general plan)<br>Land Use Designation:<br>Large Parcel Agriculture | Yes, as conditioned | The ECAP does not preclude the construction of power plants on land of such designation and the project would be consistent with the specifications of the Large Parcel Agriculture land use designation. The proposed Condition of Certification **LAND-2 and LAND-3** would meet the county's mitigation requirement for loss of land in agricultural production. |
| Land Use -<br>-Subregional Planning; Urban/Open Space Delineation<br>*Policy 1* | Yes | A power plant is not precluded from construction outside the UGB, the project is not an urban use, and the project is appropriately located adjacent to similar infrastructure. |
| -Urban and Rural Development; Location: Incorporated and Unincorporated<br>*Policy 13* | Yes | The project is considered infrastructure allowed under this policy. |
| -Sensitive Lands and Regionally Significant Open Space; General Open Space<br>*Policy 52* | Yes, as conditioned | The project site has no recreation opportunities, the project is a compatible land use with grazing, grazing is the only likely agricultural activity on this site, the project design and isolated location would not encourage urban infill development and increased urbanization of open space areas, and the project would not impact wind operations or mineral extraction and impacts to biological resources are less than significant with the inclusion of the proposed Conditions of Certification **BIO-7** through **15**, **17** and **18**. The proposed Conditions of Certification **VIS-1**, **VIS-2**, **VIS-3**, **VIS-4**, **VIS-5**, and **VIS-6** would ensure impacts to visual resources are less than significant. |

| Applicable LORS | Consistency Determination | Basis for Determination |
|---|---|---|
| *Policy 54* | Yes | The project is not precluded from construction outside the UGB, the project is a public facility, and is comparable to limited infrastructure. |
| -Sensitive Lands and Regionally Significant Open Space; Agriculture | | |
| *Policy 72* | Yes | The site is more suited to low-intensity agriculture versus intensive agricultural use. |
| *Policy 73* | Yes | The project does not require buffers due to its compatibility with the on-site grazing. The proposed fencing around the plant, clustering of equipment, and small loss of grazing land further aid in the protection of agricultural areas. |
| *Policy 89* | Yes | The project would result in a minimal loss of rangeland, retain the majority of the property for grazing use, and cluster the equipment within a fenced area located in proximity to the southern property boundary. |
| - Special Land Uses; Windfarms | | |
| *Policy 173* | Yes | The project would not impact wind development or preclude the future development of such an operation. |
| Public Services and Facilities- -General Services and Facilities; Infrastructure and Services | | |
| *Policy 218* | Yes, as conditioned | The project would be consistent with the ECAP land use designation for the project site with the inclusion of Condition of Certification **LAND-2 and LAND-3** would be consistent with applicable policies, the project is appropriately located in proximity to other electrical infrastructure, and the project is more than 0.25 mile from sensitive receptors and residences. |
| Alameda County Ordinance Code (Title 17: Zoning) | | |
| 17.06.040 - Conditional uses—Board of zoning adjustments. | Yes | The project is considered a public utility use and meets all finding requirements consistent with §17.54.130 of the zoning code for a CUP. |
| 17.06.050 - Accessory uses. | Yes | The proposed warehouse and maintenance building and control/administration building associated with the power plant are considered accessory uses to the permitted power plant. |
| 17.06.060 - Building site. | Yes | The lease for the project covers the required 100 acre minimum building site area. |
| 17.06.070 - Yards. | Yes | The proposed location of the power plant on the larger project property would allow the yard requirements to be met. |
| 17.06.080 - Signs. | Yes, as conditioned | The inclusion of the proposed Condition of Certification **VIS-5** would ensure project compliance with this section of the zoning code. |

| Applicable LORS | Consistency Determination | Basis for Determination |
|---|---|---|
| 17.52.440 - Fences, walls and hedges - Exceptions to height limitations | Yes, as conditioned | The project would be consistent with this section of the zoning code with the inclusion of the proposed Condition of Certification **HAZ-7**. |
| 17.52.930 - Parking spaces required - Business establishments | Yes, as conditioned | The proposed Condition of Certification **TRANS-3** would ensure the project would be consistent with parking space requirements during project construction and operation. |
| 17.54.130 - Conditional uses. | Yes, as conditioned | The project meets all finding requirements of Alameda County for issuance of a CUP as the project use is required by the public need: is properly related to other land uses and transportation and service facilities in the vicinity: would not, under all the circumstances and conditions materially affect adversely the health or safety of persons residing or working in the vicinity; would not be materially detrimental to the public welfare or injurious to property or improvements in the neighborhood; and would not be contrary to the specific intent clauses or performance standards established for the "A" District. The project would be consistent with this section of the zoning code with the inclusion of the proposed Conditions of Certification **TLSN-1** through **TLSN-4**, **HAZ-1**, through **HAZ-7,** and **WORKER SAFETY-1** through **WORKER SAFETY-5**. |
| Contra Costa County General Plan<br>Land Use Designation:<br>AL- Agricultural Lands | Yes, as conditioned | The project would result in a minor loss of land used for agricultural production due to the pump station (approximately 250 square feet). The proposed Condition of Certification **LAND-1** would ensure no additional agricultural land is lost through conversion to urban use and the pipeline construction is in accordance with BBID requirements. |
| PS- Public/Semi-Public | Yes | The construction area would be used by a construction team affiliated with a public entity. |
| Land Use Element-<br>*Policy 3-10* | Yes | Water will be provided only to the project through an agreement with Diamond Generating Corporation and Byron Bethany Irrigation District; therefore, the project would not induce growth. |
| *Policy 3-69* | Yes | Pipelines are generally consistent uses and as it is reasonable to consider the pump station necessary to operate the pipelines, the pump station would also be consistent. |
| Conservation Element-<br>*Policy 8-29* | Yes, as conditioned | The project would not result in a significant loss of land that could be used for agricultural production. The inclusion of the proposed Condition of Certification **LAND-1** would ensure no additional agricultural land is converted to urban use and pipeline construction is in accordance with BBID requirements. |
| *Policy 8-32* | Yes | The project would result in a minor loss of agricultural land and would therefore not affect the balance of land use in Contra Costa County. |

| Applicable LORS | Consistency Determination | Basis for Determination |
|---|---|---|
| Contra Costa County Airport Land Use Compatibility Plan (Byron Airport)<br>Compatibility Zone 'D' Criteria<br>6.7.4. Height Limitations - | Yes | The maximum height of the transmission towers and lines would be less than 100 feet in height and not more than 35 feet taller than other nearby objects. |
| 6.9. Compatibility Criteria — All Zones<br>6.9.3. Hazards to Flight — Air protection surface- conical surface | Yes, as conditioned | The major project features would not have surfaces that are highly reflective, construction and permanent lighting would be designed so there would be no obtrusive spill light beyond the project site, no excessive reflected glare, and illumination of the project and its immediate vicinity. The inclusion of the proposed Conditions of Certification **VIS-1**, **VIS-3**, and **VIS-4** would ensure the project would not generate glare or distracting lights which could be mistaken for airport lights. The project's use of an air cooled condenser would eliminate the emission of publicly visible water vapor plumes and preventative measures for fugitive dust and dust plumes from leaving the project and linear construction sites would be proposed as Conditions of Certification for the project. The inclusion of the proposed Conditions of Certification **AQ-SC3** and **AQ-SC4** would ensure the project would not be a source of dust, steam, or smoke which may impair pilot visibility. The project would typically be using communications equipment outside the frequency ranges reserved for aviation use. The inclusion of the proposed Condition of Certification **LAND-4** would ensure the project would not be a source of electrical interference with aircraft communications or navigation. The addition of the project transmission towers and line would not substantially induce an increase in bird presence on the project property. The detention pond would be designed to release stormwater runoff over a minimum period of 48 hours. Dumping of trash would be prohibited and during construction the project site would be kept as clean of debris as possible. The inclusion of the proposed Condition of Certification **BIO-7** would ensure that the project would be unlikely to attract an increased number of birds. |

Mr. Sarvey commented that the PMPD for "ignored MEP's noncompliance" with Alameda County's Standards for Subdivision and Site Development Review for Agricultural Parcels," as Mr. Sarvey alleges that the length of MEP's access road would violate Alameda County Fire Code Chapter 5 Section 503.1.2.1. (Sarvey, PMPD Comments, pp. 4-5). However, since the MEP does not involve a subdivision, Alameda County's subdivision standards are not applicable. Similarly, Mr. Sarvey refers to Alameda County Fire Code Section 503.1.2.1 which clearly states that the section applies to residential developments, not infrastructure such as MEP. Therefore, neither the subdivision standards nor the length of the access road proscribed in Fire Code section 503.1.2.1 are applicable to MEP.

Mr. Sarvey also comments that the PMPD incorrectly concludes that MEP is a public facility. (Sarvey, PMPD Comments, pp. 6-7). As support, Mr. Sarvey cites to the Coastal Zone Management Act ("CZMA") and the "Disaster Relief" Chapter of Title 42 of the U.S. Code (U.S.C.) relating to Public Health and Welfare definitions of "public facility."(*Id*). However, the definitions of "public facility" under the CZMA and U.S.C. are irrelevant to how the term "public facility" is defined in the ECAP. The ECAP defines "public facility" as including "limited infrastructure, hospitals, research facilities, landfill sites, jails, etc."(ECAP Policy 54) This definition does not have limitation on whether there must be government ownership of those facilities to constitute a public facility for the purposes of ECAP. Thus, whether or not MEP meets the definition of a public facility under the CZMA or U.S.C. is not relevant to this proceeding; the key issue is whether it meets the ECAP's definition of a public facility, which we find it does. Furthermore, the CZMA is wholly inapplicable to MEP since the MEP is not in the Coastal Zone, as defined by the CZMA. Similarly, provisions of law related to federal disaster relief are equally inapplicable to the determination that MEP constitutes a public facility as defined by the ECAP.

Finally, Mr. Sarvey comments that MEP violates ECAP Policy 246, claiming that "The MEP as a heavy industrial use should have a response time of 15 minutes from Alameda County to comply with Policy 246." (Sarvey, PMPD Comments, p. 5). However, the MEP is not a heavy industrial use. The Alameda County Code defines "industrial" as "development for the purpose of manufacture or fabrication of products, the processing of materials, the warehousing of merchandise for

sale or distribution, research and development of industrial products and processes, and the wholesaling of merchandise."[21] [22]

5. Cumulative Impacts

A project may result in significant adverse cumulative impacts where its effects are cumulatively considerable. Pursuant to CEQA, "cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects. In other words, does the project's contribution to other projects cause a cumulative impact which is greater than the sum of the impacts of each separate project? (Cal. Code Regs., 2009 § 15065[A][3]).

The location of the analyzed projects, with respect to the MEP, is presented in **Land Use Figure 3**. Staff testimony included its cumulative impacts analysis summarized below in **Land Use Table 3**. This lists the development projects within northeastern Alameda, southeastern Contra Costa, and northwestern San Joaquin counties, plus other power plant projects within the tri-county region (Alameda, Contra Costa, and San Joaquin counties). (Ex. 301, pp. 4.12-40 − 4.12-41.)

[21] Alameda County Ordinance, Title 15, Chapter 15.48, Section 15.48.020. While this definition of "industrial" is not contained within the ECAP, this language provides guidance as to how to interpret the ECAP, as the Zoning Ordinance implements the General Plan. Alameda County Zoning Code § 17.02.020.

[22] The generation of electricity necessary to provide a utility service for the public does not constitute the type of development contemplated by the ordinance, nor are public facilities or infrastructure such as MEP included within this definition. Additionally, Policy 246 does not require a particular response time for any type of development. Rather, Policy 246 provides that Alameda County will "limit development to very low densities in areas where… response times will average more than 15 minutes."(ECAP 246). MEP is located in an area of very low density and will not increase population densities in that area so there is no inconsistency with this policy.

**LAND USE Table 3**
**Development Considered in the Cumulative Condition**

| Project | County | Distance from Project Site | Conversion of Ag Land | Mitigation of Ag Land | Project Impacts Mitigated to Less than Significant level | Status of Project* |
|---|---|---|---|---|---|---|
| Altamont Motorpark Sports Rezone | Alameda | 4 miles to the southeast | No | Not Applicable | Not Applicable | **On Hold**. Draft EIR released but not made final. Project not approved. |
| East Altamont Energy Center** | Alameda | 1.5 miles to the northeast | 55 acres prime out of 174 acres | 1:1 | Yes | **Approved** but withdrawn. |
| GreenVolts Solar Field | Alameda | 0.8 mile to the northeast | 10 acres prime out of 62 acres | 1:1 | Yes | **Approved** but not built. Project still active and currently being redesigned. Additional environmental analysis may be required. |
| Marsh Landing Generating Station | Contra Costa | 18 miles to the northwest | No | Not applicable | Yes | **Approved** |
| Oakley Generating Station | Contra Costa | 17 miles to the north | No | Not applicable | Unknown | **Under Review** |
| Willow Pass Generating Station | Contra Costa | 19 miles to the northwest | No | Not applicable | Unknown | **Under Review** |
| Gateway Generating Station | Contra Costa | 18 miles to the northwest | No | Not applicable | Yes | **Built** |
| Mountain House | San Joaquin | 2.5 miles to the east | 3,600 acres prime out of | Agricultural mitigation | No. Land use | **Approved**. In |

| Project | County | Distance from Project Site | Conversion of Ag Land | Mitigation of Ag Land | Project Impacts Mitigated to Less than Significant level | Status of Project* |
|---|---|---|---|---|---|---|
| Community | | | 4,780 | fee for each acre converted to urban use if Countywide agricultural mitigation fee were established. | impacts-Significant and unavoidable | construction. |
| GWF Tracy Combined Cycle Power Plant Project | San Joaquin | 8 miles to the southeast | 10.3 acres prime out of 40 acres | Payment of mitigation fee for the protection of farmland in San Joaquin County. | Yes | **Approved** |
| Lodi Energy Center Power Plant Project | San Joaquin | 25 miles to the north | No | Not applicable | Yes | **Approved** |

* Status as of November 4, 2010. CEC 2010t.
** Distance from the East Altamont Energy Center to the Byron Airport is approximately (based on Traffic and Transportation Figure 3 3 miles) and the distance to Runway 12-30 is approximately 0.5-mile.

The MEP would not result in incremental land use-related impacts which would be cumulatively considerable for several reasons. Regarding agriculture: (1) MEP would not contribute to the loss of agricultural land because the project's conversion of 250 square feet of Farmland of Local Importance in Contra Costa County for the pump station is not substantial. Furthermore, the power plant site is proposed on grazing land in Alameda County and would therefore not convert agricultural land; (2) There is no land zoned for forest, timberland, or for timberland production on the project site or within one mile of the site; (3) The

project is a compatible use with the existing Williamson Act contract; and (4) the project would not result in changes which would convert Farmland to non-agricultural use.

MEP would not significantly contribute to cumulative land use impacts because: (1) It would not physically divide an existing community; (2) MEP would not conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction with the inclusion of the proposed Conditions of Certification; (3) The project would not conflict with the Bethany Reservoir State Recreation Management Plan and General Development Plan and (4) MEP would not be subject to the East Contra Costa County HCP/NCCP because those portions of the MEP which are located within the plan area are on land where the habitat is not sensitive.

For these reasons, the MEP will not result in cumulative land use impacts.

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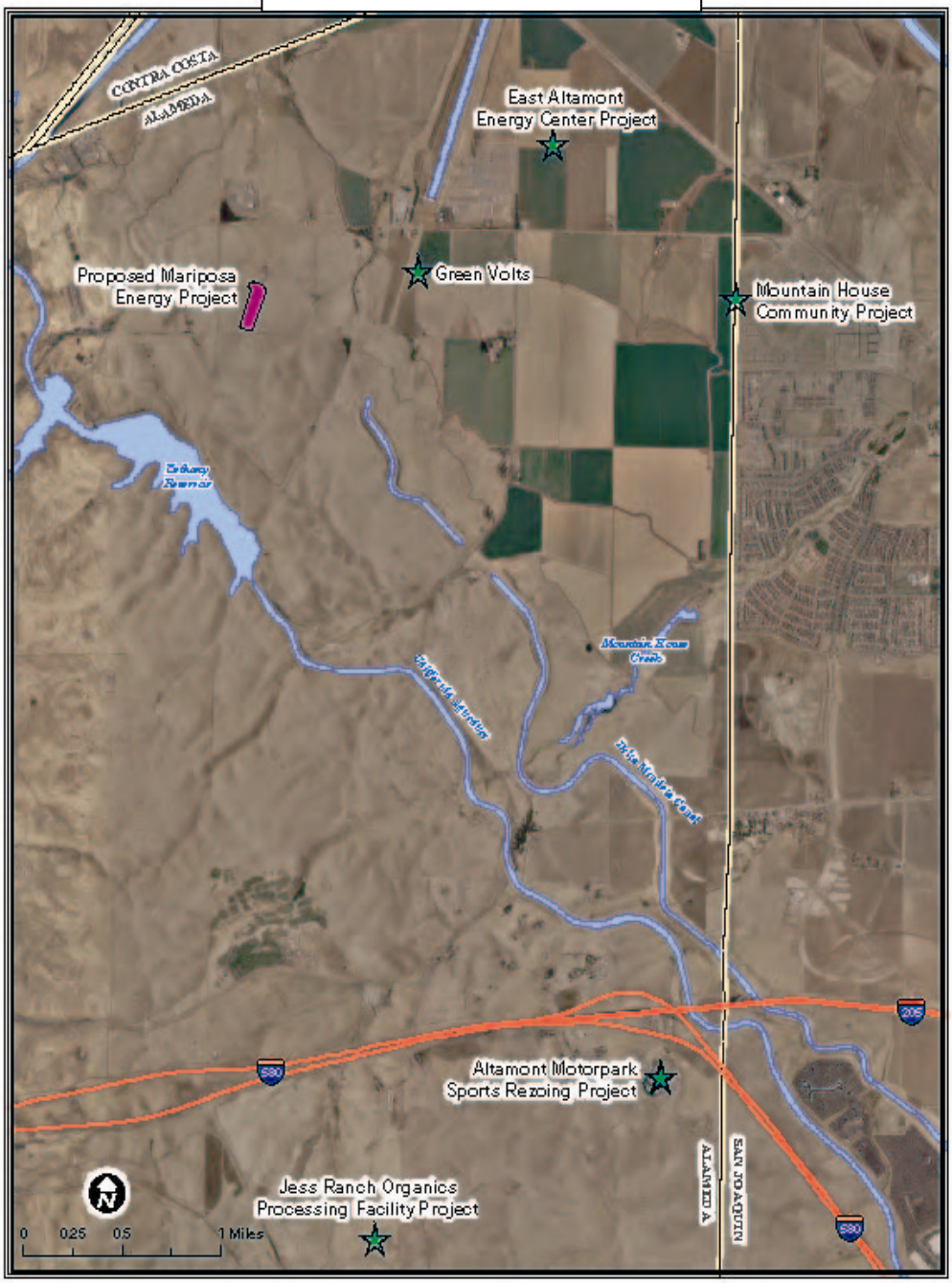
## LAND USE FIGURE 3




CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION
SOURCE: ESRI Imagery & California Energy Commission

LAND USE

**PUBLIC COMMENT**

Numerous members of the public, who live in the community of Mountain House, attended the evidentiary hearing on land use impacts and voiced their opposition to the MEP. Typical of the comments were those of **Jason Yao**, a home owner who expressed concerns about potential plant emissions, pollutants and the impact to the people who live in Mountain House, many of whom he stated are minorities with limited knowledge of English. **Kishor Batt** added that originally Mountain House was planned to be a community of 40- to 50,000 people, yet has only 10,000 residents now. With current residents paying for the debt to develop the community as well as the utilities, his fear is that if the power plant comes, the community will never fully develop.

Other similar opposing comments came from Mountain House residents **Ken Tan**, **Matt Mullen**, **Dan Costin**, and **Frank Ye.**

**Susan Sarvey**, a resident of Tracy, commented in opposition to the MEP, that the East Altamont power plant was licensed and still may be built, thus adding to local impacts. She also stated that under Measure D, MEP should only be allowed if its generation is solely for the consumption of residents in the Measure D area, not to the electricity grid. She thinks that electricity demand is falling and that the MEP will not be needed thus resulting in unnecessarily high ratepayer costs and added pollution to San Joaquin County. She also disagreed with the CEC staff analysis which found MEP consistent with local land use plans. We have addressed these comments in the Decision above and note that the East Altamont AFC was withdrawn by the Applicant pending a motion to terminate proceedings after the close of the MEP evidentiary hearings [official notice].

Intervenors **Robert Sarvey**, **Rajesh Dighe** and **Rob Simpson** filed written comments claiming that the MEP violated the Williamson Act, the ECAP and Measure D.

Intervenor, Robert Sarvey commented that the Committee must “override the County’s Agricultural Preserves Objectives, Uniform Rules and Procedure Section,” based on his opinion that the Uniform Rules only permit electrical facilities “accessory to other permitted uses” as a compatible use (Sarvey PMPD Comments, p. 4). However, Mr. Sarvey overlooks the fact that Government Code section 51201(e) provides that compatible uses are defined in either local rules or by the Williamson Act itself. In this case, the Williamson Act expressly recognizes electric facilities as a compatible use, and the evidentiary record

establishes that Alameda County has never made a finding to the contrary. (Cal. Gov. Code § 51238; 2/24/11 RT 150:4 – 152:22). Additionally, the Uniform Rules cited by Mr. Sarvey expressly recognize that compatible uses are defined by both the Williamson Act and the Alameda County Rules itself. (Alameda County Agricultural Preserves, Objectives, Uniform Rules and Procedures, II(C)(3)(h)).

Mr. Sarvey also commented that "the PMPD fails to address the key finding for a conditional use permit is that the MEP must be a public need…Unchallenged testimony in the record demonstrates that the MEP is not needed for the public."(Sarvey PMPD Comments, pp. 7-9). Mr. Dighe also commented that the MEP was not needed. Mr. Sarvey's assertion that testimony "demonstrated that the MEP is not needed for the public" was "unchallenged" is incorrect. Applicant has put forth substantial evidence that MEP is needed because Eastern Alameda County has insufficient local generation to meet load demands (Ex. 1, Appendix 5.6A, p. 1.) and that MEP is necessary to support the integration of renewable resources to the grid, and provide support for intermittent resources to ensure that load needs are met, especially during critical times when the intermittent resource is not generating or during peak load conditions. (Ex. 1, Appendix 5.6A, p. 9; Ex. 301, pp. 4.1-72, 4.1-77, 4.1-82). Moreover, the CPUC's decision approving the MEP power purchase agreement with PG&E is evidence that MEP is required for the public need. (See discussion in the **Alternatives** section of this Decision).

Finally, Mr. Sarvey argues that the MEP is "completely inconsistent with the ECAP as modified by Measure D." (Sarvey, PMPD Comments filed 5/13/11). We disagree as explained in pages 8 through 15 above.

On the other hand, several comments were offered in favor of the MEP. **Catherine Kutsuris**, Director of the Contra Costa County Department of Conservation and Development, stated that in an October 4, 2010 letter, the Contra Costa County Board of Supervisors took a position in support of the Mariposa Energy Project. They found that the project is consistent with the county general plan and found it was consistent with the Byron Airport Master Plan. She noted that Contra Costa County is both the owner and the operator of the Byron Airport.

Also expressing support for the project was **Richard Clark**, a 23-year member of the Contra Costa Planning Commission. He stated that after reviewing a great deal of material, his commission voted unanimously in support of the MEP. He said that the Planning Commission members looked very hard at the proximity of

the project to the airport, even assuming future runway expansion, and were convinced there would be no incompatibility between the project and the airport. He stressed the importance of the airport to Contra Costa County.

## FINDINGS OF FACT

Based on the weight of substantial evidence, the Commission makes the following findings:

1. The power plant, construction laydown areas for the power plant and transmission line, and a section of the water supply pipeline are proposed on land designated by Alameda County as Large Parcel Agriculture and zoned as A-100 (100 acre minimum parcel size) in the Agricultural District ("A" District).
2. A section of the MEP water supply pipeline, the pump station, turnout structure, and pipeline construction laydown area are proposed on lands within Contra Costa County. Because the Byron-Bethany Irrigation District (BBID) would construct, own and maintain the pump station, concrete turnout structure, and water supply pipeline up to the project property boundary, the project would be exempt from any requirements in Contra Costa County zoning districts.
3. The MEP will result in the permanent conversion of only 250 square feet of a 23-acre parcel designated "Farmland of Local Importance". Other project construction on such lands will cause temporary disturbances which are limited by Condition of Certification **LAND-1.** Therefore, the MEP would convert a less than significant amount of farmland of local importance to non-agricultural use.
4. MEP would not conflict with existing zoning for, or cause rezoning of, forest land, timberland, or timberland zoned Timberland Production.
5. The project would not involve changes in the existing environment which, due to their location or nature, could result in a significant conversion of Farmland to non-agricultural uses or forest land to non-forest use.
6. MEP would not directly or indirectly divide an established community or disrupt an existing or recently approved land use.
7. The project would not conflict with any applicable habitat conservation plan or natural community conservation plan.
8. The project would not conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction, over the project.
9. Local land use ordinances and policies applicable to the MEP include the California Land Conservation Act of 1965 (Williamson Act), the East County Area Plan (ECAP), Alameda County Ordinance Code (Title 17:

Zoning), Contra Costa County General Plan, and Contra Costa County Airport Compatibility Land Use Plan.

10. The Williamson Act expressly recognizes electrical facilities as a compatible use.

11. Both the staff of the California Department of Conservation and of Alameda County have determined that the MEP meets the additional principles of compatibility contained in the Williamson Act and should be considered a compatible use under Government Code section 51238.1.

12. With the implementation of Condition of Certification **LAND-2** and **LAND-3**, the MEP will be consistent with the three principles of compatibility identified in Government Code section 51238.1(a) of the California Land Conservation Act (CLCA).

13. With implementation of Condition of Certification **LAND-2** and **LAND-3**, MEP will comply with the ECAP designation for Large Parcel Agriculture and would meet the county's mitigation requirement for loss of land in agricultural production. The ECAP does not preclude the construction of power plants on land designed for Large Parcel Agriculture.

14. The MEP complies with ECAP Policy 1 (Subregional Planning; Urban/Open Space Delineation) because a power plant is not precluded from construction outside the Urban Growth Boundary (UGB), the project is not an urban use, and the project is appropriately located adjacent to similar infrastructure.

15. The MEP complies with ECAP Policy 13 (Urban and Rural Development) because the project is considered infrastructure under this policy.

16. The MEP complies with ECAP Policy 52 (Sensitive Lands and Regionally Significant Open Space) because the site has no recreation opportunities, the project is a compatible land use with grazing, the project design and isolated location would not encourage urban infill development, and the project would not impact wind operations or mineral extraction. Furthermore, impacts to biological resources are less than significant with the inclusion of the proposed Conditions of Certification **BIO-7** through **15, 17** and **18**. The proposed Conditions of Certification **VIS-1, VIS-2, VIS-3, VIS-4, VIS-5**, and **VIS-6** would ensure impacts to visual resources are less than significant.

17. The MEP complies with ECAP Policy 54 because the project is not precluded from construction outside the UGB, it is a public facility, and is comparable to limited infrastructure.

18. The MEP complies with ECAP Policy 72 because the site is more suited to low-intensity agriculture (such as grazing) than to intensive agricultural use.

19. The MEP complies with ECAP Policies 73 and 89 because its clustering of equipment, fencing, and small loss of grazing land aid in protection of agricultural areas and eliminate the need for additional buffer zones.

20. The MEP complies with ECAP Policy 173 (Windfarms) because the project will not impact or preclude future development of a windfarm operation.

21. With implementation of Condition of Certification **LAND-2** and **LAND-3**, the MEP will comply with ECAP Policy 128 (Infrastructure and Services) since it is located in proximity to other electrical infrastructure and is located more than 0.25 mile from sensitive receptors.

22. As a result of the MEP's compliance with the above noted ECAP Policies, the MEP will comply with the East County Area Plan.

23. The MEP will comply with applicable sections of the Alameda County Ordinance Code (ACOC) (Title 17: Zoning) because the project is considered a public utility that meets all finding requirements for an Alameda County Conditional Use Permit; the MEP's warehouse, maintenance and control/administration building are considered accessory uses to the power plant; the project lease covers the requisite 100-acre minimum building site; and location of the power plant within a larger parcel would allow yard requirements to be met.

24. With implementation of Condition of Certification **VIS-5**, the MEP will comply with ACOC Zoning Code section 17.06.080.

25. Project design and Condition of Certification **HAZ-7** will ensure compliance with zoning requirements on height limitation and fences.[23]

26. MEP will comply with zoning code provisions concerning parking during construction and operation through implementation of Condition of Certification **TRANS-3.**

27. The MEP meets all relevant requirements of Alameda County for the issuance of a conditional use permit (CUP) because the project is required by the public need, is related to other adjacent land uses, would not have a significant adverse health or safety affect on nearby persons, is not detrimental to the public welfare or injurious to neighborhood property, and is compatible with the standards for the "A" District.

28. The MEP will comply with applicable provisions of the Contra Costa County General Plan AL (Agricultural Lands) land use designation because the minor loss of agricultural production land associated with the project's pumping station would not be substantial (250 square feet) and the loss would be at the northern margin of the property. Furthermore Condition of Certification **LAND-1** will ensure no additional agricultural land is lost through conversion to urban use and will ensure that the project's pipeline construction is in accordance with BBID requirements.

[23] ACOC Zoning Code section 17.52.440.

29. The MEP will comply with Contra Costa County General Plan PS element (Public/ Semi-Public) land use designation since the construction area will be used by BBID, a public entity.

30. The MEP will comply with Contra Costa County General Plan Land Use Element since the project's water agreements with the Diamond Generating Corporation and the BBID will not induce growth and the pipelines and the pump station are consistent uses.

31. MEP will not result in incremental impacts that, although individually limited, are cumulatively considerable when viewed in connection with other project-related effects or the effects of past projects, other current projects, and probable future projects.

32. The project complies with the Contra Costa County General Plan Conservation Element because Condition of Certification **LAND-1** will ensure no additional land conversion from agriculture and ensure pipeline construction using BBID requirements.

33. Contra Costa County Airport Land Use Compatibility Plan (Byron Airport) Compatibility Zone 'D' height limitations will be met by the MEP since project structures will be less than 100 feet in height.

34. The MEP will meet the requirements of Contra Costa County Airport Land Use Compatibility Plan (Byron Airport) criteria for avoiding hazards to flight by avoiding glare and reflective surfaces through Conditions of Certification **VIS-1, VIS-3,** and **VIS-4**, avoidance of vapor plumes through the use of an air cooled condenser, the avoidance of dust, steam or smoke sources through Conditions of Certification **AQ-SC3** and **AQ-SC4B.**

35. The project will also comply with Contra Costa County Airport Land Use Compatibility Plan (Byron Airport) criteria for avoiding hazards to flight by implementing Condition of Certification **LAND-4** to eliminate sources of electrical interference and through **BIO-7**, which ensure the MEP is unlikely to attract and increased number of birds.

36. Land use impacts resulting from the proposed MEP can be mitigated to a less than significant level with the inclusion of the proposed Conditions of Certification **LAND-1**, **LAND-2**, **LAND-3**, and **LAND-4**.

## CONCLUSIONS OF LAW

1. With implementation of the mitigation measures specified in this Decision, and in the Conditions of Certification below, we conclude that construction and operation of the MEP will not result in significant adverse direct, indirect, and cumulative land use impacts.

2. The record contains an adequate analysis of the land use laws, ordinances, regulations, and standards that are relevant to the project and establishes that the project will not create any unmitigated, significantly adverse land use effects as defined under the California Environmental Quality Act.
3. The Conditions of Certification, below, ensure that MEP will be designed, constructed, and operated in conformance with the applicable land use laws, ordinances, regulations, and standards identified in the evidentiary record and listed in the pertinent portion of **Appendix A** of this Decision.

## CONDITIONS OF CERTIFICATION

**LAND-1** Construction of the section of the water supply pipeline on the Byron Bethany Irrigation District (BBID) property shall be carried out in compliance with BBID standards for pipeline construction, which require a minimum three foot cover. Construction of this section of pipeline shall be scheduled and carried out so as not to conflict with agricultural operations on the property. Once construction has been completed, the land shall be returned to pre-construction site conditions.

**Verification:** At least 30 calendar days prior to start of construction, the project owner shall submit to the Compliance Project Manager (CPM) for review and approval, (1) documentation showing construction of the section of water supply pipeline on the Byron Bethany Irrigation District property will be carried out consistent with BBID's standards for pipeline construction and (2) a construction schedule that does not conflict with the agricultural use of the land. Once construction is completed, the project owner shall submit to the CPM documentation showing the area disturbed by construction activities has been returned to pre-construction conditions.

**LAND-2** The project owner shall provide year-round water supply for grazing livestock on the remaining 146 acres of the subject property for the life of the project.

**Verification:** At least 30 calendar days prior to start of operation, the project owner shall submit to the CPM evidence that a year-round water supply for livestock has been installed and water supply is maintained on a monthly basis for the life of the project.

**LAND- 3** The project owner shall reseed the temporary construction laydown area on the project property with an improved seed mix over what site conditions currently provide.

**Verification:** Within 120 calendar days after commercial operation, the project owner shall submit to the CPM evidence that the construction laydown area has been re-seeded and a management plan that ensures the re-seeded area will be maintained and suitable for grazing for the life of the project.

**LAND-4** Communication devices used by the project that operate over radio frequencies shall not conflict with frequencies used by Byron Airport and the surrounding airports; specifically frequencies 114 through 117, 123, 203, and 374 MHz shall be avoided.

**Verification**: At least 30 days prior to project construction, the project owner shall provide documentation to the Director of Airports with Contra Costa County for review and comment and to the CPM for review and approval, showing project communication devices will not conflict with the frequencies used by the Byron Airport and surrounding airports. Any comments received from the Director of Contra Costa County Airports shall be forwarded to the CPM without delay.

## B. TRAFFIC AND TRANSPORTATION

In this section, we examine the extent to which construction and operation of the project will affect regional and local transportation systems. During the construction phase, workers arriving and leaving during peak traffic hours and the delivery of large pieces of equipment could increase roadway congestion and affect traffic flow. However, during plant operation, traffic impacts tend to be minimal due to the limited number of vehicles involved; still, an increase in hazardous materials delivery to the area is expected. Any transport of hazardous materials must comply with federal and state laws.

The evidentiary record contains a review of relevant roads and routings in the vicinity; the potential traffic problems associated with those routes; the deliveries of oversized/overweight equipment; the potential encroachments upon public rights-of-way; and the routes associated with delivery of hazardous materials. The record also includes testimony on the project's potential adverse impacts on aviation safety and aircraft traffic connected with the Byron Airport. (Exs. 1, 4(n), 5(h), 6(n), 7(g) (h), 11(n), 15(b), 16(a), 35(a), 38, 61(i)(j), 68 ) [Applicant]; Exs. 301 [Staff]; Exs. 700-704 [CalPilots].

According to Applicant and Staff, the California Environmental Quality Act (CEQA) significance criteria **applicable** to the project's potential traffic and transportation impacts include the following: [1]

- A substantial increase in traffic measured by the volume-to-capacity ratio on roads or congestion at intersections;
- An exceedance, either individually or cumulatively, of the applicable Level of service (LOS) standard;
- A substantial increase in traffic hazards due to a design feature (*e.g.,* sharp Curves or dangerous intersections) or incompatible uses (*e.g.,* farm Equipment);
- A substantial increase in traffic causing inadequate emergency access;
- Inadequate parking capacity;
- A conflict with adopted policies, plans, or programs supporting alternative Transportation (*e.g.,* bus turnouts, bicycle racks);

[1] The significance criteria are derived from CEQA Guidelines (Cal. Code Regs., tit. 14, § 15000, Appendix G) and federal, state, and local LORS. (Ex. 301, pp. 4.10-2 to 4.10-3 and 4.10-23.)

- A change in air traffic patterns, including either an increase in traffic levels or A change in location that results in substantial safety risks;

- Endangerment to the takeoff, landing, or maneuvering of aircraft within an Airport approach zone, airport turning zone, or airport transition zone.

- Production of a high-velocity thermal plume within an airport approach zone, airport turning zone, or airport transition zone.

- Production of a thermal plume in an area where flight paths are expected to occur below 1,000 feet from the ground.

- Environmental effects which, when considered with other impacts from the same project or in conjunction with impacts from other projects, are considerable, compound, or increase other environmental impacts.

In addition to evaluating the MEP impacts to traffic and transportation under CEQA, our analysis examined whether the project can comply with all applicable laws, ordinances, regulations, and standards (LORS). The LORS include federal and state laws, transportation plans for San Joaquin, Contra Costa, and Alameda Counties, as well as City of Tracy and Mountain House Community permit requirements. A complete list and description of the LORS applicable to traffic and transportation impacts of the MEP can be found in Appendix A of the Decision. (Ex. 301, pp. 4.10-2 - 4.10-3.)

## SUMMARY AND DISCUSSION OF THE EVIDENCE

The evidence of record is undisputed regarding the potential impacts of the MEP on all transportation except the Byron Airport which is located in Contra Costa County, slightly less than 3 miles northwest of the site. Intervenor CalPilots took the position that the MEP will have significant negative impacts on the Byron Airport and pose a safety risk to those using the airport.

1. Project Site and Vicinity

The project site is located southeast of the intersection of Bruns Road and Kelso Road, about 2 miles southwest of the Byron Highway and 3.5 miles north of Interstates 580 and 205. Direct access to the MEP site is from Bruns Road onto an existing 1,100 foot-long easement. This easement provides shared access with the existing 6.5 megawatt (MW) Byron Power Cogeneration Plant.

Regional site access to the proposed project site from the north is via Byron Highway, while regional access from the south is via I-580 from the West Grant Line Road Interchange and via I-205 from the Mountain House Parkway Interchange. Local roads for accessing the MEP site are Bruns Road, Kelso Road, Mountain House Road, Mountain House Parkway, and West Grant Line Road. (See Traffic and Transportation Figure 1 - Regional Transportation Setting, Traffic and Transportation Figure 2A - Local Transportation Setting South of the Project Site, and Traffic and Transportation Figure 2B - Local Transportation Setting North of the Project Site.)

Major access roads located near the MEP may be impacted by traffic related to construction and operation of the project. These include: Interstate 205 (I-205), a freeway located approximately 3.5 miles south of the MEP site; Interstate 580 (I-580), which merges with I-205 about 3.5 miles south of the MEP site; Byron Highway, an arterial located about 2 miles northeast of the MEP site; Bruns Road, a north-south road lying along the western border of the MEP property and intersecting with Byron Highway to the north; Kelso Road, just north of and adjacent to the proposed MEP site; Mountain House Road, which runs north-south and is a local two-lane road in the vicinity of the MEP; and West Grant Line Road a two-lane rural roadway in the vicinity of the MEP site.

The impacts of the MEP upon these roads have been evaluated based on Level of Service (LOS), a generally accepted measure used by traffic engineers and planners to describe and quantify the traffic congestion level on a particular roadway or intersection in terms of speed, travel time, and delay.[2] The LOS standards which apply to the MEP are those adopted by the following:

- Contra Costa County – General Plan, Growth Management Element;

  For semi-rural areas within Contra Costa County, a high **LOS C** is the lowest acceptable level of service; and

- Alameda County Congestion Management Agency– Congestion Management Program

  For roadways within the Congestion Management Program network (which includes State highways), the Level of Service standard is LOS E, except where F was the LOS originally measured. Where LOS F already exists, LOS F is the standard

[2] The *Highway Capacity Manual 2000,* published by the Transportation Research Board Committee on Highway Capacity and Quality of Service, includes six levels of service for roadways and intersections. These levels of service range from LOS A, the best and smoothest operating conditions, to LOS F, the worst, most congested operating conditions.

- Alameda County – East County Area Plan

For roadways within the Congestion Management Program network, new development in Alameda County shall be phased to coincide with roadway improvements so that affected roadways do not exceed LOS E within unincorporated areas. If LOS E is exceeded, Deficiency Plans for affected roadways shall be prepared in conjunction with the CMA (Congestion Management Agency). (Ex. 301, p. 4.10-6.)

The record contains analyses of other transportation modes conducted to determine the impacts which the MEP could have upon them. Freight rail is located approximately 7 miles from the MEP site. There are several park-and-ride lots for car pools in the vicinity of the proposed MEP. Local plans do not include planned bikeways or pedestrian pathways within the vicinity of the MEP, and road conditions are not safe for bicycles. There are no pedestrian crosswalks within the vicinity of the project. The Altamont Commuter Express (ACE) provides commuter train service between Stockton and San Jose, with connections to Amtrak and Caltrain into the Bay Area. The ACE stop closest to the proposed MEP site is in Tracy. The Byron Airport, located approximately 2.7 miles northwest of the MEP site, is a small public facility owned by Contra Costa County and is used for general aircraft operations, flight training, skydiving, and ultralight, glider and jet operations. (See **Traffic & Transportation Figure 1**.)

There are several park-and-ride lots for car pools in the vicinity of the proposed MEP. Local plans do not include planned bikeways or pedestrian pathways within the vicinity of the MEP due to road conditions which are not safe for bicycles. There are no pedestrian crosswalks within the vicinity of the project. The Altamont Commuter Express (ACE) provides commuter train service between Stockton and San Jose, with connections to Amtrak and Caltrain into the Bay Area. The ACE stop closest to the proposed MEP site is in Tracy.

The Byron Airport, located approximately 2.7 miles northeast of the MEP site, is a small public facility owned by Contra Costa County and is used for general aircraft operations, flight training, skydiving, and ultralight and glider operations. (See **Traffic & Transportation Figure 1**.)

2. Construction and Operation Impacts to Traffic and Transportation

Traffic and Transportation Table 1, shown below, illustrates existing conditions at study intersections and shows the impact of MEP during peak construction. Staff

testimony also presented the likely traffic impact of peak construction on other roads near the project. (See Ex. 301, pp. 4.10-12 to 4.10-16.)

**Traffic and Transportation Table 1**
**Peak Hour Delay and LOS on Study Intersections during Peak Construction**

These are the only intersections in the vicinity of the MEP for which turning movements are available. Furthermore, availability was restricted to PM peak hour counts.

| Study Intersection | Year 2009 | | Year 2011 with MEP | | LOS Standard |
|---|---|---|---|---|---|
| | PM Peak | | PM Peak | | |
| | Delay | LOS | Delay | LOS | |
| West Grant Line Road/I-580 EB Ramps[1] | 9.6 | **A** | 10.9 | **B** | **LOS D[4]** |
| West Grant Line Road/I-580 WB Ramps[2] | 10.0 | **B** | 10.4 | **B** | **LOS D[4]** |
| West Grant Line Road/Midway Road[3] | 91.3 | **F** | 116.0 | **F** | **LOS D** |

[1] Controlling approach: southbound on West Grant Line Road
[2] Controlling approach: westbound on I-580 Ramp
[3] Controlling approach: northbound on Midway Road
[4] This intersection is subject to the LOS standard for both the road and the highway. In this case, the road standard of LOS D is more restrictive and will therefore be used as the threshold. Source: (Ex. 301, p. 4.10-16.)

To ensure MEP compliance with applicable jurisdictions' limits on vehicle sizes and weights, driver licensing, and truck routes, Condition of Certification **TRANS-1** would require the project owner to obtain all necessary transportation permits. It is understood that these encroachment permits would be obtained through a ministerial process. Because heavy construction trucks can damage roadways, Condition of Certification **TRANS-2** requires the project owner to restore all roads damaged by construction activities. To mitigate project-related traffic congestion Condition of Certification **TRANS-3** will require the project owner to mitigate LOS impacts through proven techniques such as staggering worker arrival and departure times, requiring off-peak arrivals and departures, and/or coordinating park-and-ride busing and providing car pooling incentives for workers. We note that the intersection of West Grant Line Road and Midway Road is already at F LOS, which is the highest level of congestion. The project will add more traffic to this situation. However, this condition will mitigate the project-related impacts to the extent possible. Condition of Certification **TRANS-4** will require the applicant

to obtain all the necessary encroachment permits for construction work and activities within road rights-of-way. (Ex. 301, p. 4.10-12 to 4.10-16.)

3. Hazardous Materials Transportation

Truck deliveries of hazardous materials would be required during construction[3]. To ensure proper transportation of hazardous materials and thus prevent a danger to the general public, Condition of Certification **TRANS-5** requires the owner to secure permits and licenses for the transport of hazardous materials and comply with all applicable regulations.

The applicant's proposed routes for hazardous materials delivery are from I-580 and/or I-205, the proposed route is northwest along Byron Bethany Road and south along Bruns Road. From Contra Costa County, the route is southeast on Byron Bethany Road and south on Bruns Road. Hazardous materials from Stockton would travel west along Highway 4, then southeast along Byron Highway and south along Bruns Road. These routes will avoid sensitive receptor locations, such as schools and daycare facilities. (Ex. 301, p. 4.10-18.)

Delivery of hazardous materials could be dangerous to the public if a spill were to occur. The likelihood of an accident-caused spill would be lower during low traffic periods. Furthermore, if a spill were to occur during these hours, fewer commuters would be exposed. Thus, Condition of Certification **TRANS-5** will ensure that all deliveries of hazardous materials occur outside of normal commute hours.

4. Airport and Aviation Safety Impacts

a. Byron Airport and the MEP Site

The proposed MEP site is located at the northeast corner of Alameda County, approximately 2.7 miles southeast of the Byron Airport (Traffic & Transportation Figure 1). The Byron Airport has two runways arranged in a westward facing 'V' shape. (See **Traffic and Transportation Figure 3**). Runway 12-30 (running northwest-southeast) is the airport's primary runway and is used for approximately 80 percent of aircraft operations. It is 4,500 feet long and 100 feet

[3] These materials may include gasoline, diesel fuel, motor oil, hydraulic fluid, solvents, cleaners, sealants, welding flux, various lubricants, paint, and paint thinner. (Ex. 301, p. 4.10-18.)

wide. There are plans to upgrade Runway 12-30 to a precision runway[4] and extend the southeast end of the runway by 1,500 feet, for a total runway length of 6,000 feet, The MEP site is located about 1 mile southwest of the runway's approach centerline and within 0.65 mile of the closest approach boundary. (Ex. 301, p. 4.10-8.)

Runway 5-23 (running southwest-northeast) is the Byron Airport's cross-wind runway, used mainly in the late spring and early summer when there are usually strong winds from the southwest. It has a visual flight path approach[5]. The runway is 3,000 feet long and 75 feet wide. There are future plans to extend the northeast end of this runway by 900 feet for a total runway length of 3,900 feet. The MEP site is located about 1.5 miles from the approach centerline to this future runway. (Ex. 301, p. 4.10-8.)

Due to prevailing westerly wind patterns, aircraft arriving and departing Byron Airport typically use Runways 30 and 23. The traffic patterns for Runway 5/23 and Runway 12/30 are to the southeast and northeast, respectively. The standard traffic pattern altitude is 1,000 feet above ground level (AGL), (*Id.;* CCCALUCP 2000, p. 6-3).

The Byron Airport has no air traffic control (ATC) tower and lies beneath Class E airspace. This airspace extends for a 5-mile radius around the Airport, from 700 feet AGL up to 18,000 feet above mean sea level (AMSL). Aircraft operating under visual flight rules (VFR) are not required to be in radio communication with any ATC facility, and their flight paths need not conform to published instrument approach or departure patterns when operating within the Byron Airport airspace. Under VFR rules, aircraft are generally allowed to enter the standard pattern from any direction, provided it does not interfere with other aircraft or violate local noise abatement restrictions.

There are existing electric transmission towers near the proposed MEP site, standing 305 feet above mean sea level (AMSL). Therefore, all aircraft, including

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[4] Both non-precision and precision approach procedures use navigational instruments and information allowing pilots to land in reduced visibility. A non-precision approach uses only lateral information (runway markings) for navigation, while a precision runway uses both lateral and vertical guidance for instrument approaches.

[5] A runway with a visual flight path approach is used by pilots flying under visual flight rules (VFR). A VFR pilot is expected to "see and avoid" obstacles and other aircraft and is not generally assigned routes and altitudes by air traffic control. Because a VFR pilot relies on sight instead of instruments for navigation, VFR flight may only occur during favorable weather conditions.

ultralights and gliders, must maintain an altitude at or above 805 AMSL (680 feet above ground level) when flying over or in the immediate vicinity of these structures. As a result of the towers' proximity to the site, it is likely that aircraft would continue to maintain that altitude when flying over the project site. (Ex. 301, p. 4.10-8.)

The Contra Costa County Airport Land Use Compatibility Plan (CCC-ALUCP) states that objects less than 100 feet in height generally pose no threat to aviation activities. There is no equipment planned for use in MEP construction that would exceed 100 feet in height. Also, the heights of construction equipment would be less than those triggering the need for the applicant to file a notice with the FAA. Therefore, the construction phase of the MEP would not cause any significant impacts to aircraft or public health and safety. All structures of the completed facility are also less than 100 feet in height. The MEP's four exhaust stacks and eight transmission poles do not encroach into navigable airspace and are therefore are not hazardous to aircraft.[6]

b. Compliance with Aviation LORS

The evidence includes extensive inquiries from Staff to relevant jurisdictions for comments on the MEP. Staff then responded to the comments. (Ex. 301, pp. 33-49.)

(1) FAA Jurisdiction and Determination.

The safety of aviation in general, and pilots in particular, lies within the exclusive jurisdiction of the Federal Aviation Administration (FAA). (Ex. 4, pp. 82-83.) The FAA has issued Determinations of No Hazard to Air Navigation for the MEP. (Exs. 7, 73.) Staff's independent analysis confirmed the FAA findings of no hazard to aviation. The FAA's determination included an analysis of plume-related risks. (Ex. 7, Att. DR-51; Ex. 301, p 4.10-23.) To be consistent with the FAA determination and its recommendations, we include Condition of Certification **TRANS-8**, which requires Applicant to request the FAA to issue a Notice to Airmen (NOTAM) warning pilots to avoid flight over the MEP project site below 1,500 feet above ground level (AGL) over the MEP project site.

CalPilots argues that MEP has not met its burden of proof that MEP will not pose a threat to aviation.[7] However the FAA's determinations on both the MEP project

[6] MEP exhaust stacks are each 80 feet AGL in height and the transmission poles are 84 or 95 feet AGL.

[7] CalPilots Opening Brief.

features and the project's thermal plume establish a prima facie case that MEP poses no hazard to aviation.

CalPilots also argues that the Commission should not provide the MEP location and avoidance information in the Airport Facility Directory as called for in **TRANS-8**. However, this notice is entirely consistent with the FAA's Aeronautical Information Manual ("AIM") which states "pilots are encouraged to exercise caution when flying in the vicinity of thermal plumes. Pilots are encouraged to reference the Airport/Facility Directory where notes in the directory may caution aircraft operators and identify the location of structure(s) emitting thermal plumes." (2/24 RT 22-24, 31-37). The evidence also makes clear that the AIM and any NOTAM related to siting the MEP are advisory to pilots and are not regulatory restrictions to airspace at the Byron Airport. This is in contrast to Federal Aviation Regulations (FARs) published in the Code of Federal Regulations which have the force of law. (2/25/11 RT 38:3-14.)

(2) Other jurisdictions

While the MEP site is located in Alameda County, the Byron airport lies within Contra Costa County. Support for the MEP was expressed by the Byron Municipal Advisory Council on January 7, 2010. The Contra Costa Planning Commission wrote of its support on April 6, 2010. On October 10, 2010, the Contra Costa County Board of Supervisors noted its study of MEP potential impacts on the Byron Airport and concluded that the MEP is compatible with the County's General Plan and the Byron Airport Master Plan. (Ex. 301, p. 4.10-45.) Contra Costa County is the owner and operator of the Airport. (2/25/11 RT 257-259.)

However, Contra Costa County Airport Land Use Commission (CCALUC) expressed reservations about the project. The record includes a letter to the Commission dated October 14, 2010, stating that the ALUC did not find mitigations for the MEP would sufficiently reduce the risk to aviation safety to support a finding of MEP compatibility with the CCALUCP. While advice from the CCALUC was requested due to the proximity of the MEP to the Byron airport, the CCALUC has no direct jurisdiction over the MEP site. Furthermore, subsequent experiments conducted by Applicant's experts specifically addressed uncertainties expressed by the CCALUC. The evidence includes test flight experiments over an operating power plant selected due to having plume characteristics similar to the MEP. (2/25/11 RT 141, 151:15-22, 154-184.) We find that the uncertainties described by the CCCALUC have been adequately addressed.

b. Flights over the MEP Site

The evidence establishes that MEP is not within the Byron Airport flight path. Intervenor CalPilots own submittals illustrate that the project is located outside the approach and departure paths of the Airport. This is also the determination of the FAA. (Ex. 68; p. 3; 704; Fig. 1; 2/25/11 RT 120:10-12, 16-20.).

Radar flight tracking data submitted by the applicant (see Traffic and Transportation Figures 4A and 4B), show that aircraft equipped with transponders only infrequently overfly the proposed location of the MEP. (Ex. 301, p. 4.10-23.). Of all aircraft equipped with transponders and operating within five nautical miles of the Byron Airport during the study periods in late 2009 and early 2010, only 2.5 percent flew within 0.5 mile of the proposed MEP location[8]. The site is not within or immediately adjacent to any published approach/departure patterns or the traffic pattern for the airport. In addition, the number of aircraft traversing the site is relatively low, even when compared to traffic in the surrounding area. The airspace above and immediately surrounding the project site is not an established student pilot training area or designated skydiving jump site, and does not show extensive use by ultralights or gliders.

FAA regulations require all aircraft to maintain an altitude of at least 500 feet AGL above any structure in sparsely populated areas. There are existing transmission towers near the proposed MEP site which stand 305 feet above mean sea level (AMSL). Thus, all aircraft, including ultralights and gliders must maintain an altitude at or above 805 feet AMSL when flying over, or in the area of these structures. Due to the towers proximity to the MEP site, aircraft would have to maintain altitude when flying over the site. (Ex. 301, p. 4.10-9.)

It is reasonable to assume that the NOTAM and the visual appearance of the MEP facility will further reduce the number of flights over the MEP site.

c. Plumes from the MEP

The MEP is a gas-fired peaker power plant that would emit high velocity thermal plumes from as many as four 80-foot high exhaust stacks during operation. High velocity thermal plumes can pose a threat to aviation safety. The FAA formally

[8] However, this data did not include aircraft without transponders, such as aircraft operating under VFR and without a flight plan or operating outside of Class B and Class C airspace. Aircraft such as ultralights and power parachutes are unlikely to have transponders and less likely to follow standard traffic patterns.

acknowledged plume hazards and recommends that pilots avoid overflight and fly upwind of facilities producing thermal plumes (Ex. 301, p. 4.110-22.; FAA Information Publication, Twentieth Edition dated March 12, 2009, Amendment 3 effective August 26, 2010.). Aircraft flying through plumes can experience significant air disturbances, such as turbulence and vertical shear.

Energy Commission staff uses a 4.3 meters per second (m/s) plume average vertical velocity threshold for determining whether a plume may pose a hazard to aircraft. This velocity generally defines the point at which general aviation aircraft would begin to experience more than light turbulence.

(1) Staff Plume Analysis

In addition to the FAA's analysis of plume effects at the MEP, Staff calculated plume vertical velocities at different heights above the MEP's stacks, using environmental conditions which would produce the worst-case, highest velocity plumes. (Ex. 301, pp. 4.10-61 to 4.10-67.) These environmental conditions include calm winds, cool weather, and full-load operation of the MEP.[9] As a peaking generator, MEP would operate when electrical demand is high. This usually occurs when the use of air conditioning is greatest, typically during the summer. During the summer, temperatures are warmer and winds in the area are greater. Neither of these conditions contributes to a worst-case vertical plume velocity. Nevertheless, while plume velocities may be reduced during spring and summer operation, the potential hazard to aircraft is not eliminated. (Ex. 301, p. 4.10-22.)

Staff determined that when the ambient temperature is 46 degrees Fahrenheit, the plume vertical velocity for a single plume would be 4.3 m/s or higher up to a height of 780 feet above ground level (AGL). At this same temperature, the combined plume vertical velocity for all four exhaust stacks would be 4.3 m/s or higher, up to a height of 1,230 feet AGL. Although these are the altitudes at which the average plume vertical velocity would be 4.3 m/s or greater, parts of the plume could have up to twice the average velocity at these altitudes. Aircraft encountering a vertical plume velocity of less than 4.3 m/s would generally experience the upper limits of light turbulence, which is generally acceptable for safety. However, if these aircraft overfly an individual plume at altitudes below 780 feet AGL, overfly the combined plumes at altitudes below 1,230 AGL, or

[9] The MEP, is a peaker plant likely to operate for about 600 hours annually, although it is permitted for up to 4,000 hours annually.

experience higher instantaneous velocities, they could be subject to greater turbulence and possibly threats to aircraft control and stability. (*Id*.)

The results of Staff's worst-case analysis are shown on the table below for various heights.

**Plume Velocity**
**Gas Turbine and Air Cooled Condenser**
**Worst-Case Predicted Plume Velocities**

| | Gas Turbine Plume Velocity (m/s) | | Air Cooled Condenser Plume Velocity (m/s) |
|---|---|---|---|
| **Height (ft)** | **Single Turbine 46°F** | **Combined Turbines 46°F** | **Combined Air Cooled Condenser 80°F** |
| 300 | 6.67 | 7.93 | 3.41 |
| 400 | 5.72 | 6.80 | 3.11 |
| 500 | 5.16 | 6.14 | 2.89 |
| 600 | 4.77 | 5.68 | 2.72 |
| 700 | 4.48 | 5.33 | 2.58 |
| 800 | 4.25 | 5.06 | 2.47 |
| 900 | 4.06 | 4.83 | 2.37 |
| 1,000 | 3.91 | 4.64 | 2.29 |
| 1,100 | 3.77 | 4.48 | 2.21 |
| 1,200 | 3.65 | 4.34 | 2.15 |
| 1,300 | 3.54 | 4.21 | 2.09 |
| 1,400 | 3.45 | 4.10 | 2.04 |
| 1,500 | 3.36 | 4.00 | 1.99 |
| 1,600 | 3.29 | 3.91 | 1.95 |
| 1,700 | 3.22 | 3.83 | 1.91 |
| 1,800 | 3.15 | 3.75 | 1.87 |
| 1,900 | 3.09 | 3.68 | 1.84 |
| 2,000 | 3.04 | 3.61 | 1.81 |

Source: Exhibit 301, Appendix TT-1, Table 2, p. 4.10-61.

(2) Applicant's Plume Analysis

Applicant commissioned Katestone Environmental to perform a vertical plume velocity analysis for the MEP dated October 12, 2009. A later assessment by Katestone done on April 30, 2010, expanded upon but did not differ from the first analysis. The combined analyses concluded:

- The average plume vertical velocities generated by MEP are unlikely to exceed the threshold of light turbulence (13.6 mph) above a height of 700 feet AGL.
- At an altitude of 950 feet AGL, the average plume vertical velocity is predicted to be above the threshold velocity of 9.6 mph (4.3

meters/second) for only 26 hours of the year, and never above the vertical velocity of 13.6 mph, the upper limit of light turbulence used in the Katestone analysis.

- Average plume vertical velocities are likely to be below 9.6 mph under all meteorological conditions at a horizontal distance of approximately 300 feet from MEP's stacks. (Ex. 4, p. 86; 2/25/11 RT 221.)

In addition, Applicant commissioned CH2MHILL to prepare a Turbine Exhaust Velocity Characterization analysis using computation fluid dynamics (CFD). The two methodologies produced similar results for average plume methodologies at various elevations, and the Applicant-commissioned analyses and staff's analysis all determined similar results for plume average velocity during calm winds. (*Id.*, p. 87; 2/25/11 RT 285; Ex. 391, p. 4.10-62, 63.)

Applicant also commissioned an analysis of aircraft engine oxygen requirements prepared by Senta Engineering and U.C. Davis Department of Mechanical Engineering. That study concluded that both reciprocating and turbine aircraft engines can operate in the exhaust plume with minimal effects from oxygen reduction. (Id. p. 88.) Applicant also commissioned Senta Engineering to study the effects of vertical loads from plume imposed on aircraft which happen to pass through the plume. This study assumed calm winds and an aircraft altitude of 1079 feet above mean sea level or 954 AGL. The study evaluated effects on several types of aircraft[10]. It concluded that aircraft transiting the plume would experience no harmful structural effects since certified structural limits of the studied aircraft can manage the stresses involve. (*Id*.)

Overall, the modeling showed the risk to aircraft from MEP plumes to be low. (2/25/11 RT 107.)

d. Flight tests

The applicant also hired test pilots to conduct experimental flights over thermal plumes. Tests involved up to 80 flights by two pilots over a peaking power plant with very similar plume velocities to the MEP. (2/25/11 RT 171, 182.) The witnesses testified that flight tests indicated the risk to aircraft from the MEP plumes is "minimal". (2/25/11 RT 107, 146-147.) Applicant's expert witness described the effects of flying through the plume experienced during the numerous test flights as "very similar to driving down a smooth highway at 60 mph and running over a one-by-two piece of wood." (2/25/11 RT 155:3-5.) The tests also involved flight through the plume at an offset, so that only one wing

[10] Cessna Citation II, Cessna 172, Vans RV-6 and a powered parachute. (Ex. 4, p. 88.)

was directly under the plume. The effect was described as 8 to 10 degrees of bank angle as a result. (Id., 155:12-15.) The level of disturbance does not amount to what the FAA considers a “hazard” (2/25/11 RT 169-170, 172.)

e. Effect on Congestion and Expansion at Byron Airport

CalPilots have argued that the MEP will have a negative impact on congestion at the Byron Airport, thus having a detrimental effect on pilots. However, the evidence establishes that the Byron Airport and its surrounding airspace are not now congested. (Ex. 68, pp. 1-2.) Airport management at Byron has reported the annual operations at approximately 60,000, a figure too low to require an Air Traffic Control Tower by the FAA. Nor will MEP have a harmful impact on expansion plans at the airport according to the FAA in its no hazard determination, which considered future airport expansion. (Ex. 176.) The same view was express by the Contra Costa Board of Supervisors, which owns and operates the airport. (2/25/11 RT 258-259.)

f. Mitigation

Implementation of the Conditions of Certification, below, will ensure that project construction and operation will comply with all applicable laws, ordinance regulations, and standards (LORS) related to roadway traffic and transportation as identified in the pertinent portions of Appendix A. Furthermore, Conditions of Certification **TRANS-1** through **TRANS-6** will ensure that the MEP will not result in any significant, direct, indirect, or cumulative adverse impacts to local or regional roadway traffic.

High velocity plumes as modeled under worst–case conditions do present a potentially significant hazard to aircraft. However, the availability of unrestricted airspace in the project vicinity provides ample opportunity for a pilot to see and avoid overflight of the MEP site, provided advisories of the site location and potential hazard are available to the flying public. Condition of Certification **TRANS-7** will require lighting of the exhaust stacks, consistent with FAA requirements, alerting pilots to the presence of the power plant and reducing the potential for inadvertent overflight of the facility and exposure to high-velocity thermal plumes. Condition of Certification **TRANS-8** will provide a means to advise pilots of the potential hazard to flight associated with the project-generated exhaust plumes and the need to avoid overflight of the facility below 1,500 feet AGL. Applicant will initiate requests for the issuance of a Notice to Airmen (NOTAM); amendment of the Airport/Facility Directory; revision of the

San Francisco Sectional Chart; and addition of a new remark to the Automated Surface Observing System (ASOS). With these mitigations, impacts to aviation would be less than significant. These measures are advisory, rather than regulatory, and thus do not limit pilot flexibility at the Byron Airport.

5. Cumulative Impacts

Pursuant to CEQA, "cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects. Regarding cumulative impacts to aviation, the record contains an analysis of whether any of the evaluated projects could combine with the proposed MEP to create cumulative impacts to aviation. Two of these projects, the East Altamont Energy Center and the GWF Tracy Combined Cycle Power Plant Project, would emit thermal plumes. Staff testimony established that the GWF Tracy project is too far southeast of the Byron Airport to impact aviation. (Ex. 301, p. 4.10-32.) The East Altamont Energy Center project has recently been terminated and will not be constructed.[11]

**Traffic and Transportation Table 8**
**Development Considered in the Cumulative Condition**

| Project | County | Distance from Project Site | Traffic and Transportation Characteristics | Status of Project |
|---|---|---|---|---|
| Altamont Motorsports Park Rezone | Alameda | 4 miles to the southeast | Permits operation levels of up to 8,000 people | **On Hold**. Draft EIR released but not made final. Project not approved. |
| East Altamont Energy Center[12] | Alameda | 1.5 miles to the northeast | Would generate: 512 daily one-way trips during the average construction period; 900 daily one-way trips during peak construction; and commute trips for 40 full-time employees during operation. | **Approved** but not built. The CEC granted an extension ending on August 19, 2011 for the start of construction. Construction depends on the applicant obtaining a power |

[11] Subsequent to the to the cumulative impact analysis in evidence, Calpine Corporation, the owner of the EAEC, informed the Commission that it no longer intends to build the EAEC and terminated the EAEC certification. (Docket 01-AFC-4C, Docket Log No. 60156, dated 3/23/11, rec'd 3/29/11)

[12] EAEC has notified the Commission to terminate the license for this project.

| Project | County | Distance from Project Site | Traffic and Transportation Characteristics | Status of Project |
|---|---|---|---|---|
| | | | | purchase agreement (CEC 2008). |
| GreenVolts Solar Field | Alameda | 0.8 mile to the northeast | Unknown, but expected to generate a minimal amount of traffic during a brief construction period. | **Approved** but not built. Project still active and currently being redesigned. Additional environmental analysis may be required. |
| Marsh Landing Generating Station | Contra Costa | 18 miles to the northwest | Most project traffic would use SR-4, SR-160, and Wilbur Avenue. Would generate 437 daily one-way trips during the average construction period; 914 daily one-way trips during peak construction; commute trips for 16 full-time employees; and 4 one-way truck deliveries per week. | **Approved** |
| Oakley Generating Station | Contra Costa | 17 miles to the north | Most project traffic would use SR-4, SR-160, Wilbur Avenue, and Bridgehead Road. Would generate 1004 daily one-way trips during the peak construction period; commute trips for a rotating staff of 22 (not all of whom will be there at once). | **Under Review** Staff report has not yet been published. |
| Willow Pass Generating Station | Contra Costa | 19 miles to the northwest | Project traffic would use SR-4 and Willow Pass Road. Would generate: 506 daily one-way trips during the peak construction period; 40 daily one-way trips for operations employees; and 40 daily one-way trips for trucks during operations. | **Under Review** Staff report has not yet been published. |
| Gateway Generating Station | Contra Costa | 18 miles to the northwest | Unknown number of operation-related trips, but it is negligible. | **Built** |

| Project | County | Distance from Project Site | Traffic and Transportation Characteristics | Status of Project |
|---|---|---|---|---|
| Mountain House Community | San Joaquin | 2.5 miles to the east | Mountain House is a master-planned community that currently has approximately 6,000 residents. At build-out around 2021, it is expected to have approximately 44,000 residents (MHCSD 2010). These residents generate trips along the Byron Highway, Mountain House Road, and I-205 and I-580 in the vicinity of the proposed MEP's location. | **Approved** Under construction. |
| GWF Tracy Combined Cycle Power Plant Project (Expansion of the existing GWF Tracy Peaker Project) | San Joaquin | 8 miles to the southeast | Construction traffic would access the site regionally via: I-5 from the north and south; I-580 from the west and southeast; and I-205 from the north, which connects with I-580 and I-5. Peak construction would generate approximately 1,388 average daily trips and 416 trips during each peak hour period (morning and evening). | **Approved** |
| Lodi Energy Center Power Plant Project | San Joaquin | 25 miles to the north | Would generate 558 daily one-way trips during peak construction. | **Approved** |

**PUBLIC COMMENT**

In addition to the comments addressed by Staff in it Supplementary Staff Assessment, several people spoke against the MEP at the evidentiary hearings, based on their concerns about project impacts on Byron Airport. **Jon Rubin**, a resident of Mountain House and a former student pilot commented that he thought the MEP was in a dangerous location. (2/24/11 RT 278.) **Ron Gawer** identified himself as a pilot with an airplane at the Byron Airport. He fears that on a heavy air traffic day at Byron, he may be forced to fly over the power plant. He is concerned about plume effects and any approach zone restrictions. (*Id*. RT 296.) **Dave Anderson i**s the vice president of the Tracy Airport Association,

which opposes the MEP. He claims that MEP will interfere with instrument flight approaches into the Byron Airport and that plume-related turbulence from the MEP would affect ultralights, parachutists, and gliders operating at the airport. (Id. RT 326.) **Trina Anderson** stated that she is the secretary and treasurer of the Tracy Airport Association and is concerned that heat from the MEP plume would attract birds and thereby increase bird strikes with aircraft. (Id. RT 328.) **Frank Lin** voiced fears about MEP emissions having a negative economic effect on the down-wind community of Mountain House. (*Id*. 334.)

**John L. Collins** commented on behalf of the Aircraft Owners and Pilots Association that he opposed the MEP because the plumes and associated turbulence from exhaust stacks will pose a flight hazard to aircraft operating near them. As discussed above, we have found, along with the FAA, that the MEP will pose no such hazard.

Intervenor, **Robert Sarvey** commented that if a NOTAM as required by Condition of Certification **TRANS-8** is not issued, there will be significant impacts to aviation. (Sarvey, PMPD Comments, p. 9). However, as set forth in **TRANS-8**, the NOTAM is not the sole "mitigation" provided. Even if a NOTAM is not required by the jurisdictional agency (the FAA) there will not be significant impacts to aviation safety. It is important to note that the FAA has determined that MEP will pose "no hazard" to aviation and recommended, but did not require, that the Byron Airport authority provide the MEP location and avoidance information in the listing for Byron Airport contained in the Airport/Facility Directory.(Ex. 7, Attachment DR51-1; Ex. 73) Staff's independent analysis confirmed the FAA findings of no hazard to aviation. Condition of Certification **TRANS-8** provides consistency with the FAA determination and its recommendations. Mr. Sarvey is incorrect in stating that there will be a significant impact to aviation safety if a NOTAM is not issued.

Intervenor, **Rajesh Dighe** commented that the plumes from MEP present a hazard to Byron Airport traffic. As explained above, we have taken in substantial evidence to show that the plume presents no such hazard.

**Mary Piepho** is the Contra Costa County Supervisor representing District 3, which includes the Byron Airport. She stated that the airport is one of Contra Costa's most important resources. Her review of the affect MEP could have on the Byron Airport has been on-going for more than a year and she has become familiar with the MEP, worked with local pilots, and flown over the MEP site. She cited the Contra Costa County staff's review of the MEP as well as the FAA's

Determination of No Hazard to Air Navigation for the project's generation and transmission structures, stacks, and thermal plumes. As a result, the county was satisfied that the project is compatible with the Byron Airport operations and future plans. The Contra Costa Board of Supervisors voted unanimously to support the MEP. She asked the CEC to approve the Mariposa project and allow it to be constructed. (Id. RT 257-259.)

Also speaking in support of the MEP was Contra Costa Planning Commissioner **Richard Clark**, who said that the Planning Commission studied the project and that, even taking into account future airport expansion, the Planning Commission was convinced there would be no incompatibility between the MEP and the Byron airport. His commission voted unanimously to support the MEP. (*Id*. RT 270-271.)

All of these public comments are considered and addressed in the Decision above.

## FINDINGS OF FACT

Based on the weight of the evidence, the Commission makes the following Findings and Conclusions:

1. Condition of Certification **TRANS-1** would ensure compliance with applicable jurisdictions' limits on vehicle sizes and weights, driver licensing, and truck routes, and any other applicable limitations, and would require the project owner to obtain all necessary transportation permits.
2. Implementation of Condition of Certification **TRANS-2** would ensure that any public road, easement, or right-of-way damaged by project construction would be restored to its original condition.
3. Condition of Certification **TRANS-3** would require development and implementation of a traffic control plan to reduce construction traffic impacts to LOS and to ensure sufficient parking and emergency access to the site.
4. Implementation of Condition of Certification **TRANS-4** would require the MEP to obtain the necessary encroachment permits from applicable jurisdictions.
5. Condition of Certification **TRANS-5** would require MEP to obtain the necessary permits and licenses for transporting hazardous material and require that all hazardous material deliveries occur outside of normal commute hours.
6. Condition of Certification **TRANS-6** would require payment of any necessary traffic and transportation fees to Alameda County.

7. The mitigation measures described in the evidentiary record and contained in the Conditions of Certification ensure that the project will not result in any direct, indirect, or cumulative adverse roadway traffic impacts in the project area.
8. The MEP is located approximately 2.7 miles southeast of the Byron Airport.
9. The MEP's four exhaust stacks and eight transmission poles will not encroach into navigable airspace and are therefore not hazardous to aircraft.
10. The MEP is not located within the Byron airport traffic pattern airspace.
11. The MEP would not result in a change to civilian air traffic patterns in the project vicinity.
12. The FAA flight track data indicates that times of traffic pattern congestion at the Byron airport are relatively infrequent. The airport has approximately 60,000 annual operations.
13. The airspace above and immediately surrounding the MEP site is not an established training pilot area or designated parachute jump site.
14. The safety of aviation in general and of pilots in particular lies within the exclusive jurisdiction of the Federal Aviation Administration (FAA).
15. The FAA has issued Determinations of No Hazard to Air Navigation for the MEP structures and for the potential of thermal plumes from MEP's stacks to impact aviation, including ultralight and glider flights.
16. The FAA determined that, with implementation of its recommendations which are reflected in our Conditions of Certification, neither the MEP structures nor the thermal plumes from the MEP pose a hazard to general aviation.
17. Substantial expert testimony in the evidentiary record supports the determinations of the FAA.
18. The MEP, as conditioned, will comply with all applicable LORS listed in Appendix A.
19. The record contains extensive evidence of modeling to determine worst-case vertical velocity of the MEP's thermal plumes.
20. Staff modeling worst-case analysisis, assuming 46 degrees Fahrenheit, determined that the plume vertical velocity for a single plume would be 4.3 meters per second (m/s) or higher up to a height of 780 feet above ground level (AGL) and the combined plume vertical velocity for all four exhaust stacks would be 4.3 m/s or higher up to a height of 1,230 feet AGL. These are *average* plume vertical velocity calculations and parts of the plume could have up to twice that velocity at the noted altitudes.

21. Applicant conducted multiple, empirical, aircraft flyover tests over the Indigo Power Plant, a facility described as very similar to the MEP. The testimony revealed that overflight of the plant's thermal plume produced a "jolt" of sudden onset but low amplitude. Offset overflight, which affected only one wing, resulted in eight to ten degrees of bank angle change.

22. Both reciprocating and turbine aircraft engines can operate in the MEP's exhaust with minimal effects from oxygen reduction.

23. High velocity thermal plumes present a potential hazard to airspace.

24. Aircraft overflying the MEP at an altitude of 954 AGL during worst-case conditions and assuming full power operation of MEP would experience no detrimental structural effects on the aircraft and be within limits for correction of rolling moment.

25. Aircraft are not forced to fly over the MEP, even accounting for future expansion of the Byron airport runways.

26. The availability of unrestricted airspace in the project vicinity provides ample opportunity for a pilot to see and avoid overflight of the MEP site, provided advisories of the MEP site location and potential hazard are available to the flying public.

27. Condition of Certification **TRANS-7** would require lighting of the exhaust stacks, consistent with FAA requirements, thus reducing the potential for inadvertent overflight of the facility and exposure to high-velocity thermal plumes to a less than significant level.

28. Condition of Certification **TRANS-8** would provide a means to advise pilots of the potential hazard to flight associated with the project-generated exhaust plumes and the need to avoid overflight of the facility below 1,500 feet AGL. Implementation of this condition of certification would reduce aviation risk to a less than significant level.

29. The weight of evidence established that the project itself would not have a cumulatively considerable impact on ground transportation or general aviation in the project area.

30. The cumulative impact analysis assumed that the East Altamont Energy Center (EAEC), licensed by the Commission on August 20, 2003, would be a reasonably foreseeable addition to the MEP's cumulative impacts.

31. Subsequent to the cumulative impact analysis in evidence, Calpine Corporation, the owner of the EAEC, informed the Commission that it no longer intends to build the EAEC and terminated the EAEC certification.

## CONCLUSIONS OF LAW

1. With implementation of the proposed conditions of certification below, the proposed MEP would comply with all applicable LORS related to traffic and transportation.

2. As conditioned, the MEP would result in less than significant impacts to the traffic and transportation system, including aviation.

## CONDITIONS OF CERTIFICATION

**TRANS-1 Roadway Use Permits and Regulations**

The project owner shall comply with limitations imposed by Caltrans District 4 and other relevant jurisdictions, including the City of Tracy, the Mountain House community, and the counties of Alameda, San Joaquin, and Contra Costa, on vehicle sizes and weights, driver licensing, and truck routes. In addition, the project owner or its contractor shall obtain necessary transportation permits from Caltrans and all relevant jurisdictions for roadway use.

**Verification:** In the Monthly Compliance Reports (MCRs), the project owner shall report permits received during that reporting period. In addition, the project owner shall retain copies of permits and supporting documentation on-site for Compliance Project Manager (CPM) inspection if requested.

**TRANS- 2 Restoration of All Public Roads, Easements, and Rights-of-Ways**

The project owner shall restore all public roads, easements, and rights-of-way that have been damaged due to project-related construction activities. The restoration shall be completed in a timely manner to the road's original or near original condition.

Prior to the start of site mobilization, the project owner shall notify the relevant jurisdictions, including the Counties of Alameda, Contra Costa, and San Joaquin, the City of Tracy, and Caltrans District 4, of the proposed schedule for project construction. The purpose of this notification is to request that these jurisdictions consider postponement of any planned public right-of-way repair or improvement activities in areas affected by project construction until construction is completed, and to coordinate any concurrent construction-related activities that cannot be postponed.

**Verification:** Prior to the start of site mobilization, the project owner shall photograph or videotape all affected public roads, easements, right-of-way segment(s), and/or intersections and shall provide the CPM, the affected local jurisdiction(s), and Caltrans District 4 (if applicable) with a copy of these images. Within 60 calendar days of completion of construction, the project owner shall meet with the CPM, the affected local jurisdiction(s), and Caltrans District 4 (if

applicable) to identify sections of public right-of-way to be repaired. At that time, the project owner shall establish a schedule for completion and approval of the repairs. Following completion of any public right-of-way repairs, the project owner shall provide to the CPM letters signed by the affected local jurisdiction(s) and Caltrans District 4 stating their satisfaction with the repairs.

**TRANS-3 Traffic Control Plan, Heavy Hauling Plan, and Parking/Staging Plan**

Prior to the start of construction of the MEP, the project owner shall prepare a Traffic Control Plan (TCP) for the MEP's construction and operations traffic. The TCP shall address the movement of workers, vehicles, and materials, including arrival and departure schedules and designated workforce and delivery routes.

The project owner shall consult with the Caltrans District 4 office and the applicable local jurisdictions in the preparation and implementation of the Traffic Control Plan (TCP). (Applicable local jurisdictions include the Counties of Alameda, Contra Costa, and San Joaquin, as well as the City of Tracy and the Mountain House Community Services District.) The project owner shall submit the proposed TCP to the Caltrans District 4 office and to the affected local jurisdictions in sufficient time for review and comment, and to the Energy Commission Compliance Project Manager (CPM) for review and approval prior to the proposed start of construction and implementation of the plan.

The Traffic Control Plan (TCP) shall include:

- A work schedule designed to ensure that the project does not significantly impact LOS on the local and regional transportation network in the project's vicinity. The project owner shall use one or more of the following measures to reduce impacts to LOS: staggered work shifts, off-peak work schedules (arriving or departing from about 6:30 pm - 6:00 am and from about 9:00 am - 3:30 pm), and/or a park-and-ride program for construction employees.
- Provisions for an incentive program, such as employer-sponsored commuter checks, to encourage construction workers to carpool and/or use van or bus service.
- A project schedule to ensure that the construction-related activities associated with the MEP project and other cumulative projects are coordinated with Caltrans District 4 and the relevant local jurisdictions. This would ensure that construction-related traffic and activities would not impact transportation facilities and existing traffic levels within the project area;
- Timing of heavy equipment and building material delivery to the sites, which shall occur during off-peak traffic hours;

- Provisions for redirection of construction traffic with a flag person as necessary to ensure traffic safety and minimize interruptions to non-construction related traffic flow.
- Provisions for ensuring traffic safety during implementation of Condition of Certification **BIO-10** in the **Biological Resources** section of this SSA. For example, include:
    - traffic control methods and/or scheduling to ensure safety of the biological monitors and to prevent collisions and traffic back-ups caused by slow-moving surveying vehicles;
    - details on whether or not construction traffic will be rerouted during the wet season as described under **BIO-10 ii)**, and if so, details of methods that will be used to redirect construction traffic.
- Placement of necessary signage, lighting, and traffic control devices at the project construction site and lay-down areas;
- Routes to the project site to be used by construction worker vehicles and truck traffic, including trucks carrying hazardous materials. Routes shall avoid use of the West Grant Line and Midway Road intersection during peak hours, as this intersection already operates at LOS F during PM peak hours;
- A heavy-haul plan addressing the transport and delivery of heavy and oversized loads requiring permits from the California Department of Transportation (Caltrans), other state or federal agencies, and/or the affected local jurisdictions;
- Timing of construction-related trips, with trips scheduled for off-peak hours if possible;
- Location and details of construction along affected roadways at night, where permitted;
- Temporary closure of travel lanes or disruptions to street segments and intersections during construction activities;
- Traffic diversion plans (in coordination with Alameda County, San Joaquin County, Contra Costa County, and the City of Tracy) to ensure access during temporary lane/road closures;
- Access to residential and/or commercial property located near construction work and truck traffic routes;
- Ensurance or guarantee of access for emergency vehicles to the project site;
- Advance notification to residents, businesses, emergency providers, and hospitals that would be affected when roads may be partially or completely closed;

- Identification of safety procedures for exiting and entering the site access gate;
- Parking/Staging Plan (PSP) for all phases of project construction and for project operation;
- The property owner and contractor(s) shall make available information on public transportation within the project vicinity and surrounding counties and cities to MEP construction and operations workforce.

**Verification:** At least 60 calendar days prior to the start of construction, including any grading or site remediation at the project site or its associated easements, the project owner shall submit the TCP to the applicable agencies for review and comment and to the CPM for review and approval. The project owner shall also provide the CPM with a copy of the transmittal letter to the agencies requesting review and comment. At least 30 calendar days prior to the start of construction, the project owner shall provide copies of any comment letters received from the agencies, along with any changes to the proposed development plan, to the CPM for review and approval.

**TRANS-4 Encroachment into Public Rights-of-Way**

Prior to any ground disturbance, improvements, or obstruction of traffic within any public road, easement, or right-of-way, the project owner or its contractor(s) shall coordinate with all relevant jurisdictions, including the counties of Alameda and Contra Costa and Caltrans District 4, to obtain all required encroachment permits and comply with all applicable regulations.

**Verification:** At least 10 days prior to ground disturbance or interruption of traffic in or along any public road, easement, or right-of-way, the project owner shall provide copies of all permit(s), relevant to the affected location(s), received from Caltrans or any other affected jurisdiction/s to the CPM. In addition, the project owner shall retain copies of the issued/approved permit(s) and supporting documentation in its compliance file for a minimum of 180 calendar days after the start of commercial operation.

**TRANS-5 Transportation of Hazardous Materials**

The project owner shall obtain the necessary permits and/or licenses from the California Highway Patrol, Caltrans District 4, and any relevant local jurisdictions for the transportation of hazardous materials. The project owner shall ensure compliance with all applicable regulations and implementation of the proper procedures. In addition, the owner shall ensure that hazardous materials deliveries occur outside of normal commute hours.

**Verification:** In the Monthly Compliance Reports (MCRs), the owner shall provide copies of all permits/licenses obtained for the transportation of hazardous substances.

**TRANS-6 Payment of Transportation Fees**

Where applicable, the property owner shall pay traffic and transportation fees to Alameda County for development of the MEP. These fees may include but not be limited to the Tri-Valley transportation development fee and the cumulative traffic impact mitigation fee.

**Verification:** At least 30 days prior to the start of ground disturbance, the project owner shall submit plans for the proposed MEP to Alameda County, pay any necessary transportation-related fees, and provide documentation of exemption or payment to the CPM. In addition, the project owner shall retain copies of this documentation in its compliance file for a minimum of 180 calendar days after the start of commercial operation.

**TRANS-7 Obstruction Marking and Lighting**

The project owner shall install obstruction marking and lighting on the exhaust stacks, consistent with FAA requirements, as expressed in the following documents:

- FAA Advisory Circular 70/7460-1K
- FAA Safety Alert for Operators (SAFO) 09007.

Permanent lighting consistent with all requirements shall be installed and activated within 5 days of completion of construction and prior to the start of plant operation. Lighting shall be operational 24 hours a day, 7 days a week for the life of project operation. Upgrades to the required lighting configurations, types, location, or duration shall be implemented consistent with any changes to FAA obstruction marking and lighting requirements.

**Verification:** At least 60 days prior to the start of construction, the project owner shall submit to the CPM for approval final design plans for the power plant exhaust stacks that depict the required air traffic obstruction marking and lighting.

Within 5 days of completion of exhaust stack construction and prior to the start of plant operation, the project owner shall install and activate permanent obstruction marking and lighting consistent with FAA requirements and shall inform the CPM in writing within 10 days of installation and activation. The lighting shall be inspected and approved by the CPM (or designated inspector) within 30 days of activation.

**TRANS-8 Pilot Notification and Awareness**

The project owner shall initiate the following actions to ensure pilots are aware of the project location and potential hazards to aviation:

- Submit a letter to the FAA requesting a Notice to Airmen (NOTAM) be issued advising pilots of the location of the MEP and recommending avoidance of overflight of the project site below

1,500 feet AGL. The letter should also request that the NOTAM be maintained in active status until all navigational charts and Airport Facility Directories (AFDs) have been updated.

- Submit a letter to the FAA requesting a power plant depiction symbol be placed at the MEP site location on the San Francisco Sectional Chart with a notice to "avoid overflight below 1,500 feet AGL".
- Submit a request to and coordinate with the Byron Airport Manager to add a new remark to the Automated Surface Observing System (ASOS) identifying the location of the MEP and advising pilots to avoid direct overflight below 1,500 feet AGL as they approach or depart the airport.
- Request that TRACON (NORCAL) and/or the Oakland Air Traffic Control Center submit aerodrome remarks describing the location of the MEP plant and advising against direct overflight below 1,500 feet AGL to the:
    - FAA Aeron Services, formerly the FAA National Aeronautical Charting Office (Airport/Facility Directory)
    - Jeppesen Sanderson Inc. (JeppGuide Airport Directory, Western Region)
    - Air guide Publications (Flight Guide, Western States)

**Verification:** Within 30 days following the start of construction, the project owner shall submit draft language for the letters of request to the FAA (including NORCAL TRACON) and Byron Airport manager to the CPM for review and approval.

At least 60 days prior to the start of operations, the project owner shall submit the required letters of request to the FAA and request that TRACON (NORCAL) submit aerodrome remarks to the listed agencies. The project owner shall submit copies of these requests to the CPM. A copy of any resulting correspondence shall be submitted to the CPM within 10 days of receipt.

If the project owner does not receive a response from any of the above agencies within 45 days of the request (or by 15 days prior to the start of operations) the project owner shall follow up with a letter to the respective agency/ies to confirm implementation of the request. A copy of any resulting correspondence shall be submitted to the CPM within 10 days of receipt.

The project owner shall contact the CPM within 72 hours if notified that any or all of the requested notices cannot be implemented.[13] Should this occur, the project

[13] The Energy Commission does not have the authority to compel issuance of a NOTAM or require the FAA or Byron Airport to publish the location of or remarks regarding the project in any aviation chart or guide, or add that information to the Byron Airport ASOS.

owner shall appeal such a determination, consistent with any established appeal process and in consultation with the CPM. A final decision from the jurisdictional agency denying the request, as a result of the appeal process, shall release the project owner from any additional action related to that request and shall be deemed compliance with that portion of this condition of certification.

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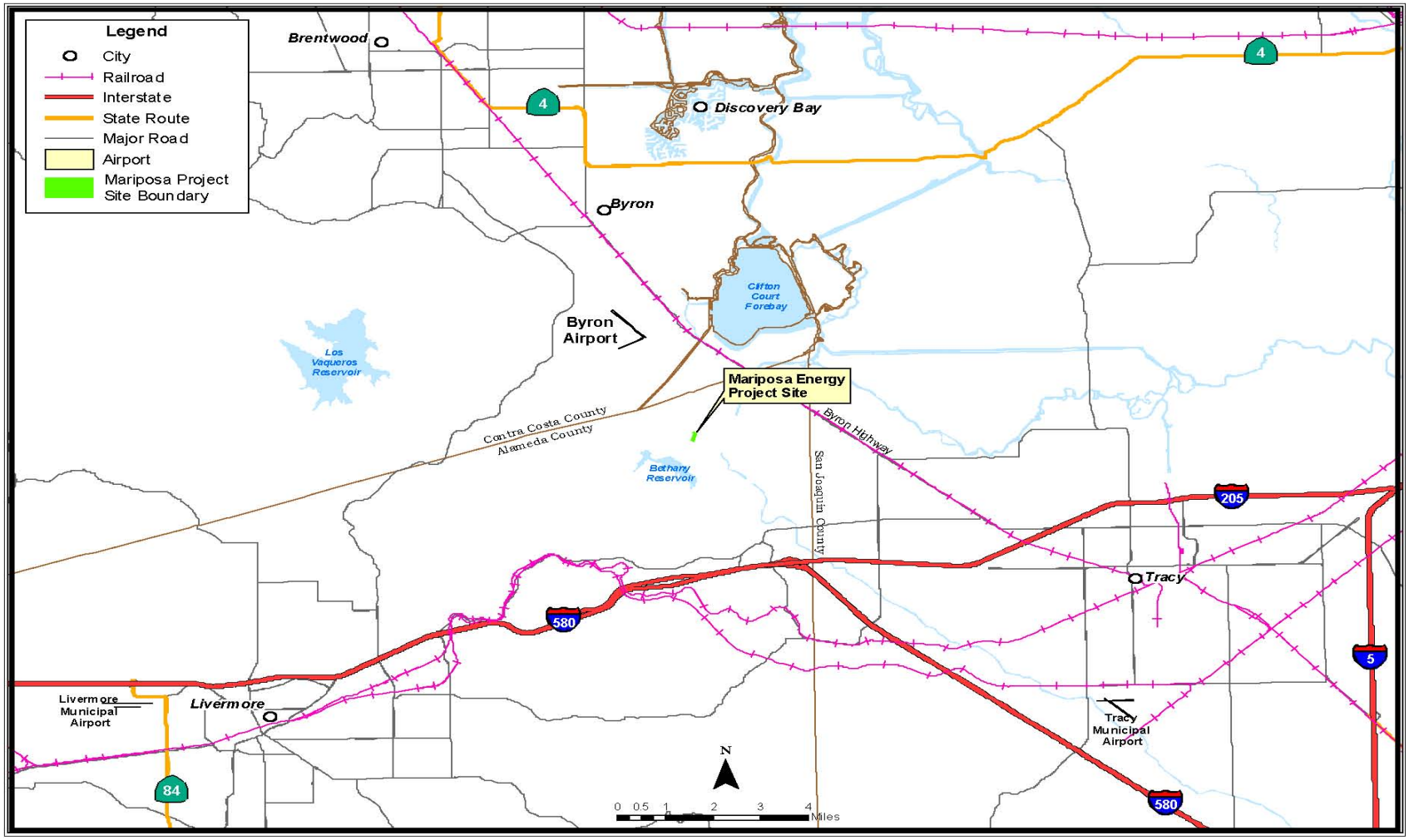
**TRAFFIC AND TRANSPORTATION - FIGURE 1**

Mariposa Energy Project - Regional Transportation Setting

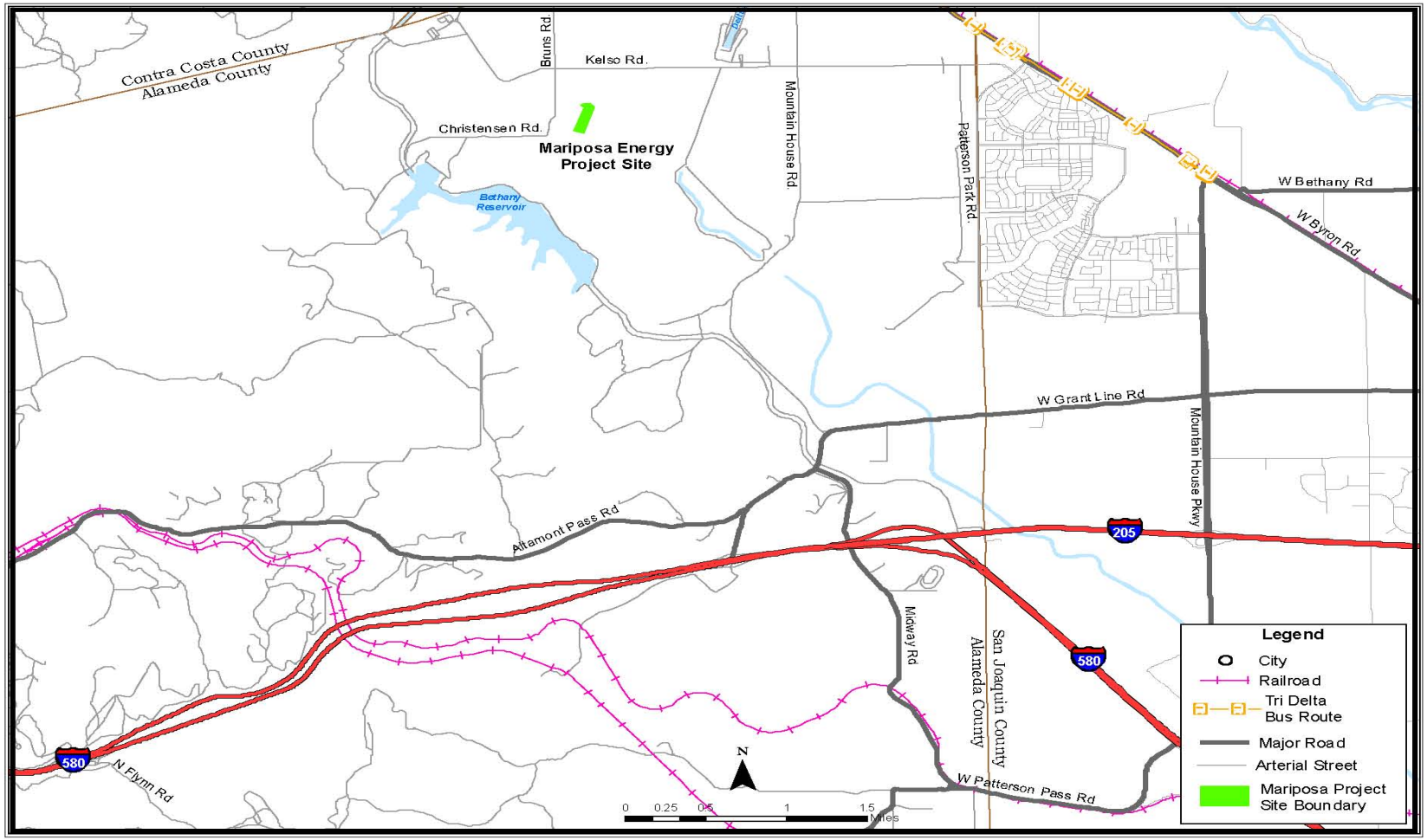



**CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION**

SOURCE: California Energy Commission - Tele Atlas Data

**TRAFFIC AND TRANSPORTATION - FIGURE 2A**

Mariposa Energy Project - Local Transportation Setting South of the Project Site



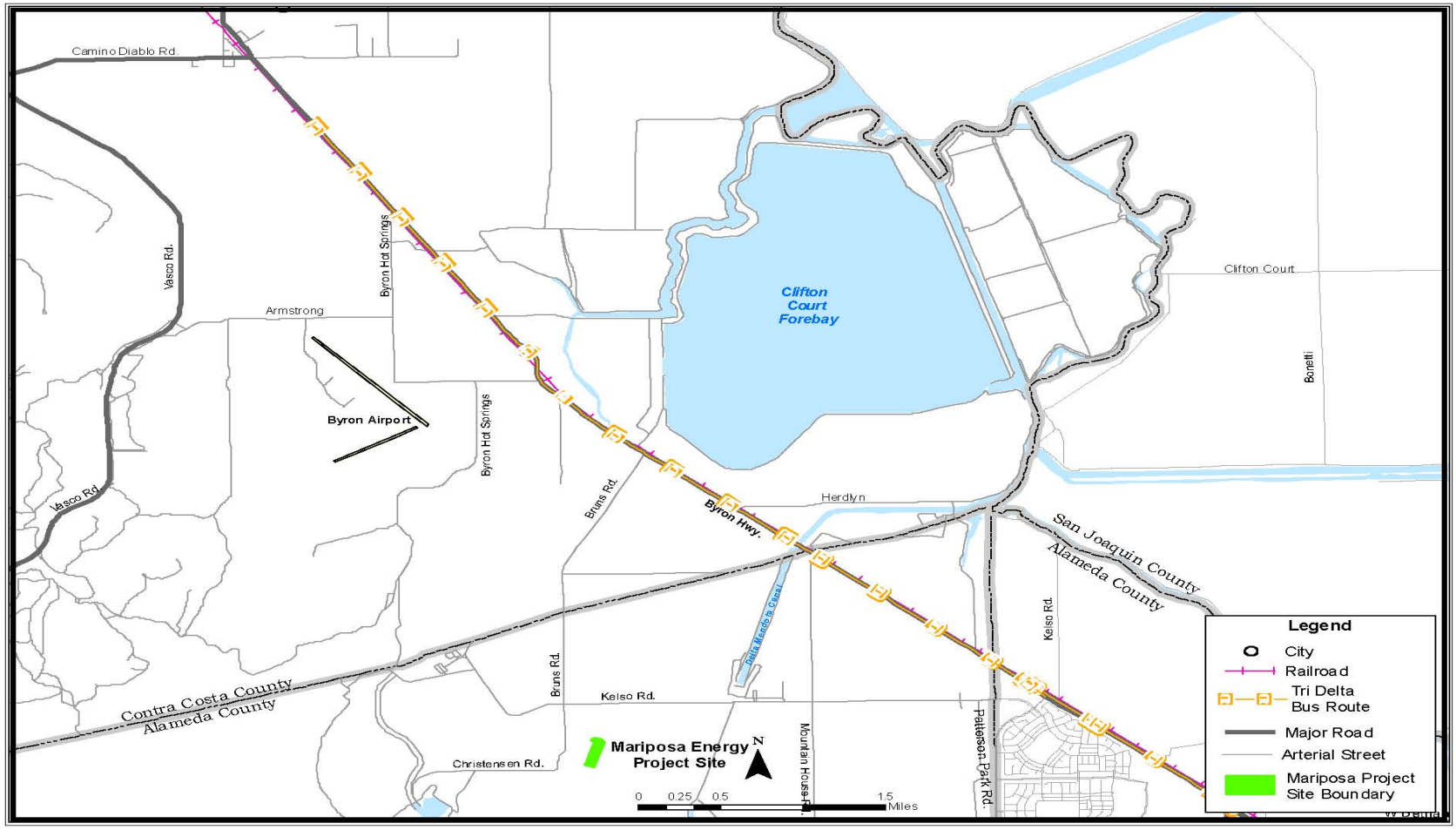

**CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION**

SOURCE: California Energy Commission - Tele Atlas Data

TRAFFIC AND TRANSPORTATION

**TRAFFIC AND TRANSPORTATION - FIGURE 2B**

Mariposa Energy Project - Local Transportation Setting North of the Project Site

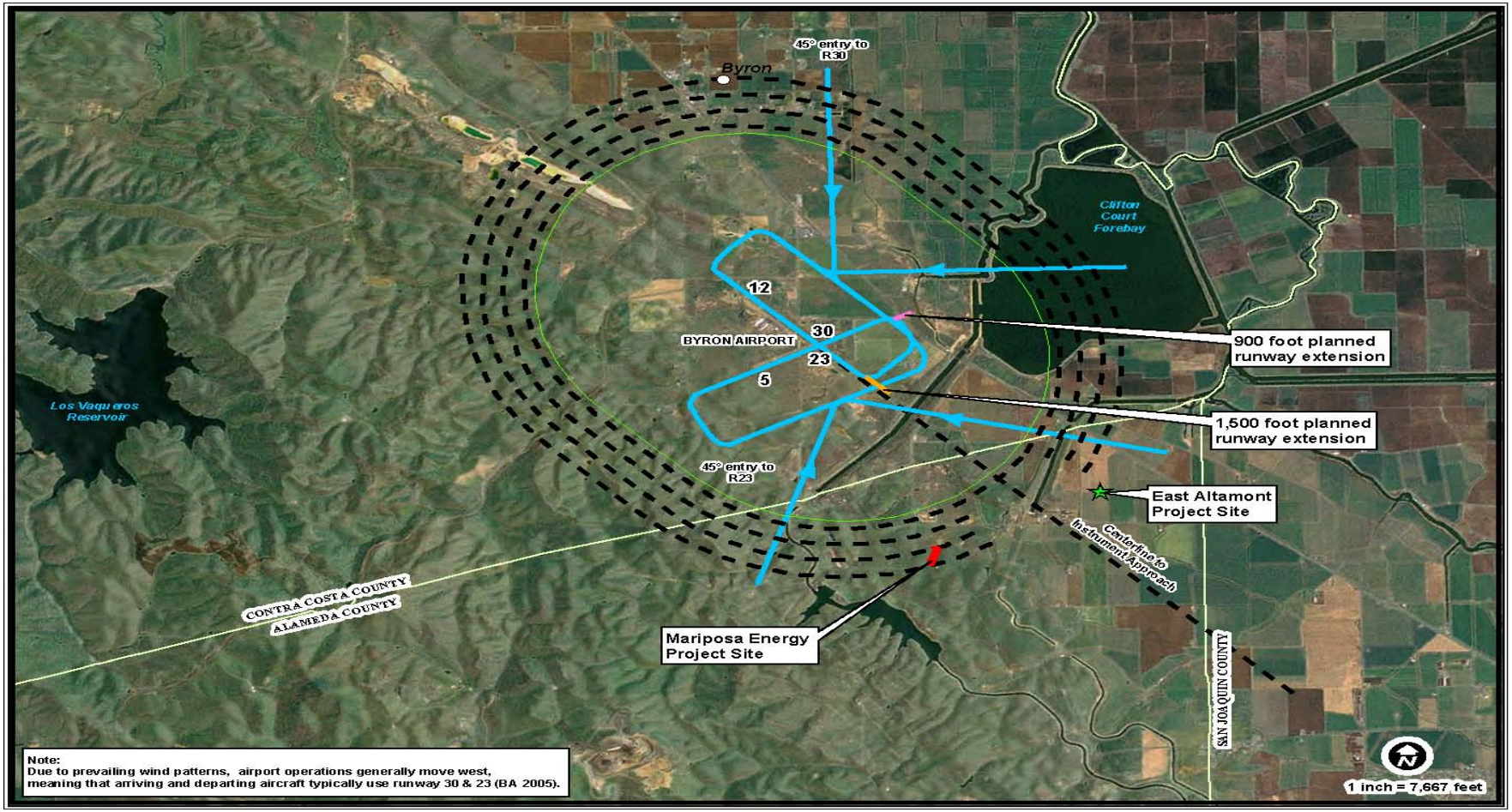



TRAFFIC AND TRANSPORTATION

**CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION**

SOURCE: California Energy Commission - Tele Atlas Data

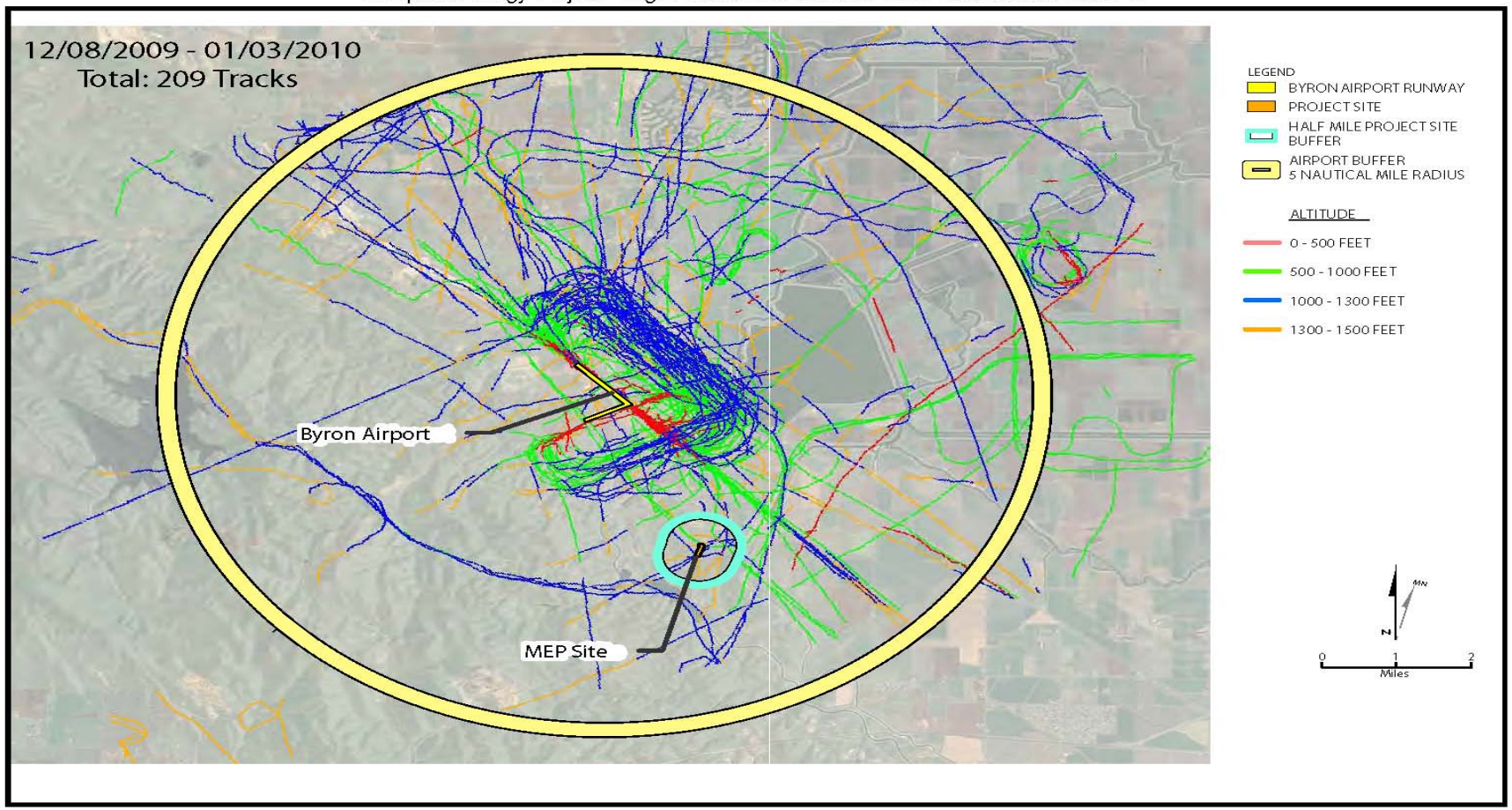
**TRAFFIC AND TRANSPORTATION - FIGURE 3**
Mariposa Energy Project - Byron Airport




CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION
SOURCE: California Energy Commission - Tele Atlas Data

**TRAFFIC AND TRANSPORTATION - FIGURE 4A**

Mariposa Energy Project - Flight Tracks near the MEP from 12/8/2009 to 1/3/2010



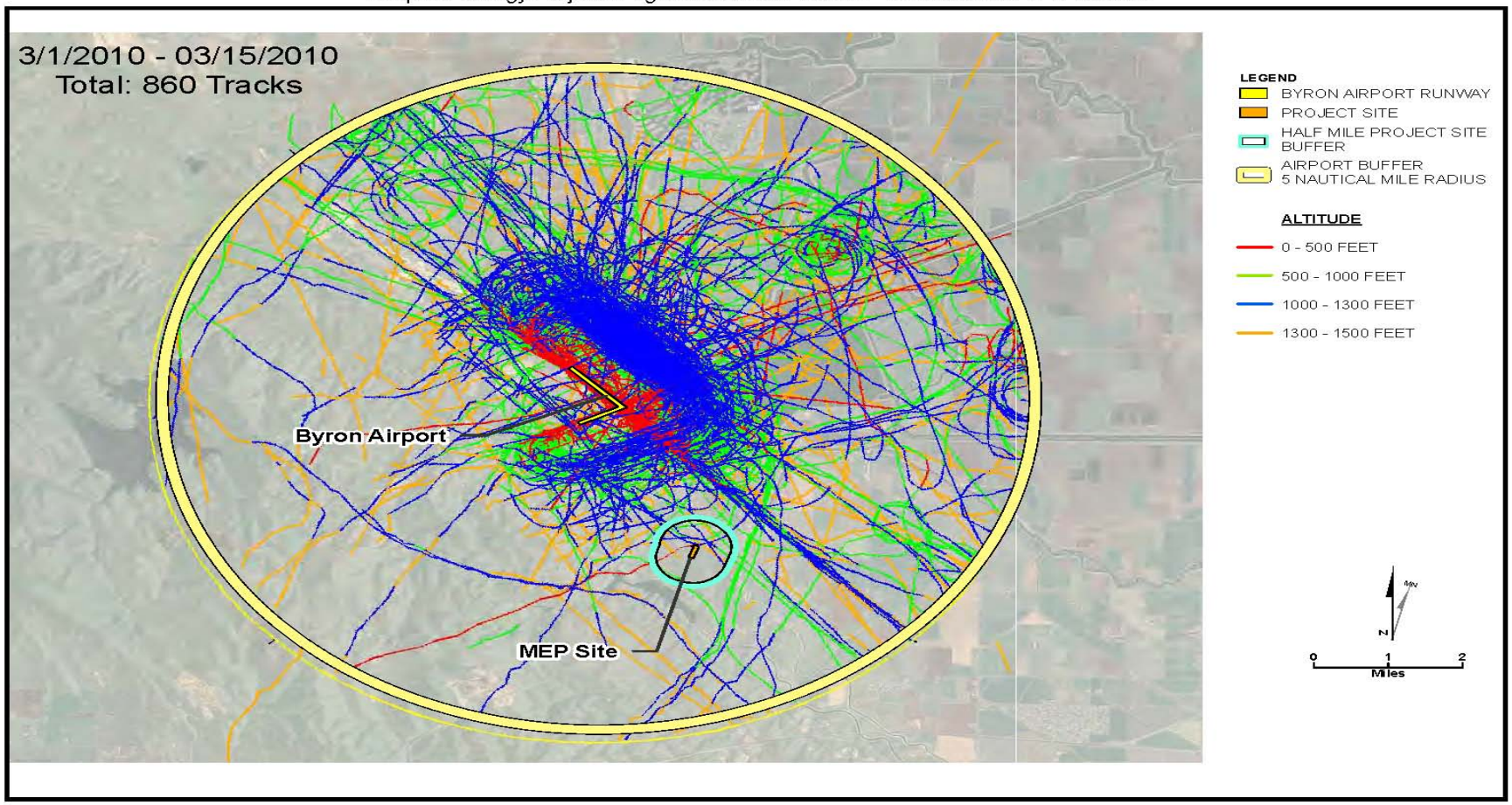

TRAFFIC AND TRANSPORTATION

**CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION**

SOURCE: CH2MHILL

**TRAFFIC AND TRANSPORTATION - FIGURE 4B**

Mariposa Energy Project - Flight Tracks near the MEP from 3/1/2010 to 3/15/2010




TRAFFIC AND TRANSPORTATION

**CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION**

SOURCE: CH2MHILL

TRAFFIC AND TRANSPORTATION- FIGURE 5
Mariposa Energy Project- Cumulative Impact Projects

CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION
SOURCE: ESRI Imagery & California Energy Commission

TRAFFIC AND TRANSPORTATION

## C. SOCIOECONOMICS

This section focuses on pertinent demographic information within a six-mile radius of the project site, evaluates the effects of project-related population changes on local schools, medical and fire protection services, public utilities and other public services, as well as the fiscal and physical capacities of local government to meet those needs. The public benefits of the project are also reviewed. As part of this review, the analysis examines both the beneficial impacts on local finances from property and sales taxes as well as the potential adverse impacts upon public services. The evidence is undisputed on these matters (1/5/10 RT 20, 36-37, 47; Exs. 1; 4; 6; 11,13; 61; 67; 301; 400; 500; 600; 601; 602; 603; 604; 605; 606; 607; 608; 609; 800; 802; 803.)

This section also contains a discussion concerning Environmental Justice and the analysis conducted to determine whether project-related activities would result in disproportionate impacts on low income and/or minority populations.

### SUMMARY AND DISCUSSION OF THE EVIDENCE

1. Demographics, Services, and Finances

The construction phase is typically the focus of this stage of the Socioeconomics analysis because of the potential influx of workers into the area. Impacts are considered significant if a large influx of non-resident workers and dependents occurs in the project area, which would increase the demand for community resources.

**Socioeconomics Table 1** shows the total labor by skill for the relevant Alameda/Contra Costa County and the San Joaquin areas is more than adequate to provide construction labor for the proposed project. (Ex. 301, p. 4.8-4).

**SOCIOECONOMICS Table 1**
**Total Labor by Skill in the Oakland-Fremont-Hayward**

| Trade | Oakland-Fremont-Hayward MD | Maximum # of Workers for Project Construction by Craft |
|---|---|---|
| Boilermakers | 280 | 8 |
| Carpenters | 17,230 | 41 |
| Electricians | 4,640 | 24 |
| Welders | 2,260 | 11 |
| Laborers | 14,390 | 8 |
| Pipefitter | 4,210 | 33 |
| Millwrights | 500 | 6 |
| Teamsters | NA | 6 |
| Ironworkers | 600 | 19 |
| Operating Engineers | 4,130 | 4 |

Source: EDD Labor Market Information; Occupational Employment Projections 2006-2016. (Ex. 301, p. 4.8-4).

During construction of the MEP, the record shows that the labor force will commute daily from the surrounding region and that the existing regional labor force is sufficient for project construction needs. Due to the commuting habits of construction workers and the costs of housing relocation, the evidence indicates that construction workers are not likely to relocate their families to the area. (Ex. 301, p. 4.8-8).

Construction is slated to begin midyear 2011 and proceed for 14 months. Pre-operational testing of the power plant should begin around January 2012, and full-scale commercial operation is required by contract to commence July 1, 2012. The number of workers will range from a total of 39 workers in the first month to a total of 177 in the fourteenth. The average number of workers on-site for the 14-month period will be approximately 90. (Ex. 301, p. 4.8-5.)

During operation, the project will require eight full-time employees. The workers are expected to commute to the project site from the surrounding communities in Alameda, San Joaquin, and Contra Costa counties. The record shows that there is a large labor force within two hours commuting time of the project, so it is unlikely that potential employees will relocate to the immediate project area. (Ex. 301, p. 4.8-5.)

The capital costs for the MEP are approximately $230 to 245 million. Construction materials and supplies are estimated at approximately $185 million. The total construction payroll is estimated at $16.3 million. (Ex. 301, p. 4.8-10.)

The total sales tax estimated during construction is expected to be $1,203,570 annually. (Ex. 301, p. 4.8-10.) The MEP will generate between $2.44 and 2.6 million in property taxes annually. The increase in property taxes resulting from the MEP project will represent about 1 percent of Alameda County's property tax revenues. (Ex. 1, p. 5.10-21; 301, p. 4.8-11.)

The following table provides a summary of the economic effects of the MEP.

**Socioeconomics Table 2**
**MEP Economic Benefits (2008 dollars)**

| **Fiscal Benefits** | |
|---|---|
| Estimated annual property taxes | $2.44 million to $2.6 million |
| State and local sales taxes: Construction | $1,203,570 annually |
| State and local sales taxes: Operation | $159,900 annually |
| School Impact Fees | $2,621 |
| **Non-Fiscal Benefits** | |
| Total capital costs | $230-$245 million |
| Construction payroll | $16.3 million |
| Operations payroll | $830,000 annually |
| Construction materials and supplies | $185 million |
| Operations and maintenance supplies | $1.64 million |
| **Direct, Indirect, and Induced Benefits** | |
| **Estimated Direct Employment** | |
| Construction | 177 |
| Operation | 8 |
| **Estimated Indirect Employment** | |
| Construction Jobs | 142 |
| Construction Income | $6,108,200 |
| Operation Jobs | 5 |
| Operation Income | $290,470 |
| **Estimated Induced Income** | |
| Construction Jobs | 87 |
| Construction Income | $3,894,700 |
| Operation Jobs | 7 |
| Operation Income | $289,390 |
| Source: Ex. 301, p. 4.8-10 | |

The analysis in evidence examines the housing supply including single-family homes, multiple family dwellings, mobile homes, hotels and motels. (Ex. 301, p. 4.8-7.) The evidence clearly establishes that since the workforce will likely commute to the project from the surrounding region, neither the construction

workers nor the operation workers will place an undue stress upon available housing. Similarly, the evidence shows that existing educational, police, medical and emergency services will not be adversely impacted. (Ex. 301, pp. 4.8-7 − 4.8-9.)

As stated in Section 17620 of the Education Code; "The governing board of any school district is authorized to levy a fee, charge, dedication, or other requirement for the purpose of funding the construction or reconstruction of school facilities". Commercial development within the Mountain House ESD (2009) is charged a one-time assessment fee of $0.36 per square foot of principal building area. The Mountain ESD students attend high school at Tracy USD and therefore split the revenue with Tracy USD. The split is 75 percent of the fee to Mountain House ESD and 25 percent of the fee to Tracy USD. The 7,280 square feet of occupied structure would create approximately $2,621 in impact fees. Condition of Certification **SOCIO-1** is proposed to ensure payment of fees to these districts.

Finally, the evidence shows that the size of the available workforce in the Alameda, Contra Costa, and San Joaquin County area ensures that MEP construction, in conjunction with other projects planned or in process, will not put a strain on the types of workers needed to complete all other identified projects. Because the MEP will not result in any significant adverse socioeconomic impacts to population, housing, or public services due to the small size and temporary nature of construction, it is unlikely that it will contribute significantly to cumulative socioeconomic impacts. Thus, the MEP's impact on socioeconomics, when combined with the existing impact of other projects, is not cumulatively considerable. (Ex. 301, pp. 4.8-9.)

2. MEP Effect on Mountain House Home Prices

We received a large volume of evidence purporting to show the potential impact the MEP may have on the housing prices in the Mountain House community. We also heard public comment from numerous residents of Mountain House expressing fears that the MEP will cause additional loss in property value on top of the great losses in home value they have already suffered. (2/24/11 RT 268:3 – 323:13; 2/25/11 RT 309:18 – 351:8; 3/7/11 298:5 -304:21.)

We understand that the Mountain House master plan envisioned a 20 year development designed to house 44,000 residents. (Ex. 609, p. 1). However, the evidence established that Mountain House has the unfortunate distinction of

being one of the most financially "underwater" communities in the United States since the dramatic decline of housing values in the last decade. Only about 3,000 to 3, 500 have been built in Mountain House to date. (Ex. 600, 607, 608, 609; 3/7/11 RT 178:22 -181:1).

The undisputed evidence offered by the Mountain House Intervenors (Rajesh Dighe, Mountain House Community Services District, and Jass Singh) establishes the following:

- 90 percent of Mountain House residents owe more on their house than the home is currently worth (Ex. 607, p.1; Ex. 609, p.1); this situation is termed "underwater";
- The average Mountain House home is "underwater" by $122,000.00 (Ex. 607, p.1; Ex. 609, p.1);
- Mountain House may not recover until 2030, if at all (Ex. 608; 3/7/11 RT 178:22 -181:1);
- All Mountain House Community Service Districts revenues come from residents' taxes (Ex. 609, p. 2);
- There are no businesses in Mountain House (*Id*.);
- Mountain House residents pay higher taxes and water bills than surrounding areas (*Id*.);
- The majority of Mountain House homes are facing foreclosure (Ex. 801);
- Banks took over 101 properties in the 3rd quarter 2008 alone (Ex. 607, p. 2); and
- Between December 2005 and June 2010, home prices fell 57.09 percent from as high as $700,000 to $300,000 (Ex. 500).

We note that this entire list of hardships befell Mountain House before the MEP's AFC was filed in 2009.

Intervenor Dighe offered a study entitled "The Effect of Power Plants on Local Housing Values and Rents" by Lucas W. Davis (Ex. 609, hereinafter, "Davis Study"), to support the claim that MEP will cause a three to seven percent decline in Mountain House home values. Mr. Davis was not called to testify and the MEP is not included in the study. The Davis study provides an analysis of census data from census blocks located within 2 miles of a set of 92 electric power plants brought online during the period between 1993 and 2000. The nationwide study included coal fired power plants as well as natural gas fired power plants. Only one of the 92 power plants in the study was located within

California. The author concludes that in census blocks that lie within 2 miles of power plants that went into operation between 1993 and 2000 homeowners experienced a three to seven percent decrease in housing values and rents, and that demographic changes occurred, with small decreases in household income, educational attainment, and the proportion of owner-occupied homes. (Exs. 67, p. 7; 609, p. 1; 3/7/11 RT 47:21-25.)

Applicant's expert testified that the Davis study lacked credibility and exposed several serious flaws in the study. The three main flaws identified were:

1. Actual sales data were not used. Instead, the Davis study relies on self-reported estimates of property values, i.e., self-appraisals by homeowners.

2. The Davis study uses census data or estimated values on an aggregated basis, and therefore is not able to take into account the individual factors that have the potential to affect the values of residences (e.g., size of the lot, age and size of the home, number of bedrooms, view). As a consequence, the modeling is not able to establish whether the changes it shows in the resident-reported values of the properties are directly related to the proximity to a power plant, or whether these changes are attributable to other variables.

3. The Davis study relies on census data in a generalized two-mile radius rather than considering the actual distance between the residences and the power plants. Moreover, Davis interprets his analysis to indicate that any effects on perceived property values are most likely limited to an area that is less than 2 miles from the power plant. Because the Mariposa Energy Project is located 2.5 miles from the outer edge of the Mountain House development, the Davis paper confirms that the MEP is not likely to impact property values within the Mountain House community. (Ex. 67, p.8.)

Applicant's expert showed that the Davis study suggests that the following five potential impacts may affect property values: (1) visibility of the power plant; (2) noise; (3) traffic from fuel deliveries; (4) air pollution; and (5) localized contamination by fugitive residues. In the case of the MEP as it relates to Mountain House development, none of these impacts are present. (Exs. 609, pp. 5-7; 67, p.10.)

Staff's expert also testified that the Davis study is inapplicable to the MEP. (3/7/11 RT 68:21 – 69:9.)

The Davis study was the only competent evidence proffered by the Intervenors on the issue of a possible correlation between power plants and housing values in neighborhoods within two miles of the plant. However, in weighing the evidence received on this issue, we are not convinced that such a correlation has been proven. Viewed in a light most favorable to the Mountain House Intervenors, the state of the evidence leaves us only with the speculation that a power plant *may* affect the price of homes within a two mile radius. (3/7/11 RT 45:25 – 47:8; 153:11-14.)

Since the MEP is well beyond two miles from Mountain House and none of the adverse impacts attributed in the Davis study are present with the MEP, we would not find that the MEP could affect Mountain House home prices. However, we need not reach this issue, because none of the parties offered evidence linking the MEP to a physical change to Mountain House's environment as a result of a change in housing prices.

CEQA is not an economic protection statute. Landowners surrounding a proposed project site do not state a valid CEQA concern when they express fears that the proposed project could adversely affect their property value. (*Porterville Citizens For Responsible Hillside Development, v. City Of Porterville* (2007) 157 Cal.App.4th 885, 69 Cal.Rptr.3d 105 citing *Bakersfield Citizens for Local Control v. City of Bakersfield* (2004) 124 Cal.App.4th 1184, 1205, 22 Cal.Rptr.3d 203; CEQA Guidelines, § 15131, subd. (a).)

3. Environmental Justice Aspects

Section 65040.12 (e) of the Government Code defines "environmental justice" to mean "fair treatment of people of all races, cultures, and incomes with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies." In addition, federal guidelines encourage governmental agencies to incorporate environmental justice principles in the environmental review of this project.

The steps recommended by these guidance documents to assure that environmental justice concerns are addressed include: (1) outreach and involvement; (2) a demographic screening to determine the existence of a minority or low-income population; and (3) if warranted, a detailed examination of the distribution of impacts on segments of the population.

The outreach and involvement efforts of the Energy Commission staff and the Applicant are contained in the record. Intervenors Sarvey, Simpson, and Dighe criticized the outreach efforts in their opening briefs. Energy Commission regulations require Staff to send notices regarding receipt of an AFC and Commission events and reports related to proposed projects, at a minimum, to property owners within 1,000 feet of a project and 500 feet of a linear facility (such as transmission lines, gas lines, and water lines) and publish a notice in a local newspaper. The Energy Commission's outreach efforts are an ongoing process that, to date, has involved the following efforts; on July 2, 2009, a notice of receipt of MEP AFC was mailed out, and on September 28, 2009, a notice of receipt the MEP Supplemental AFC was mailed out. Notice of the October 1, 2009 Informational Hearing and Site Visit to the proposed site of the MEP was sent by letter. A site visit and status conference was held on October 6, 2010, with a status and scheduling conference. In addition to property owners and persons on the general project mail-out list, notification was provided to local, state, and federal public interest and regulatory organizations with an expressed or anticipated interest in this project. Also, elected and certain appointed officials of Alameda and San Joaquin Counties were similarly notified of the hearing and site visit. (Ex. 301, p. 1-3.)

The record also reflects that there were seven workshops within a mile of the MEP site, a multiplicity of notices, and the Energy Commission's public adviser held a workshop in Mountain House to facilitate public participation. The Mountain House community has shown a strong presence in these proceedings. (3/7/11 RT 67:1-68:7; 144:22-146:4.)

Intervenor, Mountain House Community Services District (MHCSD), a party to this proceeding, asserts for the first time in its Opening Brief that the Energy Commission "made no effort to solicit comments from it" as a "responsible agency." (MHCSD Opening Brief, p.5) However, the record indicates that MHCSD was granted Intervenor status on December 7, 2009. Mr. Groover and/or Jim Lamb from MHCSD attended every conference held prior to the evidentiary hearings, including the Prehearing Conference and all three days and nights of Evidentiary Hearings.

Under CEQA, a responsible agency is "a public agency which proposes to carry out or approve a project, for which a Lead Agency is preparing or has prepared an EIR or Negative Declaration. The term 'Responsible Agency' includes all public agencies other than the Lead Agency which have discretionary approval power over the project." (Tit. 14 Cal. Code Regs. Section 15381). Because the

Energy Commission's exclusive state law authority preempts all other state and local entities, there are no local or state agencies with discretionary permit authority over MEP. Further, even in the absence of the Energy Commission's jurisdiction, MHCSD would have no discretionary permit authority over MEP because MHCSD is not a city or county, nor does it border on or contain the project site. Therefore, MHCSD is not a responsible agency under CEQA and is not entitled to consultation under Public Resources Code section 21104(a).

On July 2, 2009, the Energy Commission staff sent the MEP AFC and on September 28, 2009, followed up with the MEP Supplement to the AFC to various libraries within the project vicinity including; Mountain House Branch Library, Tracy Public Library, Livermore Public Library, San Joaquin County Library, Brentwood Library and Fremont Main Library. In addition, to these local libraries, copies of the AFC are also available at the Energy Commission's Library in Sacramento, the California State Library in Sacramento, as well as, public libraries in Eureka, Fresno, Los Angeles, San Diego, and San Francisco. (Ex. 301, p. 1-3.)

Intervenors Dighe and Singh brought a motion to obtain translators so members of the public from minority population groups, including those from the Mountain House community could understand the proceedings. (2/24/11 RT 102:16-25; 105:5-20.) The motion was denied (2/24/11 RT 104:22-107:6). The record indicates that Mountain House community is an ethnically diverse, highly affluent and educated community in which 82 percent of the households speak English in the home. (3/7/11 RT 65:17-66:9.) The Mountain House community has actively participated in these proceedings. (3/7/11 RT 144:22-146:4). We find that the outreach efforts were indeed extensive and adequate.

The record contains a demographic screening conducted in accordance with information contained in two documents: *Environmental Justice: Guidance Under the National Environmental Policy Act* (Council on Environmental Quality, 1997) and *Final Guidance for Incorporating Environmental Justice Concerns in EPA's NEPA Compliance Analyses* (National Council on Environmental Quality, 1998). (Ex. 301, p. 4.8-2.) The purpose of the demographic screening is to determine whether there exists a minority or low-income population within a six-mile radius of the project. Minority populations exist, for purposes of an environmental justice analysis, where either:

- The minority population of the affected area is greater than 50 percent of the affected area's general population; or

- The minority population percentage of the area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis; or
- One or more U.S. Census blocks in the affected area have a minority population greater than 50 percent.

Minority individuals, for present purposes, are those who are members of the following population groups: American Indian or Alaskan Native; Asian or Pacific Islander; Black, not of Hispanic origin; or Hispanic. The below poverty-level-population was also based on the 2000 U.S. Census. (Ex. 301, p. 4.8-2.)

The evidence shows that based upon the 2000 U.S. Census, the total population within the six-mile radius of the MEP was 2,164 persons, with a minority population of 706 persons, or about 33 percent of the total population The below-poverty-level population within a six-mile radius of the MEP consisted of approximately 14 percent of the total population in that area or approximately 277 people. These data do not include the Mountain House community. Detailed demographic data for the current population was not available because Mountain House began occupancy in 2003 after the conclusion of the 2000 federal census. The present population of Mountain House is estimated to be between 7,996 and 9,930 which is higher than the 2000 census by a multiple of four. (Ex. 301, pp. 4.8-2; 3/7/11 RT 75:22 – 25.)

The outdated 2000 census data were challenged by several Intervenors and a considerable amount of evidence and substantial evidentiary hearing time was devoted to the issue of environmental justice. Intervenors Sarvey and Dighe argued in their Opening Briefs that sources other than the 2000 census should be used to determine whether Mountain House qualifies as an environmental justice community. Applicant and Staff testified that the federal guidelines require them to use the most recent census which is the only reliable data that actually counts individuals and tracks their race. (3/7/11 RT 24:4–11; 27:17-25; 38:6 – 39:7; 40:10-18; 64:5-13; 74:9-13, 76:7-1193:20-94:5; 96:1-6.)

Intervenor Singh offered Exhibit 803 which is a screen-shot of a webpage which contains a map based upon local data from the Census Bureau's American Community Survey, based on samples from 2005 to 2009 for Census track 5203 for zip code 95391. Although Mountain House falls within the zip code, the entire geographical area of the zip code appears to be about four times the size of Mountain House and covers part of Tracy, California. The page admonishes that "[b]ecause these data are based on samples, they are subject to a margin of error, particularly in places with a low population and are best regarded as

estimates." (Ex. 803). Exhibit 803 estimates the racial breakdown in the zip code as follows:

- Whites− 36 percent
- Blacks – 8 percent
- Hispanic – 26 percent
- Asians – 24 percent
- Other groups – 6 percent

A survey was taken by Intervenor, Mountain House Community Services District in 2008. The survey results showed the total population of Mountain House to be approximately 9,930 persons; which included; 47 percent White/Caucasian, 30 percent Asian, 8 percent Hispanic, 7 percent African American, 5 percent Other and 3 percent Pacific Islander. (Ex. 301, pp. 4.8-2 – 4.8-3.)

Based on the record, we can certainly find that Mountain House is a highly diverse population. (3/7/11 RT 111:7–23; 131:10-13.) The evidence indicates that Mountain House does not appear to be a low income population. (3/7/11 RT 65:17–66:9; 117:13-15; Ex. 500.)

We are satisfied that Applicant and Staff followed the letter of the law by relying on the 2000 Census to form the basis of their environmental justice analysis. It is unfortunate that the evidentiary record closed before the 2010 Census results were published, but, according to the 2010 U.S. Census website, the 2010 U.S. Census information will be provided to the public beginning in February 2011 and continuing to June of 2013.[1] (Ex. 301, p. 4.8-2.)

Nevertheless, we find that there is enough evidence in the record to suggest that Mountain House may be close to having a 50 percent minority population. Therefore, we will assume just for purposes of this analysis, that Mountain House is a minority population. The next question is: what impacts will the MEP have on the Mountain House community? We have determined, based upon the evidence in the record that the MEP will have no unmitigated, significant direct, indirect or cumulative impacts on public health or the environment. As there will be no unmitigated, significant impacts to any populations, we find there will be no disproportionate impacts to the Mountain House community or individual residents.

[1] **(See http://www.census.gov/population/www/cen2010/glance/index.html)**

**PUBLIC COMMENT**

**Kishor Batt** commented that there are a lot of empty houses in Mountain House. Those are in foreclosure. "Mountain House was planned to be a community of 40- to 50,000 people. And it has only 10,000 residents right now. Since it is not fully developed, current residents are paying for the debt to develop the community as well as the utilities. So we have high utility bills and property taxes. Now my fear is if the power plant comes, the community will never develop into a full community. And current residents will not be able to rent their houses or not sell their houses and they have to pay higher rents, higher utility bills, and property taxes. This will cost the community as a whole millions of dollars. So I don't think it's a good idea to look at a plant 2.5 miles from a community that was planned few years back before the power plant was even proposed." [2/24/11 RT: 266:15 -267:19.]

The concerns of Mountain House residents regarding their fears of diminished housing values due to the MEP were reiterated by **Jeremiah Bodnar, Tina Zihui, Hui Chen, Bing Zhang, Melissa Machado, Chandra Paladugula, Jon Rubin, Travis Miller, Teresa Nava-Anderson, Dan Costin, Ravikiam Kertsidi, Shirley Yao, Mike Klinkner, Hari Dara, Jonathan Ridpath, Patrick Collins, Robert Anderson, Anil Kumar, Roceliza del Rosario, Irene Owens, Satya Sinha, Frank Ye, Pramid Shab, Smitha Unnikrishnam, Yauwai Fu, Anyana Dai, Vipin Goel, Eve Low, Vinod Pothuru, Annie Wang, Linda Benz, Frank Lin, Ram Balasubramanian, Priya Prasad, Raj Arokiaraj, Renu Singh, Valentina Sefejunku, Warren Ernst, Alastair and Charmaine Bennie, Ralf Schmidt** and **Ilias Shaik**

Intervenor, Robert Sarvey, filed comments that the environmental justice policy of the State Lands Commission "represents what the State of California considers a proper environmental justice analysis for its departments." (Sarvey PMPD Comments, p. 10). The environmental justice policy of the State Lands Commission is applicable only to staff under the purview of the State Lands Commission and is not the policy of the State of California. While these policies can be instructive, they are not binding on the California Energy Commission.

Intervenor, **Rajesh Dighe**, also filed written comments that the Committee wrongly relied on the 2000 Census data, conducted inadequate public outreach and that the MEP "causes big Environmental Justice issues because of pollution nuisance on Minority Population Mountain House Community [sic]." These issues are squarely addressed above.

**Chris Gray,** the Chief of Staff for Supervisor Scott Haggerty for Alameda County, spoke in favor of approving the plant at this time, commenting that the MEP provides jobs for the people in this area, "but they do it providing an environmentally safe project." [2/24/11 RT: 284:16-286:10.]

The PMPD addressed all of the public comments received prior to publication. The following comments were received after publication of the PMPD during the 30-day comment period.

**Aaron Basilius, Prashanth Srivastava, Simon Wu, Hui Chen, John Rubin, Smitha Unnikrishnan**, **Pramit Shah, Jeremiah Bodnar Ramkuma Balanbramaiar** and **Wentao Li** submitted comments expressing concern that Mountain House property values will decrease due to the MEP. Similarly, residents of the rural area they refer to as the "Original Mountain House Community" in Alameda as distinct from the Mountain House "town" in San Joaquin County commented on their concerns regarding diminution of property values and other perceived impacts. Specifically, these comments were submitted in writing by **Sylvia and Doug Little, Mrs. Donald Jess, Tina Williams, Daniel Jess, Dolores Kuhn, Jane Peterson** and **Joan Uznay**.These concerns are addressed and considered above.

**Vasu Devan, Paul Bhathal**, **Shan** (no last name given), **Rajesh Dighe**, **Vipin Goel** and **Allan Torres** all commented on the perception that the Mountain House residents bear the burden of the MEP while Alameda County receives all the benefits. Counsel for Applicant, Gregg Wheatland, responded that the benefits to Mountain House include mitigation funds paid to San Joaquin Valley Air Pollution Control District and the Tracy Fire Department, stationed at Mountain House (see the **Air Quality** and **Worker Safety and Fire Protection** sections of this Decision.

**FINDINGS OF FACT**

Based on the persuasive weight of the evidence, we find as follows:

1. The MEP will draw primarily upon the local labor force from Alameda, Contra Costa and San Joaquin Counties for the construction and the operation workforce.
2. The project is not likely to have a significant adverse effect upon local employment, housing, schools, medical resources, or fire and police protection.

3. The capital costs for the MEP are approximately $230 to 245 million.
4. The total sales tax estimated during construction is expected to be $1,203,570 annually.
5. The MEP will generate between $2.44 and 2.6 million in property taxes annually which will represent about 1 percent of Alameda County's property tax revenues.
6. MEP will result in local direct, indirect, and induced benefits – both fiscal and non-fiscal.
7. Since the workforce will likely commute to the project, neither the construction workers nor the operation workers will place an undue stress upon available housing.
8. Construction and operation of the project will not result in any direct, indirect, or cumulative adverse socioeconomic impacts.
9. Federal environmental justice guidelines are not binding in this case. Nevertheless, the analysis of record has been performed in conformity therewith.
10. Although minority and low income populations exist within a six mile radius of the site, the MEP will not cause or contribute to disproportionate impacts upon minority or low income groups
11. The siting of the MEP, and the analysis thereof, is consistent with the principles underlying environmental justice.
12. The MEP's impact on socioeconomics, when combined with the existing impact of other projects, is not cumulatively considerable.

## CONCLUSIONS OF LAW

1. We therefore conclude that the project construction and operation activities will create some degree of benefit to the local area and will conform to principles of environmental justice.

2. No significant adverse socioeconomics impacts will occur as a result of construction and operation of the MEP. Condition of Certification **SOCIO-1** is required to ensure conformance with LORS.

## CONDITION OF CERTIFICATION

**SOCIO-1** The project owner shall pay the one-time statutory school facility development fee as required by Education Code Section 17620.

**Verification**: At least 20 days prior to the start of project construction, the project owner shall provide to the Compliance Project Manger (CPM) proof of payment of the statutory development fee. The payment shall be provided to the Mountain House Elementary School District (75 percent)/Tracy Unified School District (25 percent).

## D. NOISE AND VIBRATION

The construction and operation of any power plant project will create noise. The character and loudness of this noise, the times of day or night during which it is produced, and the proximity of the project to sensitive receptors combine to determine whether project noise will cause significant adverse impacts. In some cases, vibration may be produced as a result of construction activities such as blasting, which has the potential to cause structural damage and annoyance. This section analyzes whether noise and vibration produced during project construction and operation will be sufficiently mitigated to comply with applicable law. The evidence on noise and vibration was uncontested. (Exs. 1; 4; 6; 11; 50; 61; and 301.)

### SUMMARY AND DISCUSSION OF THE EVIDENCE

The MEP site is directly south-southwest of the existing 6.5-MW Byron Power Cogeneration Plant in unincorporated eastern Alameda County, California. The larger site parcel, referred to as the Lee Property, contains remnants of prior wind turbine development that has been removed except for minor debris. Wind energy installations are still active in the general area, as the Altamont Pass Wind Farm is approximately 1 mile southwest of the project area. Uses near the project site include grazing, power generation, water management facilities, and recreation areas. Grazing occurs on most of the land within a mile radius of the project site. The Pacific Gas and Electric Company Kelso Substation and Bethany Compressor Station are located directly north of the project site. (Ex. 301, p. 4.6-4.)

The ambient noise in the vicinity of the project site is dominated by industrial-related facilities and natural sounds. (Ex. 301, p. 4.6-6.) The closest sensitive noise receptors include a few isolated residences, the closest of which is approximately 3,300 feet to the northwest from the center of the project site. The second closest residence is approximately 3,600 feet to the northeast. (Ex. 301, p. 4.6-4.)

New off-site linear facilities include a 0.7-mile-long mile long electric transmission line, an approximately 580-foot-long natural gas pipeline, a 1.8-mile-long water pipeline and a new water pump station. (Ex. 301, p. 4.6-7.)

The evidence included the results of an ambient noise survey conducted from March 25, 2009 through March 26, 2009, which was used to establish a baseline

for comparison of predicted project noise to existing ambient noise. Measurements were taken at various times throughout the day and night at the following sensitive receptor locations:

- ***Location M1***: Near the residence located approximately 3,600 feet northeast of the project site. This location was monitored continuously from 3:00 p.m. on March 25 through 4:00 p.m. on March 26, 2009.
- ***Location M2***: In the pasture of the residence located approximately 3,300 feet northwest of the project site. This location was monitored continuously from 4:00 p.m. on March 25 through 4:00 p.m. on March 26, 2009.

The ambient noise monitoring surveys recorded $L_{eq}$ (energy average) and $L_{90}$ (background) noise levels and resulted in the measurements shown below in **Noise Table 1**:

**Noise Table 1**
**Summary of Measured Ambient Noise Levels**

| Measurement Sites | Measured Noise Levels, dBA | |
|---|---|---|
| | Average During Daytime Hours[1] $L_{eq}$ | Nighttime Hours[2] $L_{90}$ |
| M1, Residence Approximately 3,600 Feet Northeast of the Project Site | 53 | 46 |
| M2, Residence Approximately 3,300 Feet Northwest of the Project Site | 48 | 43 |

Source: Ex. 301, p. 4.6-6.
[1.] Staff calculation of average of the daytime hours (7 a.m. to 10 p.m.)
[2.] Staff calculations of average of the four quietest consecutive hours of the nighttime.

1. Noise

a. Construction

Construction noise is a temporary event which, in this case, is expected to last about 14 months. Construction of the MEP will be typical of similar power projects in terms of schedule, equipment used, and other types of activities. (Ex. 301, p. 4.6-6.)

The evidence presents a prediction of the noise impacts of project construction on the nearest sensitive receptors. A comparison of construction noise estimates to measured ambient conditions is summarized below in **Noise Table 2**. (Ex. 301, p. 4.6-7.)

**Noise Table 2**
**Predicted Construction-Related Noise Levels**

| Receptor | Highest Construction Noise Level (dBA) | Measured Existing Ambient, Average Daytime $L_{eq}$ (dBA) | Project Plus Ambient | Change |
|---|---|---|---|---|
| M1 | 51 | 53 | 55 | +2 |
| M2 | 52 | 48 | 53 | +5 |

Source: Ex. 301, p. 4.6-7

As seen in the last column of the table, the loudest construction activities will likely increase the existing ambient noise levels at the project's closest residential receptors by 2 to 5 dBA. An increase of up to 5 dBA will not be noticeable; therefore, the noise effects of plant construction will be less than significant at the above receptors. Nonetheless, Conditions of Certification **NOISE-1**, **NOISE-2**, and **NOISE-6** ensure that MEP construction, including construction of the offsite linear facilities, will create less than significant adverse impacts at the most noise-sensitive receptors. **NOISE-1** and **NOISE-2**, will establish a notification process and a noise complaint process to resolve any complaints regarding construction noise. **NOISE-6** ensures that LEC construction activities will comply with the Alameda County LORS regarding the allowable times to perform noisy construction work. (Ex. 301, p. 4.6-7.)

The evidence addressed the need to protect construction workers from noise hazards and has recognized those applicable LORS that would protect construction workers. Condition of Certification **NOISE-3** ensures that construction workers are adequately protected. (Ex. 301, p. 4.6-8.)

b. Operation

The primary noise source of the MEP would be the turbine generators, exhaust stacks, fuel gas compressor, electric transformer, and various pumps and fans. (Ex. 301, p. 4.6-8.) The design of the project incorporates noise reduction measures to ensure that there will not be a substantial increase in noise levels at the nearest receptors.

The Applicant submitted evidence of noise modeling to determine the project's noise impacts on sensitive receptors and predicted operational noise levels as summarized in **Noise Table 3** below. (Ex. 301, p. 4.6-8.)

**Noise Table 3**
**Predicted Operational Noise Levels at all**
**Identified Sensitive Residential Receptors and LORS**

| Receptor/ Distance to Project Site | Operational Noise Level (dBA) [1] | Most Stringent Applicable LORS Limit $L_{50}$ | Project in Excess of LORS |
|---|---|---|---|
| M1/3,600 Feet | 43 | 45 | 0 |
| M2/3,300 Feet | 43 | 45 | 0 |

Source: Ex. 301, p. 4.6-9.

As shown by the table, the project will not exceed the prescribed limits at any of the sensitive receptors. Condition of Certification **NOISE-4** ensures compliance with local LORS.

The evidence has addressed predicted operational noise by comparing predicted power plant noise levels to the ambient night-time background noise levels at the nearest sensitive receptors. The predicted operational noise levels are shown in **NOISE Table 4** below. (Ex. 301, pp. 4.6-9 − 4.6-10.)

**Noise Table 4**
**Predicted Operational Noise Levels at all**
**Identified Sensitive Residential Receptors and CEQA**

| Receptor/Distance | Operational Noise Level (dBA) [1] | Ambient Nighttime Hours $L_{90}$ [2] | Project Plus Ambient | Change |
|---|---|---|---|---|
| M1 | 43 | 46 | 48 | +2 |
| M2 | 43 | 43 | 46 | +3 |

Sources: Ex. 301, p. 4.6-10.
[2] NOISE Table 1, above

Combining the ambient noise level of 46 dBA $L_{90}$ with the project noise level of 43 dBA at M1 results in 48 dBA $L_{90}$, 2 dBA above the ambient. We regard an increase of up to 5 dBA as a less-than-significant impact. Therefore, the noise impact at M1 is less than significant. Combining the ambient noise level of 43 dBA $L_{90}$ with the project noise level of 43 dBA at M2 results in 46 dBA $L_{90}$, 3 dBA above the ambient. We find this impact to be less than significant. Furthermore, Condition of Certification **NOISE-4** ensures that the noise levels due to project operation will not exceed the Alameda County noise standards. (Ex. 301, p. 4.6-10.)

One possible source of annoyance could be strong tonal noises. Tonal noises are individual sounds (such as pure tones) which, while not louder than permissible levels, stand out in sound quality. The project design addresses overall noise which includes appropriate measures, as needed, to eliminate tonal

noises as possible sources of annoyance. To ensure that tonal noises do not cause public annoyance, Condition of Certification **NOISE-4**, requires mitigation measures to ensure the project will not create tonal noises. (Ex. 301, p. 4.6-10.)

All water and gas piping will lie underground and will be silent during operation. Noise effects from the electrical interconnection line typically do not extend beyond the right-of-way easement of the line and will thus be inaudible to any receptors. (Ex. 301, p. 4.6-10.)

2. Vibration

a. Construction

The evidence indicates that pile driving will not be needed for the project, so construction vibration will not create an impact at the project's noise sensitive receptors. (Ex. 301, p. 4.6-7.)

b. Operation

Vibration from an operating power plant could be ground-borne or air-borne. In Staff's view, because the operating components of a high-speed gas turbine must be carefully balanced and affixed with permanent vibration sensors, the ground-borne vibrations from MEP will be undetectable by any likely receptor. (Ex. 301, p. 4.6-11.)

Airborne vibration (low frequency noise) can rattle windows and objects on shelves and can rattle the walls of lightweight structures. However, none of the project equipment is likely to produce noticeable low frequency noise beyond the project site boundaries. This makes it highly unlikely that the MEP would cause perceptible airborne vibration effects at any offsite noise-sensitive receptor. (Ex. 301, p. 4.6-11.)

3. Cumulative Impacts

Section 15130 of the CEQA Guidelines (Cal. Code Regs., tit. 14) requires a discussion of cumulative environmental impacts. Cumulative impacts are two or more individual impacts that, when considered together, are considerable or that compound or increase other environmental impacts.

The Green Volts Solar Field, a 2-MW utility-scale solar farm would be located approximately one mile from the MEP site. The Green Volts Solar Field would utilize concentrating photovoltaic (PV) technology, which is not a significant source of noise since there are no mechanical components associated with the PV technology. (Ex. 301, p. 4.6-11.)

The East Altamont Energy Center (EAEC), a 1,100-MW power plant project approved by the Energy Commission in 2003, would be located approximately 1.5 miles northeast of the MEP site. Actual construction plans for this facility are unknown. One of the EAEC's noise-related conditions of certification requires the project to comply with a 43 dBA limit at 3,200 feet. EAEC is approximately 4,900 feet from MEP's closest receptor, M1, and geometric spreading from 3,200 to 4,900 feet is anticipated to result in a 4 dBA reduction. This results in an EAEC contribution of 39 dBA at M1. This level, when combined with the MEP's noise level of 43 dBA at M1 (see **NOISE Table 3**) and then added to the nighttime existing ambient noise level of 46 $L_{90}$ at M1, results in 48 dBA $L_{90}$; 2 dBA above the ambient. We find this increase to be less than significant. (Ex. 301, p. 4.6-11.)

Additionally, Conditions of Certification **NOISE-1** and **NOISE-2** establish a public notification and noise complaint process to resolve any complaints regarding noise throughout the life of the project. Therefore, we find the project's cumulative noise impact will be less than significant.

**PUBLIC COMMENT**

**Anand Palanisamy** of the Mountain House community said this plant is going to cause "a lot of noise" to Mountain House. [2/24/11 RT 432:18-23]

The evidence has addressed predicted construction and operational noise impacts to the nearest sensitive receptors located less than 4,000 feet away to be less than significant (*supra*). The record indicates that the Mountain House community is two and a half miles away, so the noise impacts, if any, to Mountain House community will certainly be less than significant. [3/7/11 RT 46:3-11; 50:24 – 51:5; 69:2-8].

**Guy Colton** lives next door to the project and expressed concerns about noise. (5/5/11 RT 105:4 -122:8.) **Sylvia and Doug Little, Mrs. Donald Jess, Tina Williams, Daniel Jess, Dolores Kuhn, Jane Peterson** and **Joan Uznay** echoed these concerns in their written comments. These concerns are addressed and considered in detail above.

## FINDINGS OF FACT

Based on the uncontroverted evidence of record, the Commission makes the following findings and reaches the following conclusions:

1. Construction and operation of the MEP will not significantly increase noise levels above existing ambient levels in the surrounding community.

2. Construction noise levels are temporary and transitory in nature and will be mitigated to the extent feasible by employing measures such as sound reduction devices and limiting construction to day-time hours in accordance with local noise control laws and ordinances.

3. Operational noise will not cause significant adverse impacts to nearby residences.

4. The project owner will implement measures to protect workers from injury due to excessive noise levels.

5. The MEP will not create ground or airborne vibrations which cause significant off-site impacts.

6. Implementation of the Conditions of Certification, below, ensure that project-related noise emissions will not cause significant adverse impacts to sensitive noise receptors.

## CONCLUSION OF LAW

Implementation of the following Conditions of Certification ensure that the MEP will comply with the applicable laws, ordinances, regulations, and standards on noise and vibration as set forth in the pertinent portion of **Appendix A** of this Decision, and that the project will not cause indirect, direct, or cumulative significant adverse noise impacts.

## CONDITIONS OF CERTIFICATION

### PUBLIC NOTIFICATION PROCESS

**NOISE-1** Prior to the demolition of the existing structures at the project site, the project owner shall notify all residents and business owners within one mile of the project site boundaries and within ½-mile of the linear facilities, by mail or by other effective means, of the commencement of project construction. At the same time, the project owner shall establish a telephone number for use by the public to report any undesirable noise conditions associated with the construction and

operation of the project. If the telephone is not staffed 24 hours a day, the project owner shall include an automatic answering feature, with date and time stamp recording, to answer calls when the phone is unattended. This telephone number shall be posted at the project site during construction where it is visible to passersby. This telephone number shall be maintained until the project has been operational for at least one year.

**Verification:** At least 15 days prior to the start of demolition, the project owner shall transmit to the compliance project manager (CPM) a statement, signed by the project owner's project manager, stating that the above notification has been performed, and describing the method of that notification. This communication shall also verify that the telephone number has been established and posted at the site, and shall provide that telephone number.

**NOISE COMPLAINT PROCESS**

**NOISE-2** Throughout the demolition, construction and operation of the project, the project owner shall document, investigate, evaluate, and attempt to resolve all project-related noise complaints. The project owner or authorized agent shall:

- use the Noise Complaint Resolution Form (below), or a functionally equivalent procedure acceptable to the CPM, to document and respond to each noise complaint;
- attempt to contact the person(s) making the noise complaint within 24 hours;
- conduct an investigation to determine the source of noise in the complaint;
- if the noise is project related, take all feasible measures to reduce the source of the noise; and
- submit a report documenting the complaint and actions taken. The report shall include: a complaint summary, including the final results of noise reduction efforts and, if obtainable, a signed statement by the complainant stating that the noise problem has been resolved to the complainant's satisfaction.

**Verification:** Within five days of receiving a noise complaint, the project owner shall file a Noise Complaint Resolution Form, shown below, with both the local jurisdiction and the CPM, which documents the resolution of the complaint. If mitigation is required to resolve the complaint, and the complaint is not resolved within a three-day period, the project owner shall submit an updated Noise Complaint Resolution Form when the mitigation is performed and complete.

## EMPLOYEE NOISE CONTROL PROGRAM

**NOISE-3** The project owner shall submit to the CPM for review and approval a noise control program. The noise control program shall be used to reduce employee exposure to high (above permissible) noise levels during construction in accordance to the applicable OSHA and Cal-OSHA standards.

**Verification:** At least 30 days prior to the start of demolition, the project owner shall submit the noise control program to the CPM. The project owner shall make the program available to Cal-OSHA upon request.

## NOISE RESTRICTIONS

**NOISE-4** The project design and implementation shall include appropriate noise mitigation measures adequate to ensure that the operation of the project will not cause the noise levels due to plant operation alone, during the four quietest consecutive hours of the nighttime, to exceed an average of 43 dBA measured at or near monitoring locations M1 (approximately 3,600 feet northeast of the project site) and M2 (approximately 3,300 feet northwest of the project site).

No new pure-tone components shall be caused by the project. No single piece of equipment shall be allowed to stand out as a source of noise that draws legitimate complaints.

A. When the project first achieves a sustained output of 90 percent or greater of rated capacity, the project owner shall conduct a 25-hour community noise survey at monitoring locations M1 and M2, or at a closer location acceptable to the CPM.

   Additionally, this survey shall include measurement of one-third octave band sound pressure levels to ensure that no new pure-tone noise components have been caused by the project.

   The measurement of power plant noise for the purposes of demonstrating compliance with this condition of certification may alternatively be made at a location, acceptable to the CPM, closer to the plant (e.g., 400 feet from the plant boundary) and this measured level then mathematically extrapolated to determine the plant noise contribution at the affected residence. The character of the plant noise shall be evaluated at the affected receptor locations to determine the presence of pure tones or other dominant sources of plant noise.

B. If the results from the noise survey indicate that the power plant noise at the affected receptor sites exceeds the above value during the above specified period(s) of time, mitigation measures shall be implemented to reduce noise to a level of compliance with these limits.

C. If the results from the noise survey indicate that pure tones are present, mitigation measures shall be implemented to eliminate the pure tones.

**Verification:** The survey shall take place within 30 days of the project first achieving a sustained output of 90 percent or greater of rated capacity. Within 15 days after completing the survey, the project owner shall submit a summary report of the survey to the CPM. Included in the survey report will be a description of any additional mitigation measures necessary to achieve compliance with the above listed noise limit, and a schedule, subject to CPM approval, for implementing these measures. When these measures are in place, the project owner shall repeat the noise survey.

Within 15 days of completion of the new survey, the project owner shall submit to the CPM a summary report of the new noise survey, performed as described above and showing compliance with this condition.

**OCCUPATIONAL NOISE SURVEY**

**NOISE-5** Following the project's attainment of a sustained output of 90 percent or greater of its rated capacity, the project owner shall conduct an occupational noise survey to identify any noise hazardous areas in the facility.

The survey shall be conducted by a qualified person in accordance with the provisions of Cal. Code Regs., Tit. 8, §§ 5095-5099 (Article 105) and Title 29, Code of Federal Regulations, section 1910.95. The survey results shall be used to determine the magnitude of employee noise exposure.

The project owner shall prepare a report of the survey results and, if necessary, identify proposed mitigation measures to be employed in order to comply with the applicable California and federal regulations.

**Verification:** Within 30 days after completing the survey, the project owner shall submit the noise survey report to the CPM. The project owner shall make the report available to OSHA and Cal-OSHA upon request.

**CONSTRUCTION RESTRICTIONS**

**NOISE-6** Heavy equipment operation and noisy construction work relating to any project features shall be restricted to the times delineated below, unless the CPM in consultation with Alameda County authorizes longer hours:

| | |
|---|---|
| Mondays through Fridays: | 7 a.m. to 7 p.m. |
| Weekends: | 8 a.m. to 5 p.m. |

Haul trucks and other engine-powered equipment shall be equipped with adequate mufflers. Haul trucks shall be operated in accordance with posted speed limits. Truck engine exhaust brake use shall be limited to emergencies.

**Verification:** Prior to demolition, the project owner shall transmit to the CPM a statement acknowledging that the above restrictions will be observed throughout the construction of the project.

**NOISE COMPLAINT RESOLUTION FORM**

| Mariposa Energy Project<br>(09-AFC-3) |
|---|
| NOISE COMPLAINT LOG NUMBER _____<br><br>Complainant's name and address:<br><br>Phone number: _____ |
| Date complaint received: _____<br>Time complaint received: _____ |
| Nature of noise complaint: |
| Definition of problem after investigation by plant personnel:<br><br>Date complainant first contacted: _____ |
| Initial noise levels at 3 feet from noise source _____ dBA Date: _____<br><br>Initial noise levels at complainant's property: _____ dBA Date: _____<br><br>Final noise levels at 3 feet from noise source: _____ dBA Date: _____<br><br>Final noise levels at complainant's property: _____ dBA Date: _____ |
| Description of corrective measures taken:<br><br>Complainant's signature: _____ Date: _____ |
| Approximate installed cost of corrective measures: $ _____<br>Date installation completed: _____<br>Date first letter sent to complainant: _____ (copy attached)<br>Date final letter sent to complainant: _____ (copy attached) |
| This information is certified to be correct:<br><br>Plant Manager's Signature: _____ |

(Attach additional pages and supporting documentation, as required).

## E. VISUAL RESOURCES

Visual resources are the features of the landscape that contribute to the visual character or quality of the environment. CEQA requires an examination of a project's visual impacts in order to determine whether the project has the potential to cause substantial degradation to the existing visual character of the site and its surroundings, substantially affect a scenic vista or damage scenic resources, or create a new source of substantial light or glare affecting day or nighttime views in the area. (Cal. Code Regs., tit. 14 § 15382, Appen. G.) The evidence contained in the record is undisputed. (Exs. 1; 4; 6; 11; 38; 61; 301.)

Key Observation Points (KOPs) represent the most critical locations from which the project would be seen. These reflect, in particular, those key sensitive viewer groups most likely to be affected by the project. Assessments of project impact are determined from these KOPs.

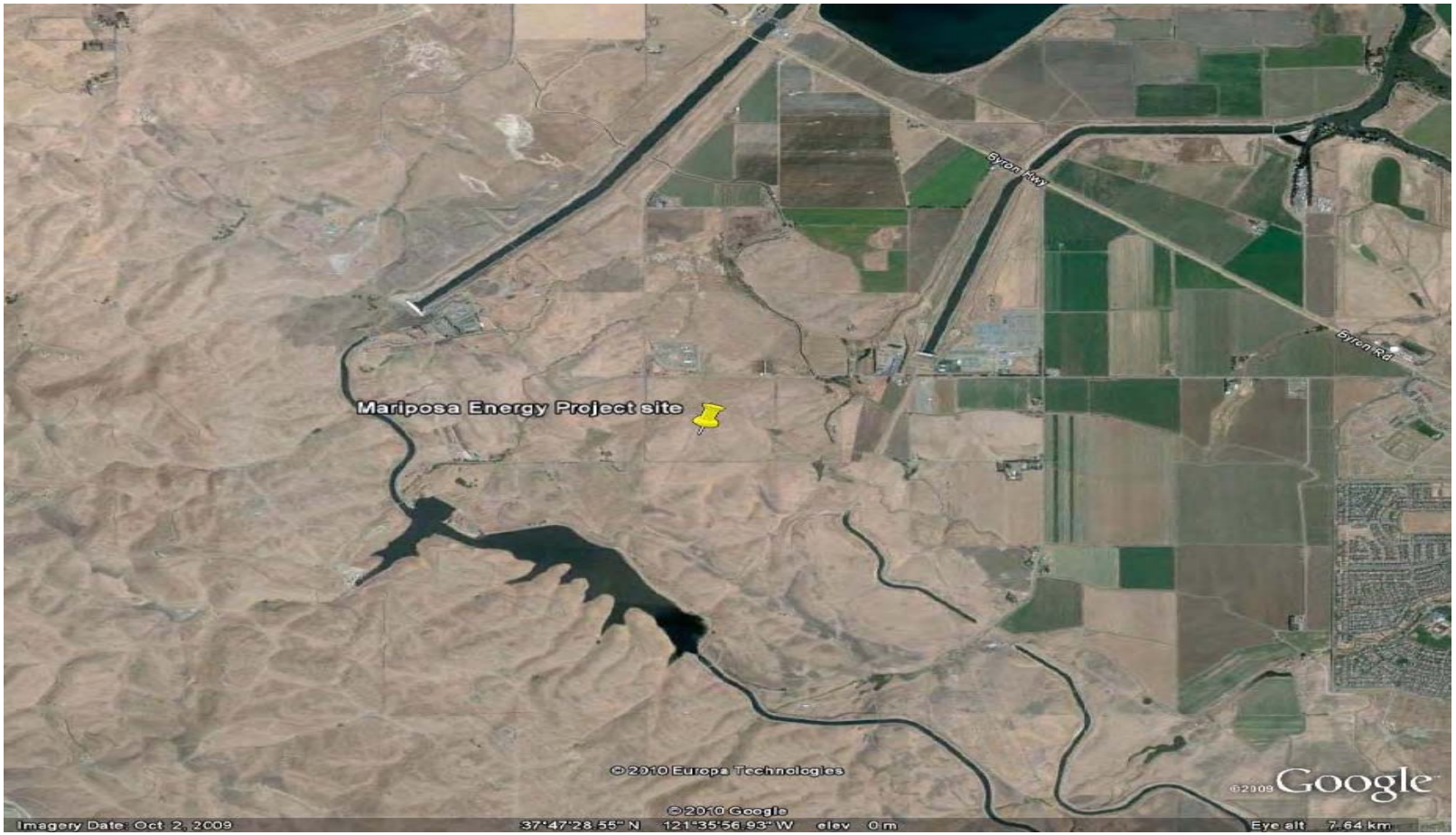
KOPs are rated for their level of visual sensitivity to impact. Visual simulations of the project as seen from KOPs, along with field observations, are used to evaluate the projected levels of project contrast, dominance, and view blockage. In addition, the project is evaluated for conformance with applicable LORS. Local public policy pertaining to visual resources is also taken into account in determining levels of viewer concern.

As needed, Conditions of Certification are imposed to mitigate potentially significant impacts, and to ensure LORS conformance.

### SUMMARY AND DISCUSSION OF THE EVIDENCE

The proposed Mariposa Energy Project (MEP) is located east of the Altamont Hills, approximately five miles south of the City of Byron in the unincorporated area of Alameda County, California. Lands surrounding the 158 acre project site where the MEP would be located are visually characterized as rangeland, hilly, and as having cattle ranching operations, wind energy infrastructure, and Central Valley Project and State Water Project large-utility scale water and power conveyance projects (aqueducts, forebays, pumping and power stations). See **Visual Resources Figure 1.** (Ex. 301, p. 4.12-1.)

**Visual Resources Figure 1**
**Aerial View of Mariposa Energy Project Site and Vicinity**



The MEP site consists of disturbed rangeland, a seasonal wetland area, and has a 6.5 megawatt (MW) cogeneration facility (Byron Power Cogen Plant). The hilly portion of the site is dotted with surface level concrete foundations and the remnants of wind turbines that have been removed from the site. Three high-voltage transmission power lines cross the property (a single 230 kilovolt (kV) and two 500 kV power lines). The proposed MEP facility footprint would occupy an approximate 10 acre portion of the 158-acre project site (Applicant's leasehold). (Ex. 301, pp. 4-12-1 - 4.12-2.)

The proposed project is a natural gas-fired, simple-cycle electric generating facility that would have four power blocks producing a total capacity of 200 megawatts (MWs). The project would use four GE LM6000 PC-Sprint Combustion Turbine Generators and an air-cooled condenser among its equipment. **Visual Resources Table 1** provides a listing of proposed project's major buildings and structures and their dimensions, colors, materials, and finishes. (Ex. 301, p. 4.12-2.)

**Visual Resources Table 1**
**MEP Dimensions, Colors, Materials and Finishes**
**Of Major Buildings and Structures**

| Structure | Height | Length | Width | Diameter | Color | Materials | Finish |
|---|---|---|---|---|---|---|---|
| Exhaust stack | 80 | *** | *** | 12 | Gray | metal | flat/untextured |
| Raw Water/fire water storage tank | 45 | *** | *** | 45 | light brown | metal | flat/untextured |
| Dematerialized water tank | 40 | *** | *** | 40 | light brown | metal | flat/untextured |
| Combustion turbine generator inlet air filter | 34 | 32 | 37 | *** | light brown | metal | flat/untextured |
| Wastewater storage tank | 25 | *** | *** | 25 | light brown | metal | flat/untextured |
| Fuel gas compressors enclosure | 25 | 52 | 98 | *** | gray | metal | flat/untextured |
| Warehouse and maintenance building | 23 | 52 | 98 | *** | gray | metal | flat/untextured |
| Power distribution center | 19 | 25 | 80 | *** | gray | metal | flat/untextured |
| Chiller air-cooled radiator | 17 | 61 | 75 | *** | gray | metal | flat/untextured |

| Structure | Height | Length | Width | Diameter | Color | Materials | Finish |
|---|---|---|---|---|---|---|---|
| Combustion turbine generator | 15 | 57 | 14 | *** | gray | metal | flat/untextured |
| Control and administration building | 14 | 28 | 78 | *** | gray | metal | flat/untextured |
| 230 kV steel monopoles* | 84-95 | *** | *** | --- | --- | steel | --- |

(Ex. 301, p. 4.12-2.)

1. Direct/Indirect Impacts and Mitigation

a. Construction Impacts

A proposed five acre construction worker parking and laydown area is to be located immediately east of the MEP site. The construction worker parking and laydown area would be screened from public view by construction activities on the project site. A proposed one acre water supply pipeline parking and laydown area is to be located at the Bryon Bethany Irrigation District headquarters facility on Bruns Road. A proposed 0.6 acre laydown area is to be created along the project's transmission line route adjacent to the PG&E's Kelso Substation and Bethany Compressor Station.

With the restoration of ground surfaces, the parking and laydown areas would not substantially degrade the existing visual character or quality of the site and its surroundings. Condition of Certification **VIS-2** provides for the restoration of ground surfaces affected by temporary construction activities and includes construction laydown area(s).

Construction activities have the potential to introduce light offsite to surrounding properties and up-lighting to the nighttime sky. If bright exterior lights were not hooded, and lights not directed onsite they could introduce significant light to the vicinity. The Applicant states in the AFC (Exhibit 1):

> Lighting that may be required to facilitate nighttime construction activities would be, to the extent feasible and consistent with worker safety codes, directed toward the center of the construction site and shielded to prevent light from straying offsite. Task-specific construction lighting would be used to the extent practical while complying with worker safety regulations.

We adopt Condition of Certification **VIS-3** to formalize appropriate construction lighting measures. Based on the evidence, the lighting introduced during construction activities to the nighttime view would be “less than significant” with the effective implementation of the applicant’s proposed mitigation measures. (Ex. 301, p. 4.12-19.)

We find that construction activities will not result in a long-term visual degradation. Overall, the project’s construction activities generate a less than significant visual effect.

b. Operation Impacts

Before considering individual KOPs, we consider generally whether the project will substantially affect a scenic vista or damage scenic resources, or create a new source of substantial light or glare affecting day or night time views in the area. A *scenic vista* is defined as a distant view of high pictorial quality perceived through and along a corridor or opening. No scenic vistas exist in the vicinity of the proposed project. (Ex. 301, p. 4.12-10.)

Scenic resources include a unique water feature (waterfall, transitional water, part of a stream or river, estuary); a unique physical geological terrain feature (rock masses, outcroppings, layers or spires); a tree having a unique visual/historical importance to a community (a tree linked to a famous event or person, an ancient old growth tree); historic building; or a designated federal scenic byway or state scenic highway corridor; or a scenic resource identified in a federal, state, or local government adopted land use related planning document, or cultural resources and historical preservation plan and survey. Based on the evidence, no scenic resources were found on the project site or the vicinity. The proposed project would not substantially damage a scenic resource. (Ex. 301, pp. 4.12-10 - 4.12-11.)

During operation, the project has the potential to introduce new night-time light to the property because of safety and security needs. Condition of Certification **VIS-3** minimizes to the greatest extent possible the impacts of operational lighting on the surrounding areas. Condition of Certification **VIS-1** ensures that power plant structures will not be a source of substantial glare that could adversely affect daytime views. With these two Conditions of Certification in place, the evidence establishes that MEP will not result in a substantial new source of light and glare that could adversely affect day-time and night-time views. (Ex. 301, pp. 4.12-20 - 4.12-21.)

The following KOPs were selected for this project:

- ***KOP 1 -*** View from Intersection of Bruns Road and Kelso Road
- ***KOP 2 -*** View from Westbound Lane of Kelso Road
- ***KOP 3 -*** California Aqueduct Bikeway along Bethany Reservoir State Recreation Area
- ***KOP 4 -*** Mountain House Road
- ***KOP 5 -*** Mountain House Community

The location of the KOPs in relation to the project site is shown on **Visual Resources Figure 2.** (Ex. 301, p. 4.12-11.)

**KOP 1 – Intersection of Bruns Road and Kelso Road**

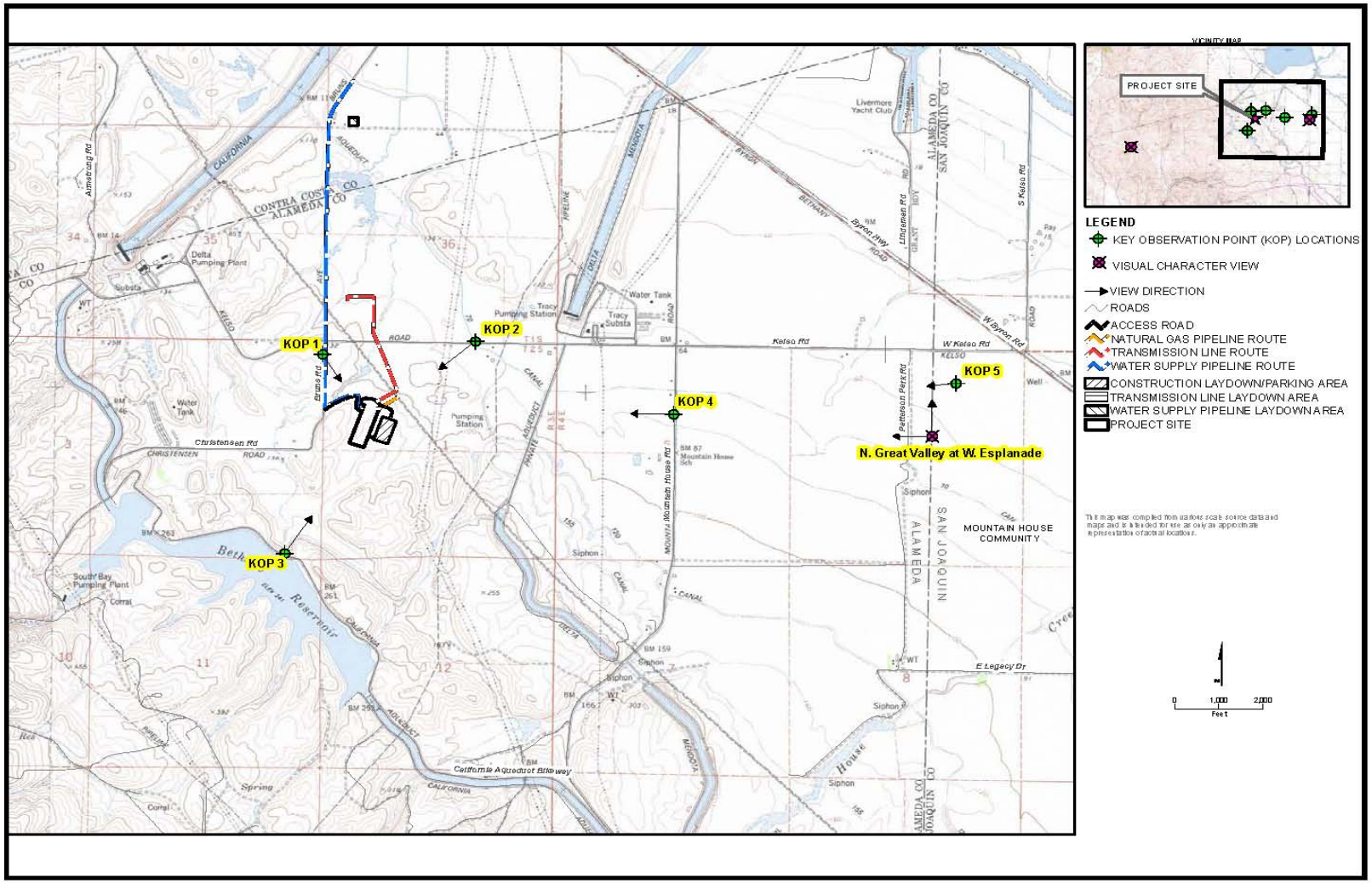
**Visual Resources Figure 3** represents the existing view towards the proposed project site from the southbound lane of Bruns Road, south of the intersection of Bruns Road and Kelso Road, north-northwest of the facility location. **Visual Resources Figure 4** presents a photographic simulation of the proposed project's publicly visible structures after completion of construction. (Ex. 301, p. 4.12-13.)

The visual quality of this view is considered low to moderate. The landscape in the KOP field of view is characterized as open space/rangeland. Visually discordant man-made alterations to the view include the Byron Power Cogeneration Plant and numerous transmission towers and lines. (Ex. 301, p. 4.12-13.)

Viewer concern is considered low to moderate. The view is seen mostly by motorists who are traveling to Bethany Reservoir, but also by local residents and workers who may traveling to one of the few homes or workplaces in the local area. (Ex. 301, p. 4.12-13.)

Visibility of the project site is high. The KOP is the closest, least obstructed view of the project site from the public road. The annual average daily traffic trips on Bruns Road are 286 vehicles which is considered low. The duration of view by motorists from this KOP of the project site is considered moderate in length. The view of the project site is fleeting. Vehicles traveling south of the project site are increasingly obscured by a hill along the east side of the road while moving out of the viewer's field of vision at the same time. (Ex. 301, p. 4.12-13.)

# Visual Resources Figure 2
# Key Observation Point Locations




VISUAL RESOURCES

CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION

SOURCE: AFC Figure 5.13-1

**Visual Resources Figure 3**

**KOP 1 - View from Intersection of Bruns Road and Kelso Road**

VISUAL RESOURCES

CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION

SOURCE: AFC Figure 5.13-2a

**Visual Resources Figure 4**

**KOP 1 - Simulation of Project's Publicly Visible Structures**

VISUAL RESOURCES

CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION

SOURCE: AFC Figure 5.13-2b

The number of residential viewers at KOP 1 is zero. One residence and two places of work are within the immediate area. (Ex. 301, p. 4.12-13.)

Simulated project views show the degree of overall contrast of project elements within the existing setting will be moderate. Project elements will appear to some degree visually recede into a hill. Project elements will not be silhouetted against the sky. (Ex. 301, p. 4.12-13.) Project elements would have a low to moderate dominance. They will be conspicuous, but subordinate in the total field of view.

Project elements would not block any recognized scenic vista, scenic resource, or aesthetically important feature from the KOP view. (Ex. 301, p. 4.12-13.)

**KOP 2 – Kelso Road**

**Visual Resources Figure 5** represents the existing view towards the proposed project site from the westbound lane of Kelso Road north-northeast of the facility location (the approximate initial point of exposure to the project). **Visual Resources Figure 6** presents a photographic simulation of the proposed project's publicly visible structures after completion of construction. (Ex. 301, p. 4.12-13.)

The visual quality of this view is considered low to moderate. The hilly terrain provides a natural feature of some interest. Visually discordant man-made alterations include multiple transmission lines, a water conveyance canal, and numerous wind turbines. These features combine to result in a view that lacks coherence. (Ex. 301, pp. 4.12-13 - 4.12-14.)

Viewer concern is considered low. The view is seen by motorists and a limited number of residents. Motorists include individuals who work at the agricultural, energy production or water management facilities in the area. Motorists also include recreationists who are traveling to Bethany Reservoir, and local residents who may be using Kelso Road to get to Bruns Road to access Byron Highway to the north. (Ex. 301, p. 4.12-14.)

Viewer concern from residences is considered to be high. However, the scattering of residences near the project site appear to be set among clusters of mature trees that would likely obstruct most views to the project site. Views from residences are considered extended duration. The number of residential viewers is considered low. (Ex. 301, p. 4.12-14.)

Visibility of the project is considered low. The Byron Power Cogen Plant is not visible from this KOP location. The proposed project site is to the south of the

cogen plant. The annual average daily traffic trips for Kelso Road are 663 vehicles which is considered low to moderate. The project site becomes increasingly visible as one travels westbound on Kelso Road before it passes out of the motorists' field of vision. The duration of view by motorists from this KOP of the project site is considered moderate in length. (Ex. 301, p. 4.12-14.)

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**Visual Resources Figure 5**
**KOP-2 - Existing View Toward the Proposed Project Site**

VISUAL RESOURCES

CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION
SOURCE: AFC Figure 5.13-3a

**Visual Resources Figure 6**
**Kop 2 - Simulation of the Proposed Project's Publicly Visible Structures**

VISUAL RESOURCES

CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION
SOURCE: AFC Figure 5.13-3b

Simulated project views show that the degree of overall contrast of project elements within the existing setting would be low. Project elements would appear partially behind hills. The neutral color treatment of the exterior materials of project elements would reduce any potential contrast with regard to color. Project elements would have a low dominance. Project elements would not block any recognized scenic vista, scenic resource, or aesthetically important feature from the KOP view. (Ex. 301, p. 4.12-14.)

**KOP 3 – California Aqueduct Bikeway along Bethany Reservoir State Recreation Area**

**Visual Resources Figure 7** represents the existing view towards the proposed project site from the California Aqueduct Bikeway, along the north side of Bethany Reservoir, approximately ¾ mile south of the proposed MEP site. **Visual Resources Figure 8** presents a photographic simulation of the proposed project's publicly visible structures after completion of construction. (Ex. 301, p. 4.12-14.)

The visual quality of this view is considered moderate. Hilly rangeland is in the view. Visually discordant man-made alterations include the Byron Power Cogen Plant and several transmission lines. Other nearby structures and facilities along Kelso Road are also visible (PG&E Kelso Substation). Clifton Court Forebay is visible in the background. (Ex. 301, p. 4.12-14.)

Viewer concern is considered moderate to high. Viewers in this area are predominantly recreationists, who are assumed to have high levels of viewer concern and expectation. There is no vehicular access along the bikeway, which means that viewers from the KOP are individuals who are biking or walking along the levee of the reservoir. Views toward the site from boats on the reservoir would be obstructed by the levee. (Ex. 301, p. 4.12-15.)

Viewers looking north of the KOP towards the project site have an expansive view that contains discordant visual elements. Views to the south and west of the KOP are in the Bethany Reservoir State Recreation Area. Viewers are more likely to have a greater interest in activities on or along the reservoir. The project site is partially visible from the reservoir's parking lot. Most activity in the parking lot is focused on activities using the reservoir. (Ex. 301, p. 4.12-15.)

Visibility of the project site from the KOP is considered moderate. Sloping hilly terrain is in the view. The project site is at a lower elevation then the KOP and between hills. (Ex. 301, p. 4.12-15.)

**Visual Resources Figure 7**
**KOP 3 - Existing View Towards The Proposed Project Site From The California Aqueduct Bikeway**

VISUAL RESOURCES

CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION
SOURCE: AFC Figure 5.13-4a

**Visual Resources Figure 8**
**Kop 3 - Simulation Of The Proposed Project's Publicly Visible Structures**

VISUAL RESOURCES

CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION
SOURCE: AFC Figure 5.13-4b

The number of viewers is low along the bikeway. The duration of view from this KOP of the project site is considered high, since viewers looking toward the project site from this area will be either pedestrians or bike riders. Duration of views for pedestrians would exceed two minutes. However, the duration of view for bicyclists would likely be shorter than two minutes but exceed 10 seconds and is considered low to moderate. (Ex. 301, p. 4.12-15.)

Simulated project views show the degree of overall contrast of project elements within the existing setting will be low to moderate. Project elements will be conspicuous, but subordinate in the total field of view. The neutral color treatment of the exterior materials of project elements would reduce any potential contrast with regard to color. Project elements would have a low dominance. Project elements would not block any recognized scenic vista, scenic resource, or aesthetically important feature from the KOP view. (Ex. 301, p. 4.12-15.)

**KOP 4 – Mountain House Road**

**Visual Resources Figure 9** represents the existing view towards the proposed project site from the southbound lane of Mountain House Road, approximately 1,000 feet north of Mountain House School, approximately 1.3 miles east of the proposed facility location. **Visual Resources Figure 10** presents a photographic simulation of the proposed project's publicly visible structures after completion of construction. (Ex. 301, p. 4.12-15.)

This viewpoint was selected to approximate the view toward the project site from Mountain House School. Views to the west from the school are completely obstructed by structures and mature trees. (Ex. 301, p. 4.12-15.)

The visual quality of this view is considered moderate. Fenced rangeland and a relatively tall transmission towers are in view. Wind turbines throughout the hills are visible. Several wind turbines visibly encroach on the skyline. Both Mount Diablo and Brushy Peak are visible from this location. (Ex. 301, p. 4.12-16.)

Viewer concern is considered low. Primary viewers at this KOP are motorist using Mountain House Road. Motorists include those traveling to and from Mountain House School, residences and workplaces in the area, Bethany Reservoir, and using Mountain House Road as a connecting route between Byron Highway and Interstate 580. (Ex. 301, p. 4.12-16.)

**Visual Resources Figure 9**
**Kop 4 - Southbound Lane of Mountain House Road**

VISUAL RESOURCES

CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION
SOURCE: AFC Figure 5.13-5a

**Visual Resources Figure 10**
**Kop 4 - Simulation of The Proposed Project's Publicly Visible Structures**

VISUAL RESOURCES

CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION
SOURCE: AFC Figure 5.13-5b

Visibility of the project site is low. The roof of the Byron Power Cogen Plant is visible in the center of the view. The proposed project is south of the cogen plant. The view of the project site from the KOP would be at a nearly 90-degree angle to drivers traveling north or south on Mountain House Road. The annual average daily traffic trips on Mountain House Road is 3,366 which is considered moderate. The duration of view from this KOP of the project site is considered low. (Ex. 301, p. 4.12-16.)

Simulated project views show the degree of overall contrast of project elements within the existing setting to be low. The project would be visually absorbed into the existing setting with other structures and features in front of the hills. The neutral color and treatment of the exterior materials of project elements would reduce any potential contrast with regard to color. Project elements would have a low dominance. Project elements would not block any recognized scenic vista, scenic resource, or aesthetically important feature from the KOP view. (Ex. 301, p. 4.12-16.)

**KOP 5 – Mountain House Community**

**Visual Resources Figure 11** represents the existing view towards the proposed project site from the southbound lane of Great Valley Parkway, approximately 1,000 feet south of Kelso Road, approximately 2.4 miles east of the proposed MEP site. **Visual Resources Figure 12** presents a photographic simulation of the proposed project's publicly visible structures after completion of construction. (Ex. 301, p. 4.12-16.)

This viewpoint was selected to approximate the view toward the project site from the Mountain House community. This KOP is located just east of a portion of Mountain House that is planned for future neighborhood commercial development. At the present time, the KOP view toward the project site is largely unobstructed across a mostly agricultural/open space area. (Ex. 301, p. 4.12-16.)

The visual quality of this view is considered low to moderate. Buildings and structures related to agriculture, natural gas and electric infrastructure are visible. Transmission towers are visible across the horizon in front of the hills, and in some locations encroach on the skyline. Wind turbines are somewhat discernable within the hills. (Ex. 301, p. 4.12-16.)

Viewer concern is considered low. At present, the majority of viewers KOP are assumed to be residents traveling to the community of Mountain House. This view would be seen mainly by people traveling southbound on Great Valley Parkway from Byron Highway or West Kelso Road to the western entrance to

Mountain House, or to the intersection of Great Valley Parkway and West Grant Line Road further south. Great Valley Parkway is the main thoroughfare along the western edge of Mountain House. (Ex. 301, pp. 4.12-16 - 4.12-17.)

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**Visual Resources Figure 11**
**KOP 5 - Simulation of The Project Site From The Southbound Lane Of Great Valley Parkway**

VISUAL RESOURCES

CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION
SOURCE: AFC Figure 5.13-6a

**Visual Resources Figure 12**
**Kop 5 - Simulation of the Proposed Project's Publicly Visible Structures**

VISUAL RESOURCES

CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION
SOURCE: AFC Figure 5.13-6b

Visibility of the project site from KOP 5 is low. The Byron Power Cogen Plant is not visible from the KOP. The project site is in the center-left portion of the view. The view of the project site from the KOP is at a nearly 90-degree angle to drivers traveling on the southbound or northbound lanes of Great Valley Parkway. The view of the project site along Great Valley Parkway is obstructed partially or completely by roadside landscaping and road signage. Annual average daily traffic trips for Great Valley Parkway (northern portion) were not included in the traffic and transportation analysis of the AFC (Exhibit 1). (Ex. 301, p. 4.12-17.)

Duration of view from this KOP of the project site is considered low. Vehicles traveling southbound on Great Valley Parkway would face west toward the project site for approximately 0.3 miles before turning south offering at the least a brief view of the project site. (Ex. 301, p. 4.12-17.)

Simulated project views show the degree of overall contrast of project elements within the existing setting to be low. The project would appear at the base of the foothills; visually absorbed into the base of the hills. The neutral color of the facility would allow it to blend in with the hills. Project elements would have a low dominance. Project elements would not block any recognized scenic vista, scenic resource, or aesthetically important feature from the KOP view. (Ex. 301, p. 4.12-17.)

**Visual Resources Table 2** contains a summary of the potential visual impacts at each of the five KOPs.

**VISUAL RESOURCES Table 2 - Key Observation Point Evaluation Table**

| KOP No. | VISUAL SENSITIVITY (Existing Condition) | | | | | | |
|---|---|---|---|---|---|---|---|
| | Visual Quality | Viewer Concern | Viewer Exposure | | | | Overall Visual Sensitivity |
| | | | Visibility | No. of Viewers | Duration of View | Overall Viewer Exposure | |
| **1** | Low to Moderate | Low to Moderate | High | Low | Moderate | Low to Moderate | Low to Moderate |
| **2** | Low to Moderate | Low | Low | Low to Moderate | Moderate | Low to Moderate | Low to Moderate |
| **3** | Moderate | Moderate to High | Moderate | Low | High | Moderate to High | Moderate |
| **4** | Moderate | Low | Low | Moderate | Low | Low | Low to Moderate |
| **5** | Low to Moderate | Low | Low | Low to Moderate | Low | Low | Low |

| KOP No. | VISUAL CHANGE (Proposed Condition) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Project Effect | | | | | | | Overall Visual Change |
| | Contrast | | | | | Dominance | View Blockage | |
| | Form | Line | Color | Texture | Overall Contrast | | | |
| **1** | High | Moderate to High | Low | Moderate | Moderate | Low to Moderate | Low | Low to Moderate |
| **2** | Low | Low | Low | Low | Low | Low | Low | Low |
| **3** | Low to Moderate | Low to Moderate | Low | Moderate | Low to Moderate | Low | Low | Low |
| **4** | Low | Low | Low | Low | Low | Low | Low | Low |
| **5** | Low | Low | Low | Low | Low | Low | Low | Low |

| KOP No. | KOP VISUAL IMPACT SIGNIFICANCE DETERMINATION | | | |
|---|---|---|---|---|
| | **Overall Visual Sensitivity** | **Overall Visual Change** | **Visual Impact Significance** | **Mitigation** |
| **1** | Low to Moderate | Low to Moderate | Less than Significant | None |
| **2** | Low to Moderate | Low | Not Significant | None |
| **3** | Moderate | Low | Less than Significant | None |
| **4** | Low to Moderate | Low | Not Significant | None |
| **5** | Low | Low | Not Significant | None |

(Ex. 301, pp. 4.12-17 - 4.12-18.)

2. Publicly Visible Vapor Plumes

The MEP is to operate limited hours (approximately 4,000 hours per year) mainly during summer when temperatures and electric load demand is high and not on cold, humid days when the potential for the formation of publicly visible water vapor plumes is most likely to occur. (Ex. 301, p. 4.12-20.)

The proposed project uses a chiller/air cooled radiator system (32-cell radiator) for cooling purposes. The use of this system would result in little to no formation of publicly visible water vapor plumes emitted from the project's cooling system.

The extremely high exhaust temperature (approximately 840 degrees) precludes the formation of publicly visible water vapor plumes above the project's exhaust stacks during operation. (Ex. 301, p. 4.12-20.)

Based on the evidence, the introduction of publicly visible water vapor plumes by the MEP would not substantially degrade the existing visual character or quality of the site and its surroundings. (Ex. 301, p. 4.12-20.)

3. Project Linears

The project is proposed to interconnect to the PG&E Kelso Substation by a 0.7 mile, 230-kV transmission line that is to run north of the project site crossing Kelso Road and into the Kelso substation. The transmission route would be supported by six new steel monopoles ranging from 84 feet to 95 feet in height. A specific color or surface treatment for the monopole(s) is not identified in the AFC (Ex. 1). The Applicant has stated that exteriors of all major project equipment will be treated with a neutral, earth tone finish, in colors ranging from gray to light brown. If new transmission poles are to be of a neutral or earth tone color, and/or if the steel monopoles are made of a non-reflective and non-refractive material, this project feature would not substantially degrade the existing visual character or quality the site and its surroundings. Condition of Certification **VIS-1** would ensure transmission line poles are neutral or earth tone in color. (Ex. 301, p. 4.12-19.)

A natural gas pipeline is to serve the project site. The pipeline is to be approximately 580 feet long. The pipe is to have a four-inch diameter. The pipeline is to run northeast from the project site to interconnect with a PG&E high pressure natural gas pipeline line along Kelso Road. The project's pipeline will be buried and not in view. (Ex. 301, p. 4.12-19.)

A service water pipeline is to serve the project site. The pipeline is to be approximately 1.8 miles long. The pipe is to have a six-inch diameter. The pipeline route spans from Byron Bethany Irrigation District canal 45 to the project site. The pipeline would be within the public right of way of Bruns Road under the paved section of the road or along the east side of the road. The pipeline would be buried and not in view. (Ex. 301, p. 4.12-19.)

Service water pipeline associated facilities include a concrete turnout structure on the canal 45 bank and a small pump station (approximately 250 square feet) sheltering a pre-cast concrete manhole wet well, redundant vertical turbine pumps, pipe manifold and valving, electrical cabinet, and instrumentation. Proposed

Condition of Certification **VIS-1** requires surface treatment on project buildings and structures. (Ex. 301, p. 4.12-19.)

## 4 Cumulative Impacts and Mitigation

Under CEQA Guidelines, "a cumulative impact consists of an impact which is created as a result of the combination of the project evaluated in the EIR [environmental impact report] together with other projects causing related impacts" [14 Cal Code Regs §15130(a)(1)]. Cumulative impacts of the project must be discussed if the incremental effect of a project, combined with the effects of other projects is 'cumulatively considerable' [14 Cal Code Regs §15130(a)]. Such incremental effects are to be 'viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects'" [14 Cal Code Regs §15164(b) (1)]. Together, these projects comprise the cumulative scenario which forms the basis of the cumulative impact analysis.

The geographic scope for the purposes of the visual cumulative analysis includes the unincorporated area of the County of Alameda shown in **Visual Resources Figure 1** - Aerial View of Mariposa Energy Project Site and Vicinity. Existing projects within this geographic include:

- Byron Power Cogeneration Plant, a 6 MW co-generation/brine wastewater distillation facility originally permitted by the County of Alameda in 1989.
- PG&E Bethany Compressor Station constructed circa 1910.
- PG&E Kelso Substation constructed circa 1910.
- PG&E Kelso-Tesla 230 kV transmission line.
- PG&E and PacifiCorp Round Mountain-Malin 500 kV transmission lines (two separate power lines).
- A 60 kV overhead transmission/utility line.
- Byron Bethany Irrigation District main canal no. 9 constructed 1919.
- Western Area Power Administration Tracy Substation.
- California Department of Water Resources, Harvey O. Banks Delta Pumping Plant, constructed 1968, is the pumping station that marks the beginning of the California Aqueduct. The pumping plant takes water from Clifton Court Forebay and lifts it 244 feet into Bethany Reservoir.
- California Aqueduct, a 40 foot wide concrete-lined channel that runs 444 miles.
- Bethany Reservoir, completed 1967, serves as a forebay for the South Bay Pumping Plant and a conveyance facility for the California Aqueduct. It has a six

- U.S. Bureau of Reclamation Tracy Pumping Plant, completed 1951, lifts water from the inlet channel 197 feet into the Delta-Mendota Canal using six pumps, each powered by a 22,500 horsepower motor sheltered within a concrete block building.
- Delta-Mendota Canal constructed between 1946 and 1952, the intake channel takes water from the Sacramento River to the Tracy Pumping Plant where it is lifted into an 84 foot wide concrete-lined channel that runs 116 miles.
- Altamont Pass Wind Resource Area, a planning area located in eastern Alameda and Contra Costa Counties (approximately 185,000 acres) that contains approximately 5,000 wind turbines. The northern approximate 1/3 of the wind resource area is 1.5 miles west of the proposed facility site.
- Mountain House, at ultimate buildout in 2030 is estimated to have 15,000 residences and 45,000 people. Mountain House is approximately 2.5 miles east of the MEP site. Construction began in 2001. (Ex. 301, pp. 4.12-22 - 4.12-23.)

Based on the evidence, there two projects within a five mile radius of the MEP site considered reasonably foreseeable including:

- Green Volts Utility Scale Solar Field, the closest of the three foreseeable projects, is a two MW utility-scale solar field on a 20.5 acre property located on the south side of Kelso Road, across from the Western Area Power Administration Tracy Substation. The project would be approximately 0.7 mile from the MEP site. The project is currently being reviewed by the Alameda County Community Development Agency.
- East Altamont Energy Center, a 1,100 MW power plant licensed by the California Energy Commission in August 20, 2003, if built would occupy a 55 acre portion of a 174 acre property bordered by Byron Bethany Road (Byron Highway) to the north, Kelso Road to the south, and Mountain House Road to the west. The East Altamont Energy Center would be approximately 1.5 miles northeast of the Mariposa project site. (Ex. 301, p. 4.12-23.)

Based on the evidentiary record, we find that the incremental effect of the MEP, combined with the effects of the other projects within the geographic scope identified in the cumulative analysis would have a less than significant cumulative impact on visual resources. (Ex. 301, pp. 4.12-23 - 4.12-25.)

5. LORS Compliance

The County of Alameda has adopted a general plan which requires projects to avoid adverse visual impacts. The record establishes and, accordingly, we find that

implementation of Conditions of Certification which incorporate various visual impact mitigation measures will result in the MEP being in compliance with all state, federal, and local LORS.

## PUBLIC COMMENT

We received no public comment regarding Visual Resources.

## FINDINGS OF FACT

Based on the evidence of record, we find and conclude as follows:

1. Construction will occur over approximately 14-months.
2. The newly-installed transmission lines will be of a neutral or earth tone color and would not substantially degrade the existing visual character or quality the site and its surroundings.
3. Construction activities will not result in a long-term visual degradation.
4. The project's potential impacts on visual resources were analyzed from five defined key observation points (KOP) at different locations surrounding the project site
5. No scenic vistas exist in the **KOP 1**, **KOP 2**, **KOP 3, KOP 4 or KOP 5** viewsheds.
6. MEP will not result in a substantial new source of light and glare that could adversely affect day-time and night- time views.
7. MEP will not result in a significant visual impact from any of the KOPs.
8. The MEP chiller/air cooled radiator system (32-cell radiator) will result in little to no formation of publicly visible water vapor plumes emitted from the project's cooling system.
9. The project owner will treat project surfaces with colors that minimize visual intrusion and contrast.
10. No long-term visual impacts will occur as a result of the construction of the pipeline and transmission line.
11. The incremental effect of the MEP, combined with the effects of the other projects within the geographic scope identified in the cumulative analysis would have a less than significant cumulative impact on visual resources.

## CONCLUSIONS OF LAW

1. Implementation of the following Conditions of Certification will result in the project causing no significant direct, indirect, or cumulative impacts to visual resources.
2. The project will comply with all applicable laws, ordinances, regulations and standards regarding project design, architecture, landscaping, signage, and other requirements related to Visual Resources.

## CONDITIONS OF CERTIFICATION

### *Surface Treatment of Project Structures and Buildings*

**VIS-1** The Applicant shall color and finish the surfaces of all project structures and buildings visible to the public to ensure that they: (1) minimize visual intrusion and contrast by blending with the landscape; and, (2) minimize glare. The transmission line conductors and insulators shall be non-specular and non-reflective.

The Applicant shall submit a surface treatment plan to the Compliance Project Manager (CPM) for approval. The surface treatment plan shall include:

A. A description of the overall rationale for the proposed surface treatment, including the selection of the proposed color(s) and finishes;

B. A list of each major project structure and building (e.g., building, tank, and pipe; transmission line towers and/or poles; and fencing), specifying the color(s) and finish proposed for each. Colors must be identified by vendor, name, and number; or according to a universal designation system;

C. One set of color brochures or color chips showing each proposed color and finish;

D. A specific schedule for completing the treatment; and

E. A procedure to ensure proper treatment maintenance for the life of the project.

The Applicant shall not request vendor surface treatment of any buildings or structures during their manufacture, or perform final field treatment on any buildings or structures, until the Applicant has received treatment plan approval by the CPM.

The Applicant shall notify the CPM that surface treatment of all listed structures and buildings has been completed and is ready for inspection;

and shall submit one set of electronic color photographs from KOPs 1 and 3 showing the “as built” surface treated structures and buildings.

**Verification:** At least 45 days prior to applying vendor color(s) and finish(es) for structures or buildings to be surface treated during manufacture, the Applicant shall submit the proposed treatment plan to the CPM.

If the CPM determines that the plan requires revision, the Applicant shall provide to the CPM a plan with the specified revision(s) for review and approval by the CPM before any treatment is applied. Any modifications to the treatment plan must be submitted to the CPM for approval.

Within ninety (90) days after the start of commercial operation, the Applicant shall notify the CPM that surface treatment of all listed structures and buildings has been completed and is ready for inspection; and shall submit one set of electronic color photographs from KOPs 1 and 3 showing the “as built” surface treated structures and buildings.

The Applicant shall provide a status report regarding surface treatment maintenance in the Annual Compliance Report. The report shall specify a): the condition of the surfaces of all structures and buildings at the end of the reporting year; b) major maintenance activities that occurred during the reporting year; and c) the schedule of major maintenance activities for the next year.

***Surface Restoration***

**VIS-2** The Applicant shall remove all evidence of temporary construction activities, and shall restore the ground surface to the original condition or better condition, including the replacement of any vegetation during construction where project development does not preclude it. The Applicant shall submit to the CPM for approval a surface restoration plan, the proper implementation of which will satisfy these requirements.

**Verification:** At least 60 days prior to the start of commercial operation, the Applicant shall submit the surface restoration plan to the CPM for approval.

If the CPM notifies the Applicant that any revisions of the surface restoration plan are needed, within 30 days of receiving that notification the Applicant shall submit to the CPM a plan with the specified revisions.

The Applicant shall complete surface restoration within 60 days after the start of commercial operation. The Applicant shall notify the CPM within seven days after completion of surface restoration that the restoration is ready for inspection.

***Construction Activity Lighting***

**VIS-3** To the extent feasible given safety and security concerns, the Applicant shall ensure that lighting on the construction site and the construction laydown area minimizes potential night lighting impacts, as follows:

A. All lighting shall be of minimum necessary brightness;

B. All fixed position lighting shall be shielded/hooded to direct light downward, and toward the area to be illuminated preventing direct illumination of the night sky and direct light trespass (direct light extending outside the boundaries of the project site, the laydown area, or the site of construction of ancillary facilities, including any security related boundaries);

C. Lighting shall be kept off when not in use; and

D. If the Applicant receives a complaint about construction lighting, the Applicant shall notify the CPM and shall use the complaint resolution form included in the General Conditions section of the Compliance Plan to record each lighting complaint and to document the resolution of that complaint. The Applicant shall provide a copy of each complaint form to the CPM.

**Verification:** Within seven days after the first use of construction lighting, the Applicant shall notify the CPM that the lighting is ready for inspection.

If the CPM notifies the Applicant that modifications to the lighting are needed to minimize impacts, within 15 days of receiving that notification the Applicant shall implement the necessary modifications and notify the CPM that the modifications have been completed.

Within 48 hours of receiving a lighting complaint, the Applicant shall provide to the CPM; a) a report of the complaint, b) a proposal to resolve the complaint, and c) a schedule for implementation of the proposal. The Applicant shall notify the CPM within 48 hours after completing implementation of the proposal. The Applicant shall provide a copy of the completed complaint resolution form to the CPM in the next Monthly Compliance Report.

***Permanent Exterior Lighting***

**VIS-4** To the extent feasible, consistent with safety and security considerations and commercial availability, the Applicant shall design and install all permanent exterior lighting such that:

A. light fixtures do not cause obtrusive spill light beyond the project site;

B. lighting does not cause excessive reflected glare;

C. direct lighting does not illuminate the nighttime sky; and

D. illumination of the project and its immediate vicinity is minimized.

In addition, the Applicant shall submit to the CPM for approval a lighting management plan that includes the following:

E. lighting that incorporates “International Dark Sky Association” approved commercially available fixtures;

F. lighting shall be directed downward or toward the area to be illuminated (hooded/shielded);

G. lighting shall be the minimum necessary brightness;

H. lights in high illumination areas not occupied on a continuous basis (such as maintenance platforms) shall have (in addition to hoods) switches, timer switches, or motion detectors so that the lights operate only when the area is occupied; and,

I. a process for addressing and mitigating lighting related complaints.

The Applicant shall provide to the CPM a lighting management plan that includes at a minimum the following:

- A depiction on a site plan indicating the location of each proposed and any current outdoor lighting fixture.
- Type and number of luminaire equipment (fixtures), including the "cut off characteristics," indicating manufacturer and model number(s).
- Lighting manufacturer-supplied specifications ("cut sheets") that include photographs of the fixtures, indicating the certified "cut off characteristics" of the fixture.
- Lamp source type (bulb type, i.e. high pressure sodium), lumen output, and wattage.
- Mounting height with distance noted to the nearest property line for each luminaire.
- Types of timing devices used to control the hours set for illumination, as well as the proposed hours when each fixture will be operated.
- Total lumens for each fixture, and total square footage of areas to be illuminated.
- Footcandle Distribution, plotting the light levels in footcandles on the ground, at the designated mounting heights for the proposed fixtures. Maximum illuminance levels should be expressed in footcandle measurements on a grid of the site showing footcandle readings in every ten-foot square. The grid shall include light contributions from all sources (i.e. pole mounted, wall mounted, sign, and street lights.). Show footcandle renderings five feet beyond the property lines.

**Verification:** At least 60 days prior to ordering any permanent exterior lighting, the Applicant shall submit to the CPM for approval a lighting management plan. If the CPM determines that the lighting management plan requires revision, the Applicant shall provide to the CPM a plan with the specified revision(s) for approval.

The Applicant shall not order any exterior lighting until receiving CPM approval of the lighting management plan.

Prior to commercial operation, the Applicant shall notify the CPM that the lighting has been installed and is ready for inspection. If after inspection the CPM notifies the Applicant that modifications to the lighting are needed, within 30 days of receiving notification the Applicant shall implement the modifications and notify the CPM that the modifications have been completed and are ready for inspection.

Within 10 days of receiving a project-related lighting complaint, the Applicant shall provide the CPM with a complaint resolution form report as specified in the Compliance General Conditions including a proposal to resolve the complaint, and a schedule for implementation. The Applicant shall notify the CPM within 10 days after completing implementation of the proposal. A copy of the complaint resolution form report shall be submitted to the CPM within 30 days of complaint resolution.

***Publicly Visible Project-Related Signage***

**VIS-5** Any publicly visible project-related signage shall be the minimal signage visible to the public, and shall a) have unobtrusive colors and finishes that prevent excessive glare; and b) be consistent with the applicable design and development standards found in Title 17 – Zoning section 17.060.080 *Signs* of the Alameda County Code of Ordinances. The design of any signs required by safety regulations shall conform to the criteria established by those regulations.

The Applicant shall submit a sign plan for publicly visible signs for the project to the Director of the Alameda County Community Development Agency Planning Department for comment and to the CPM for approval. The Applicant shall not implement the plan until the Applicant receives approval of the submittal from the CPM.

**Verification:** At least 30 days prior to installing publicly visible signs, the Applicant shall submit a sign plan for the project to the Director of the Alameda County Community Development Agency Planning Department for comment and to the CPM for approval. The Applicant shall provide a copy of the Director of the Alameda County Community Development Agency Planning Department comments to the CPM.

If the CPM determines that the sign plan requires revision, the Applicant shall provide to the CPM a plan with the specified revision(s) for approval by the CPM before any signage visible to the public is installed.

The Applicant shall inform the CPM that the publicly visible signs have been installed and provide the CPM with electronic color photographs of the installed signage.

***Landscaping***

**VIS-6** The Applicant shall provide a comprehensive landscaping and irrigation plan along the northern boundary of the 10 acre facility site and the vehicle access exclusively serving the facility site in accordance with the requirements of Policy 114 of the East County Area Plan. Landscaping shall be installed or bonded prior to the start of commercial operation. In no event shall landscaping be installed any later than 6 months after the start of commercial operation.

The landscaping and irrigation plan shall include a list of proposed plant or tree species prepared by a qualified professional landscape architect familiar with local growing conditions and the suitability of the species for project-site conditions.

The Applicant shall submit to the Director of the Alameda County Community Development Agency Planning Department for comment a comprehensive landscaping and irrigation plan. The Applicant shall provide a copy of the Director of the Alameda County Community Development Agency Planning Department's written comments on the landscaping and irrigation plan.

The Applicant shall not implement the landscaping and irrigation plan until the Applicant receives approval from the CPM. Planting must be completed or bonded by the start of commercial operation, and the planting must occur during the optimal planting season, but not later than 6 months after the start of commercial operation.

The Applicant shall replace dead or dying plantings (plants and trees) listed or shown in the approved landscaping and irrigation plan for the project, annually at the least (e.g., start of Spring), for the life of the project.

**Verification:** Prior to commercial operation and at least 60 days prior to installing the landscaping, the Applicant shall provide a copy of the landscaping and irrigation plan to the Director of the Alameda County Community Development Agency Planning Department for review and to the CPM for approval.

The Applicant shall provide to the CPM a copy of the transmittal letter submitted to the Director of the Alameda County Community Development Agency Planning Department requesting their review of the submitted landscaping and irrigation plan. The landscaping plan must be reviewed and approved by the biology staff to identify any issues related to sensitive species.

The Applicant shall notify the CPM within seven days after completing installation of the landscaping and irrigation that the landscaping and irrigation is ready for inspection.

The Applicant shall replace dead or dying plantings (plants and trees) listed or shown in the approved landscaping and irrigation plan for the project, annually at the least (e.g., start of spring), for the life of the project. The landscaping plan must be reviewed and approved by the biology staff to identify any issues related to sensitive species.

Appendix A: *Laws, Ordinances, Regulations, and Standards*

Appendix B: *Exhibit List*

Appendix C: *Proof of Service List*

# *APPENDICES*

## Air Quality

| Applicable LORS | Description |
|---|---|
| **Federal** | **U.S. Environmental Protection Agency** |
| Federal Clean Air Act Amendments of 1990 (CAAA), Title 40 Code of Federal Regulations (CFR) Part 50 | National Ambient Air Quality Standards (NAAQS). |
| Clean Air Act (CAA) § 160-169A and implementing regulations, Title 42 United State Code (USC) §7470-7491, 40 CFR 51 & 52 (Prevention of Significant Deterioration Program) | Requires prevention of significant deterioration (PSD) review and facility permitting for construction of new or modified major stationary sources of pollutants that occur at ambient concentrations attaining the NAAQS. A PSD permit would not be required for the proposed MEP project because it would be neither a new major source nor a major modification to an existing major source. The BAAQMD implements the PSD program for U.S. EPA within the San Francisco Bay Area. |
| CAA §171-193, 42 USC §7501 et seq., 40 CFR 51 Appendix S (New Source Review) | Requires new source review (NSR) facility permitting for construction or modification of specified stationary sources. Federal NSR applies to sources of designated nonattainment pollutants. This requirement is addressed through compliance with BAAQMD Regulation 2, Rule 1. |
| 40 CFR 60, Subpart KKKK | New Source Performance Standard (NSPS) for Stationary Combustion Turbines. Requires each proposed simple-cycle combustion turbine to achieve 25 parts per million (ppm) NOx or 1.2 pounds NOx per megawatt-hour (lb/MWh), achieve fuel sulfur standards, and provide reporting. |
| 40 CFR 60, Subpart IIII | New Source Performance Standard (NSPS) for Stationary Compression Ignition Internal Combustion Engines. Requires the diesel fire water pump engine to achieve U.S. EPA Tier 3 emission standards. |
| CAA §401 (Title IV), 42 USC §7651, 40 CFR 72 (Acid Rain Program) | Requires reductions in NOx and $SO_2$ emissions for electrical generating units greater than 25 MW, implemented through the Federal Operating Permits (Title V) program. This program is within the jurisdiction of the BAAQMD with U.S. EPA oversight [BAAQMD Regulation 2, Rule 7]. |
| CAA §501 (Title V), 42 USC §7661, 40 CFR 70 (Federal Operating Permits Program) | Establishes comprehensive federal operating permit program for major stationary sources. Title V permit application required within one year following start of operation. This program is within the jurisdiction of the BAAQMD with U.S. EPA oversight [BAAQMD Regulation 2, Rule 6] |

| Applicable LORS | Description |
|---|---|
| **State** | **California Air Resources Board and Energy Commission** |
| California Health & Safety Code (H&SC) §41700 (Nuisance Regulation) | Prohibits discharge of such quantities of air contaminants that cause injury, detriment, nuisance, or annoyance. |
| H&SC §40910-40930 | Permitting of source needs to be consistent with approved clean air plan. The BAAQMD New Source Review program is consistent with regional air quality management plans. |
| California Public Resources Code §25523(a); 20 CCR §1752, 2300-2309 (Memorandum of Understanding) | Requires that Energy Commission decision on AFC include requirements to assure protection of environmental quality consistent with Air Resources Board (ARB) programs. |
| California Code of Regulations for Off-Road Diesel-Fueled Fleets (13 CCR §2449, et seq.) | General Requirements for In-Use Off-Road Diesel-Fueled Fleets – Requires owners and operators of in-use (existing) off-road diesel equipment and vehicles to report fleet characteristics to ARB and meet fleet emissions targets for diesel particulate matter and NOx. |
| Airborne Toxic Control Measure for Idling (ATCM, 13 CCR §2485) | ATCM to Limit Diesel-Fueled Commercial Motor Vehicle Idling – Generally prohibits idling longer than five minutes for diesel-fueled commercial motor vehicles. |
| Airborne Toxic Control Measure for Stationary Compression Ignition Engines (ATCM, 17 CCR §93115.6) | ATCM for Stationary Compression Ignition (CI) Engines. Establishes operating requirements and emission standards for emergency standby diesel-fueled CI engines [17 CCR 93115.6]. The emission standard is 0.15 g/bhp-hr diesel particulate matter for emergency engines used fewer than 50 hours per year for maintenance and engine testing. |
| **Local** | **Bay Area Air Quality Management District (BAAQMD)** |
| BAAQMD Regulation 1 – General | Limits releases of air contaminants to not “cause injury, detriment, nuisance or annoyance to any considerable number of persons or the public.” Prohibits contaminants that may endanger “the comfort, repose, health or safety of any such persons or the public, or cause injury or damage to business or property.” |
| BAAQMD Regulation 2, Rule 1 – Permits | General Requirements – Specifies requirements for issuance or denial of permits, exemptions, and appeals against BAAQMD decisions. An Authority to Construct (ATC) is required for any non-exempt source. Natural gas-fired heaters with a heat input rate of less than 10 million Btu per hour are exempt, and stationary internal combustion engines and gas-fired combustion turbines with an output rating of less than 50 horsepower (hp) are exempt. |

| Applicable LORS | Description |
|---|---|
| BAAQMD Regulation 2, Rule 2 | New Source Review – Requires preconstruction review including Best Available Control Technology (BACT) for sources with the potential to emit more than 10 pounds per day (NOx, POC, PM10, CO, or $SO_2$). Requires surrendering offsets for facilities with the potential to emit more than 35 tons per year of NOx or POC, or 100 tons per year of PM10 or SOx. |
| BAAQMD Regulation 2, Rule 3 | Permits – Power Plants – Requires Preliminary Determination of Compliance (PDOC) and Final Determination of Compliance (FDOC) by the BAAQMD Air Pollution Control Officer with public notice and public comment prior to issuing an Authority to Construct (ATC). The BAAQMD would issue the ATC after the Energy Commission certifies the MEP project. |
| BAAQMD Regulation 2, Rule 5 | NSR of Toxic Air Contaminants – Requires preconstruction review for new and modified sources of toxic air contaminants. Contains project health risk limits and requirements for Toxics BACT. See **Public Health**. |
| BAAQMD Regulation 2, Rule 6 | Major Facility Review – Requires an application be submitted for the federal operating permit within 12 months after commencing operation, as specified by Title V federal Clean Air Act. |
| BAAQMD Regulation 2, Rule 7 | Acid Rain – Requires monitoring, recordkeeping, and holding of allowances for pollutants that contribute to the formation of acid rain, as specified by Title IV of the federal Clean Air Act. |
| BAAQMD Regulation 6, Rule 1 | Particulate Matter – Limits particulate matter and visible emissions to less than 1 opacity. Prohibits emissions from any activity for more than 3 minutes in any one hour that result in visible emissions as dark or darker than Number 1 on the Ringlemann Chart. |
| BAAQMD Regulation 7 | Odorous Substances – Prohibits the discharge of any odorous substances which remain odorous at the property line after dilution with four parts of odor-free air. Limits the emissions of ammonia to no more than 5,000 parts per million (ppm). |
| BAAQMD Regulation 8 | Organic Compounds – Requires use of architectural coatings and solvents meeting POC limits and compliant coatings. Emissions from solvent use must not exceed 5 tons annually. |

| Applicable LORS | Description |
|---|---|
| BAAQMD Regulation 9, Rule 1 | Sulfur Dioxide – Prohibits emissions causing SO2 ground level concentrations exceeding 0.5 ppm averaged continuously for three minutes or 0.25 ppm over 60 minutes, consistent with the California Ambient Air Quality Standard. |
| BAAQMD Regulation 9, Rule 9 | Stationary Gas Turbines – Specifies emission limits of 9 ppmvd NOx or 0.43 pounds NOx per megawatt-hour (lb/MWh), applicable to the proposed combustion turbines. |

**Greenhouse Gas**

| Applicable LORS | Description |
|---|---|
| Federal | |
| Mandatory Reporting of Greenhouse Gases (40 CFR 98, Subpart D) | This rule requires mandatory reporting of GHG emissions for facilities that emit more than 25,000 metric tons of CO2 equivalent emissions per year. |
| State | |
| California Global Warming Solutions Act of 2006, AB 32 (Stats. 2006; Chapter 488; Health and Safety Code sections 38500 et seq.) | California Global Warming Solutions Act of 2006. This act requires the California Air Resources Board (ARB) to enact standards that will reduce GHG emissions to 1990 levels. Electricity production facilities will be regulated by the ARB. |
| California Code of Regulations, tit. 17, Subchapter 10, Article 2, sections 95100 et. seq. | ARB regulations implementing mandatory GHG emissions reporting as part of the California Global Warming Solutions Act of 2006 (Stats. 2006; Chapter 488; Health and Safety Code sections 38500 et seq.) |
| California Code of Regulations, tit. 20, section 2900 et seq.; CPUC Decision D0701039 in proceeding R0604009 | The regulations prohibit utilities from entering into long-term contracts with any base load facility that does not meet a greenhouse gas emission standard of 0.5 metric tonnes carbon dioxide per megawatt-hour (0.5 MTCO2/MWh) or 1,100 pounds carbon dioxide per megawatt-hour (1,100 lb CO2/MWh). |

## Alternatives

### CEQA

Energy Commission staff is required by agency regulations to examine the "feasibility of available site and facility alternatives to the applicant's proposal which substantially lessen the significant adverse impacts of the proposal on the environment." (Cal. Code Regs., tit. 20, § 1765).

The "Guidelines for Implementation of the California Environmental Quality Act," Title 14, California Code of Regulations, section 15126.6(a), requires an evaluation of the comparative merits of "a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project."

In addition, the analysis must address the "no project" alternative. [Cal. Code Regs., tit. 14, § 15126.6, subd. (e).] The analysis should identify and compare the impacts of the various alternatives, but analysis of alternatives need not be in as much detail as the analysis of the proposed project.

The range of alternatives is governed by the "rule of reason," which requires consideration only of those alternatives necessary to permit informed decision making and public participation. CEQA states that an environmental document does not have to consider an alternative if its effect cannot be reasonably ascertained and if its implementation is remote and speculative. (Cal. Code Regs., tit. 14, § 15126.6, subd. (f)(3).) However, if the range of alternatives is defined too narrowly, the analysis may be inadequate. (City of Santee v. County of San Diego (4th District 1989) 214 Cal. App.3d 1438.)

### Warren-Alquist Act

The Warren-Alquist Act provides clarification as to when it may not be reasonable to require an applicant to analyze alternative sites for a project. An alternative site analysis is not required as part of an AFC when a *natural gas-fired thermal power plant* is (1) proposed for development at an existing industrial site, and (2) "the project has a strong relationship to the existing industrial site and therefore it is reasonable not to analyze alternative sites for the project." [Pub, Res. Code § 25540.6, subd. (b).]

## Biological Resources

| Applicable LORS | Description |
|---|---|
| **Federal** | |
| Section 404 of the Clean Water Act of 1977 (33 USC 1344) | Prohibits the discharge of dredged or fill material into the waters of the United States without a permit. The administering agency is the U.S. Army Corps of Engineers. |
| Section 401 of the Clean Water Act of 1977 (33 USC 1341) | Requires any applicant for a federal license or permit to conduct any activity that may result in a discharge of a pollutant into waters of the United States to obtain a certification from the State in which the discharge originates or would originate, that the discharge will comply with the applicable effluent limitations and water quality standards. A certification obtained for the construction of any facility must also pertain to the subsequent operation of the facility. |
| Endangered Species Act (Title 16, United States Code, sections 1531 et seq.; Title 50, Code of Federal Regulations, part 17.1 et seq.) | Designates and provides for the protection of threatened and endangered plant and animal species and their critical habitat. The administering agencies are USFWS and National Marine Fisheries Service (NMFS). |
| Eagle Act (Title 50, Code of Federal Regulations, section 22.26) | Authorizes limited take of bald eagles (*Haliaeetus leucocephalus*) and golden eagles (*Aquila chrysaetos*) under the Eagle Act, where the taking is associated with, but not the purpose of activity, and cannot practicably be avoided. |
| Eagle Act (Title 50, Code of Federal Regulations, section 22.27) | Provides for the intentional take of eagle nests where necessary to alleviate a safety hazard to people or eagles; necessary to ensure public health and safety; the nest prevents the use of a human–engineered structure, or; the activity, or mitigation for the activity, will provide a net benefit to eagles. Only inactive nests would be allowed to be taken except in the case of safety emergencies. |
| Bald and Golden Eagle Protection Act (Title 16, United States Code section 668) | This law provides for the protection of the bald eagle and the golden eagle by prohibiting, except under certain specified conditions, the take, possession, and commerce of such birds. The 1972 amendments increased penalties for violating provisions of the Act or regulations issued pursuant thereto and strengthened other enforcement measures. Rewards are provided for information leading to arrest and conviction for violation of the Act. |

| Applicable LORS | Description |
|---|---|
| Migratory Bird Treaty Act (Title 16, United States Code, sections 703–711) | Prohibits the take or possession of any migratory nongame bird (or any part of such migratory nongame bird), including nests with viable eggs. The administering agency is USFWS. |
| Executive Order 11312 | Prevent and control invasive species. |
| **State** | |
| California Endangered Species Act (Fish and Game Code, sections 2050 et seq.) | Protects California's rare, threatened, and endangered species. CESA also allows for take incidental from otherwise lawful development projects. The administering agency is CDFG. |
| Fully Protected Species (Fish and Game Code, sections 3511, 4700, 5050, and 5515) | Designates certain species as fully protected and prohibits take of such species. The administering agency is CDFG. |
| Native Plant Protection Act (Fish and Game Code, section 1900 et seq.) | Designates rare, threatened, and endangered plants in California and prohibits the taking of listed plants. The administering agency is CDFG. |
| Nest or Eggs (Fish and Game Code, section 3503) | Prohibits take, possession, or needless destruction of the nest or eggs of any bird. The administering agency is CDFG. |
| Birds of Prey (Fish and Game Code, section 3503.5) | Specifically protects California's birds of prey in the orders Falconiformes and Strigiformes by making it unlawful to take, possess, or destroy any such birds of prey or to take, possess, or destroy the nest or eggs of any such bird. The administering agency is CDFG. |
| Migratory Birds (Fish and Game Code, section 3513) | Prohibits take or possession of any migratory nongame bird as designated in the Migratory Bird Treaty Act or any part of such migratory nongame bird. The administering agency is CDFG. |
| Nongame mammals (Fish and Game Code section 4150) | Makes it unlawful to take or possess any non-game mammal or parts thereof except as provided in the Fish and Game Code or in accordance with regulations adopted by the commission. |
| Streambed Alteration Notification (Fish and Game Code sections 1600 et seq.) | Requires notification to CDFG for activities that may divert, obstruct, or change the natural flow or the bed, channel, or bank of any river, stream, or lake in California. Impacts to vegetation and wildlife resulting from disturbances to waterways are also reviewed and regulated. The administering agency is CDFG. |
| California Environmental Quality Act (CEQA), CEQA Guidelines section 15380 | CEQA defines rare species more broadly than the definitions for species listed under the state and federal Endangered Species Acts. Under section 15830, species not protected through state or federal listing but nonetheless demonstrable as "endangered" or "rare" under CEQA should also receive consideration in environmental analyses. Included in this category are |

| Applicable LORS | Description |
|---|---|
| | many plants considered rare by the California Native Plant Society (CNPS) and some animals on the CDFG's Special Animals List. |
| Public Resources Code, sections 25500 and 25527 | Prohibits siting of facilities in certain areas of critical concern for biological resource, such as ecological preserves, refuges, etc. The administering agency is the Energy Commission (with comment from CDFG). |
| **Local** | |
| Alameda County General Plan (East County Area Plan) | Under the East County Area Plan of the Alameda County General Plan, the goal for biological resources is to preserve a variety of plant communities and wildlife habitat. Several policies related to goal are included in the plan, including Policy 126 (no net loss of riparian and seasonal wetlands). |
| Contra Costa General Plan | The Contra Costa County General Plan presents the broad goals and policies, and specific implementation measures, which will guide decisions on future growth, development, and the conservation of resources through the year 2020. Overall conservation goals under the plan are to preserve and protect the ecological resources of the County; to conserve the natural resources of the County through control of the direction, extent, and timing of urban growth, and; to achieve a balance of uses of the County's natural and developed resources to meet the social and economic needs of the County's residents. |

**Biological Resources**
**Compliance with Federal, State, and Local LORS**

| Applicable LORS | In Compliance | Discussion |
|---|---|---|
| **Federal** | | |
| Section 404 of the Clean Water Act of 1977 (33 USC 1344) | Undetermined | Discharge of dredged or fill material into the waters of the United States requires a permit from the U.S. Army Corps of Engineers (USACE). The applicant has completed a wetland delineation report and amendment, and has received a preliminary jurisdictional determination from the USACE Sacramento District. The USACE is currently drafting the CWA 404 authorization to construct the project under Nationwide Permit #12, but the permit cannot be issued to Mariposa Energy until Section 7 ESA consultation is finished (e.g., |

| Applicable LORS | In Compliance | Discussion |
|---|---|---|
| | | Biological Opinion sent to the USACE). |
| Section 401 of the Clean Water Act of 1977 (33 USC 1341) | Undetermined | Any applicant for a federal license or permit to conduct any activity that may result in a discharge of a pollutant into waters of the United States must obtain a certification from the State in which the discharge originates or would originate, that the discharge would comply with the applicable effluent limitations and water quality standards. A certification obtained for the construction of any facility must also pertain to the subsequent operation of the facility. The applicant has submitted a Section 401 Water Quality Certification Application to the California Regional Water Quality Control Board (CRWQCB) Central Valley Region, and will also submit a memo outlining changes to the original application. Certification from the CRWQCB is pending. |
| Endangered Species Act (Title 16, United States Code, sections 1531 et seq.; Title 50, Code of Federal Regulations, part 17.1 et seq.) | Undetermined | Potential take of California tiger salamander, California red-legged frog, San Joaquin kit fox, and branchiopods (federally-listed species), requires compliance with the federal Endangered Species Act (ESA). “Take” of a federally-listed species is prohibited without an Incidental Take Statement, which would be obtained through a Section 7 consultation between the USACE and USFWS. The applicant has submitted a Biological Assessment and updates for the project to the USFWS, and the USFWS has provided comments outlining what further analysis and information is needed before the UFWS can provide a Biological Opinion. |
| Eagle Act (Title 50, Code of Federal Regulations, sections 22.26 and | Undetermined | Condition of Certification **BIO-16** requires protection of compensation habitat for California tiger salamander, California red-legged frog, San |

| Applicable LORS | In Compliance | Discussion |
|---|---|---|
| 22.27) and Bald and Golden Eagle Protection Act (Title 16, United States Code section 668) | | Joaquin kit fox, western burrowing owl, and other special-status species. Habitat preserved for these species would also serve as golden eagle foraging habitat.<br><br>The applicant needs to consult with the USFWS MBO to evaluate the potential for construction of the proposed project to affect nesting golden eagles. This consultation must be completed before staff can determine compliance with this act. |
| Migratory Bird Treaty Act (Title 16, United States Code, sections 703–711) | Yes | Condition of Certification **BIO-8** provides for pre-construction nest surveys, protective buffers, and monitoring if nests are found, and Condition of Certification **BIO-7** limits off-site disturbance. |
| Executive Order 11312 | Yes | Conditions of certification **BIO-7** and **BIO-18** limit species used in revegetation, and also call for a revegetation plan for disturbed areas. |
| **State** | | |
| California Endangered Species Act (Fish and Game Code, sections 2050 et seq.) | Undetermined | Construction and operation of the proposed project could result in the "take" of Swainson's hawk, California tiger salamander, and San Joaquin kit fox, listed under CESA. Condition of Certification **BIO-16** specifies compensatory mitigation for loss of habitat for these species. Conditions of certification **BIO-10, BIO-14,** and **BIO-15** provide measures to avoid and minimize impacts to these species. This funding and mitigation approach would minimize impacts to these species, but more information is needed before staff can determine whether impacts would be reduced below a level of significance. |
| Fully Protected Species (Fish and Game Code, sections 3511, 4700, 5050, and 5515) | Yes | Golden eagles and other bird species that may use the site are California Fully Protected species. Condition of Certification **BIO-8** provides for pre-construction nest surveys, protective buffers, and monitoring if nests are |

| Applicable LORS | In Compliance | Discussion |
|---|---|---|
| | | found, and Condition of Certification **BIO-7** limits off-site disturbance. |
| Native Plant Protection Act (Fish and Game Code, section 1900 et seq.) | Yes | No special-status plants were observed on-site. Special-status plants do occur, or are known to historically occur, adjacent to the proposed project. Condition of Certification **BIO-7** would require pre-construction surveys and includes a provision if special-status plant species are observed, and **BIO-7** and **BIO-17** provide measures to limit off-site disturbance. |
| Nest or Eggs (Fish and Game Code, section 3503) | Yes | Condition of Certification **BIO-8** provides for pre-construction nest surveys, protective buffers, and monitoring if nests are found, Condition of Certification **BIO-7** limits off-site disturbance, and **BIO-5** includes a Worker Environmental Awareness Program to educate workers about compliance with environmental regulations, including Fish and Game Code section 3503. |
| Birds of Prey (Fish and Game Code, section 3503.5) | Yes | Condition of Certification **BIO-8** provides for pre-construction nest surveys, protective buffers, and monitoring if nests are found, Condition of Certification **BIO-7** limits off-site disturbance, and **BIO-5** includes a Worker Environmental Awareness Program to educate workers about compliance with environmental regulations, including Fish and Game Code section 3503.5. |
| Migratory Birds (Fish and Game Code, section 3513) | Yes | Condition of Certification **BIO-8** provides for pre-construction nest surveys, protective buffers, and monitoring if nests are found, and Condition of Certification **BIO-7** limits off-site disturbance, and **BIO-5** includes a Worker Environmental Awareness Program to educate workers about compliance with environmental regulations, including Fish and Game Code section 3513. |
| Nongame mammals | Yes | **BIO-7**, which provides for pre- |

| Applicable LORS | In Compliance | Discussion |
|---|---|---|
| (Fish and Game Code section 4150) | | construction surveys and exclusionary fencing, would ensure compliance with this provision. |
| Streambed Alteration Notification (Fish and Game Code sections 1600 et seq.) | No | Condition of Certification **BIO-17** includes measures to minimize, avoid, and compensate for impacts to jurisdictional waters of the State. The applicant has provided a Streambed Alteration Notification to CDFG for comments. Energy Commission staff will use these comments to finalize staff's impact analysis and proposed Condition of Certification **BIO-17**. |
| California Environmental Quality Act (CEQA), CEQA Guidelines section 15380 | Undetermined | Implementation of Staff's proposed conditions of certification **BIO-1** through **BIO-19** would serve to minimize the projects impacts to biological resources. More information is needed before staff can determine if these impacts would be reduced below a level of significance as defined in CEQA. |
| Public Resources Code, sections 25500 and 25527 | Yes | The proposed project is not sited in an area of critical concern for biological resources. |
| **Local** | | |
| Alameda County General Plan - East County Area Plan (ECAP) | Yes | Condition of Certification **BIO-16** requires that permanent impacts to wetlands be mitigated. ECAP Policy No. 126 encourages no net loss of wetlands within the county. However, Alameda County has determined that the mitigation proposed in **BIO-9**, including compensation ratios, and **BIO-10**, which provides for compensatory mitigation and agency approval, fulfills the needs of this policy. |
| Contra Costa General Plan | Yes | Impacts within Contra Costa County are within previously disturbed lands. |

## Cultural Resources

| Applicable LORS | Description |
|---|---|
| **State** | |
| Public Resources Code 5097.98(b) and (e) | Requires a landowner on whose property Native American human remains are found to limit further development activity in the vicinity until he/she confers with the Native American Heritage Commission-identified Most Likely Descendents (MLDs) to consider treatment options. In the absence of MLDs or of a treatment acceptable to all parties, the landowner is required to reinter the remains elsewhere on the property in a location not subject to further disturbance (Alameda County 2000). |
| California Health and Safety Code, Section 7050.5 | This code makes it a misdemeanor to disturb or remove human remains found outside a cemetery. This code also requires a project owner to halt construction if human remains are discovered and to contact the county coroner (Contra Costa County 2005). |
| **Local** | |
| County of Alameda – East County Area Plan | States a general goal to protect cultural resources from development. Policies include identifying and preserving significant archaeological and historical resources and requiring development to avoid cultural resources, or if avoidance is infeasible, to implement appropriate mitigation measures to offset impacts. |
| Contra Costa County General Plan | States a general goal to identify and preserve important archaeological and historical resources within the county. Policies include the preservation of significant archaeological and historic resources, the protection of buildings/structures that have historic value/visual merit, compatible design of any development surrounding areas of historic significance, and in the Southeast County area, applicants for land use permits to allow non-residential uses shall provide information to the County on the nature and extent of the archaeological resources that exist in the area. The County Planning Agency shall be responsible for determining the balance between the multiple use of the land with the protection of resources. |

**Facility Design**

| Applicable LORS | Description |
|---|---|
| **Federal** | Title 29 Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health standards |
| **State** | 2007 (or the latest edition in effect) California Building Standards Code (CBSC) (also known as Title 24, California Code of Regulations) |
| **Local** | Alameda County regulations and ordinances |
| **General** | American National Standards Institute (ANSI)<br>American Society of Mechanical Engineers (ASME)<br>American Welding Society (AWS)<br>American Society for Testing and Materials (ASTM) |

## Geology and Paleontology

| Applicable LORS | Description |
|---|---|
| **Federal** | The proposed MEP is not located on federal land. There are no federal LORS for geologic hazards and resources for this site. |
| **State** | |
| California Building Code (2007) | The CBC (2007) includes a series of standards that are used in project investigation, design, and construction (including grading and erosion control). The CBC has adopted provisions in the International Building Code (ICC 2006). |
| Alquist-Priolo Earthquake Fault Zoning Act, Public Resources Code (PRC), section 2621–2630 | Mitigates against surface fault rupture of known active faults beneath occupied structures. Requires disclosure to potential buyers of existing real estate and a 50-foot setback for new occupied buildings. The project site is not located within a designated Alquist-Priolo Earthquake Fault Zone. |
| The Seismic Hazards Mapping Act, PRC section 2690–2699 | Areas are identified that are subject to the effects of strong ground shaking, such as liquefaction, landslides, tsunamis, and seiches. |
| PRC, Chapter 1.7, sections 5097.5 and 30244 | Regulates removal of paleontological resources from state lands, defines unauthorized removal of fossil resources as a misdemeanor, and requires mitigation of disturbed sites. |
| Warren-Alquist Act, PRC, sections 25527 and 25550.5(i) | The Warren-Alquist Act requires the Energy Commission to “give the greatest consideration to the need for protecting areas of critical environmental concern, including, but not limited to, unique and irreplaceable scientific, scenic, and educational wildlife habitats; unique historical, archaeological, and cultural sites…” With respect to paleontologic resources, the Energy Commission relies on guidelines from the Society for Vertebrate Paleontology (SVP), indicated below. |
| California Environmental Quality Act (CEQA), PRC sections 15000 et seq., Appendix G | Mandates that public and private entities identify the potential impacts on the environment during proposed activities. Appendix G outlines the requirements for compliance with CEQA and provides a definition of significant impacts on a fossil site. |
| Society for Vertebrate Paleontology (SVP), 1995 | The “Measures for Assessment and Mitigation of Adverse Impacts to Non-Renewable Paleontological Resources: Standard Procedures” is a set of procedures and standards for assessing and mitigating impacts to vertebrate paleontological resources. The measures were adopted in October 1995 by the SVP, a national organization of professional scientists. |

| Applicable LORS | Description |
|---|---|
| **Local** | |
| County of Alameda, East County Area Plan, (2000) Policy 309 | States “The County shall not approve new development in areas with potential for seismic and geologic hazards unless the County can determine that feasible measures will be implemented to reduce the potential risk to acceptable levels, based on site-specific analysis”. Require compliance with state codes including CBC, CEQA, and Alquist-Priolo Earthquake Fault Zoning Act. |
| Contra Costa County General Plan (2005), Safety Element. | Furthers “the protection of the community from any unreasonable risk associated with the effects of seismically induced surface rupture, ground shaking , ground failure, tsunami, seiche, and dam failure; slope instability leading to mudslides and landslides, subsidence and other geologic hazards;…” |

## Hazardous Materials Management

| Applicable LORS | Description |
|---|---|
| **Federal** | |
| The Superfund Amendments and Reauthorization Act of 1986 (42 USC §9601 et seq.) | Contains the Emergency Planning and Community Right To Know Act (also known as SARA Title III). |
| The Clean Air Act (CAA) of 1990 (42 USC 7401 et seq. as amended) | Established a nationwide emergency planning and response program and imposed reporting requirements for businesses that store, handle, or produce significant quantities of extremely hazardous materials. |
| The CAA section on risk management plans (42 USC §112(r) | Requires states to implement a comprehensive system informing local agencies and the public when a significant quantity of such materials is stored or handled at a facility. The requirements of both SARA Title III and the CAA are reflected in the California Health and Safety Code, section 25531, et seq. |
| 49 CFR 172.800 | The U.S. Department of Transportation (DOT) requirement that suppliers of hazardous materials prepare and implement security plans. |
| 49 CFR Part 1572, Subparts A and B | Requires suppliers of hazardous materials to ensure that all their hazardous materials drivers are in compliance with personnel background security checks. |
| The Clean Water Act (CWA) (40 CFR 112) | Aims to prevent the discharge or threat of discharge of oil into navigable waters or adjoining shorelines. Requires a written spill prevention, control, and countermeasures (SPCC) plan to be prepared for facilities that store oil that could leak into navigable waters. |
| Title 49, Code of Federal Regulations, Part 190 | Outlines gas pipeline safety program procedures. |
| Title 49, Code of Federal Regulations, Part 191 | Addresses transportation of natural and other gas by pipeline: annual reports, incident reports, and safety-related condition reports. Requires operators of pipeline systems to notify the DOT of any reportable incident by telephone and then submit a written report within 30 days. |
| Title 49, Code of Federal Regulations, Part 192 | Addresses transportation of natural and other gas by pipeline and minimum federal safety standards, specifies minimum safety requirements for pipelines including material selection, design requirements, and corrosion protection. The safety requirements for pipeline construction vary according to the population density and land use that characterize the surrounding land. This part also |

| | |
|---|---|
| | contains regulations governing pipeline construction (which must be followed for Class 2 and Class 3 pipelines) and the requirements for preparing a pipeline integrity management program. |
| Federal Register (6 CFR Part 27) interim final rule | A regulation of the U.S. Department of Homeland Security that requires facilities that use or store certain hazardous materials to submit information to the department so that a vulnerability assessment can be conducted to determine what certain specified security measures shall be implemented. |
| **State** | |
| Title 8, California Code of Regulations, section 5189 | Requires facility owners to develop and implement effective safety management plans that ensure that large quantities of hazardous materials are handled safely. While such requirements primarily provide for the protection of workers, they also indirectly improve public safety and are coordinated with the Risk Management Plan (RMP) process. |
| Title 8, California Code of Regulations, section 458 and sections 500 to 515 | Sets forth requirements for the design, construction, and operation of vessels and equipment used to store and transfer ammonia. These sections generally codify the requirements of several industry codes, including the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, the American National Standards Institute (ANSI) K61.1 and the National Boiler and Pressure Vessel Inspection Code. These codes apply to anhydrous ammonia but are also used to design storage facilities for aqueous ammonia. |
| California Health and Safety Code, section 25531 to 25543.4 | The California Accidental Release Program (CalARP) requires the preparation of a Risk Management Plan (RMP) and off-site consequence analysis (OCA) and submittal to the local Certified Unified Program Agency for approval. |
| California HSC Sections 25270 through 25270.13 | Requires the preparation of a Spill Prevention, Control, and Countermeasures (SPCC) Plan if 10,000 gallons or more of petroleum is stored on-site. These regulations also require the immediate reporting of a spill or release of 42 gallons or more to the California Office of Emergency Services and the Certified Unified Program Authority (CUPA). |
| California Health and Safety Code, section 41700 | Requires that “No person shall discharge from any source whatsoever such quantities of air contaminants or other material which causes injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause injury or damage to business or property.” |

| Applicable LORS | Description |
|---|---|
| California Safe Drinking Water and Toxic Enforcement Act (Proposition 65) | Prevents certain chemicals that cause cancer and reproductive toxicity from being discharged into sources of drinking water. |
| California Public Utilities Commission General Order 112-E and 58-A | Contains standards for gas piping construction and service. |
| **Local** | |
| East County Area Plan | Requirements for hazardous materials management. |
| Uniform Fire Code Article 79 and 80 | Require secondary containment, monitoring and treatment for accidental releases of toxic gases. |

The Certified Unified Program Agency (CUPA) with the responsibility to review Risk Management Plans (RMPs) and Hazardous Materials Business Plans (HMBPs) is the ACEHD With regard to seismic safety issues, the project will designed to seismic requirements of the 2007 CBC (MEP 2009a).

## Land Use

| Applicable LORS | Description |
|---|---|
| **State** | |
| California Land Conservation Act of 1965 Government Code § 51238.1(a) (Williamson Act) | This Act, commonly referred to as the Williamson Act, enables private landowners to voluntarily enter into contracts with local governments for the purpose of restricting specific parcels of land to agricultural or related open space uses. This section of the Act lists three principles of compatibility used for determining the compatibility of uses with contracted land. All three principles must be met for a use to be considered compatible. |
| **Local** | |
| East County Area Plan (ECAP) (section of the Alameda County General Plan) | The ECAP presents the County's intent for future development and resource conservation in the East County with goals and policies as a guide as to the County's position on land use-related concerns and day-to-day decision making. |
| Land Use Designation: Large Parcel Agriculture | This land use designation specifies minimum parcel size, minimum and maximum building intensity, development envelope size and configuration requirements, and permitted uses. |
| Land Use | |
| -Subregional Planning; Urban/Open Space Delineation | |
| *Policy 1* | This policy addresses the county's Urban Growth Boundary. |
| -Urban & Rural Development; Location: Incorporated & Unincorporated | |
| *Policy 13* | This policy addresses the provision of public facilities and other infrastructure[1] in excess of what is needed for permissible development consistent with the Save Agriculture and Open Space Lands Initiative[2]. This policy identifies the type of additional or replacement of infrastructure that is not barred by this policy. |
| -Sensitive Lands and Regionally Significant Open Space; General Open Space | |

[1] "Infrastructure" includes public facilities, community facilities, and all structures and development necessary to provide public services and utilities.

[2] Previously known as Measure D, this initiative was passed in November 2000 by the Alameda County electorate and effective on December 22, 2000.

| Applicable LORS | Description |
|---|---|
| *Policy 52* | This policy addresses preservation of open space areas. |
| *Policy 54* | This policy addresses the approval of open space, park, recreational, agricultural, limited infrastructure, public facilities, and other similar compatible uses outside the Urban Growth Boundary. |
| -Sensitive Lands & Regionally Significant Open Space; Agriculture | |
| *Policy 72* | This policy addresses the preservation of the Mountain House area for intensive agricultural use. |
| *Policy 73* | This policy addresses the requirement of buffers between agricultural uses and new non-agricultural uses areas and within agricultural areas or abutting parcels to provide for the protection of the maximum amount of arable, pasture, and grazing land feasible. |
| *Policy 89* | This policy addresses the retention of rangeland in large, contiguous blocks in sufficient size to enable commercially viable grazing. |
| -Special Land Uses; Windfarms | |
| *Policy 173* | This policy addresses the uses and structures not compatible with wind energy operations within with Wind Resource Area. |
| Public Services and Facilities -General Services and Facilities; Infrastructure and Services | |
| *Policy 218* | This policy addresses the types of development and expansion allowed in appropriate locations inside and outside the Urban Growth Boundary. |
| Alameda County Ordinance Code (Title 17: Zoning) | The zoning code establishes districts, based on the division of unincorporated territory within the county, where the use of land and buildings, including the height and open space surrounding the buildings are regulated. |
| 17.06 – A Districts | Agricultural Districts (A Districts) are established to promote the implementation of the general plan land use proposals for agricultural and other non-urban uses, to conserve and protect existing agricultural uses, and to provide space for and encourage uses in places where more intensive development is not desirable or necessary for general welfare. |
| 17.52 – General Requirements | The general regulations, special provisions and exemptions that the zoning provisions are subject to are identified in this chapter of the zoning code. |

| Applicable LORS | Description |
|---|---|
| 17.54 – Procedures | The procedures for zoning-related actions are identified in this chapter of the zoning code. |
| Contra Costa County General Plan | The Contra Costa County General Plan presents the broad goals and policies, and specific implementation measures, which will guide decisions on future growth, development, and the conservation of resources through the year 2020. |
| Land Use Designation: | |
| AL – Agricultural Lands | This land use designation preserves and protects lands capable of and generally used for the production of food, fiber, and plant materials. |
| PS – Public/Semi-Public | This land use designation includes properties owned by public governmental agencies and public transportation corridors and privately owned transportation and utility corridors. |
| Land Use Element- | |
| *Policy 3-10* | This policy addresses the discouragement of extending urban services into agricultural areas outside the Urban Limit Line. |
| *Policy 3-69* | This policy addresses the extension of urban services into agricultural areas outside the Urban Limit Line and limiting new land uses to those compatible with the primary agricultural and watershed purposes of the area. |
| Conservation Element- | |
| *Policy 8-29* | This policy addresses the retention of large contiguous areas of Contra Costa County in agricultural production. |
| *Policy 8-32* | This policy addresses the protection of agriculture to assure a balance in land use. |
| Contra Costa Airport Land Use Compatibility Plan (Byron Airport) | Provides a plan promoting compatibility between the airports in Contra Costa County and the surrounding land uses. |
| Compatibility Zone ‘D’ Criteria | |
| 6.7.4. Height Limitations - | This policy addresses height limitations within Zone D. |
| 6.9. Compatibility Criteria — All Zones | |
| 6.9.3. Hazards to Flight — | This policy addresses the prohibition of land uses which result in an increased attraction of birds or would create a visual or electronic hazard to flight. |

## Land Use
## Project Compliance with Adopted Applicable Land Use LORS

| Applicable LORS | Consistency Determination | Basis for Determination |
|---|---|---|
| **State** | | |
| California Land Conservation Act of 1965 (Williamson Act) (Gov. Code §51238.1(a) ) | Yes, as conditioned | Staff agrees with Alameda County and the DOC that the MEP would be consistent with the three principles of compatibility identified in GC § 51238.1(a) of the California land Conservation Act (CLCA). Staff has concluded the MEP is compatible with the CLCA with the inclusion of the proposed Condition of Certification **LAND-2**. |
| **Local** | | |
| East County Area Plan (ECAP) (general plan) | | |
| Land Use Designation: | | |
| Large Parcel Agriculture | Yes, as conditioned | The ECAP does not preclude the construction of power plants on land of such designation and the project would be consistent with the specifications of the Large Parcel Agriculture land use designation. The proposed Condition of Certification **LAND-2** would meet the county's mitigation requirement for loss of land in agricultural production. |
| Land Use -<br>-Subregional Planning; Urban/Open Space Delineation | | |
| *Policy 1* | Yes | A power plant is not precluded from construction outside the UGB, the project is not an urban use, and the project is appropriately located adjacent to similar infrastructure. |
| -Urban and Rural Development; Location: Incorporated and Unincorporated | | |
| *Policy 13* | Yes | The project is considered infrastructure allowed under this policy. |
| | | |
| -Sensitive Lands and Regionally Significant Open Space; General Open Space | | |
| *Policy 52* | Yes, as conditioned | The project site has no recreation opportunities, the project is a compatible land use with grazing, grazing is the only likely agricultural activity on this site, the project design and isolated location would not encourage urban infill development and increased urbanization of open space areas, and the project would not impact wind operations or mineral extraction and impacts to biological resources are less than significant with the inclusion of the proposed Conditions of Certification **BIO-7** through **15**, **17** and **18**. The proposed Conditions of Certification **VIS-1**, **VIS-2**, **VIS-3**, **VIS-4**, **VIS-5**, and **VIS-6** would ensure impacts to visual resources are |

| Applicable LORS | Consistency Determination | Basis for Determination |
|---|---|---|
| | | less than significant. |
| | | |
| *Policy 54* | Yes | The project is not precluded from construction outside the UGB, the project is a public facility, and is comparable to limited infrastructure. |
| -Sensitive Lands and Regionally Significant Open Space; Agriculture | | |
| *Policy 72* | Yes | The site is more suited to low-intensity agriculture versus intensive agricultural use. |
| | | |
| *Policy 73* | Yes | The project does not require buffers due to its compatibility with the on-site grazing. The proposed fencing around the plant, clustering of equipment, and small loss of grazing land further aid in the protection of agricultural areas. |
| | | |
| *Policy 89* | Yes | The project would result in a minimal loss of rangeland, retain the majority of the property for grazing use, and cluster the equipment within a fenced area located in proximity to the southern property boundary. |
| - Special Land Uses; Windfarms | | |
| *Policy 173* | Yes | The project would not impact wind development or preclude the future development of such an operation. |
| | | |
| Public Services and Facilities- -General Services and Facilities; Infrastructure and Services | | |
| *Policy 218* | Yes, as conditioned | The project would be consistent with the ECAP land use designation for the project site with the inclusion of Condition of Certification **LAND-2** would be consistent with applicable policies, the project is appropriately located in proximity to other electrical infrastructure, and the project is more than 0.25 mile from sensitive receptors and residences. |
| Alameda County Ordinance Code (Title 17: Zoning) | | |
| 17.06.040 - Conditional uses—Board of zoning adjustments. | Yes | The project is considered a public utility use and meets all finding requirements consistent with §17.54.130 of the zoning code for a CUP. |
| | | |
| 17.06.050 - Accessory uses. | Yes | The proposed warehouse and maintenance building and control/administration building associated with the power plant are considered accessory uses to the permitted power plant. |
| | | |
| 17.06.060 - Building site. | Yes | The lease for the project covers the required 100 acre minimum building site area. |
| | | |

| Applicable LORS | Consistency Determination | Basis for Determination |
|---|---|---|
| 17.06.070 - Yards. | Yes | The proposed location of the power plant on the larger project property would allow the yard requirements to be met. |
| | | |
| 17.06.080 - Signs. | Yes, as conditioned | The inclusion of the proposed Condition of Certification **VIS-5** would ensure project compliance with this section of the zoning code. |
| | | |
| 17.52.440 - Fences, walls and hedges - Exceptions to height limitations | Yes, as conditioned | The project would be consistent with this section of the zoning code with the inclusion of the proposed Condition of Certification **HAZ-7**. |
| | | |
| 17.52.930 - Parking spaces required - Business establishments | Yes, as conditioned | The proposed Condition of Certification **TRANS-3** would ensure the project would be consistent with parking space requirements during project construction and operation. |
| | | |
| 17.54.130 - Conditional uses. | Yes, as conditioned | The project meets all finding requirements of Alameda County for issuance of a CUP as the project use is required by the public need: is properly related to other land uses and transportation and service facilities in the vicinity: would not, under all the circumstances and conditions materially affect adversely the health or safety of persons residing or working in the vicinity; would not be materially detrimental to the public welfare or injurious to property or improvements in the neighborhood; and would not be contrary to the specific intent clauses or performance standards established for the "A" District. The project would be consistent with this section of the zoning code with the inclusion of the proposed Conditions of Certification **TLSN-1** through **TLSN-4**, **HAZ-1**, through **HAZ-7,** and **WORKER SAFETY-1** through **WORKER SAFETY-5**. |
| Contra Costa County General Plan | | |
| Land Use Designation: | | |
| AL- Agricultural Lands | Yes, as conditioned | The project would result in a minor loss of land used for agricultural production due to the pump station (approximately 250 square feet). The proposed Condition of Certification **LAND-1** would ensure no additional agricultural land is lost through conversion to urban use and the pipeline construction is in accordance with BBID requirements. |
| | | |
| PS- Public/Semi-Public | Yes | The construction area would be used by a construction team affiliated with a public entity. |
| Land Use Element- | | |
| *Policy 3-10* | Yes | Water will be provided only to the project through an agreement with Diamond Generating Corporation and Byron Bethany Irrigation District; therefore, the project would not induce growth. |
| | | |
| *Policy 3-69* | Yes | Pipelines are generally consistent uses and as it is reasonable to consider the pump station necessary to operate the pipelines, the pump station would also be consistent. |

| Applicable LORS | Consistency Determination | Basis for Determination |
|---|---|---|
| Conservation Element- | | |
| *Policy 8-29* | Yes, as conditioned | The project would not result in a significant loss of land that could be used for agricultural production. The inclusion of the proposed Condition of Certification **LAND-1** would ensure no additional agricultural land is converted to urban use and pipeline construction is in accordance with BBID requirements. |
| | | |
| *Policy 8-32* | Yes | The project would result in a minor loss of agricultural land and would therefore not affect the balance of land use in Contra Costa County. |
| Contra Costa County Airport Land Use Compatibility Plan (Byron Airport) | | |
| Compatibility Zone 'D' Criteria | | |
| 6.7.4. Height Limitations - | Yes | The maximum height of the transmission towers and lines would be less than 100 feet in height and not more than 35 feet taller than other nearby objects. |
| 6.9. Compatibility Criteria — All Zones | | |
| 6.9.3. Hazards to Flight — Air protection surface- conical surface | Yes, as conditioned | The major project features would not have surfaces that are highly reflective, construction and permanent lighting would be designed so there would be no obtrusive spill light beyond the project site, no excessive reflected glare, and illumination of the project and its immediate vicinity. The inclusion of the proposed Conditions of Certification **VIS-1**, **VIS-3**, and **VIS-4** would ensure the project would not generate glare or distracting lights which could be mistaken for airport lights. The project's use of an air cooled condenser would eliminate the emission of publicly visible water vapor plumes and preventative measures for fugitive dust and dust plumes from leaving the project and linear construction sites would be proposed as Conditions of Certification for the project. The inclusion of the proposed Conditions of Certification **AQ-SC3** and **AQ-SC4** would ensure the project would not be a source of dust, steam, or smoke which may impair pilot visibility. The project would typically be using communications equipment outside the frequency ranges reserved for aviation use. The inclusion of the proposed Condition of Certification **LAND-4** would ensure the project would not be a source of electrical interference with aircraft communications or navigation. The addition of the project transmission towers and line would not substantially induce an increase in bird presence on the project property. The detention pond would be designed to release stormwater runoff over a minimum period of 48 hours. Dumping of trash would be prohibited and during construction the project site would be kept as clean of debris as possible. The inclusion of the proposed Condition of Certification **BIO-7** would ensure that the project would be unlikely to attract an increased number of birds. |

**Noise and Vibration**

| Applicable LORS | Description |
|---|---|
| **Federal** | |
| Occupational Safety & Health Act (OSHA): 29 U.S.C. § 651 Et Seq. | Under the Occupational Safety and Health Act of 1970 (OSHA) (29 U.S.C. § 651 et seq.), the Department of Labor, Occupational Safety and Health Administration, (OSHA) adopted regulations (29 C.F.R. § 1910.95) designed to protect workers against the effects of occupational noise exposure. These regulations list permissible noise exposure levels as a function of the amount of time during which the worker is exposed (see **Noise Appendix A, Table A4**, immediately following this section). The regulations further specify a hearing conservation program that involves monitoring the noise to which workers are exposed, assuring that workers are made aware of overexposure to noise, and periodically testing the workers' hearing to detect any degradation. |
| U.S. Environmental Protection Agency (USEPA) | Guidelines are available from the U.S. Environmental Protection Agency (USEPA) to assist state and local government entities in developing state and local LORS for noise. Because there are existing local LORS that apply to this project, the USEPA guidelines are not applicable.<br><br>There are no federal laws governing off-site (community) noise.<br><br>The Federal Transit Administration (FTA) has published guidelines for assessing the impacts of ground-borne vibration associated with construction of rail projects, which have been applied by other jurisdictions to other types of projects. The FTA-recommended vibration standards are expressed in terms of the "vibration level," which is calculated from the peak particle velocity measured from ground-borne vibration. The FTA measure of the threshold of perception is 65 vibrational decibel (VdB), which correlates to a peak particle velocity of about 0.002 inches per second (in/sec). The FTA measure of the threshold of architectural damage for conventional |

| Applicable LORS | Description |
|---|---|
| | sensitive structures is 100 VdB, which correlates to a peak particle velocity of about 0.2 in/sec. |
| **State** | |
| California Occupational Safety & Health Act (Cal-OSHA): 29 U.S.C. § 651 Et Seq., Cal. Code Regs., Tit. 8, §§ 5095-5099 | California Government Code Section 65302(f) encourages each local governmental entity to perform noise studies and implement a noise element as part of its general plan. In addition, the California Office of Planning and Research has published guidelines for preparing noise elements, which include recommendations for evaluating the compatibility of various land uses as a function of community noise exposure.<br><br>The State of California, Office of Noise Control, prepared the Model Community Noise Control Ordinance, which provides guidance for acceptable noise levels in the absence of local noise standards. This model also defines a simple tone, or “pure tone,” as one-third octave band sound pressure levels that can be used to determine whether a noise source contains annoying tonal components. The Model Community Noise Control Ordinance further recommends that, when a pure tone is present, the applicable noise standard should be lowered (made more stringent) by five A-weighted decibels (dBA).<br><br>The California Occupational Safety and Health Administration (Cal-OSHA) has promulgated occupational noise exposure regulations (Cal. Code Regs., tit. 8, §§ 5095-5099) that set employee noise exposure limits. These standards are equivalent to federal OSHA standards (see **Noise Appendix A, Table A4**). |
| **Local** | |
| Alameda County General Plan, Policy 289 | The Alameda County General Plan consists of three General Plans, one for each geographical area. Policies governing physical development within the area that includes the project site are in the East County General Plan Environmental Safety Element portion of the Alameda County General Plan. The East County General Plan |

| Applicable LORS | Description |
|---|---|
| | Environmental Safety Element (Alameda County, 2002) requires noise studies as part of development review for projects located in areas exposed to high noise levels and in areas adjacent to existing residential or other sensitive land uses. Policy 289 of this code sets forth noise limits and requires appropriate mitigation for new noise sensitive developments in areas projected to exceed 60 dBA $L_{dn}$. ($L_{dn}$ represents the average A-weighted noise level during a 24-hour day, obtained after addition of 10 decibels to levels measured in the night between 10 p.m. and 7 a.m.) An $L_{dn}$ level of 60 dBA is equivalent to a $L_{eq}$ level of 54 dBA. Ambient noise levels are best represented by the $L_{eq}$ scale, the energy average A-weighted noise level.<br><br>Provides quantitative compatibility goals and policy Includes quantitative limits on allowable noise for various receptor land uses. |
| Alameda County Municipal Code, Title 6, Chapter 6.60 | Alameda County Code, Title 6, Chapter 6.60 Noise Nuisance, establishes noise standards for residential and commercial areas as shown in **NOISE Table 2**. The Alameda County Code establishes a daytime (7 a.m. to 10 p.m.) limit of 50 dBA and a nighttime (10 p.m. to 7 a.m.) limit of 45 dBA. Both limits are in terms of hourly $L_{50}$, the sound level exceeded for 30 minutes in any hour. Construction activities between the hours of 7 a.m. and 7 p.m., Monday through Friday, and between 8 a.m. and 5 p.m. on weekends are exempt from these standards (Alameda County 2009). |

## POWER PLANT EFFICIENCY

No federal, state, local, or county laws, ordinances, regulations and standards (LORS) apply to the efficiency of this project.

## POWER PLANT RELIABILITY

No federal, state, local, or county laws, ordinances, regulations and standards (LORS) pertain to the reliability of this project.

## Public Health

| Applicable LORS | Description |
|---|---|
| **Federal** | |
| Clean Air Act section 112 (42 U.S. Code section 7412) | Requires new sources which emit more than ten tons per year of any specified hazardous air pollutant (HAP) or more than 25 tons per year of any combination of HAPs to apply Maximum Achievable Control Technology (MACT). |
| **State** | |
| California Health and Safety Code sections 39650 et seq. | These sections mandate the California Air Resources Board (CARB) and the Department of Health Services to establish safe exposure limits for toxic air pollutants and identify pertinent best available control technologies. They also require that the new source review rule for each air pollution control district include regulations that require new or modified procedures for controlling the emission of toxic air contaminants. |
| California Health and Safety Code section 41700 | This section states that “no person shall discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause injury or damage to business or property.” |
| California Code of Regulations, Title 22, section 60306 | Requires that whenever a cooling system uses recycled water in conjunction with an air conditioning facility and a cooling tower that creates a mist that could come into contact with employees or members of the public, a drift eliminator shall be used and chlorine, or other, biocides shall be used to treat the cooling system re-circulating water to minimize the growth of Legionella and other micro-organisms. |
| **Local** | |
| Bay Area Air Quality Management District (BAAQMD) Regulation 2, Rule 5. | Requires safe exposure limits for Toxic Air Pollutants (TACs), use of best Available Control Technology (BACT) and New Sources Review (NSR). |

## Socioeconomics

| Applicable LORS | Description |
|---|---|
| **California Education Code, Section 17620**<br><br>**California Government Code, Sections 65996-65997** | The governing board of any school district is authorized to levy a fee, charge, dedication, or other requirement for the purpose of funding the construction or reconstruction of school facilities.<br><br>Except for a fee, charge, dedication, or other requirement authorized under Section 17620 of the Education **Code**, state and local public agencies may not impose fees, charges, or other financial requirements to offset the cost for school facilities. |

## Soil and Water Resources

| Applicable LORS | Description |
|---|---|
| **Federal** | |
| Clean Water Act/Water Pollution Control Act. P.L. 92- 500, 1972; amended by Water Quality Act of 1987, P.L. 100-4 (33 USC 466 et seq.); NPDES (CWA, Section 402) | The CWA requires states to set standards to protect, maintain, and restore water quality through the regulation of point source and certain non-point source discharges to surface water. This includes regulation of storm water discharges during construction and operation of a facility normally addressed through a general National Pollutant Discharge Elimination System (NPDES) permit. |
| CWA Section 401 | Section 401 of the CWA requires that any activity that may result in a discharge into a water body must be certified by the Regional Water Quality Control Board (RWQCB) |
| Resource Conservation and Recovery Act (RCRA) (40 CFR Part 260, et seq.) | RCRA seeks to prevent surface and groundwater contamination, sets guidelines for determining hazardous wastes, and identifies proper methods for handling and disposing of those wastes. |
| **STATE** | |
| California Constitution, Article X, Section 2 | The State Constitution requires that the water resources of the state be put to beneficial use to the fullest extent possible and states that the waste, unreasonable use or unreasonable method of use of water is prohibited. |
| Porter Cologne Water Quality Control Act (PCWQCA) (Water Code §13000 et seq.) | PCWQCA requires the State Water Resources Control Board (SWRCB) and the nine RWQCBs to adopt water quality criteria to protect state waters. These standards are typically applied to the proposed project through the Waste Discharge Requirements (WDR) permit. These regulations require that the RWQCB issue Waste Discharge Requirements specifying conditions regarding the construction, operation, monitoring and closure of waste disposal sites, including injection wells and evaporation ponds for waste disposal. WDRs are updated periodically to reflect changing technology standards and conditions. |

| | |
|---|---|
| SWRCB Res. 2009-0011 (Recycled Water Policy) | This policy supports and promotes the use of recycled water as a means to achieve sustainable local water supplies and reduction of greenhouse gases. This policy encourages the beneficial use of recycled water over disposal of recycled water. This policy states the following recycled water use goals:<br><br>“Increase the use of recycled water over 2002 levels by at least one million acre-feet per year (AF/y) by 2020 and by at least two million AF/y by 2030;<br><br>Increase the use of stormwater over use in 2007 by at least 500,000 AF/y by 2020 and by at least one million AF/y by 2030;<br><br>Increase the amount of water conserved in urban and industrial uses by comparison to 2007 by at least 20 percent by 2020; and<br><br>Included in these goals is the substitution of as much recycled water for potable water as possible by 2030.” |
| Recycling Act of 1991 (Water Code § 13575 et esq.) | The Water Recycling Act of 1991 encourages the use of recycled water for certain uses and establishes standards for the development and implementation of recycled water programs. |
| Energy Commission Integrated Energy Policy Report (IEPR) 2003 | Consistent with State Water Resources Control Board Policy 75-58 and the Warren–Alquist Act, the Energy Commission will approve the use of fresh water for cooling purposes by power plants it licenses only where alternative water supply sources and alternative cooling technologies are shown to be “environmentally undesirable” or “economically unsound”. “Additionally, the Energy Commission will require zero liquid discharge technologies unless such technologies are shown to be “environmentally undesirable” or “economically unsound”. |

| | |
|---|---|
| State Water Resources Control Board (SWRCB) Policies: Resolution 75-58 & Resolution 88-63 | The principal policy of the SWRCB that addresses the specific siting of energy facilities is the Water Quality Control Policy on the Use and Disposal of Inland Waters Used for Power Plant Cooling (adopted by the Board on June 19, 1976, by Resolution 75-58). This policy states that use of fresh inland waters should only be used for power plant cooling if other sources or other methods of cooling would be environmentally undesirable or economically unsound. Resolution 75-58 defines fresh inland waters as those "which are suitable for use as a source of domestic, municipal, or agricultural water supply and which provide habitat for fish and wildlife".<br>Resolution 88-63 defines suitability of sources of drinking water. The total dissolved solids must not exceed 3,000 mg/L in order to be considered suitable, or potentially suitable, for municipal or domestic water supply. |
| **LOCAL** | |
| Alameda County Grading Ordinance (Alameda County Code (ACC), Chapter 15.36) | Chapter 15.36 regulates grading on private property within unincorporated areas of the county without permit. The Grading Ordinance seeks to avoid pollution of watercourses caused by runoff and to ensure that the intended use of the site is consistent with the county general plan. |
| Alameda County Stormwater Management and Discharge Control Ordinance (Alameda County Code (ACC), Chapter 13.08) | The purpose of Chapter 13.08 is to reduce the pollution of and enhance water quality in county receiving waters and the San Francisco Bay. |
| Contra Costa County General Plan | The General Plan implements standards for erosion control and provides requirements for erosion and sediment control plans in the county. It also encourages flood control and drainage guidelines for developing areas. |
| Contra Costa County Code | The County Code provides requirements for drainage plans and grading slope restrictions. |
| Contra Costa County, Division 1010, Drainage Ordinance | Contra Costa County Code Division 1010 conveys requirements for drainage construction including drainage permit. |

## TRANSMISSION LINE SAFETY AND NUISANCE

| Applicable LORS | Description |
|---|---|
| **Aviation Safety** | |
| **Federal** | |
| Title 14, Part 77 of the Code of Federal Regulations (CFR),"Objects Affecting the Navigable Air Space" | Describes the criteria used to determine the need for a Federal Aviation Administration (FAA) "Notice of Proposed Construction or Alteration" in cases of potential obstruction hazards. |
| FAA Advisory Circular No. 70/7460-1G, "Proposed Construction and/or Alteration of Objects that May Affect the Navigation Space" | Addresses the need to file the "Notice of Proposed Construction or Alteration" (Form 7640) with the FAA in cases of potential for an obstruction hazard. |
| FAA Advisory Circular 70/460-1G, "Obstruction Marking and Lighting" | Describes the FAA standards for marking and lighting objects that may pose a navigation hazard as established using the criteria in Title 14, Part 77 of the CFR. |
| **Interference with Radio Frequency Communication** | |
| **Federal** | |
| Title 47, CFR, section 15.2524, Federal Communications Commission (FCC) | Prohibits operation of devices that can interfere with radio-frequency communication. |
| **State** | |
| California Public Utilities Commission (CPUC) General Order 52 (GO-52 ) | Governs the construction and operation of power and communications lines to prevent or mitigate interference. |
| **Audible Noise** | |
| **Local** | |
| Alameda County Code Title 6.60 | Establishes noise standards for residential and commercial areas. |
| Alameda County General Plan. (East County Area Plan – Environmental Health and Safety) | Requires noise surveys for surveys proposed for existing residential or other sensitive areas. |
| **Hazardous and Nuisance Shocks** | |
| **State** | |
| CPUC GO-95, "Rules for Overhead Electric Line Construction" | Governs clearance requirements to prevent hazardous shocks, grounding techniques to minimize nuisance shocks, and maintenance and inspection requirements. |
| Title 8, California Code of Regulations (CCR) section 2700 et seq. "High Voltage Safety Orders" | Specifies requirements and minimum standards for safely installing, operating, working around, and maintaining electrical installations and equipment. |

| Applicable LORS | Description |
|---|---|
| National Electrical Safety Code | Specifies grounding procedures to limit nuisance shocks. Also specifies minimum conductor ground clearances. |
| **Industry Standards** | |
| Institute of Electrical and Electronics Engineers (IEEE) 1119, “IEEE Guide for Fence Safety Clearances in Electric-Supply Stations” | Specifies the guidelines for grounding-related practices within the right-of-way and substations. |
| **Electric and Magnetic Fields** | |
| **State** | |
| CPUC GO-131-D, ”Rules for Planning and Construction of Electric Generation Line and Substation Facilities in California” | Specifies application and noticing requirements for new line construction including EMF reduction. |
| CPUC Decision 93-11-013 | Specifies CPUC requirements for reducing power frequency electric and magnetic fields. |
| **Industry Standards** | |
| American National Standards Institute (ANSI/IEEE) 644-1944 Standard Procedures for Measurement of Power Frequency Electric and Magnetic Fields from AC Power Lines | Specifies standard procedures for measuring electric and magnetic fields from an operating electric line. |
| **Fire Hazards** | |
| **State** | |
| 14 CCR sections 1250–1258, “Fire Prevention Standards for Electric Utilities” | Provides specific exemptions from electric pole and tower firebreak and conductor clearance standards and specifies when and where standards apply. |

## Traffic and Transportation

| Applicable LORS | Description |
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| **Federal** | |
| Code of Federal Regulations (CFR) Title 49, Subtitle B: Sections 171-177 and 350-399 | Requires proper handling and storage of hazardous materials during transportation. |
| CFR Title14 Aeronautics and Space, Part 77 - Objects Affecting Navigable Airspace (14 CFR 77) | These regulations establish standards for determining physical obstructions to navigable airspace; set noticing and hearing requirements; provide for aeronautical studies to determine the effect of physical obstructions on the safe and efficient use of airspace; and oversee the development of antenna farm areas. |
| **State** | |
| California Vehicle Code (CVC): Div. 2, Chap. 2.5; Div. 6, Chap. 7; Div. 13, Chap. 5; Div. 14; Div. 14.1, Chap. 1 & 2; Div. 14.3; Div. 14.7; Div. 14.8; & Div. 15 | Includes regulations pertaining to: licensing, size, weight, and load of vehicles operated on highways; safe operation of vehicles; and the transportation of hazardous materials. |
| California Streets and Highway Code (S&HC): Div.1, Chap. 3; Div. 2, Chap. 5.5 and 6 | Includes regulations for the care and protection of State and County highways and provisions for the issuance of written permits. |
| California Health and Safety Code: Section 25160 et seq. | Pertains to operators of vehicles transporting hazardous materials; promotes safe transportation of hazardous materials. |
| **Local** | |
| San Joaquin Council of Governments (SJCOG) 2007 Regional Transportation Plan | Establishes the vision for the region's future transportation system. Objectives include: supporting the continued maintenance and preservation of the existing transportation system; and requiring mitigation measures for land uses which significantly impact the Congestion Management Program network. |
| San Joaquin County Municipal Code, Title 10: Division 2, Chapter 4 | Establishes truck routes and maximum weight limits for commercial vehicles. |
| City of Tracy Municipal Code Title 3: Sections 3.08.290,.300, and .310 | Establishes designated truck routes and route restrictions for overweight vehicles and loads. |

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| Mountain House Community Services District – Transportation Permit Requirements | Requires a permit for oversized or overweight vehicles (as designated by CVC Division 15) to travel through Mountain House. |
| Contra Costa County Airport Land Use Compatibility Plan (CCC-ALUCP), Policies: 4.3.4 FAA Notification; 4.3.6 Other Flight Hazards; 6.7.4 and 6.5.4 Height Limitations; 6.9.3 Hazards to Flight | Provides requirements for: protection of airspace; FAA notification for objects that may exceed a Federal Aviation Regulation (FAR) Part 77 conical surface (and intrude into airspace); definition of the airport influence area to encompass the FAR Part 77 conical surface; Airport Land Use Commission (ALUC) review for any proposed object taller than 100 feet in Compatibility Zone 'D'; and prohibition of land uses which would cause flight hazards. |
| Contra Costa County General Plan Transportation and Circulation Element: Section 5.10 Airports and Heliports, especially Policies 5-70 and 5-72 | Provides goals and policies for local and regional transportation and incorporates Contra Costa County Airport Land Use Commission (CCC-ALUC) plans and policies. Includes requirements for lighting, marking, and noticing temporary structures (such as construction cranes and antennae) which would penetrate any adopted height limit surface for airports (Policy 5-70). Prohibits any use which would adversely affect safe air navigation within a safety zone (Policy 5-72). |
| Contra Costa County General Plan Growth Management Element: Table 4-1, Figure 4-2 | Provides level of service (LOS) standards for roads within Contra Costa County. |
| Contra Costa County Municipal Code: Title 10, Public Works | Provides requirements for permits in the right-of-way, including those for encroachment, use, restoration, repairs, utilities, vehicle movement, pole and transmission line clearances, visible devices, material storage setbacks, construction, and safeguard requirements. |
| Alameda County East County Area General Plan, Transportation Systems Element Policies 180, 190, 193, 207; Alameda County Code, Chapter 15.44 Cumulative Traffic Impact Mitigation Fees and Chapter 15.48 Tri-Valley Transportation Development Fee for traffic mitigation | Policies 180 and 207 and Chapters 15.44 and 15.48 require "fair share" traffic impact mitigation fees. Policy 190 requires transportation demand management for new development. Policy 193 requires preparation of Deficiency Plans for new development that directly causes level of service (LOS) to exceed LOS D on major arterial segments and LOS E on Congestion Management Program (CMP) designated roadways (e.g., Interstate Highway 580). |

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| Alameda County East County Area General Plan, Land Use Element Policy 150 and Program 64 | Requires Alameda County to work with Contra Costa County to ensure that land uses approved in Alameda County within the Byron Airport's referral area are compatible with the airport's operations. States that Alameda County shall refer all major development and plans within the Byron Airport referral area to the Contra Costa County Airport Land Use Commission (CCC-ALUCP) for review. Requires the County to consider appropriate measures to minimize or eliminate potential adverse effects of development on airport operations or avigation. States that if a proposed project, including any mitigation measures, is determined to create a hazard to avigation or an adverse impact on airport operations, the County shall not approve the project. |
| Alameda County Congestion Management Agency's 2009 Congestion Management Program<br><br>(Note: The Alameda County Congestion Management Agency is now part of the Alameda County Transportation Commission.) | For roads within the Congestion Management Program network, establishes an LOS standard of E, except where F was the LOS originally measured, in which case the standard is LOS F. |
| Alameda County Municipal Code, Title 10 Vehicles and Traffic: Chapter 10.04 County Highway Traffic Regulations; Chapter 10.08 State Highway Traffic Regulations; Chapter 10.16 Oversize Trucks | Prohibits storage of vehicles on County and State streets; requires oversize trucks needing terminal access from the federal highway system to obtain destination and route approval from the County. |
| Alameda County Municipal Code, Title 17 Zoning: Chapter 17.52 General Requirements | Provides requirements pertaining to parking spaces, driveway access, and loading areas. |

**TRAFFIC AND TRANSPORTATION Table 7**
**Project Compliance with Adopted Traffic and Transportation LORS**

| Applicable LORS | Description | Consistency |
|---|---|---|
| **Federal** | | |
| Code of Federal Regulations (CFR) Title 49, Subtitle B: Sections 171-177 and 350-399 | These regulations govern the transport of hazardous materials. | **Consistent.** The applicant indicated in the AFC that the project will comply with these regulations. Also, **TRANS-5** requires compliance. |
| CFR Title14 Aeronautics and Space, Part 77 - Objects Affecting Navigable Airspace (14 CFR 77) | These regulations establish standards for determining physical obstructions to navigable airspace; set noticing and hearing requirements; provide for aeronautical studies to determine the effect of physical obstructions on the safe and efficient use of airspace; and oversee the development of antenna farm areas. | **Consistent.** The FAA issued a "Determination of No Hazard to Air Navigation" for each of the project's power plant exhaust stacks and transmission line poles. |
| **State** | | |
| California Vehicle Code (CVC): Div. 2, Chap. 2.5; Div. 6, Chap. 7; Div. 13, Chap. 5; Div. 14; Div. 14.1, Chap. 1 & 2; Div. 14.3; Div. 14.7; Div. 14.8; & Div. 15 | Includes regulations pertaining to licensing, size, weight, and load of vehicles operated on highways; safe operation of vehicles; and the transportation of hazardous materials (e.g. California Highway Patrol). | **Consistent.** The applicant indicated in the AFC that the project will comply with these regulations. Also, **TRANS-1** and **TRANS-5** require compliance. |
| California Streets and Highways Code (S&HC): Div.1, Chap. 3; Div. 2, Chap. 5.5 and 6 | Includes regulations for the care and protection of State and County highways, including provisions for the issuance of encroachment permits. | **Consistent.** The applicant indicated in the AFC that the project will comply with these regulations. Also, **TRANS-1**, **TRANS-4**, and **TRANS-2** require compliance. |
| California Health and Safety Code: Section 25160 et seq. | Pertains to operators of vehicles transporting hazardous materials; promotes safe transportation of hazardous materials. | **Consistent.** The applicant indicated in the AFC that the project will comply with these regulations. Also, **TRANS-1** and **TRANS-5** require compliance. |
| **Local** | | |
| San Joaquin Council of Governments (SJCOG) 2007 Regional Transportation Plan | Establishes the vision for the region's future transportation system. Objectives include: supporting the continued maintenance and preservation of the existing transportation system; and requiring mitigation measures | **Consistent.** The project would not cause any degradation or significant impacts to the ground transportation network with the implementation of **TRANS-4**, **TRANS-2**, and **TRANS-3**. |

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| | for land uses which significantly impact the Congestion Management Program network. | |
| San Joaquin County Municipal Code, Title 10: Division 2, Chapter 4 | Establishes truck routes and maximum weight limits for commercial vehicles. | **Consistent.**<br>Implementation of **TRANS-1** would ensure consistency. |
| City of Tracy Municipal Code Title 3: Sections 3.08.290,.300, and .310 | Establishes designated truck routes and route restrictions for overweight vehicles and loads. | **Consistent.**<br>Implementation of **TRANS-1** would ensure consistency. |
| Mountain House Community Services District – Transportation Permit Requirements | Requires a permit for oversized or overweight vehicles (as designated by CVC Division 15) to travel through Mountain House. | **Consistent.**<br>Implementation of **TRANS-1** would ensure consistency. |
| Contra Costa County Airport Land Use Compatibility Plan (CCC-ALUCP) Policies: 4.3.4 FAA Notification; 4.3.6 Other Flight Hazards; 6.7.4 and 6.5.4 Height Limitations; 6.9.3 Hazards to Flight | Provides requirements for: protection of airspace; FAA notification for objects that may exceed a Federal Aviation Regulation (FAR) Part 77 conical surface (and intrude into airspace); definition of the airport influence area to encompass the FAR Part 77 conical surface; Airport Land Use Commission (ALUC) review for any proposed object taller than 100 feet in Compatibility Zone 'D'; and prohibition of land uses which would cause flight hazards. | Policy 4.3.4 FAA Notification<br>**Consistent:** The applicant notified the FAA of the proposed construction by filing FAA Form 7460-1, Notice of Proposed Construction or Alteration, even though the project height is below the threshold requiring FAA notification. The FAA has issued a Determination of No Hazard to Air Navigation for each of the project's exhaust stacks and transmission poles (CH2M 2009f).<br><br>Policy 4.3.6 Other Flight Hazards[3]<br>**Consistent:** The MEP would not cause visual, electronic, or bird strike hazards to aircraft in flight.<br>• There would be no glare or distracting lights which could be mistaken for airport lights.<br>• The MEP would not generate dust, steam, or smoke which may impair pilot visibility. (See the **VISUAL RESOURCES** and **AIR QUALITY** sections of this SSA for more information.)<br>• Communications equipment and transmission lines would not interfere with aircraft communications or navigation. (See the **TRANSMISSION LINE SAFETY & NUISANCE** |

[3] This policy makes no reference to potential hazards from thermal plumes. Staff evaluates potential aviation impacts from the MEP's thermal plumes elsewhere in this document and concludes that impacts, after implementation of proposed conditions of certification, would be less than significant.

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| | | section of this SSA for more information on transmission lines.)<br>• The MEP would not attract birds which could be hazardous to aircraft. (See the **BIOLOGICAL RESOURCES** section of this SSA for more information.)<br><br>Policies 6.7.4 and 6.5.4 Height Limitations<br>**Consistent:** The tallest parts of the MEP (the transmission poles and stacks) are less than 100 feet tall.<br><br>Policy 6.9.3 Hazards to Flight[4]<br>**Consistent:** The MEP would not attract birds or create a visual or electronic hazard to flight. |
| Contra Costa County General Plan Transportation and Circulation Element: Section 5.10 Airports and Heliports, Policies 5-70 and 5-72 | Provides goals and policies for local and regional transportation and incorporates Contra Costa County Airport Land Use Commission (CCC-ALUC) plans and policies. Includes requirements for lighting, marking, and noticing temporary structures (such as construction cranes and antennae) which would penetrate any adopted height limit surface for airports (Policy 5-70). Prohibits any use which would adversely affect safe air navigation within a safety zone (Policy 5-72). | **Consistent.**<br>Construction cranes would not penetrate any adopted height limit surface, and the MEP is not proposed for construction within a safety zone. |
| Contra Costa County General Plan Growth Management Element: Table 4-1, Figure 4-2 | Provides level of service (LOS) standards for roads within Contra Costa County. | **Consistent.**<br>The project would not degrade Level of Service (LOS) in Contra Costa County below the applicable LOS standards. |
| Contra Costa County Municipal Code: Title 10, Public Works | Provides requirements for permits in the right-of-way, including those for encroachment, use, restoration, repairs, utilities, vehicle | **Consistent.**<br>Implementation of **TRANS-4** would ensure consistency. |

[4] This policy makes no reference to potential hazards from thermal plumes. Staff evaluates potential aviation impacts from the MEP's thermal plumes elsewhere in this document and concludes that impacts, after implementation of proposed conditions of certification, would be less than significant.

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| | movement, pole and transmission line clearances, visible devices, material storage setbacks, construction, and safeguard requirements. | |
| Alameda County East County Area General Plan, Transportation Systems Element Policies 180, 190, 193, 207; Alameda County Code, Chapter 15.44 Cumulative Traffic Impact Mitigation Fees and Chapter 15.48 Tri-Valley Transportation Development Fee for traffic mitigation. | Policies 180 and 207 and Chapters 15.44 and 15.48 require “fair share" traffic impact mitigation fees. Policy 190 requires transportation demand management for new development. Policy 193 requires preparation of Deficiency Plans for new development that directly causes level of service (LOS) to exceed LOS D on major arterial segments and LOS E on Congestion Management Program (CMP) designated roadways (e.g., Interstate Highway 580). | Policies 180 and 207, Chapters 15.44 and 15.48<br>**Consistent: TRANS-6** requires payment of any necessary transportation fees.<br><br>Policy 190<br>**Consistent: TRANS-3** requires transportation demand management during construction through means such as staggering construction workers’ work schedules and/or scheduling work trips to occur during off-peak hours.<br><br>Policy 193<br>**Consistent:** The MEP would not cause LOS to degrade to unacceptable levels. The only location at which LOS would be substandard is the intersection of West Grant Line Road and Midway Road, where existing, pre-project LOS is F. Without mitigation, construction of the MEP would further degrade this intersection to an even less functional LOS F; therefore, staff is requiring **TRANS-3** (described above) to mitigate construction traffic impacts. Although the intersection would continue to operate at LOS F with mitigations, project construction’s contribution to this LOS would be less than significant. |

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| Alameda County East County Area General Plan, Land Use Element Policy 150 and Program 64 | Requires Alameda County to work with Contra Costa County to ensure that land uses approved in Alameda County within the Byron Airport's referral area are compatible with the airport's operations. States that Alameda County shall refer all major development and plans within the Byron Airport referral area to the Contra Costa County Airport Land Use Commission (CCC-ALUC) for review. Requires Alameda County to consider appropriate measures to minimize or eliminate potential adverse effects of development on airport operations or avigation. States that if a proposed project, including any mitigation measures, is determined to create a hazard to avigation or an adverse impact on airport operations, Alameda County shall not approve the project. | **Consistent.**<br>Staff requested comments from the Contra Costa County ALUC regarding the compatibility of the MEP with the Contra Costa County's Airport Land Use Compatibility Plan (ALUCP), consistent with Policy 150 and Program 64. The Contra Costa County ALUC made a finding of inconsistency on October 14, 2010. However, staff analysis does not concur with this finding, concluding that **TRANS-7** and **TRANS-8**, which alert pilots to avoid overflight of the plume, are sufficient to allow pilots to avoid potential hazards. This is especially true as normal use of the Byron Airport would not require aircraft to fly over the MEP (even with future expansion of the runways). Tracking data shows that few aircraft actually overfly the proposed project site, and these aircraft could reasonably take another course to avoid the plant. See the **Airport Operations and Hazards** section earlier in this document for more information. |
| Alameda County Congestion Management Agency's 2009 Congestion Management Program<br>(Note: The Alameda County Congestion Management Agency is now part of the Alameda County Transportation Commission.) | For roads within the Congestion Management Program network, establishes an LOS standard of E, except where F was the LOS originally measured, in which case the standard is LOS F. | **Consistent.**<br>The project does not degrade LOS on the Congestion Management Program Network below LOS E. |
| Alameda County Municipal Code, Title 10 Vehicles and Traffic: Chapter 10.04 County Highway Traffic Regulations; Chapter 10.08 State Highway Traffic Regulations; Chapter 10.16 Oversize Trucks. | Prohibits storage of vehicles on County and State streets; requires oversize trucks needing terminal access from the federal highway system to obtain destination and route approval from the County. | **Consistent.**<br>The applicant indicated in the AFC that the project will comply with these regulations. Implementation of **TRANS-1** and **TRANS-3** would ensure consistency. |
| Alameda County Municipal Code, Title 17 Zoning: Chapter 17.52 General Requirements | Provides requirements pertaining to parking spaces, driveway access, and loading areas. | **Consistent.**<br>Implementation of **TRANS-4 and TRANS-3** would ensure consistency. |

## Transmission System Engineering

| Applicable LORS | Description |
|---|---|
| **Federal** | |
| The National Electric Safety Code, 1999 | Provides electrical, mechanical, civil and structural requirements for overhead electric line construction and operation. |
| NERC/WECC Planning Standards | The Western Electricity Coordinating Council (WECC) Planning Standards are merged with the North American Electric Reliability Council (NERC) Planning Standards and provide the system performance standards used in assessing the reliability of the interconnected system. These standards require the continuity of service to loads as the first priority and preservation of interconnected operation as a secondary priority. Certain aspects of the NERC/WECC standards are either more stringent or more specific than the NERC standards alone. These standards provide planning for electric systems so as to withstand the more probable forced and maintenance outage system contingencies at projected customer demand and anticipated electricity transfer levels, while continuing to operate reliably within equipment and electric system thermal, voltage and stability limits. These standards include the reliability criteria for system adequacy and security, system modeling data requirements, system protection and control, and system restoration. Analysis of the WECC system is based to a large degree on Section I.A of the standards, “NERC and WECC Planning Standards with Table I and WECC Disturbance-Performance Table” and on Section I.D, “NERC and WECC Standards for Voltage Support and Reactive Power”. These standards require that the results of power flow and stability simulations verify defined performance levels. Performance levels are defined by specifying the allowable variations in thermal loading, voltage and frequency, and loss of load that may occur on systems during various disturbances. Performance levels range from no significant adverse effects inside and outside a system area during a minor disturbance (loss of load or a single transmission element out of service) to a level that seeks to prevent system cascading and the subsequent blackout of islanded areas during a major disturbance (such as loss of multiple 500 kV lines along a common right of way, and/or multiple generators). While controlled |

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| | loss of generation or load or system separation is permitted in certain circumstances, their uncontrolled loss is not permitted (WECC 2006). |
| North American Reliability Council (NERC) Reliability Standards for the Bulk Electric Systems of North America | Provide national policies, standards, principles and guidelines to assure the adequacy and security of the electric transmission system. The NERC Reliability Standards provide for system performance levels under normal and contingency conditions. With regard to power flow and stability simulations, while these Reliability Standards are similar to NERC/WECC Standards, certain aspects of the NERC/WECC Standards are either more stringent or more specific than the NERC Standards for Transmission System Contingency Performance. The NERC Reliability Standards apply not only to interconnected system operation but also to individual service areas (NERC 2006). |
| **State** | |
| California ISO Planning Standards | Provide standards, and guidelines to assure the adequacy, security and reliability in the planning of the California ISO transmission grid facilities. The California ISO Grid Planning Standards incorporate the NERC/WECC and NERC Reliability Planning Standards. With regard to power flow and stability simulations, these Planning Standards are similar to the NERC/WECC or NERC Reliability Planning Standards for Transmission System Contingency Performance. However, the California ISO Standards also provide some additional requirements that are not found in the WECC/NERC or NERC Standards. The California ISO Standards apply to all participating transmission owners interconnecting to the California ISO controlled grid. They also apply when there are any impacts to the California ISO grid due to facilities interconnecting to adjacent controlled grids not operated by the California ISO (California ISO 2002a). |
| California ISO/FERC Electric Tariff | Provides guidelines for construction of all transmission additions/upgrades (projects) within the California ISO controlled grid. The California ISO determines the “Need” for the proposed project where it will promote economic efficiency or maintain system reliability. The California ISO also determines the Cost Responsibility of the proposed project and provides an Operational Review of all facilities |

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| | that are to be connected to the California ISO grid (California ISO 2007a). |
| California Public Utilities Commission (CPUC) General Order 95 (GO-95), | "Rules for Overhead Electric Line Construction," formulates uniform requirements for construction of overhead lines. Compliance with this order ensures adequate service and safety to persons engaged in the construction, maintenance and operation or use of overhead electric lines and to the public in general. |
| California Public Utilities Commission (CPUC) General Order 128 (GO-128), | "Rules for Construction of Underground Electric Supply and Communications Systems," formulates uniform requirements and minimum standards to be used for underground supply systems to ensure adequate service and safety to persons engaged in the construction, maintenance and operation or use of underground electric lines and to the public in general. |

**Visual Resources**
**Proposed Project's Consistency with LORS Applicable to Aesthetics, and Protection and Preservation of Sensitive Visual Resources**

| LORS | | Consistency Determination | Basis for Consistency or Inconsistency | Proposed Condition of Certification |
|---|---|---|---|---|
| **Source** | **Policy and Strategy Descriptions** | | | |
| **LOCAL** | | | | |
| **County of Alameda General Plan**<br><br>**East County Area Plan (Revised by Initiative November 2000)** | State planning law requires each city and county to prepare and adopt a comprehensive, long-term general plan for its physical development *(Government Code §65300 et.seq.)* The plan must include a statement of development policies and a diagram or diagrams and text setting forth objectives, principles, standards, and plan proposals *(Government Code §65302)* | | | |
| | In November 2000, the Alameda County electorate approved the Save Agriculture and Open Space Lands Initiative (Measure D; effective date, December 22, 2000). The Initiative amended portions of the County General Plan, including the *East County Area Plan* (ECAP). This document incorporates the revisions called for by the Initiative. Policies, programs, tables and figures that | | | |

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| | have been added, revised, or enacted by the Initiative. | | | |
| **Incompatible Uses**<br>- Policy 73 | The County shall require buffers between those areas designated for agricultural use and new non-agricultural uses within agricultural areas or abutting parcels. The size, configuration and design of buffers shall be determined based on the characteristics of the project site and the intensity of the adjacent agricultural uses, and if applicable, the anticipated timing of future urbanization of adjacent agricultural land where such agricultural land is included in a phased growth plan. The buffer shall be located on the parcel for which a permit is sought and shall provide for the protection of the maximum amount of arable, pasture, and grazing land feasible. | Project would be consistent as proposed. | As shown on the ALTA/ACSM Land Title Survey prepared for the applicant of the Mariposa Energy Project, dated April 2009 (MEP2009a, Volume 2, June 2009), the project is to be constructed on an approximate 9.7 acre portion (leasehold) of a 158 acre project site. The location of the proposed leasehold on the 158 acre project site provides a buffer between nonagricultural use and grazing land on abutting parcels within the agricultural area. | |
| **Visual Protection**<br>- Policy 108 | To the extent possible, including by clustering if necessary, structures shall be located on that part of a parcel or on contiguous parcels in common ownership on or subsequent to the | Project would be consistent as proposed. | Power plant structures would be constructed on the opposite (east) side of a hill fronting Bruns Road. | |

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| | date this ordinance becomes effective, where the development is least visible to persons on public roads, trails, parks and other public viewpoints. | | The hill spans the southwest quarter of the project site. The hill has an approximate 100 foot elevation. The hill provides some visual buffering of the facility from Bruns Road. Major project structures are to be clustered on the 9.7 acre leasehold (see **Visual Resources Figure 6**). | |
| **Viewsheds**<br>- Policy 112 | The County shall require development to maximize views of the following prominent visual features:<br>2. Brushy Peak | Project would be consistent as proposed. | Brushy Peak's summits at 1,686 feet elevation. It is approximately 5.8 miles west of the project site. From the 158 acre property, Brushy Peak is not prominent in the view[5] (see **Visual Resources Figure 7 and Figure 11**). | |

[5] The Visual Management System of the U.S. Forest Service uses distance zones. Distance zones are divisions of a particular landscape being viewed. The three distance zones are foreground, middleground, and background. Foreground – the limit of this zone is based upon distances at which details can be perceived. It will usually be limited to areas within 0.25 to 0.5 mile of the observer, but must be determined on a case-by-case basis as should any distance zoning. Middleground - this zone extends from foreground zone to 3 to 5 miles from the observer. Background – this zone extends from middleground to infinity. Beyond five miles texture is generally very weak or nonexistent (Bacon, Warren R. 1979).

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| **Landscaping**<br>- Policy 114<br><br>- Policy 115 | The County shall require the use of landscaping in both rural and urban areas to enhance the scenic quality of the area and to screen undesirable views. Choice of plants should be based on compatibility with surrounding vegetation, drought-tolerance, and suitability to site conditions; and in rural areas, habitat value and fire retardance.<br><br>In all cases appropriate building materials, landscaping and screening shall be required to minimize the visual impact of development. Development shall blend with and be subordinate to the environment and character of the area where located, so as to be as unobtrusive as possible and not detract from the natural, open space or visual qualities of the area. To the maximum extent practicable, all | Project would be consistent as conditioned.<br><br>Project would be consistent as conditioned. | The applicant states in their Application for Certification (AFC) that a Development Plan will be provided that would include a detailed landscape plan that will respond to the County's landscaping requirements as detailed in Alameda County's East County Area Plan (ECAP) Policy 114, section 5.13.5.1 (MEP2009a, page 5.13-32).<br><br>The applicant has stated in their AFC that exteriors of all major project equipment will be treated with a neutral, earth tone finish, in colors ranging from gray to light brown. This combination of darker and lighter colors is intended to optimize its visual | Condition of Certification **VIS-6** requires landscaping and irrigation plan.<br><br>Conditions of Certification **VIS-1, VIS-4** and **VIS-6** require surface treatment of project structures and buildings, exterior lighting management and landscaping. |

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| | exterior lighting must be located, designed and shielded so as to confine direct rays to the parcel where the lighting is located. | | integration with the surrounding environment. (MEP2009a, page 5.13-31). To reduce offsite lighting impacts, lighting at the facility will be restricted to areas required for safety, security, and operation. Exterior lights will be hooded, and lights will be directed onsite so that significant light or glare would be minimized. Low-pressure sodium lamps and fixtures of a non-glare type will be specified. For areas where lighting is not required for normal operation, safety, or security, switched lighting circuits will be provided, thus allowing these areas to remain unilluminated (dark) at most times, minimizing the | |

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| | | | amount of lighting potentially visible offsite (MEP2009a, page 5.13-32). The applicant states in their AFC that a Development Plan will be provided that would include a detailed landscape plan that will respond to the County's landscaping requirements as detailed in Alameda County's ECAP Policy 114, (MEP2009a, page 5.13-32). | |
| **Alteration of Landforms** - Policy 116 | To the maximum extent possible, development shall be located and designed to conform with rather than change natural landforms. The alteration of natural topography, vegetation, and other characteristics by grading, excavating, filling or other development activity shall be minimized. To the extent feasible, access roads shall be consolidated and located where they are least visible from public | Project would be consistent as conditioned. | The project is to be constructed on the east side of an approximate 100 foot tall hill that spans the southwest quarter of the property. The project involves excavating into the hill. The hill provides some visual buffering of the MEP site from the public road. Temporary disturbed | Condition of Certification **VIS-2** requires surface restoration of areas affected by temporary construction activities. |

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| | view points. | | construction areas including the laydown area are to be restored to their original condition or better condition after project construction is completed. Excavated facility site slopes are to be vegetated to reduce erosion and run-off potential. The MEP site is to be accessed by an approximate 1,100-foot long access road that extends from an entrance on Bruns Road to the MEP leasehold. This portion of the access road already serves as the main access to the Byron Power Cogen Plant (see **Visual Resources – Figure 4 and Figure 6**). | |
| **Utilities**<br>- Policy 120 | The County shall require that utility lines be placed underground whenever feasible. When located above | Project would be consistent as proposed. | Utility lines to serve the project site are to be underground | |

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| | ground, utility lines and supporting structures shall be sited to minimize their visual impact. | | (electricity, natural gas, water, etc.). | |
| **Alameda County Code of Ordinances** Title 17-Zoning | Includes a map or series of maps and text that provides for the division of the unincorporated territory of the county into parts, hereinafter designated as districts, within each of which the uses of land and buildings and the height and bulk of buildings and the open spaces about buildings are regulated as specified. | | | |
| Section 17.06.070 Yards | In order to secure minimum basic provision for light, air, privacy and safety from fire hazards, it is required that every building hereafter constructed shall be upon a building site of dimensions such as to provide for the yards specified for the district in which the lot is located, and the following sections shall apply and control.<br>Every such yard shall be open and unobstructed from the ground upward.<br>The yard requirements in an Agriculture (”A”) district are as follows, subject to the general provisions of Section | Project would be consistent as proposed. | The proposed MEP 9.7 acre facility site (leasehold) location on the 158 acre project site would meet the county’s yard requirement envelope. | |

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| | 17.52.330:<br>A. Depth of front yard: not less than thirty feet;<br>B. Depth of rear yards: not less than ten feet;<br>C. Width of side yards: not less than ten feet. | | | |
| Section 17.06.080 Signs | No sign in an A district shall be illuminated...and no such sign shall have an area in excess of twenty-four (24) square feet, except in conformance with Sections 17.52.460 and 17.52.470 (Subdivision). In other respects, Section 17.52.020 shall control. | Project would be consistent as conditioned. | The AFC and supplements do not discuss the installation of publicly visible signs that identify the MEP. | Condition of Certification **VIS-5** requires that any publicly visible project-related signage be at a minimum. |
| Section 17.52.090 Height of Buildings - Exceptions | B. The building height limitations set forth in this title apply generally to structures, also, but shall not apply to chimneys, church spires, flag poles, or to mechanical appurtenances necessary and incidental to the permitted use of a building. | Project would be consistent as proposed. | Project elevations show four exhaust stacks at 80 feet in height, and eight new steel monopole structures ranging from 84 feet to 95 feet in height. **Visual Resources Figure 5** shows elevations of major structures. Staff concludes the project structures identified are similar to those identified by this | |

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| | | | county section as exempt from any height limitation. | |
| Section 17.52.440 - Fences, walls and hedges—Exceptions to height limitations. | The limitations on height specified in Section 17.52.430 shall not apply:<br>A. Where a higher fence is required by any other ordinance of the county or by state or federal regulation;<br>B. Where a higher fence is made a condition of approval of a conditional use or a variance pursuant to this title, provided that no such condition shall require or permit a fence having a height in excess of twelve (12) feet;<br>C. To a fence around all or part of a tennis court, a playground or a swimming pool which is, at least in that portion which exceeds the applicable limitation, constructed of open wire or steel mesh capable of admitting not less than 90% light as measured by | Project would be consistent as conditioned. | The AFC and supplements identify and show the installation of a perimeter fence. However, the height of the fence is not specified. According to the Energy Commission Hazardous Materials staff, the project owner shall prepare a site-specific security plan for the project's commissioning and operational phases. The project's Operation Security Plan includes a requirement for a permanent full perimeter fence or wall, at least eight (8) feet high. See the **HAZARDOUS** | Condition of Certification **HAZ-7** requires the project owner to implement site security measures that address physical site security and hazardous materials storage. |

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| | a reputable light meter;<br>D. An open wire fence up to six feet high in an A district. | | **MATERIALS** section of the Staff Assessment (SA) for further discussion. | |

## WASTE MANAGEMENT

| Applicable LORS | Description |
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| **Federal** | |
| Title 42, United States Code (U.S.C.), §§6901, et seq.<br><br>Solid Waste Disposal Act of 1965 (as amended and revised by the Resource Conservation and Recovery Act of 1976, et al). | The Solid Waste Disposal Act, as amended and revised by the Resource Conservation and Recovery Act (RCRA) et al, establishes requirements for the management of solid wastes (including hazardous wastes), landfills, underground storage tanks, and certain medical wastes. The statute also addresses program administration, implementation and delegation to states, enforcement provisions and responsibilities, as well as research, training, and grant funding provisions.<br><br>RCRA Subtitle C establishes provisions for the generation, storage, treatment, and disposal of hazardous waste, including requirements addressing:<br>• Generator record keeping practices that identify quantities of hazardous wastes generated and their disposition;<br>• Waste labeling practices and use of appropriate containers;<br>• Use of a manifest when transporting wastes;<br>• Submission of periodic reports to the United States Environmental Protection Agency (USEPA) or other authorized agency; and<br>• Corrective action to remediate releases of hazardous waste and contamination associated with RCRA-regulated facilities.<br><br>RCRA Subtitle D establishes provisions for the design and operation of solid waste landfills.<br><br>RCRA is administered at the federal level by USEPA and its ten regional offices. The Pacific Southwest regional office (Region 9) implements USEPA programs in California, Nevada, Arizona, and Hawaii. |
| Title 42, U.S.C., §§ 9601, et seq.<br><br>Comprehensive Environmental Response, Compensation and Liability Act | The Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), also known as Superfund, establishes authority and funding mechanisms for cleanup of uncontrolled or abandoned hazardous waste sites, as well as cleanup of accidents, spills, or emergency releases of pollutants and contaminants into the environment. Among other things, the statute addresses:<br>• Reporting requirements for releases of hazardous substances;<br>• Requirements for remedial action at closed or abandoned hazardous waste sites, and brownfields;<br>• Liability of persons responsible for releases of hazardous substances or waste; and<br>• Requirements for property owners/potential buyers to conduct “all |

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| | appropriate inquiries" into previous ownership and uses of the property to 1) determine if hazardous substances have been or may have been released at the site, and 2) establish that the owner/buyer did not cause or contribute to the release. A Phase I Environmental Site Assessment is commonly used to satisfy CERCLA "all appropriate inquiries" requirements. |
| Title 40, Code of Federal Regulations (CFR), Subchapter I – Solid Wastes. | These regulations were established by USEPA to implement the provisions of the Solid Waste Disposal Act and RCRA (described above). Among other things, the regulations establish the criteria for classification of solid waste disposal facilities (landfills), hazardous waste characteristic criteria and regulatory thresholds, hazardous waste generator requirements, and requirements for management of used oil and universal wastes.<br>• Part 246 addresses source separation for materials recovery guidelines.<br>• Part 257 addresses the criteria for classification of solid waste disposal facilities and practices.<br>• Part 258 addresses the criteria for municipal solid waste landfills.<br>• Parts 260 through 279 address management of hazardous wastes, used oil, and universal wastes (i.e., batteries, mercury-containing equipment, and lamps).<br>USEPA implements the regulations at the federal level. However, California is an authorized state so the regulations are implemented by state agencies and authorized local agencies in lieu of USEPA. |
| Title 49, CFR, Parts 172 and 173.<br><br>Hazardous Materials Regulations | U.S. Department of Transportation established standards for transport of hazardous materials and hazardous wastes. The standards include requirements for labeling, packaging, and shipping of hazardous materials and hazardous wastes, as well as training requirements for personnel completing shipping papers and manifests. Section 172.205 specifically addresses use and preparation of hazardous waste manifests in accordance with Title 40, CFR, section 262.20. |
| **State** | |
| California Health and Safety Code (HSC), Chapter 6.5, §25100, et seq.<br><br>Hazardous Waste Control Act of 1972, as amended. | This California law creates the framework under which hazardous wastes must be managed in California. The law provides for the development of a state hazardous waste program that administers and implements the provisions of the federal RCRA program. It also provides for the designation of California-only hazardous wastes and development of standards (regulations) that are equal to or, in some cases, more stringent than federal requirements.<br><br>The California Environmental Protection Agency (Cal/EPA), Department of Toxic Substances Control (DTSC) administers and implements the provisions of the law at the state level. Certified Unified Program Agencies (CUPAs) implement some elements of the law at the local level. |

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| Title 22, California Code of Regulations (CCR), Division 4.5.<br><br>Environmental Health Standards for the Management of Hazardous Waste | These regulations establish requirements for the management and disposal of hazardous waste in accordance with the provisions of the California Hazardous Waste Control Act and federal RCRA. As with the federal requirements, waste generators must determine if their wastes are hazardous according to specified characteristics or lists of wastes. Hazardous waste generators must obtain identification numbers, prepare manifests before transporting the waste off-site, and use only permitted treatment, storage, and disposal facilities. Generator standards also include requirements for record keeping, reporting, packaging, and labeling. Additionally, while not a federal requirement, California requires that hazardous waste be transported by registered hazardous waste transporters.<br><br>The standards addressed by Title 22, CFR include:<br>• Identification and Listing of Hazardous Waste (Chapter 11, §§66261.1, et seq.)<br>• Standards Applicable to Generators of Hazardous Waste (Chapter 12, §§66262.10, et seq.)<br>• Standards Applicable to Transporters of Hazardous Waste (Chapter 13, §§66263.10, et seq.)<br>• Standards for Universal Waste Management (Chapter 23, §§66273.1, et seq.)<br>• Standards for the Management of Used Oil (Chapter 29, §§66279.1, et seq.)<br>• Requirements for Units and Facilities Deemed to Have a Permit by Rule (Chapter 45, §§67450.1, et seq.)<br><br>The Title 22 regulations are established and enforced at the state level by DTSC. Some generator standards are also enforced at the local level by CUPAs. |
| HSC, Chapter 6.11 §§25404 – 25404.9<br><br>Unified Hazardous Waste and Hazardous Materials Management Regulatory Program (Unified Program) | The Unified Program consolidates, coordinates, and makes consistent the administrative requirements, permits, inspections, and enforcement activities of the six environmental and emergency response programs listed below.<br>• Aboveground Storage Tank Program<br>• Business Plan Program<br>• California Accidental Release Prevention (CalARP) Program<br>• Hazardous Material Management Plan / Hazardous Material Inventory Statement Program<br>• Hazardous Waste Generator / Tiered Permitting Program<br>• Underground Storage Tank Program<br><br>The state agencies responsible for these programs set the standards for their programs while local governments implement the standards. The local agencies implementing the Unified Program are known as Certified Unified Program Agencies (CUPAs). San Diego County |

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| | Department of Environmental Health is the area CUPA.<br><br>Note: The Waste Management analysis only considers application of the Hazardous Waste Generator/Tiered Permitting element of the Unified Program. Other elements of the Unified Program may be addressed in the Hazardous Materials and/or Worker Health and Safety analysis sections. |
| Title 27, CCR, Division 1, Subdivision 4, Chapter 1, §15100, et seq.<br><br>Unified Hazardous Waste and Hazardous Materials Management Regulatory Program | While these regulations primarily address certification and implementation of the program by the local CUPAs, the regulations do contain specific reporting requirements for businesses.<br>• Article 9 – Unified Program Standardized Forms and Formats (§§ 15400-15410).<br>• Article 10 – Business Reporting to CUPAs (§§15600 – 15620). |
| Public Resources Code, Division 30, §40000, et seq.<br><br>California Integrated Waste Management Act of 1989. | The California Integrated Waste Management Act of 1989 (as amended) establishes mandates and standards for management of solid waste. Among other things, the law includes provisions addressing solid waste source reduction and recycling, standards for design and construction of municipal landfills, and programs for county waste management plans and local implementation of solid waste requirements. |
| Title 14, CCR, Division 7, §17200, et seq.<br><br>California Integrated Waste Management Board | These regulations further implement the provisions of the California Integrated Waste Management Act and set forth minimum standards for solid waste handling and disposal. The regulations include standards for solid waste management, as well as enforcement and program administration provisions.<br>• Chapter 3 -- Minimum Standards for Solid Waste Handling and Disposal.<br>• Chapter 3.5 – Standards for Handling and Disposal of Asbestos Containing Waste.<br>• Chapter 7 – Special Waste Standards.<br>• Chapter 8 – Used Oil Recycling Program.<br>• Chapter 8.2 – Electronic Waste Recovery and Recycling |
| HSC, Division 20, Chapter 6.5, Article 11.9, §25244.12, et seq.<br><br>Hazardous Waste Source Reduction and Management Review Act of 1989 | This law was enacted to expand the State's hazardous waste source reduction activities. Among other things, it establishes hazardous waste source reduction review, planning, and reporting requirements for businesses that routinely generate more than 12,000 kilograms (~ 26,400 pounds) of hazardous waste in a designated reporting year. The review and planning elements are required to be done on a 4 year cycle, with a summary progress report due to DTSC every 4th year. |

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| (also known as SB 14). | |
| Title 22, CCR, §67100.1 et seq.<br><br>Hazardous Waste Source Reduction and Management Review. | These regulations further clarify and implement the provisions of the Hazardous Waste Source Reduction and Management Review Act of 1989 (noted above). The regulations establish the specific review elements and reporting requirements to be completed by generators subject to the Act. |
| **Local** | |
| East County Area Plan, Policies 247, 248, 249, and 250 | Provides guidance to ensure the safe and efficient disposal or recycling of wastes. MEP will comply with the county's requirements as detailed in Special Services Facilities, pages 62-63, of the Area Plan. |
| Alameda County Integrated Waste Management Plan | Provides guidance for local management of solid waste and household hazardous waste (incorporates the county's source Reduction and Recycling Elements, which detail means of reducing commercial and industrial sources of solid waste0. Waste will be recycled in a manner consistent with applicable LORS. |
| Alameda County Department of Environmental Health, Hazardous Material Division (HMD) various programs | HMD is the Certified Unified Program Agency (CUPA) for Alameda county that regulates and conducts inspections of businesses that handle hazardous materials, hazardous wastes, and/or have underground storage tanks. HMD programs assistance with oversight on property redevelopment (i.e., brownfields); and voluntary or private oversight cleanup assistance. |

## Worker Safety and Fire Protection

| Applicable Law | Description |
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| **Federal** | |
| Title 29 U.S. Code (USC) section 651 et seq (Occupational Safety and Health Act of 1970) | This act mandates safety requirements in the workplace with the purpose of "[assuring] so far as possible every working man and woman in the nation safe and healthful working conditions and to preserve our human resources" (29 USC § 651). |
| Title 29 Code of Federal Regulation (CFR) sections 1910.1 to 1910.1500 (Occupational Safety and Health Administration Safety and Health Regulations) | These sections define the procedures for promulgating regulations and conducting inspections to implement and enforce safety and health procedures to protect workers, particularly in the industrial sector. |
| 29 CFR sections 1952.170 to 1952.175 | These sections provide federal approval of California's plan for enforcement of its own Safety and Health requirements, in lieu of most of the federal requirements found in 29 CFR sections 1910.1 to 1910.1500. |
| **State** | |
| Title 8 California Code of Regulations (Cal Code Regs.) all applicable sections (Cal/OSHA regulations) | These sections require that all employers follow these regulations as they pertain to the work involved. This includes regulations pertaining to safety matters during construction, commissioning, and operations of power plants, as well as safety around electrical components, fire safety, and hazardous materials use, storage, and handling. |
| 24 Cal Code Regs. section 3, et seq. | This section incorporates the current addition of the Uniform Building Code. |
| Health and Safety Code section 25500, et seq. | This section presents Risk Management Plan requirements for threshold quantity of listed acutely hazardous materials at a facility. |
| Health and Safety Code sections 25500 to 25541 | These sections require a Hazardous Material Business Plan detailing emergency response plans for hazardous materials emergency at a facility. |
| **Local (or locally enforced)** | |
| Uniform Fire Code | The fire code contains general provisions for fire safety, including requirements for proper storage and handling of hazardous materials and listing of the information needed by emergency response personnel. Enforced by the Alameda County Fire Department. |

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| National Fire Protection Association standards | These standards provide specifications and requirements for fire safety, including the design, installation, and maintenance of fire protection equipment. Enforced by the Alameda County Fire Department. |

Docket Number: 09-AFC-03 Project Name: **Mariposa Energy Project**

## FINAL EXHIBIT LIST

### Applicant's Exhibits 1 - 299

| Exhibit | Docket Transaction Number | Brief Description | Offered | Not Admitted | Admitted |
|---|---|---|---|---|---|
| 1 | **51974** | Mariposa Energy Project Application for Certification (AFC); dated and docketed June 15, 2009.<br>(a) Project Description<br>(b) Electric Transmission<br>(c) Air Quality<br>(d) Biological Resources<br>(e) Cultural Resources<br>(f) Geologic Hazards and Resources<br>(g) Hazardous Materials Handling<br>(h) Land Use<br>(i) Noise and Vibration<br>(j) Paleontological Resources<br>(k) Public Health<br>(l) Socioeconomics<br>(m) Soils<br>(n) Traffic and Transportation<br>(o) Traffic and Transportation - Aviation<br>(p) Visual Resources<br>(q) Waste Management<br>(r) Water Resources<br>(s) Worker Health and Safety<br>(t) Alternatives | 1-25-11 | | 2-24-11 |
| 2 | **51995** | Mariposa Energy Project AFC Air Quality Dispersion Modeling Files; dated and docketed on June 15, 2009.<br>(a) Air Quality | 1-25-11 | | 2-24-11 |

| Exhibit | Docket Transaction Number | Brief Description | Offered | Not Admitted | Admitted |
|---|---|---|---|---|---|
| 3 | **51998** | Mariposa Energy Project AFC Health Risk Assessment Files; dated and docketed on June 15, 2009.<br>(a) Public Health | 1-25-11 | | 2-24-11 |
| 4 | **59313** | Applicant's Declarations and Testimony; dated and docketed on December 20, 2010.<br>(a) Project Description<br>(b) Electric Transmission<br>(c) Air Quality<br>(d) Biological Resources<br>(e) Cultural Resources<br>(f) Geologic Hazards and Resources<br>(g) Hazardous Materials Handling<br>(h) Land Use<br>(i) Noise and Vibration<br>(j) Paleontological Resources<br>(k) Public Health<br>(l) Socioeconomics<br>(m) Soils<br>(n) Traffic and Transportation<br>(o) Traffic and Transportation - Aviation<br>(p) Visual Resources<br>(q) Waste Management<br>(r) Water Resources<br>(s) Worker Health and Safety<br>(t) Alternatives | 1-25-11 | | 2-24-11 |
| 5 | **52651** | Supplement A – Data Adequacy Responses; dated and docketed on July 31, 2009.<br>(a) Project Description<br>(b) Electric Transmission<br>(c) Air Quality<br>(d) Biological Resources<br>(e) Cultural Resources<br>(f) Geologic Hazards and Resources<br>(g) Land Use<br>(h) Traffic and Transportation | 1-25-11 | | 2-24-11 |

| Exhibit | Docket Transaction Number | Brief Description | Offered | Not Admitted | Admitted |
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| 6 | **55797** | Applicant's Supplement B - Additional Laydown Area Analysis; dated March 5, 2010 and docketed on March 8, 2010.<br>(a) Project Description<br>(b) Air Quality<br>(c) Biological Resources<br>(d) Cultural Resources<br>(e) Geologic Hazards and Resources<br>(f) Hazardous Materials Handling<br>(g) Land Use<br>(h) Noise and Vibration<br>(i) Paleontological Resources<br>(j) Public Health<br>(k) Socioeconomics<br>(l) Soils<br>(m) Traffic and Transportation<br>(n) Traffic and Transportation - Aviation<br>(o) Visual Resources<br>(p) Waste Management<br>(q) Water Resources<br>(r) Worker Health and Safety | 1-25-11 | | 2-24-11 |
| 7 | **54287** | Data Response Set 1A & 1B, Responses to CEC Staff Data Requests 1 through 68; dated and docketed on November 30, 2009.<br>(a) Electric Transmission<br>(b) Air Quality<br>(c) Biological Resources<br>(d) Cultural Resources<br>(e) Geologic Hazards and Resources<br>(f) Soils<br>(g) Traffic and Transportation<br>(h) Traffic and Transportation – Aviation<br>(i) Waste Management<br>(j) Alternatives | 1-25-11 | | 2-24-11 |

| Exhibit | Docket Transaction Number | Brief Description | Offered | Not Admitted | Admitted |
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| 8 | **55375** | Data Response Set 1C, Responses to CEC Staff Data Requests 2, 5, 8, 9, 48, 56, 59, 61, & 65; dated and docketed on February 12, 2010.<br>(a) Electric Transmission, (b) Air Quality, (c) Cultural Resources | 1-25-11 | | 2-24-11 |
| 9 | **55522** | Robert Sarvey Data Response Set 1, Responses to Data Requests 1 through 8; dated and docketed on February 18, 2010.<br>(a) Air Quality, (b) Land Use | 1-25-11 | | 2-24-11 |
| 10 | **55798** | Rajesh Dighe Data Response Set 1, Responses to Data Requests 1 to 4; dated and docketed on March 8, 2010.<br>(a) Worker Health and Safety<br>(b) Alternatives | 3-8-10 | | 3-7-11 |
| 11 | **56125** | Applicant's Data Response Set 1D, Responses to CEC Staff and Data Request 56; dated March 29, 2010 and docketed on April 1, 2010.<br>(a) Project Description<br>(b) Electric Transmission<br>(c) Air Quality<br>(d) Biological Resources<br>(e) Cultural Resources<br>(f) Geologic Hazards and Resources<br>(g) Hazardous Materials Handling<br>(h) Land Use<br>(i) Noise and Vibration<br>(j) Paleontological Resources<br>(k) Public Health<br>(l) Socioeconomics<br>(m) Soils<br>(n) Traffic and Transportation<br>(o) Traffic and Transportation - Aviation<br>(p) Visual Resources<br>(q) Waste Management<br>(r) Water Resources<br>(s) Worker Health and Safety | 1-25-11 | | 2-24-11 |

| Exhibit | Docket Transaction Number | Brief Description | Offered | Not Admitted | Admitted |
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| 12 | **56213** | Data Response Set 2A, Responses to CEC Staff Data Requests 1 to 4; dated and docketed on April 12, 2010.<br>(a) Land Use | 1-25-11 | | 2-24-11 |
| 13 | **56543** | Rajesh Dighe Data Response Set 2, Responses to Data Requests 5 to 14; dated and docketed on May 4, 2010.<br>(a) Air Quality<br>(b) Land Use<br>(c) Socioeconomics | 1-25-11 | | 2-24-11 |
| 14 | **56639** | Robert Sarvey Data Response Set 2, Responses to Data Requests 9 to 37 and 39 to 44; dated and docketed on May 12, 2010.<br>(a) Air Quality<br>(b) Water Resources<br>(c) Worker Health and Safety<br>(d) Alternatives | 1-25-11 | | 2-24-11 |
| 15 | **37232** | Applicant's Staff Queries Set 1, Addenda to CEC Staff Data Request 52, Responses to Keith Frietas E-mail, CCC ALUC Letter, Hal Yeager Letter, and Contra Costa County Board of Supervisors Letter; dated and docketed on June 18, 2010.<br>(a) Public Health<br>(b) Traffic and Transportation - Aviation | 1-25-11 | | 2-24-11 |
| 16 | **57970** | Applicant's Staff Queries Set 2, Responses to Andrea Koch E-mail; dated and docketed on August 9, 2010.<br>(a) Traffic and Transportation - Aviation | 1-25-11 | | 2-25-11 |
| 17 | **58129** | BBID Recycled Water Feasibility Study - Draft Dated July 2001; dated July 2001 and docketed on August 23, 2010.<br>(a) Water Resources | 1-25-11 | | 3-7-11 |
| 18 | **58128** | BBID Recycled Water Policy - October 2001; dated October 12, 2001 and docketed on August 23, 2010.<br>(a) Water Resources | 1-25-11 | | 3-7-11 |
| 19 | **57282** | Alameda County 2002 Letter RE East Altamont Energy Center Consistency with Alameda County General Plan; dated April 26, 2002 and docketed on June, 22, 2010.<br>(a) Land Use | 1-25-11 | | 2-24-11 |

| Exhibit | Docket Transaction Number | Brief Description | Offered | Not Admitted | Admitted |
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| 20 | **52434** | Letters from the California Department of Conservation to Mariposa Energy, LLC. Discussing the Williamson Act; dated and docketed on July 6, 2009.<br>(a) Land Use | 1-25-11 | | 2-24-11 |
| 21 | **52866** | Letter to A. Soloman Completion of Preliminary Review of Determination of Compliance / Authority to Construct; dated August 10, 2009 and docketed on August 13, 2009.<br>(a) Air Quality | 1-25-11 | | 2-24-11 |
| 22 | **53173** | CEC Response to Application for Confidentiality - Emission Reduction Credits; dated September 3, 2009 and docketed on September 10, 2009.<br>(a) Air Quality | 1-25-11 | | 2-24-11 |
| 23 | **53180** | Transition Cluster Phase I Interconnection Study; dated September 8, 2009 and docketed on September 9, 2009.<br>(a) Electric Transmission | 1-25-11 | | 2-24-11 |
| 24 | **53456** | Request for Waters of the U.S. Jurisdictional Determination; dated and docketed on September 29, 2009.<br>(a) Biological Resources | 1-25-11 | | 3-7-11 |
| 25 | **54037** | Email Regarding Data Response 56; dated November 9, 2009 and docketed on November 10, 2009.<br>(a) Electric Transmission | 1-25-11 | | 2-24-11 |
| 26 | **54080** | Notice of Need for Additional Time to Answer Staff Data Requests; dated and docketed on November 12, 2009.<br>(a) Electric Transmission<br>(b) Cultural Resources | 1-25-11 | | 2-24-11 |
| 27 | **54252** | Letter from Byron Bethany Irrigation District RE Background Information on the District; dated November 23, 2009 and docketed on November 24, 2009.<br>(a) Water Resources | 1-25-11 | | 3-7-11 |
| 28 | **54380** | USACE Wetland Delineation Amendment; dated and docketed on December 3, 2009.<br>(a) Biological Resources | 1-25-11 | | 3-7-11 |
| 29 | **59013** | U.S. Army Corps of Engineers Preliminary Determination; dated January 7, 2010 and docketed on November 16, 2010.<br>(a) Biological Resources | 1-25-11 | | 3-7-11 |

| Exhibit | Docket Transaction Number | Brief Description | Offered | Not Admitted | Admitted |
|---|---|---|---|---|---|
| 30 | **54953** | Report of Conversation (ROC) - Cultural Resources Survey of CEC 50-Foot Buffer Area; dated and docketed on January 15, 2010.<br>(a) Cultural Resources | 1-25-11 | | 2-24-11 |
| 31 | **55420** | Comments Regarding United States Army Corps of Engineers Wetland Delineation Amendment; dated and docketed on February 16, 2010.<br>(a) Biological Resources | 1-25-11 | | 3-7-11 |
| 32 | **55518** | Objection to Data Request 4 of Robert Sarvey; dated and docketed February 18, 2010.<br>(a) Land Use | 1-25-11 | | 2-24-11 |
| 33 | **56009** | Additional Modeling Files Submitted to the BAAQMD for Comparison; dated and docketed on March 22, 2010.<br>(a) Air Quality | 1-25-11 | | 2-24-11 |
| 34 | **56114** | Applicant's Objections to Robert Sarvey Data Request Set 2; dated April 2, 2010 and docketed on April 5, 2010.<br>(a) Air Quality | 1-25-11 | | 2-24-11 |
| 35 | **56441** | Letter from Contra Costa Planning Commission; dated April 6, 2010 and docketed on April 28, 2010.<br>(a) Traffic and Transportation – Aviation | 1-25-11 | | 2-25-11 |
| 36 | **58578** | Clean Water Act Section 401 Water Quality Certification Application; dated April 7, 2010 and docketed on September 21, 2010.<br>(a) Biological Resources | 1-25-11 | | 3-7-11 |
| 37 | **56233** | Mariposa Energy, LLC Letter to CEC re MHCSD Resolution R-MMX-4 Opposing the Project; dated and docketed on April 8, 2010.<br>(a) Air Quality<br>(b) Public Health | 1-25-11 | | 2-24-11 |
| 38 | **56472** | ROC Between B. Jensen of Alameda County Planning Dept. & L. Worral re Projects Proposed in MEP Site Vicinity; dated April 15, 2010 and docketed on April 29, 2010.<br>(a) Visual Resources | 1-25-11 | | 2-24-11 |

| Exhibit | Docket Transaction Number | Brief Description | Offered | Not Admitted | Admitted |
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| 39 | **56408** | DOD Letter to US Fish & Wildlife Services Regarding an Initiate Consultation; dated and docketed April 20, 2010.<br>(a) Biological Resources | 1-25-11 | | 3-7-11 |
| 40 | **56415** | Biological Assessment Transmittal to USFWS from CH2M Hill; dated and docketed April 20, 2010.<br>(a) Biological Resources | 1-25-11 | | 3-7-11 |
| 41 | **56771** | Consistency with Alameda County General Plan and Williamson Act Contracts; dated May 20, 2010 and docketed on May 21, 2010.<br>(a) Land Use | 1-25-11 | | 2-24-11 |
| 42 | **56876** | E-mail to B. Jensen on Land Use Clarification; dated and docketed on May 27, 2010.<br>(a) Land Use | 1-25-11 | | 2-24-11 |
| 43 | **57216** | Clarification from B. Jensen on Maximum Building Intensity in the LPA Land Use Designation; dated and docketed June 18, 2010.<br>(a) Land Use | 1-25-11 | | 2-24-11 |
| 44 | **58577** | Responses to Information Requests for Formal Consultation; dated July 2, 2010 and docketed September 22, 2010.<br>(a) Biological Resources | 1-25-11 | | 3-7-11 |
| 45 | **57464** | Alameda Co. 2002 Letter RE Tesla Power Plan Consistency with Alameda Co. General Plan & Williamson Act Contracts; dated April 30, 2002 and docketed on July 6, 2010.<br>(a) Land Use | 1-25-11 | | 2-24-11 |
| 46 | **58077** | Preliminary Determination of Compliance; dated and docketed on August 18, 2010.<br>(a) Air Quality | 1-25-11 | | 2-24-11 |
| 47 | **58446** | Biological Resources Mitigation Supplemental Information; dated September 9, 2010 and docketed September 14, 2010.<br>(a) Air Quality | 1-25-11 | | 3-7-11 |
| 48 | **58547** | Wetland Clarifications from Doug Urry; dated September 17, 2010 and docketed September 20, 2010.<br>(a) Air Quality | 1-25-11 | | 3-7-11 |

| Exhibit | Docket Transaction Number | Brief Description | Offered | Not Admitted | Admitted |
|---|---|---|---|---|---|
| 49 | **58582** | Alameda County Letter - MEP Consistency with Alameda County General Plan; dated September 17, 2010 and docketed September 22, 2010.<br>(a) Land Use | 1-25-11 | | 2-24-11 |
| 50 | **58576** | Email Regarding MEP Noise Levels - Distance to 60 dBA; dated September 21, 2010 and docketed September 22, 2010.<br>(a) Noise and Vibration | 1-25-11 | | 2-24-11 |
| 51 | **58920** | Transition Cluster Phase II Interconnection Study Report - Greater Bay Area; dated September 22, 2010 and docketed November 1, 2010.<br>(a) Electric Transmission | 1-25-11 | | 2-24-11 |
| 52 | **58674** | Applicant's Comments on the Preliminary Determination of Compliance; dated September 27, 2010 and docketed September 28, 2010.<br>(a) Air Quality | 1-25-11 | | 2-24-11 |
| 53 | **58638** | Potential Bird Avoidance or Attraction to Exhaust Stacks and Thermal Plumes; dated July 27, 2010 and docketed September 28, 2010.<br>(a) Biological Resources | 1-25-11 | | 3-7-11 |
| 54 | **58754** | Contra Costa County Comment Letter on Proposed Mariposa Energy Plant; dated October 4, 2010 and docketed October 12, 2010.<br>(a) Biological Resources | 1-25-11 | | 2-24-11 |
| 55 | **58718** | Letter Regarding Clarification of Water Supply with BBID; dated and docketed October 6, 2010.<br>(a) Water Resources | 1-25-11 | | 3-7-11 |
| 56 | **59180** | Email from Heather Beeler Regarding Golden Eagle Nests; dated October 13, 2010 and docketed December 7, 2010.<br>(a) Biological Resources | 1-25-11 | | 3-7-11 |
| 57 | **58850** | Applicant's Response to Public Comments Received on Preliminary Determination of Compliance; dated and docketed October 19, 2010.<br>(a) Air Quality | 1-25-11 | | 2-24-11 |

| Exhibit | Docket Transaction Number | Brief Description | Offered | Not Admitted | Admitted |
|---|---|---|---|---|---|
| 58 | **59239** | Updated MEP Biological Assessment Project Description and Conservation Measures and California Tiger Salamander and California Red-Legged Frog Relocation Plan; dated October 22, 2010 and docketed December 15, 2010.<br>(a) Biological Resources | 1-25-11 | | 3-7-11 |
| 59 | **58986** | Applicant's Response to Public Comments Received on Mariposa PDOC; dated November 4, 2010 and docketed November 8, 2010.<br>(a) Air Quality | 1-25-11 | | 2-24-11 |
| 60 | **59088** | MEP Burrowing Owl Survey Report; dated November 23, 2010 and docketed November 24, 2010.<br>(a) Biological Resources | 1-25-11 | | 3-7-11 |
| 61 | **59083** | Applicant's Comments on the CEC Staff Assessment; dated and docketed November 24, 2010.<br>(a) Electric Transmission<br>(b) Air Quality<br>(c) Biological Resources<br>(d) Hazardous Materials Handling<br>(e) Land Use<br>(f) Noise and Vibration<br>(g) Public Health<br>(h) Socioeconomics<br>(i) Traffic and Transportation<br>(j) Traffic and Transportation - Aviation<br>(k) Visual Resources<br>(l) Water Resources | 1-25-11 | | 2-24-11 |
| 62 | **59081** | Bay Area Air Quality Management District Final Determination of Compliance; dated November 24, 2010 and docketed November 30, 2010.<br>(a) Air Quality<br>(b) Public Health | 1-25-11 | | 2-24-11 |

| Exhibit | Docket Transaction Number | Brief Description | Offered | Not Admitted | Admitted |
|---|---|---|---|---|---|
| 63 | **59069** | Byron Bethany Irrigation District's Comments on Mariposa Staff Assessment; dated and docketed November 28, 2010.<br>(a) Water Resources | 1-25-11 | | 3-7-11 |
| 64 | **59119** | Project Description Update for Proposed Water Supply and Natural Gas Pipelines; dated and docketed December 1, 2010.<br>(a) Project Description<br>(b) Water Resources | 1-25-11 | | 2-24-11 |
| 65 | **59222** | Responses to Staff Assessment Workshop Request for Data; dated and docketed December 7, 2010.<br>(a) Air Quality | 1-25-11 | | 2-24-11 |
| 66 | **59197** | Applicant's Proposed Addition to the Project Description to Include Water Conservation; dated December 9, 2010 and docketed December 13, 2010.<br>(a) Project Description<br>(b) Water Resources | 1-25-11 | | 2-25-11 |
| 67 | **59518** | Applicant’s Rebuttal Testimony; dated and docketed January 21, 2011.<br>(a) Land Use<br>(b) Socioeconomics | 1-25-11 | | 2-24-11 |
| 68 | **59747** | Rebuttal to pipeline testimony, dated March 7, 2011. | 2-24-11 | | 3-7-11 |
| 69 | **60085** | Board of Zoning Draft Resolution | 3-7-11 | | 3-7-11 |
| 70 | | Flight Test Report | 3-7-11 | 2-25-11 | |
| 71 | | Tetra Tech Pipeline Safety Assessment: Schulte Road – Sports Complex | 3-7-11 | | 3-7-11 |
| 72 | | Emails from Chris Curry to David Bramell 2/25/11 and Draft Proposed Condition of Certification **Worker Safety-6** | 3-7-11 | | 3-7-11 |
| 73 | **59961** | FAA Extension of No Hazard Determination, dated March 8, 2011. | 3-7-11 | | 3-7-11 |

**Staff's Exhibits 300 - 399**

| Exhibit | Docket Transaction Number | Brief Description | Offered | Not Admitted | Admitted |
|---|---|---|---|---|---|
| **300** | **58976** | Staff Assessment for the Mariposa Energy Project, dated November 8, 2010 and docketed November 8, 2010, <u>includes only the following sections:</u><br>- Executive Summary<br>- Introduction<br>- Cultural Resources<br>- Waste Management<br>- Facility Design<br>- Geology and Paleontology<br>- Power Plant Efficiency<br>- Power Plant Reliability<br>- General Conditions | 1-25-11 | | 2-24-11 |
| **301** | **59256** | Supplemental Staff Assessment for the Mariposa Energy Project, dated December 16, 2010 and docketed December 16, 2010.<br>- Executive Summary<br>- Project Description<br>- Air Quality<br>- Biological Resources<br>- Hazardous Materials<br>- Land Use<br>- Noise and Vibration<br>- Public Health<br>- Socioeconomic Resources<br>- Soil and Water Resources<br>- Traffic and Transportation<br>- Transmission Line Safety and Nuisance<br>- Visual Resources<br>- Worker Safety<br>- Transmission System Engineering<br>- Alternatives | 1-25-11 | | 2-24-11 |
| **302** | **59081** | Bay Area Air Quality Management District Final Determination of Compliance, dated November 24, 2010 and docketed on November 30, 2010. | 1-25-11 | | 2-24-11 |

| Exhibit | Docket Transaction Number | Brief Description | Offered | Not Admitted | Admitted |
|---|---|---|---|---|---|
| **303** | **59669** | Draft Proposed Condition of Certification **Haz-8** | 3-7-11 | | 3-7-11 |
| **304** | | Draft Proposed Condition of Certification **Vis-6** | 3-7-11 | | 3-7-11 |

**Robert Sarvey Exhibits 400 - 499**

| Exhibit | Docket Transaction Number | Brief Description | Offered | Not Admitted | Admitted |
|---|---|---|---|---|---|
| **400** | **59449** | Robert Sarvey socioeconomics, Resumes of Sarvey and Schneider | 1-10-11 | | 3-7-11 |
| **401** | | Biology Testimony of Shawn Smallwood (will be submitted after issuance of BioOpinion) | | **Not Offered** | |
| **402** | **59448** | Land Use Testimony of Richard Schneider | 1-10-11 | | 2-24-11 |
| **403** | **59556** | Air quality Testimony of Robert Sarvey | 1-21-11 | | 2-24-11 |
| **404** | **59566** | Alameda County MEP Cooperation Agreement | 1-21-11 | | 3-7-11 |
| **405** | **59554** | Hazardous Materials Testimony Robert Sarvey | 1-21-11 | | 3-7-11 |
| **406** | **59564** | Alternatives Testimony of Bill Powers | 1-21-11 | | 2-25-11 |
| **407** | **59555** | Worker Safety and fire Protection Testimony of Robert | 1-21-11 | | |
| **408** | **59557** | Alternatives testimony of Robert Sarvey | 1-21-11 | | 3-7-11 |
| **409** | | Withdrawn | | | |
| **410** | **59565** | Compensation award in A. 09-09-021 | 1-21-11 | | 3-7-11 |
| **411** | **59560** | Mulqueeny Ranch Pump Storage FERC | 1-21-11 | | 2-24-11 |
| **412** | **59559** | PSD Increment Consumption Status Report April 16, 2008 BAAQMD AQ | 1-21-11 | | 2-24-11 |
| **413** | **59558** | CPUC Proceeding PG&E Data Response , Pages 0296, 297, 300 Socioeconomics | 1-21-11 | | 3-7-11 |
| **414** | **59564** | East County Area Plan Land Use and Mr. Schneider's testimony | 1-21-11 | | 2-24-11 |
| **415** | **59772** | S.F. Chronicle article entitled, *State Gasline Pipeline Inspection Found to Lag,* dated 2-14-2010 | 2/24/11 | | 3-7-11 |
| **416** | | E-mail from Kevin Wong to Allan Eastman dated 5-6-2004 | 3-7-11 | X | |
| **417** | | Relief Valve record from Bethany Compressor Station | 3-7-11 | X | |
| **418** | | Comments by PGE Employee from McDonald Island, dated 4.28.2004 | 3-7-11 | X | |
| **419** | | Email from Alan East to Banu Acirnis | 3-7-11 | X | |
| **420** | | Water Usage Tables | 3-7-11 | X | |

**Mountain House Community Services Board – Morgan K. Groover – Exhibits 500 - 599**

| Exhibit | Docket Transaction Number | Brief Description | Offered | Not Admitted | Admitted |
|---|---|---|---|---|---|
| **500** | | Quarterly Mountain House Sales Summary, Dated Oct. 1, 2005 to Oct. 1, 2010 | 3-7-11 | | 3-7-11 |

**Rajesh Dighe – Exhibits 600 - 699**

| Exhibit | Docket Transaction Number | Brief Description | Offered | Not Admitted | Admitted |
|---|---|---|---|---|---|
| **600** | **59044** | Rajesh Dighe- Effects of Mariposa on Mountain House Community | 11-22-10 | | 3-7-11 |
| **601** | **59174** | Jon Rubin Comments on Staff Assessment | 12-8-10 | | 3-7-11 |
| **602** | **59178** | Kishore Bhatt Comments on Staff Assessment | 12-8-10 | | 3-7-11 |
| **603** | **59044** | New Home Buyer Comments | 1-7-11 | | 3-7-11 |
| **604** | **58876** | San Ramon Mayor Abram Wilson Opposing Proposed site of Mariposa | 10-26-11 | | 3-7-11 |
| **605** | **55298** | Rajesh Dighe Data Request – 1-4 | 2-28-10 | | 3-7-11 |
| **606** | **55729** | Rajesh Dighe Data Request 5-14 | 2-28-10 | | 3-7-11 |
| **607** | **59044** | NY Time Article on Foreclosure - Mentioned in Exhibit 600 | 3-7-11 | | 3-7-11 |
| **608** | , | Mountain House haunted town- CBS video | 1-7-11 | | 3-7-11 |
| **609** | **59450** | Rajesh Dighe-Opening Testimony | 1-07-11 | | 3-7-11 |

**Intervener California Pilots Association Exhibits 700 - 799**

| Exhibit | Docket Transaction Number | Brief Description | Offered | Not Admitted | Admitted |
|---|---|---|---|---|---|
| **700** | **59441** | CALPILOTS Opening Testimony (Docketed) | 1-7-11 | | 2-25-11 |
| **701** | **59541** | Declaration of Clay Bonavito of Aerosprot, Inc., a Byron Airport Tenant operating the parachute skydiving operation | 1-5-11 | | 2-25-11 |
| **702** | **59541** | Declaration of Rand Howell of Patriots Jet Team a Byron Airport Tenant and pilot operating the Patriots Jet Team | 1-25-11 | | 2-25-11 |
| **703** | **59541** | Declaration of Ron Wagner, Byron Airport Tenant and Pilot | 1-5-11 | | 2-25-11 |
| **704** | **59539** | Calpilots rebuttal testimony | 2-25-11 | | 2-25-11 |
| **705** | | Aeronautical impacts of MEP by Williams Aviation Consultants | 2-25-11 | 2-25-11 | |

**Jass Singh Exhibits 800 - 899**

| Exhibit | Docket Transaction Number | Brief Description | Offered | Not Admitted | Admitted |
|---|---|---|---|---|---|
| **800** | **59568** | Discovery Document | 1/10/11 | | 3-7-11 |
| **801** | **59563** | Environmental Justice for Racial Minorities | 1/21/11 | | 3-7-11 |
| **802** | | Omitted | | **Not Offered** | |
| **803** | **59563** | Census track 5203 | 1/21/11 | | 3-7-11 |

**Sierra Club California Exhibits 900 - 999**

| Exhibit | Docket Transaction Number | Brief Description | Offered | Not Admitted | Admitted |
|---|---|---|---|---|---|
| **900** | **59513** | Testimony of Ed Mainland – Need | 1-21-11 | | 3-7-11 |
| **901** | **59548** | Testimony of Dick Schneider - CAP | 1-21-11 | | 3-7-11 |

**Robert Simpson Exhibits 1,000 -1,999**

| Exhibit | Docket Transaction Number | Brief Description | Offered | Not Admitted | Admitted |
|---|---|---|---|---|---|
| **1000** | **59567** | Testimony of Robert Simpson | 1-21-11 | | 2-24-11 |

**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 *MARIPOSA ENERGY PROJECT* (MEP)**

***Docket No. 09-AFC-3***

***PROOF OF SERVICE***

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## DECLARATION OF SERVICE

I, _____, declare that on _____, 2011, I served and filed copies of the attached _____, dated _____. The original document, filed with the Docket Unit, are 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/mariposa/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:

(*Check all that Apply*)

### FOR SERVICE TO ALL OTHER PARTIES:

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

_____ by personal delivery;

_x__ by delivering on this date, for mailing with the United States Postal Service with first-class postage thereon fully prepaid, to the name and address of the person served, for mailing that same day in the ordinary course of business; that the envelope was sealed and placed for collection and mailing on that date 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. 09-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, that I am employed in the county where this mailing occurred, and that I am over the age of 18 years and not a party to the proceeding.

_____

*Signature of Server*