CALIFORNIA
ENERGY
COMMISSION

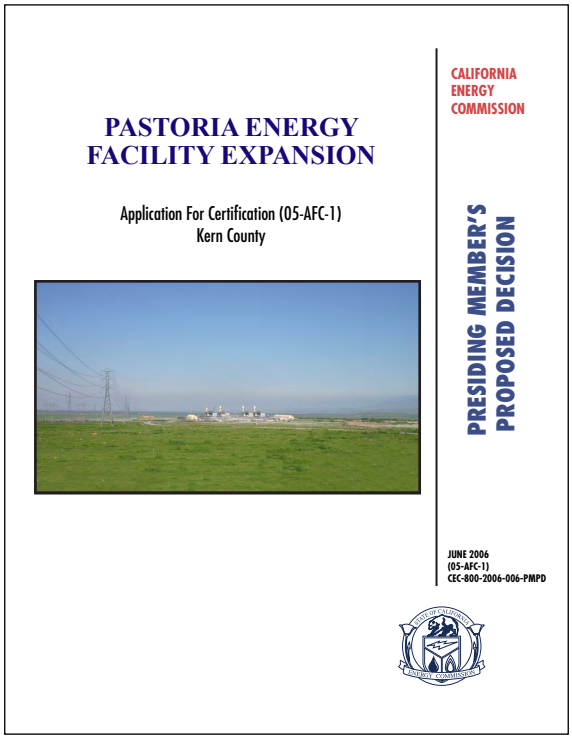
PASTORIA ENERGY FACILITY EXPANSION

Application For Certification (05-AFC-1)
Kern County

PRESIDING MEMBER'S PROPOSED DECISION

JUNE 2006
(05-AFC-1)
CEC-800-2006-006-PMPD

Arnold Schwarzenegger, Governor



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BEFORE THE STATE OF CALIFORNIA ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION

CEC Docket Number 05-AFC-1

The Committee hereby submits the Presiding Member's Proposed Decision (PMPD) for the Pastoria Energy Facility Expansion (PEFE), located adjacent to the existing Pastoria Energy Facility in southern Kern County. We have prepared this PMPD pursuant to the requirements set forth in the Energy Commission's regulations. (Cal. Code of Regs., tit. 20, §§ 1749-1752.5.)

The Committee recommends that the Application for Certification for the PEFE be approved, subject to the Conditions of Certification set forth herein, and that the Energy Commission grant the Project Owner a license to construct and operate the Project.

Dated June 8, 2006, at Sacramento, California.

JAMES D. BOYD
Commissioner and Committee Member
Pastoria Energy Facility Expansion AFC Committee

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INTRODUCTION

A. SUMMARY OF THE DECISION

This Decision contains our rationale for determining that the Pastoria Energy Facility Expansion (PEFE or "Project") complies with all applicable laws, ordinances, regulations, and standards and that it is eligible for certification. Our findings and conclusions are based exclusively upon the record established during the certification proceeding, which is summarized in this document. We have independently evaluated the evidence, provided references to the record,[1] which support our findings and conclusions, and specified the measures required to ensure that the PEFE is designed, constructed, and operated in a manner that will protect public health and safety, promote the general welfare, and preserve environmental quality.

On April 29, 2005, Calpine Corporation (Calpine or "Applicant") filed an Application for Certification (AFC) with the California Energy Commission to construct and operate the PEFE. The Project is a nominal 160 MW natural gas-fired power plant located at the same site as the existing 750 MW Pastoria Energy Facility (PEF) on Tejon Ranch, about 30 miles south of Bakersfield in Kern County. Access to the Project site is provided on Edmonston Pumping Plant Road via the existing PEF access road, which was constructed for the PEF.

The PEFE is currently owned by Calpine Corporation.[2] According to Calpine, the Project is intended to provide peaking electrical energy to the Southern California

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[1] The Reporter's Transcript of the evidentiary hearing conducted on March 30, 2006, is cited as "3/30/06 RT, page (p.) __." The exhibits included in the evidentiary record are cited as "Ex. number." A list of all exhibits is contained in Appendix C of this Decision.

[2] Calpine is the Project Owner but the company is currently under bankruptcy protection and may sell the PEFE license before construction. Upon sale and/or transfer of the Project, the new Project Owner shall petition the Energy Commission for approval of the ownership change. (Cal. Code Regs., tit. 20, §1769(b).)

market. The PEFE construction period is about 12 months, with an estimated start-up date in 2011. The average number of construction workers will range from 34 in the first month of construction to approximately 225 workers in the 7th month of construction, with capital costs expected to be approximately $70 million.

The PEFE incorporates one additional natural gas-fired, General Electric F-Class combustion turbine generator (CTG) operating in simple cycle mode into the original three-unit combined cycle PEF, for a total of four units. To minimize gas turbine emissions, the new CTG will use Best Available Control Technology (BACT), which includes dry low NOx combustors in combination with Selective Catalytic Reduction for pollution control with anhydrous ammonia as the reagent in the catalytic reduction process. Calpine identified the required emissions reduction credits needed for operation of the Project and proposed operating at maximum capacity up to 8,760 hours per year.

Electricity generated by the PEFE will be transmitted over the PEF's existing 1.38-mile long, 230kV double-circuit transmission line via the new Lebec Substation to Southern California Edison's (SCE's) Pastoria Substation. Cooling water for the new unit will be supplied by the Wheeler Ridge-Maricopa Water Storage District and Kern County Water Bank via existing water supply pipelines. The existing zero liquid discharge (ZLD) system will be used to treat process wastewater. The PEFE will not require any changes to the existing facility's fuel or water supplies, but may require upgrading the transmission system and related facilities.

Several local, state, and federal agencies cooperated with the Energy Commission in completing this review process. Particularly, the Kern County Fire Department and Public Works Department, the California Independent System Operator (CAISO), San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD), California Air Resources Board (CARB), Central Valley

Regional Water Quality Control Board, Wheeler Ridge-Maricopa Water Storage District (WRMWSD), the U.S. Environmental Protection Agency (USEPA), the U.S. Fish and Wildlife Service, California Department of Fish and Game, U.S. Army Corp of Engineers, Native American tribes, and other interested parties. There were no Intervenors in this proceeding.

SJVUAPCD was responsible for coordinating input from USEPA and CARB, in consultation with Commission Staff, in drafting its Final Determination of Compliance (FDOC) on the Project's conformity with state and federal air quality standards. The Air District confirmed that the Project's offset package is complete in accordance with the requirements of Public Resources Code section 25523(d)(2). The limitations on Project emissions and the conditions imposed by SJVUAPCD as well as the mitigation measures recommended by Staff are incorporated into this Decision.

Since the PEFE will operate in concert with the existing PEF emission sources (CTGs, cooling tower), the total operational air quality impacts for the combined facilities were calculated. The modeling results for the combined facilities indicated that the PEFE's normal operational impacts would not create violations of NO_2, SO_2 or CO standards, but would exacerbate violations of the PM_{10} and $PM_{2.5}$ standards and the federal and state ozone standards. SJVUAPCD Rule 2201 requires the Project Owner to provide emission reduction credits (ERCs) for new emissions of NO_x, VOC, SO_2, and PM_{10}. Calpine proposed to mitigate impacts for nonattainment pollutants (PM_{10} and ozone) and their precursor pollutants (NO_x, VOC, and SO_2) with the ERCs identified in Appendix A of Condition **AQ-SC7**. The Project Owner is required to update the offset package and to provide evidence of compliance with any new rules adopted by the Air District prior to startup.

Calpine also proposed that the simple cycle PEFE be available to operate at full capacity 8,760 hours per year. Concerns about the efficient use of natural gas

by the simple cycle unit are addressed by Condition **EFFIC-1**, which requires the Project Owner to submit quarterly reports specifying the Project's megawatt hours of operation and identifying the entities purchasing and/or dispatching power from the PEFE.

Regarding Transmission System Engineering, SCE conducted a System Impact Study (SIS) and a Technical Assessment Study (TAS) to analyze potential PEFE impacts on the SCE grid. The SIS and TAS assumed that upgrades associated with higher-queued projects will materialize prior to the PEFE online date in 2011.

The CAISO granted preliminary interconnection approval for PEFE based on assumptions and analyses contained in the SIS and TAS but conditioned final approval on the completion of upgrades anticipated for the higher queued projects with no addition of any new Special Protection Scheme (SPS) for PEFE.

Cooling water for the PEFE will be supplied by the existing PEF under a facilities-sharing agreement. The PEF's primary water supply is provided through a long-term industrial water service agreement with the WRMWSD. PEF's backup water supply is provided through a contract with the Kern Water Bank Authority. As a matter of policy, the Commission does not favor the use of fresh water for power plant cooling under most circumstances. Our 2003 Integrated Energy Policy Report (IEPR) provides that "…the Commission will approve the use of fresh water for cooling purposes …only where alternative water supply sources and alternative cooling technologies are shown to be "environmentally undesirable" or "economically unsound." (2003 IEPR, p. 41.)

The PEFE requires about 55 acre feet per year (AFY) of water for cooling and other industrial processes. Since the combined PEF and PEFE will not exceed the PEF's existing water supply agreements for 5,000 AFY of water, the amount of fresh water allocated to PEFE would be *de minimis.* Condition

SOIL&WATER-4 limits the amount of water consumed by the combined facilities to 5,000 AFY and requires the Project Owner to install or to verify that the WRMWSD has installed a metering device to record the volume of water supplied to the combined facilities.

Staff initially proposed that Condition **HAZ-7** require installation of a perimeter breach detection system around the entire PEF site in conjunction with security guidelines recommended by both state and federal Homeland Security agencies. Due to Calpine's objections, however, Staff withdrew the proposal but strongly urged the Project Owner to voluntarily install the perimeter breach system. Condition **HAZ-7** requires the Project Owner to conform with state and federal security requirements in effect when Project construction begins.

B. SITE CERTIFICATION PROCESS

The PEFE and its related facilities are subject to Energy Commission licensing jurisdiction. (Pub. Resources Code, § 25500 et seq.). During licensing proceedings, the Commission acts as lead state agency under the California Environmental Quality Act (CEQA). (Pub. Resources 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. Resources 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, we conduct a comprehensive examination of a Project's potential economic, public health and safety, reliability, engineering, and environmental ramifications.

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 Application for Certification (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 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 Applicant to discuss, clarify, and negotiate pertinent issues. Staff publishes its initial technical evaluation of the Project in its Preliminary Staff Assessment (PSA), which is made available for public comment. Staff’s responses to public comment on the PSA and its complete analyses and recommendations are published in the Final Staff Assessment (FSA).

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 15-day 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 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, section 25500 et seq. and Energy Commission's regulations (Cal. Code of Regs., tit. 20, § 1701, et seq.) mandate a public process and specify the occurrence of certain necessary events. The key procedural events that occurred in this case are summarized below.

On April 29, 2005, Calpine Corporation filed an Application for Certification (AFC) for the Pastoria Energy Facility 160 MW Expansion (PEFE) Project. On July 13, 2005, the Commission deemed the AFC data adequate and assigned a Committee of two Commissioners to conduct proceedings.

The formal parties included Commission Staff, the Applicant (Calpine), and the San Joaquin Valley Unified Air Pollution Control District.

On August 10, 2005, the Committee issued a notice of "Informational Hearing and Site Visit." The notice was mailed to 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 PEFE Project. The notice was also published in a local general circulation newspaper.

On September 9, 2005, the Committee convened a public Informational Hearing at the DWR's Pumping Plant administrative building near the town of Lebec, and then conducted a Site Visit where the PEFE will be situated. At the Informational Hearing, the Committee, the parties, and other participants discussed issues related to development of the PEFE, described the Commission's review process, and explained opportunities for public participation.

In the course of the review process, Staff conducted public workshops on July 26, and October 4, 2005, to discuss issues with the Applicant, governmental agencies, and interested members of the public.

The Committee issued a Scheduling Order on September 13, 2005, which contained a list of events that had to occur to complete the certification process in twelve months. The schedule covered the period leading up to the Prehearing Conference.

Staff issued its Preliminary Staff Assessment (PSA) on September 20, 2005, and its Final Staff Assessment (FSA) on November 28, 2005.

On December 14, 2005, the Committee issued a Notice of Prehearing Conference, which was conducted January 17, 2006, in Sacramento. A Notice of Evidentiary Hearing was issued on February 6, 2006. A Revised Notice of Evidentiary Hearing was issued on March 7, 2006, to accommodate the Committee's schedule. The Evidentiary Hearing was held on March 30, 2006, in Sacramento.

After reviewing the evidentiary record, including stipulated testimony and exhibits, the Committee published the Presiding Member's Proposed Decision (PMPD) on June 8, 2006, and scheduled a Committee Conference on June 26, 2006, to discuss comments on the PMPD. The 30-day comment period on the PMPD ends July 7, 2006. The Commission hearing to consider the PMPD is scheduled at the business meeting on July 19, 2006.

I. PROJECT PURPOSE AND DESCRIPTION

Calpine Corporation ("Applicant" or Calpine) filed an Application for Certification (AFC) to construct and operate the Pastoria Energy Facility Expansion (PEFE), a nominally rated 160 megawatt (MW) natural gas-fired, simple-cycle generator designed to supplement Calpine's existing 750 MW combined-cycle power plant (Pastoria Energy Facility or PEF) at the Tejon Ranch in southern Kern County. (Ex. 1; Ex. 100, p. 3.1; Pastoria Decision, Docket No. 99-AFC-7.)

Project Ownership and Objectives

Calpine is the Project Owner but the company is currently under bankruptcy protection and may sell the PEFE license before construction. Upon sale and/or transfer of the Project, the new Project Owner shall petition the Energy Commission for approval of the ownership change. (Cal. Code Regs., tit. 20, §1769(b).) Calpine's objectives, which guided the selection of the location, the equipment, and the commercial arrangements, include:

- Absence of significant adverse environmental impacts.
- Access to the Southern California/greater Los Angeles market for the sale of peaking capacity and electric energy through the California Independent System Operator (CAISO).
- Access to existing fuel and water lines.
- Access to an existing transmission line and substation.
- Potential bilateral sale of electricity to a large customer (State of California, Southern California Edison, and/or Department of Water Resources Edmonston Pumping Station).

According to the evidentiary record, PEFE is intended to provide peaking capacity to Southern California (SP-15 market) in conjunction with CAISO requirements. (Ex. 1, § 3; Ex. 100, p. 3-1.) Project viability depends on the acquisition of power purchase agreements for the sale of peaking power.

(3/30/06 RT, p. 34:17-24.) Calpine does not currently hold any power sales agreements for the PEFE. (*Ibid*.)

Power Plant Site and Facilities

The PEFE site is located entirely within existing PEF site boundaries on the Tejon Ranch about 30 miles south of Bakersfield and about 6.5 miles east of Interstate 5 near the base of the Tehachapi Mountains. It is approximately 0.85 mile north of the California Aqueduct and about 1.3 miles north of the Edmonston Pumping Plant. The address is 39789 Edmonston Pumping Plant Road, Lebec, CA. (Ex. 100, p. 3-1.) *See* Project Description Figures 1 and 2, below.

The Project includes:

- Two-acre development on an open graveled area of the 31-acre PEF site;
- 12 acres of an existing 25-acre construction laydown area,
- Infrastructure associated with the existing PEF, including:
  1. an onsite sanitary wastewater treatment facility;
  2. 1.38-mile, 230 kV electrical transmission line connecting a new high voltage switchyard located at the PEF to SCE's Pastoria Substation;
  3. 0.2-mile water supply pipeline from the existing Wheeler Ridge-Maricopa Water Storage District pipeline to the PEF site;
  4. 14-mile, 20-inch diameter natural gas line from the PEF site north to the interstate Mojave-Kern River pipeline;
  5. 0.85-mile access road from the Edmonston Pumping Plant Road;
  6. storm water detention ponds at the site; and
  7. flood control berms adjacent to the site.

The PEFE adds one natural gas-fired, simple-cycle F-Class combustion turbine generator (CTG) to the three existing combined-cycle units at PEF. Major structures include the CTG, a new 131-foot tall exhaust stack, air emission reduction equipment to comply with Best Available Control Technology (BACT) requirements, one 230 kV step-up transformer, and auxiliary equipment to connect the power block with existing PEF systems. (Ex. 1, § 3; Ex. 100, p. 3-2.)

According to the record, this is the first power plant in California which will employ the GE 7FA frame CTG in simple cycle mode on a long-term basis. (3/30/06 RT, pp. 8-10.)

The PEFE will not require any modifications to the existing facility's fuel or water supply lines, but may require upgrades to the transmission system due to downstream congestion. The Project is expected to provide an overall availability quotient of approximately 95 percent. PEFE's new generation step-up transformer will tie-in to the PEF switchyard, which interconnects to SCE's Pastoria Substation via the existing PEF transmission outlet line. (Ex. 1, § 3; Ex. 100, p. 3-2.)

Natural gas is supplied through an existing 14-mile interconnection pipeline from the PEF site to the gas pipeline system owned by the Mojave Pipeline Company and Kern River Gas Transmission Company. The Project will utilize up to 40 million standard cubic feet per day of pipeline natural gas. (Ex. 100, p. 3-3.)

Under existing water supply contracts between the PEF and the Wheeler Ridge-Maricopa Water Storage District (WRMWSD) and Kern Water Bank Authority, the PEF is entitled to a maximum of 5,000 acre feet of water per year. The current contracts are adequate to meet PEFE demand without increasing water supply requirements. Water from WRMWSD comes from the California Aqueduct at a tie-in located about one mile southwest of the site and delivered through the existing PEF water supply pipeline. (Ex. 100, p. 3-3.)

PEFE will use the existing process wastewater management system, which incorporates treatment for zero liquid discharge (ZLD) for all PEF wastewater streams except for sanitation and stormwater. The ZLD process concentrates dissolved and suspended constituents in the wastewater and produces non-hazardous salt cake, which is removed from the site by licensed transporters.

Sanitary wastewater is disposed onsite through an existing septic system. Construction workers will use portable chemical toilets. (Ex. 100, p. 3-3.)

Calpine estimates construction of PEFE will require a capital expenditure of about $70 million, which will provide economic benefits through equipment procurement, payroll multipliers, and local tax revenues. Construction is anticipated to take about twelve months after all necessary design plans are approved by the Energy Commission compliance office. The construction sequence and start-up include site preparation, construction of foundations, erecting major structures, installing major equipment, connecting to major interfaces, commissioning, and final cleanup and landscaping. (Ex. 100, p. 3-3.)

FINDINGS AND CONCLUSIONS

Based upon the evidentiary record, we find as follows:

1. The Project Owner, Calpine Corporation, proposes to construct and operate the Pastoria Energy Facility Expansion (PEFE), a nominally rated 160 MW simple-cycle, natural gas power plant on the Tejon Ranch in southern Kern County, 30 miles south of Bakersfield and about 6.5 miles east of Interstate 5 near the base of the Tehachapi Mountains.

2. The PEFE will be located entirely within the site boundaries of the existing Pastoria Energy Facility (PEF) on a two-acre open graveled area within the existing 31-acre PEF site.

3. The PEFE adds one natural gas-fired, F-Class combustion turbine generator operating in simple-cycle mode to the original 3-unit combined-cycle PEF and will use existing infrastructure associated with the PEF, including the transmission outlet line, gas pipeline, water supply pipeline, and process wastewater ZLD disposal system .

4. The PEFE will interconnect with SCE's Pastoria Substation.

5. The PEFE is intended to expand capacity of the existing PEF baseload plant by providing peaking power to the Southern California electrical grid.

6. Upon sale and/or transfer of the Project, the new Project Owner shall petition the Energy Commission for approval.

We therefore conclude that Calpine Corporation has described the Pastoria Energy Facility Expansion Project in sufficient detail to allow review in compliance with the provisions of both the Warren-Alquist Act and the California Environmental Quality Act (CEQA).

INSERT TWO PAGES FOR PROJECT DESCRIPTION FIGUREs 1 & 2

Page One

PAGE TWO PROJECT DESCRIPTION FIGURE 2

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 evidence of 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 Pastoria Energy Facility 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 is the "General Conditions". These General Conditions:

- 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;
- Establish procedures for settling disputes and making post-certification changes;

- State the requirements for periodic compliance reports and other administrative procedures necessary to verify the compliance status of all Commission imposed conditions; and

- Establish 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 specific Conditions of Certification contain the measures required to mitigate potentially adverse Project-related impacts associated with construction, operation, and closure. 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 read in conjunction with any additional requirements contained in the individual Conditions of Certification.

FINDINGS AND CONCLUSIONS

The evidence of record establishes:

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

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

We therefore conclude that the compliance and monitoring provisions incorporated as a part of this Decision satisfy the requirements of Public Resources Code section 25532. Furthermore, we adopt the following Compliance Plan as part of this Decision.

GENERAL CONDITIONS OF CERTIFICATION

DEFINITIONS

To ensure consistency, continuity and efficiency, the following terms, as defined, apply to all technical areas, including Conditions of Certification:

PRE-CONSTRUCTION SITE MOBILIZATION

Site mobilization is limited preconstruction activities at the site to allow for the installation of 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. Fencing for the site is also considered part of site mobilization. Walking, driving or parking a passenger vehicle, pickup truck and light vehicles is allowable during site mobilization unless more restrictive measures are specified in the Conditions of Certification.

CONSTRUCTION GROUND DISTURBANCE

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

CONSTRUCTION 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.

CONSTRUCTION

Consistent with Section 25105 of the Public Resources Code, “construction” or on-site work to install permanent equipment or structures for any facility 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; or
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, where the power plant has reached reliable steady-state production of electricity at the rated capacity. For example, at the start of commercial operation, plant control is usually transferred from the construction manager to the plant operations manager.

COMPLIANCE PROJECT MANAGER (CPM) RESPONSIBILITIES

The CPM will oversee the compliance monitoring and shall be 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, and ownership or operational control;

4. documenting and tracking compliance filings; and

5. ensuring that the compliance files are maintained and accessible.

The CPM is the contact person for the Energy Commission and will consult with appropriate responsible agencies and the Energy Commission 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.

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 will be to assemble both the Energy Commission’s and the 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 to confirm that they 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 as a public record, in either the Compliance file or Docket 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 general compliance conditions and all of the other Conditions of Certification that appear in the Commission Decision are satisfied. The general 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 general compliance conditions may result in reopening the licensing proceeding and revocation of Energy Commission certification, an administrative fine, or other action as appropriate. A summary of the General Conditions of Certification is included as **Compliance Table 1** at the conclusion of this section. The designation after each of the following summaries of the General Compliance Conditions (**COMPLIANCE-1, COMPLIANCE-2,** etc.) refers to the specific General Compliance Condition contained in **Compliance Table 1.**

GENERAL CONDITIONS OF CERTIFICATION

Construction Milestones, Compliance Condition of Certification 1 (COMPLIANCE-1)

Within 30 days after Project certification, the Project Owner shall submit to the CPM Project milestones that specify: (a) that Project construction will commence 12 months after the Project has been certified and after all accompanying Project permits are final and administrative and judicial appeals have been completed, and (b) the scheduled Project commercial operation date [ref: section 25534(c) of the Public Resources Code]. After establishment of the Project milestones, the Project Owner shall provide the CPM with a monthly progress report on achieving the milestones, and shall notify the CPM of any possible changes to the milestones.

The CPM will negotiate the milestones with the Project Owner based on an expected schedule of construction. The CPM may agree to modify the final milestones at any time prior to or during construction if the Project Owner demonstrates good cause for not meeting the originally-established milestones.

The staff may extend the start of construction milestone if any of the following findings can be made:

1. The change in any milestone does not change the established commercial operation date milestone.

2. The milestone will be missed due to circumstances beyond the Project Owner's control.

3. The milestone will be missed, but the Project Owner demonstrates a good-faith effort to meet the Project milestone.

4. The milestone will be missed due to unforeseen natural disasters or acts of God that prevent timely completion of the milestones.

5. The milestone will be missed due to requirements of the California ISO.

Unrestricted Access (COMPLIANCE-2)

The CPM, responsible Energy Commission staff, and delegate 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-3)

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, all documents submitted as verification for conditions, and all other Project-related documents.

Energy Commission staff and delegate agencies shall, upon request to the Project Owner, be given unrestricted access to the files.

Compliance Verification Submittals (COMPLIANCE-4)

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, and in most cases without full Energy Commission approval.

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

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

2. providing appropriate letters from delegate agencies verifying compliance;

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

4. Energy Commission staff inspections of mitigation or other evidence of mitigation.

Verification lead times (e.g., 90, 60 and 30-days) 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 involved condition(s) of certification by condition number and include 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.

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 submittals shall be addressed as follows:

Compliance Project Manager
Att: Docket No. 05-AFC-1(C)
California Energy Commission
1516 9th Street (MS-2000)
Sacramento, CA 95814

If the Project Owner desires Energy Commission staff action by a specific date, they shall so state in their submittal cover letter and include a detailed explanation of the effects on the Project if this date is not met.

Pre-Construction Matrix and Tasks Prior to Start of Construction (COMPLIANCE-5)

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 in the same format as the compliance matrix referenced above.

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 (e.g., 30, 60, 90 days) 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 starting 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. This is important if the required lead-time for a required compliance event extends beyond the date anticipated for start of construction. It is also important that the Project Owner 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 Final 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-6)

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 compliance conditions 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; and
7. the compliance status of each condition, e.g., "not started," "in progress" or "completed" (include the date).

Satisfied conditions do not need to be included in the compliance matrix after they have been identified as satisfied in at least one monthly or annual compliance report.

Monthly Compliance Report (COMPLIANCE-7)

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 an initial list of dates for each of the events identified on the **Key Events List. The Key Events List Form is found at the end of this section.**

During pre-construction and construction of the Project, the Project Owner or authorized agent shall submit an original and five copies 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, and should be submitted as attachments to the Monthly Compliance Report;

3. an initial, and thereafter updated, compliance matrix showing the status of all Conditions of Certification and pre-construction and construction milestones (fully satisfied conditions do not need to be included in the matrix after they have been reported as closed);

4. a list of conditions and milestones 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 or milestones;

9. a listing of the month's additions to the on-site compliance file;

10. any requests to dispose of items that are required to be maintained in the Project Owner's compliance file; and

11. a listing of complaints, notices of violation, official warnings, and citations received during the month, a description of the resolution of the resolved complaints, and the status of any unresolved complaints.

Annual Compliance Report (COMPLIANCE-8)

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 identify the reporting period and shall contain the following:

1. an updated compliance matrix showing the status of all Conditions of Certification (fully satisfied and/or closed conditions do not need to be included in the matrix after they have been reported as closed);

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, and should be 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 General 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 complaints, and the status of any unresolved complaints.

Confidential Information (COMPLIANCE-9)

Any information that the Project Owner deems confidential shall be submitted to the Energy Commission's Docket 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-10)

Pursuant to the provisions of Section 25806(b) of the Public Resources Code, the Project Owner is required to pay an annual fee which will be adjusted annually. This initial payment of $15,987.00 is due on the date 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-11)

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 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, 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. 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 at the end of a Project's life, 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 remains accountable for implementing the on-site contingency plan. It can also include unplanned closure where the Project Owner is unable to implement the contingency plan, and the Project is essentially abandoned.

GENERAL CONDITIONS FOR FACILITY CLOSURE

Planned Closure (COMPLIANCE-12)

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 prior to commencement of closure activities (or other period of time agreed to by the CPM). 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 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 Energy Commission approval of the facility closure plan is obtained.

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

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 that 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. (Also see specific Conditions of Certification for the technical areas of Hazardous Materials Management and Waste Management.)

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-14)

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 unlikely 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.

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.
Moreover, to ensure compliance with the terms and Conditions of Certification and applicable LORS, delegate agencies are authorized to take any action allowed by law in accordance with their statutory authority, regulations, and administrative procedures.

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 1230 et seq., 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 current law or regulations.

The Energy Commission has established a toll free compliance telephone number of **1-800-858-0784** for the public to contact the Energy Commission about power plant construction or operation-related questions, complaints or concerns.

Informal Dispute Resolution Procedure

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 this procedure for resolving a dispute. Disputes may pertain to actions or decisions made by any party, including the Energy Commission's delegate agents.

This procedure may precede the more formal complaint and investigation procedure specified in Title 20, California Code of Regulations, section 1230 et seq., 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 procedure 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 referred to the full Energy Commission for consideration via the complaint and investigation process. The procedure for informal dispute resolution is as follows:

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 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 and 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 provide an initial report, within 48 hours, followed by a written report filed within seven days.

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; and

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 conclusions 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

If either the Project Owner, Energy Commission staff, or the party requesting an investigation is not satisfied with the results of the informal dispute resolution process, such party may file a complaint or a request for an investigation with the Energy Commission's General Counsel. Disputes may pertain to actions or decisions made by any party including the Energy Commission's delegate agents. Requirements for complaint filings and a description of how complaints are processed are in Title 20, California Code of Regulations, section 1230 et seq.

The Energy Commission Chair, upon receipt of a written request stating the basis of the dispute, may grant a hearing on the matter, consistent with the requirements of noticing provisions. The Energy Commission shall have the authority to consider all relevant facts involved and make any appropriate orders consistent with its jurisdiction (Cal. Code Regs., tit. 20, §§ 1232-1236).

POST CERTIFICATION CHANGES TO THE ENERGY COMMISSION DECISION: AMENDMENTS, OWNERSHIP CHANGES, INSIGNIFICANT PROJECT CHANGES AND VERIFICATION CHANGES: SECTION 1769 OF COMMISSION REGULATIONS (*COMPLIANCE 15)*

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 **insignificant Project changes** as specified below. 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 Docket 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.

AMENDMENT

The Project Owner shall petition the Energy Commission, pursuant to Title 20, California Code of Regulations, Section 1769, 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. This process takes approximately two to three months to complete, and possibly longer for complex Project modifications.

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 takes approximately one month to complete, and requires public notice and approval by the full Commission.

INSIGNIFICANT PROJECT CHANGE

Modifications that do not result in deletions or changes to Conditions of Certification, and that are compliant with laws, ordinances, regulations and standards may be authorized by the CPM as an insignificant Project change pursuant to Section 1769(a)(2). This process usually takes less than one month to complete, and it requires a 14-day public review of the Notice of Insignificant Project Change that includes staff's intention to approve the modification unless substantive objections are filed.

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. This process usually takes less than five working days to complete.

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	
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	

GENERAL CONDITIONS TABLE 1
COMPLIANCE SECTION
SUMMARY of GENERAL CONDITIONS OF CERTIFICATION

CONDITION NUMBER	SUBJECT	DESCRIPTION
COMPLIANCE-1	Construction and Operation Milestones	The Project Owner shall establish specific performance milestones for start of construction and commercial operation phases of the Project.
COMPLIANCE-2	Access	The Project Owner shall grant Energy Commission staff and delegate agencies or consultants unrestricted access to the power plant site.
COMPLIANCE-3	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-4	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-5	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: ▪ property owners living within one mile of the Project have been notified of a telephone number to contact for questions, complaints or concerns, ▪ a pre-construction matrix has been submitted identifying only those conditions that must be fulfilled before the start of construction, ▪ all pre-construction conditions have been complied with, ▪ the CPM has issued a letter to the Project Owner authorizing construction.
COMPLIANCE-6	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-7	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.

CONDITION NUMBER	SUBJECT	DESCRIPTION
COMPLIANCE-8	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-9	Confidential Information	Any information the Project Owner deems confidential shall be submitted to the Energy Commission's Dockets Unit.
COMPLIANCE-10	Annual fees	Payment of Annual Energy Facility Compliance Fee
COMPLIANCE-11	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-12	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-13	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-14	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-15	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.

ATTACHMENT A

COMPLAINT REPORT/RESOLUTION FORM

PROJECT NAME: AFC Number:
COMPLAINT LOG NUMBER _____ Complainant's name and address: Phone number:
Date and time complaint received: Indicate if by telephone or in writing (attach copy if written): Date of first occurrence:
Description of complaint (including dates, frequency, and duration):
Findings of investigation by plant personnel: Indicate if complaint relates to violation of a CEC requirement: Date complainant contacted to discuss findings:
Description of corrective measures taken or other complaint resolution: Indicate if complainant agrees with proposed resolution: If not, explain: Other relevant information:
If corrective action necessary, date completed: Date first letter sent to complainant: _____(copy attached) Date final letter sent to complainant: _____(copy attached)
This information is certified to be correct. Plant Manager's Signature: _____ Date:

(Attach additional pages and supporting documentation, as required)

IV. ENGINEERING ASSESSMENT

The broad engineering assessment conducted for the PEFE consists of separate analyses that examine facility design, engineering, efficiency, and reliability of the Project. These analyses include the on-site power generating equipment and Project-related facilities (transmission line, natural gas pipeline, and water supply pipeline).

A. FACILITY DESIGN

The review of facility design covers several technical disciplines, including the civil, electrical, mechanical, and structural engineering elements related to Project design, construction, and operation.

SUMMARY AND DISCUSSION OF THE EVIDENCE

The AFC describes the preliminary facility design for the Project.[5] In reviewing the adequacy of the design plans, the Commission considers 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 includes identification of special design features necessary to deal with unique site conditions that could impact public health and safety, the environment, or operational reliability of the Project. (Ex. 100, p. 5.1-2.)

We have adopted Staff's proposed Conditions of Certification, which establish a design review and construction inspection process to verify compliance with applicable design standards and special design requirements.[6] (Ex. 100, p. 5.1-

[5] Ex. 1, Vol. I, §§ 3.0, 4.0, Vol. II, Attachments A-C; *See* also, Ex. 19. Applicant submitted a copy of the AFC for the original PEF to describe facility design features for the PEFE. The PEF was certified under the 1998 CBSC. The PEFE and affiliated auxiliary equipment shall be designed and constructed in accordance with the current CBSC at the time construction begins.

4.) In accordance with the Conditions, PEFE shall be designed and constructed in conformance with the latest edition of the California Building Standards Code[7] (currently the 2001 CBSC) and other applicable codes and standards in effect at the time design approval and construction actually begin. (*Id.* at p. 5.1-3.) Condition of Certification **GEN-1** incorporates this requirement. Where there are inconsistencies between existing PEF structures and proposed PEFE design, the most current CBSC shall apply.

The Energy Commission is the Chief Building Official (CBO) for energy facilities certified by the Commission. We may delegate CBO authority to local building officials to carry out design review and construction inspections. When CBO duties are delegated to local authorities, the Commission requires a Memorandum of Understanding with the delegated CBO to assign the roles and responsibilities described in Conditions of Certification **GEN-1** through **GEN-8**. The Project Owner shall pay permit fees and other costs of reviews and inspections in accordance with CBSC requirements. (Ex. 100, p. 5.1-4.)

The site is located in Seismic Zone 4, the highest level of potential ground shaking in California. (Ex. 1, Vol. I, § 4.1.) The 2001 CBSC requires specific "lateral force" procedures for different types of structures to determine their seismic design. (*Ibid*.) To ensure that project structures are analyzed using the appropriate lateral force procedure, Condition **STRUC-1** requires the Project Owner to submit its proposed lateral force procedures to the CBO for review and approval prior to the start of construction. (Ex. 100, p. 5.1-3.)

The Project Owner shall implement site preparation and development criteria consistent with accepted industry standards. This includes design practices and construction methods for grading, flood protection, erosion control, site drainage, wind and dust hazards, and site access. (Ex. 1, Vol. 1, §§ 3.0, 4.1.1; Vol II,

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[6] Conditions of Certification **GEN-1** through **GEN-8**.

[7] Title 24 of the California Code of Regulations.

Attachment A; Ex. 100, p. 5.1-2.) 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. (Ex. 1, Vol. I, §§ 3.0, 4.1.2.) Condition **GEN-2** lists the major structures and equipment included in the initial engineering design for the Project.

According to Staff, the mechanical systems for the project are designed to the specifications of applicable LORS. (Ex. 100, p. 5.2-3; Ex. 1, Vol. I § 3.0.) Conditions **MECH**-1 through **MECH**-3 ensure the Project will comply with these standards.

Major electrical features other than the transmission system include generators, power control wiring, protective relaying, grounding system, cathodic protection system and site lighting. (Ex. 1, Vol. I, § 3.4.6.) Condition **ELEC-1** ensures that design and construction of these electrical features will comply with applicable LORS.

The design and construction of the transmission facilities are described in the **Transmission System Engineering** section of this Decision. Implementation of Conditions **TSE-1** through **TSE-8** will ensure the Project's transmission facilities comply with applicable LORS.

The evidentiary record also addresses Project closure. (Ex. 100, p. 5.1-4.) To ensure that decommissioning will conform with applicable LORS to protect the environment and public health and safety, the Project Owner is required to submit a decommissioning plan, which is described in the general closure provisions of the Compliance Monitoring and Closure plan. *See* **General Conditions** in this Decision, *ante*.

Finally, the Conditions of Certification specify the roles, qualifications, and responsibilities of engineering personnel who will oversee project design and construction. No element of construction subject to CBO review and approval may proceed without prior approval of the CBO. (Ex. 100, p. 5.1-4.)

FINDINGS AND CONCLUSIONS

Based on the evidence of record, the Commission makes the following findings and conclusions:

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

2. The evidence of record contains sufficient information to establish that the facility can be designed and constructed in conformity with applicable laws, ordinances, regulations, and standards (LORS) set forth in the appropriate portions of **Appendix A** of this Decision.

3. 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 and public health and safety.

4. The PEFE shall be designed and constructed in conformance with the California Building Standards Code (CBSC) in effect at the time construction begins; in the event of any inconsistencies with existing PEF structures or components, the most current CBSC shall apply.

5. The Conditions of Certification below and the **General Conditions,** included in a separate section of this Decision, establish requirements that must be followed in the event of facility closure.

We therefore conclude that implementation of the Conditions of Certification listed below ensure that the Pastoria Energy Facility Expansion can be designed and constructed in conformance with applicable laws.

CONDITIONS OF CERTIFICATION

GEN-1 The Project Owner shall design, construct and inspect the project in accordance with the 2001 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 Chief Building Official (CBO) for review and approval. (The CBSC in effect is that edition that has been adopted by the California Building Standards Commission and published at least 180 days previously.) The Project Owner shall insure that all the provisions of the above applicable codes be enforced during any construction, addition, alteration, moving, demolition, repair, or maintenance of the completed facility [2001 CBC, Section 101.3, Scope]. All transmission facilities (lines, switchyards, switching stations and substations) are handled in Conditions of Certification in the **Transmission System Engineering** section of this document.

In the event that the initial engineering designs are submitted to the CBO when a successor to the 2001 CBSC is in effect, the 2001 CBSC provisions identified herein 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 insure that all contracts with contractors, subcontractors and suppliers shall clearly specify that all work performed and materials supplied on this project comply with the codes listed above.

Verification: Within 30 days after receipt of the Certificate of Occupancy, the Project Owner shall submit to the Compliance Project Manager (CPM) 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 [2001 CBC, Section 109 – Certificate of Occupancy].

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 which may require CBO approval for the purpose of complying with the above stated codes. The CPM will then determine the necessity of CBO approval on the work to be performed.

GEN-2 Prior to submittal of the initial engineering designs for CBO review, the Project Owner shall furnish to the CPM and to the CBO a schedule of facility design submittals, a Master Drawing List and a Master Specifications List. The schedule shall contain a list of proposed submittal packages of designs, calculations and specifications for major structures and equipment. To facilitate audits by Energy Commission staff, the Project Owner shall provide specific packages to the CPM when requested.

Verification: At least 60 days (or Project Owner and CBO-approved alternative timeframe) prior to the start of rough grading, the Project Owner shall submit to the CBO and to the CPM the schedule, the Master Drawing List and the 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 and equipment listed in **Facility Design Table 2** below. Major structures and equipment shall be added to or deleted from the table only with CPM approval. The Project Owner shall provide schedule updates in the Monthly Compliance Report.

Facility Design Table 2
Major Structures and Equipment List

Equipment/System	Quantity (Plant)
Combustion Turbine (CT) Foundation and Connections	1
CT Generator Foundation and Connections	1
SCR Stack Structure, Foundation and Connections	1
CT Main Transformer Foundation and Connections	1
Excitation Transformer Foundation and Connections	1
Packaged Electrical and Electronic Control Center Foundation and Connections	1
CT Auxiliary Package Foundation and Connections	1
CT Air Inlet Filter Structure, Foundation and Connections	1
Generator Breaker Foundation and Connections	1
Air Fogging System Foundation and Connections	1
Fuel Gas Coalescing Filters Foundation and Connections	1
CEMS/HR Controls/Deluge Building Structure, Foundation and Connections	1
LCI/Generator Excitation Compartment Foundation and Connections	1
DC Link Reactor Foundation and Connections	1

Equipment/System	Quantity (Plant)
Fire Protection CO2 Skid Foundation and Connections	1
Electrical Manhole Foundation and Connections	1
Ammonia Injection Skid Foundation and Connections	1
Fuel Gas Scrubber Foundation and Connections	1
CO2 and Hydrogen Bottle Racks	1
Circuit Breaker	1
Drainage Systems (including sanitary drain and waste)	1 Lot
High Pressure and Large Diameter Piping and Pipe Racks	1 Lot
HVAC and Refrigeration Systems	1 Lot
Temperature Control and Ventilation Systems (including water and sewer connections)	1 Lot
Building Energy Conservation Systems	1 Lot
Switchyard, Buses and Towers	1 Lot
Electrical Duct Banks	1 Lot

GEN-3 The Project Owner shall make payments to the CBO for design review, plan check and construction inspection based upon a reasonable fee schedule to be negotiated between the Project Owner and the CBO. These fees may be consistent with the fees listed in the 2001 CBC [Chapter 1, Section 107 and Table 1-A, Building Permit Fees; Appendix Chapter 33, Section 3310 and Table A-33-A, Grading Plan Review Fees; and Table A-33-B, Grading Permit Fees], adjusted for inflation and other appropriate adjustments; may be based on the value of the facilities reviewed; may be based on hourly rates; or may be as otherwise agreed by the Project Owner and the CBO.

Verification: 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 the applicable fees have been paid.

GEN-4 Prior to the start of rough grading, the Project Owner shall assign a California registered architect, structural engineer or civil engineer, as a resident engineer (RE), to be in general responsible charge of the project [Building Standards Administrative Code (Cal. Code Regs., tit. 24, § 4-209, Designation of Responsibilities)]. All transmission facilities (lines, switchyards, switching stations and substations) are handled in Conditions of Certification in the **Transmission System Engineering** section of this document.

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 and electrical portions of the project, respectively. A project may be divided into parts, provided each part is clearly defined as a distinct unit. Separate assignment of general responsible charge may be made for each designated part.

The RE shall:

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

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

3. Prepare documents to initiate changes in the approved drawings and specifications when directed by the Project Owner or as required by conditions on the project;

4. Be responsible for providing the project inspectors and testing agency(ies) with complete and up-to-date set(s) 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 as not conforming to the approved plans and specifications.

The RE shall have the authority to halt construction and to require changes or remedial work, if the work does not conform to applicable 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 timeframe) 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) are 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-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) a civil engineer; B) a soils engineer, or a geotechnical engineer or a civil engineer experienced and knowledgeable in the practice of soils engineering; and C) 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: D) 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; E) a mechanical engineer; and F) an electrical engineer. [California Business and Professions Code section 6704 et seq., and sections 6730, 6731 and 6736 requires 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 Conditions of Certification in the **Transmission System Engineering** section of this document.

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 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 [2001 CBC, Section 104.2, Powers and Duties of Building Official].

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 Report, Geotechnical Report or Soils Report 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 design, 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 in the construction procedures.

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 Report, Geotechnical Report or Soils Report containing field exploration reports, laboratory tests and engineering analysis detailing the nature and extent of the soils that may be susceptible to liquefaction, rapid settlement or collapse when saturated under load [2001 CBC, Appendix Chapter 33, Section 3309.5, Soils Engineering Report; Section 3309.6, Engineering Geology Report; and Chapter 18, Section 1804, Foundation Investigations];

3. Be present, as required, during site grading and earthwork to provide consultation and monitor compliance with the requirements set forth in the 2001 CBC, Appendix Chapter 33; Section 3317, Grading Inspections (depending on the site conditions, this may be the responsibility of either the soils engineer or 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 with predicted conditions used as a basis for design of earthwork or foundations [2001 CBC, section 104.2.4, Stop orders].

C. The engineering geologist shall:

1. Review all the engineering geology reports and prepare 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 2001 CBC, Appendix Chapter 33; Section 3317, Grading Inspections (depending on the site conditions, this may be the responsibility of either the soils engineer or 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 with 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 timeframe) 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 timeframe) 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, 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 2001 CBC, Chapter 17 [Section 1701, Special Inspections; Section 1701.5, Type of Work (requiring special inspection)]; and Section 106.3.5, Inspection and observation program. All transmission facilities (lines, switchyards, switching stations and substations) are handled in Conditions of Certification in the **Transmission System Engineering** section of this document.

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. Observe 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 [2001 CBC, Chapter 17, Section 1701.3, Duties and Responsibilities of the Special Inspector]; 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 and specifications and the applicable provisions of the applicable edition of the CBC.

   A certified weld 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).

Verification: At least 15 days (or Project Owner and CBO approved alternative timeframe) 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 the corrective action required [2001 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 be submitted to the CBO for review and approval. The discrepancy documentation shall reference this Condition of Certification and, if appropriate, the 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 [2001 CBC, Section 106.4.2, Retention of Plans]. 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 final approved engineering plans, specifications and calculations as described above, the Project Owner shall submit to the CPM a letter stating that the above documents have been stored and indicate the storage location of such 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 .pdf 6.0 files, with restricted printing privileges (i.e. password protected), 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. Related calculations and specifications, signed and stamped by the responsible civil engineer; and

4. Soils Report, Geotechnical Report or Foundation Investigations Report required by the 2001 CBC [Appendix Chapter 33, Section 3309.5, Soils Engineering Report; Section 3309.6, Engineering Geology Report; and Chapter 18, Section 1804, Foundation Investigations].

Verification: At least 15 days (or Project Owner and CBO approved alternative timeframe) 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 [2001 CBC, Section 104.2.4, Stop orders].

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 2001 CBC, Chapter 1, Section 108, Inspections; Chapter 17, Section 1701.6, Continuous and Periodic Special Inspection; and Appendix Chapter 33, Section 3317, Grading Inspection. 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 [2001 CBC, Appendix Chapter 33, Section 3317.7, Notification of Noncompliance]. 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 [1998 CBC, Section 3318, Completion of Work].

Verification: Within 30 days (or Project Owner and CBO approved alternative timeframe) 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, 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 of any major structure or component listed in **Facility Design Table 2** of Condition of Certification **GEN-2**, above, the Project Owner shall submit to the CBO for design review and approval the proposed lateral force procedures for project structures and the applicable designs, plans and drawings for project structures. Proposed lateral force procedures, designs, plans and drawings shall be those for the following items (from **Table 2**, above):

1. Major project structures;

2. Major foundations, equipment supports and anchorage; and

3. Large field fabricated tanks.

Construction of any structure or component shall not commence 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 (i.e., 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 [2001 CBC, Section 108.4, Approval Required];

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 [2001 CBC, Section 106.4.2, Retention of plans; and Section 106.3.2, Submittal documents];

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 [2001 CBC, Section 106.3.4, Architect or Engineer of Record]; and

5. Submit to the CBO the responsible design engineer's signed statement that the final design plans conform to the applicable LORS [2001 CBC, Section 106.3.4, Architect or Engineer of Record].

Verification: At least 60 days (or Project Owner and CBO approved alternative timeframe) prior to the start of any increment of construction of any structure or component listed in **Facility Design Table 2** of Condition of Certification **GEN-2** above, 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 are in compliance with the requirements set forth in the 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 2001 CBC, Chapter 17, Section 1701, Special Inspections; Section 1701.5, Type of Work (requiring special inspection); Section 1702, Structural Observation and Section 1703, Nondestructive Testing.

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 [2001 CBC, Chapter 17, Section 1701.3, Duties and Responsibilities of the Special Inspector]. 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 2001 CBC, Chapter 1, Section 106.3.2, Submittal documents and Section 106.3.3, Information on plans and specifications, 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 Chapter 3, Table 3-E of the 2001 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 timeframe) 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 **Facility Design Table 2**, Condition of Certification **GEN-2**, above. Physical layout

drawings and drawings not related to code compliance and life safety need not be submitted. 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 said construction [2001 CBC, Section 106.3.2, Submittal Documents; Section 108.3, Inspection Requests; Section 108.4, Approval Required; 2001 California Plumbing Code, Section 103.5.4, Inspection Request; Section 301.1.1, Approval].

The responsible mechanical engineer shall stamp and sign all plans, drawings and calculations for the major piping and plumbing systems subject to the CBO design review and approval, and submit a signed statement to the CBO when the said proposed piping and plumbing systems have been designed, fabricated and installed in accordance with all of the applicable laws, ordinances, regulations and industry standards [Section 106.3.4, Architect or Engineer of Record], which may include, but not be 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
- Specific City/County code.

The CBO may deputize inspectors to carry out the functions of the code enforcement agency [2001 CBC, Section 104.2.2, Deputies].

Verification: At least 30 days (or Project Owner and CBO approved alternative timeframe) prior to the start of any increment of major piping or plumbing construction listed in **Facility Design Table 2**, Condition of Certification **GEN-2** above, 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 the 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 the 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 said installation [2001 CBC, Section 108.3, Inspection Requests].

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 timeframe) 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 said 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 [2001 CBC, Section 108.7, Other Inspections; Section 106.3.4, Architect or Engineer of Record].

Verification: At least 30 days (or Project Owner and CBO approved alternative timeframe) 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 electrical equipment and systems 480 volts and higher, listed 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 [CBC 2001, Section 106.3.2, Submittal documents]. 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 [2001 CBC, Section 108.4, Approval Required, and Section 108.3, Inspection Requests]. All transmission facilities (lines, switchyards, switching stations and substations) are handled in Conditions of Certification in the **Transmission System Engineering** section of this document.

A. Final plant design plans to 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 to 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 timeframe) 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

In accordance with CEQA requirements, the Commission must review whether PEFE's consumption of energy (non-renewable fuel) will result in adverse environmental impacts on energy resources. (Cal. Code of Regs., tit. 14, § 15126.4(a)(1) and Appendix F.) This review considers the efficiency of Project design and identifies measures that prevent wasteful, inefficient, or unnecessary energy consumption.

SUMMARY AND DISCUSSION OF THE EVIDENCE

Consumption of non-renewable fuel constitutes an adverse environmental impact under CEQA if it results in (1) an adverse effect on local and regional energy supplies and resources; (2) the need for additional energy supply capacity; (3) noncompliance with existing energy standards;[8] or (4) the wasteful, inefficient, and unnecessary consumption of fuel or energy. (Ex. 100, p. 5.3-2; Cal. Code Regs., tit. 14, § 15126.4(a)(1) and Appendix F.)

1. Potential Effects on Energy Supplies and Resources

Natural gas will be transmitted to the Project by the existing 14.01-mile, 20-inch diameter pipeline that conducts gas to the PEF from the interstate pipeline jointly owned by the Kern River Gas Transmission Company and Mojave Gas Company network. The PEFE requires approximately 450 psig fuel gas pressure. The Kern River/Mojave pipeline operates between 700 and 900 psig and is expected to reliably supply the required inlet pressure. (Ex. 1, Vol. I, §§ 3.1, 3.4.7.) The unit will employ inlet air fogging to maintain power output and efficiency during periods of high ambient temperatures, thus reducing the need for additional energy to cool the generating unit. (Ex. 100, p. 5.3-6; Ex.1, Vol. 1, § 3.9.2.1.3.)

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[8] No existing energy standards apply to the efficiency of the PEFE or other non-cogeneration projects. (Ex. 100, p. 5.3-3.) *See* Public Resources Code section 25134.

Commission staff typically begins its analysis of power plant efficiency with the basic premise that natural gas-fired power plants, such as the PEFE, consume large amounts of non-renewable fuel. Under normal operating conditions, the PEFE will burn natural gas at a nominal rate of 37,535 million Btu per day lower heating value (LHV). According to Staff, this is a substantial rate of energy consumption that could impact energy supplies or resources. (Ex. 100, p. 5.3-2.)

Electricity will be generated by the PEFE in simple cycle mode at full load efficiency of approximately 35.1 percent LHV. (Ex. 100, p. 5.3-2.) Calpine requests the flexibility to operate the PEFE in peaking capacity without limit up to 8,760 hours a year. (Ex. 21.) Although the PEFE efficiency rating does not compare favorably with the more efficient combined cycle configuration of a baseload plant such as PEF, which is rated at 54.9 percent LHV, the simple cycle PEFE can ramp up and down more quickly and efficiently to meet peaking demand.[9] (Ex. 100, p. 5.3-5; Ex. 21.)

The PEFE will employ a General Electric Frame 7FA gas combustion turbine generator (CTG), which is used throughout California in combined cycle power plants and is characterized by Staff as a "modern and efficient" machine.[10] (Ex. 100, p. 5.3-5.) The PEFE represents the first time that the GE Frame 7FA would be employed as a simple cycle peaker in California. (3/30/06 RT, pp. 8-9, 18-20.) Calpine asserts that the simple cycle unit could effectively operate approximately 95 percent of the year. While the unit will be designed for maximum flexibility, the equipment is better suited for peaking service with a low capacity factor. (Ex. 1, Vol. I, § 3.9.2.1.3.) The facility may start from zero baseline or change incrementally from some output level to ramp up to meet

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[9] Staff determined that no alternative technologies using fossil fuels, biomass, solar, hydroelectric or wind would provide more efficient options to meet the Project's objectives. (Ex. 100, p. 5.3-5.)

[10] Staff reviewed alternative machines that could meet the Project's objectives including the Siemens SGT6-5000F and the Alstom GT24, which are also used in California. Staff concluded that their efficiency ratings were slightly but not significantly better than the GE Frame 7FA.

demand. It is anticipated that the PEFE will make about five to seven CTG starts and stops per week, or 300 total starts/stops per year. (*Id*. at § 3.9.2.1.4.)

According to Calpine, the PEFE addresses the failure of the previous PEF developer (Enron) to include peaking capability in the power plant design, despite indications that California requires peaking energy as much as baseload capacity. (Ex. 21, p. 4.) Calpine identified two options for adding peaking capabilities to PEF. The first option would involve redesigning the PEF to incorporate supplemental duct firing in the HRSG units. This approach would temporarily disable the PEF since the HRSGs, steam turbines, and cooling water system would all have to be reconfigured, thus disrupting baseload generation. With the PEFE option, Calpine believes development of a separate, independent peaking CTG serves the same purpose as the addition of supplemental duct firing capacity and presents several advantages compared with the duct firing approach:

- No changes to the combined cycle PEF would be required, thus enabling construction of the combined cycle PEF to continue in parallel with the design and licensing of the simple cycle facility.
- Ramp-up of the peaking capacity would be as quick as, if not quicker than, that associated with supplemental firing.
- The additional water consumption associated with supplement duct firing (for make-up water for the cooling towers) would be avoided. (Ex. 21, pp. 4-5.)

Calpine maintains that development of PEFE is a direct response to California's increasing demand for peaking power. (Ex. 21, p. 3.) Calpine refers to the Commission's 2005 *Integrated Energy Policy Report* (*IEPR*), which found that electricity demand increases most dramatically in the summer and is becoming more "peak-driven…and [t]hough peak demand periods typically occur only

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Since the PEF already employs GE turbines, synchronization of equipment at the site is a compelling factor. (Ex. 100, 5.3-6.)

between 50-100 hours a year, they impose huge burdens on the electric system." (2005 *IEPR*, at p. 43)

The IEPR noted that "[o]ne problem with meeting peak demand is that most new gas-fired power plants are combined-cycle units designed to run at high load factors where they are most efficient and can generate enough revenue to recoup investments. Combined-cycle plants also have less capability to ramp up and down to meet peak demand than the older steam boiler units, which make up the majority of California's fleet of power plants. While some utilities have invested in simple-cycle peaking plants that run just a few hours each year, most of the state's new power plants are combined-cycle and are not well matched with swings in system demand. California must quickly and thoughtfully craft solutions for meeting this increasingly 'peaky' demand." (2005 *IEPR*, at p. 44).

Calpine identified several advantages associated with the operation of a simple cycle peaking facility at PEF:

- Quick ramp-up times and lower emissions during startups.
- Voltage and frequency control.
- Automatic generation control (AGC).
- VAR support.
- Spinning reserve – can operate at lower loads than CC (lower NG consumption). In accordance with the WECC Minimum Operating Reliability Criteria (MORC), spinning and non-spinning reserves must meet the following criteria.
    - Spinning Reserves:
    - The portion of unloaded synchronized generating capacity that is immediately responsive to system frequency and that is capable of being loaded in 10 minutes and that is capable of running for at least 2 hours.
- Non-spinning Reserves:
    - The portion of off-line generating capacity that is capable of being synchronized and ramping to a specified load in 10 minutes (or load that is capable of being interrupted in 10 minutes) and that is capable of running (or being interrupted) for at least 2 hours.

- More efficient than most natural gas and coal thermal plants.
- Simple cycle plants cycle better than combined cycle plants. Combined cycle plants may need to remain on-line during off-peak hours when power is not needed due to slow ramp up times for next peaking period. (Ex. 21, pp. 3-4.)

We are persuaded that the simple cycle PEFE offers the type of peaking capacity favored in the 2005 *IEPR.* However, the Commission must address the issue of whether the PEFE would result in the "wasteful, inefficient, and unnecessary consumption of fuel" if it is licensed to operate on an unlimited basis. (*See*, Cal. Code Regs, tit. 14, § 15126.4(a)(1) and Appendix F.)

2. Wasteful or Inefficient Fuel Consumption

The Energy Commission's 2005 *Natural Gas Assessment Update*[11] identified a flattening in U.S. production and distribution of natural gas with a concomitant rise in the cost of delivery. The report predicts a continued volatility of the natural gas market in California due to reduced supply and higher demand over the next 25 years. In particular, demand by gas-fired power plants will continue to grow as the wholesale price for natural gas increases. The 2005 *IEPR* reflects this concern and discusses alternatives such as enhancing the availability of renewable energy sources, or developing more efficient natural gas transmission facilities, or developing additional sources of natural gas production. (2005 *IEPR*, p. 122 et seq.)

Staff believes that operation of the PEFE would replace less efficient, older steam boiler plants that are called upon for peaking power and thus, the PEFE would not result in the wasteful or inefficient use of natural gas or contribute cumulatively to the amount of natural gas consumed for power generation. (Ex. 100, p. 5.3-5; 3/30/06 RT, p. 39: 24-25, p. 40:1-7, pp. 44-45.)

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[11] CEC Publication No. CEC 600-2005-003, February 2005. Viewed on the CEC website at: http://www.energy.ca.gov/2005publications/CEC-600-2005-003/CEC-600-2005-003.PDF

Both Calpine and Staff contend that high fuel costs and the energy market work to limit peaking generation to the period of time when it is most needed and that economics would restrain the Project Owner from operating the PEFE in a full time mode. (Ex. 21; Ex. 101.) Calpine also asserts that the environmental impacts associated with operation of the PEFE for up to 8,760 hrs/yr will be mitigated to less than significant levels. Regarding air quality, Calpine claims the PEFE's emission offsets will mitigate the impacts of operating the CTG unit at full load for 8,760 hrs/yr for the entire life of the facility. The San Joaquin Valley Air Pollution Control District (SJVAPCD) requires full offsets for each calendar quarter. Thus, the PEFE must provide offsets for operation up to 2,190 hours per quarter for each calendar quarter of the year. Calpine notes that even if the Commission restricted annual operations of the PEFE to ensure efficient use of fuel, the SJVAPCD would still require full offsets per calendar quarter. (Ex. 21, p. 6.)

Calpine opposes any restriction on its operating hours since limiting the ability of the PEFE to respond to demand would advance its economic competitors and result in the dispatch of less efficient generators with higher emissions per megawatt hour. (Ex. 21, p. 5.) According to Calpine, there are few times when the PEFE may be called upon to operate 8,760 hrs/yr, such as an energy crisis, a natural disaster, or an extended unplanned outage on a transmission system. To alleviate concerns about unrestricted operation, Calpine proposed a Condition of Certification that would allow the PEFE to operate without limit for two consecutive years. After two years of year-round operation, the Project Owner would be required to file an application to convert the Project to a combined cycle facility. However, we believe two years of year-round operation exceeds the ability of the Commission to successfully monitor the efficient use of non-renewable fuel.

The evidence establishes that the Project's fuel consumption will not adversely affect existing natural gas supplies and that additional supply capacity over the

life of the Project will not be needed. However, the record is speculative on the issue of whether unrestricted operation of PEFE would result in wasteful or inefficient fuel consumption due to the volatility of future gas supplies. According to Applicant, the PEFE is not expected to begin operation until 2011. The parties assert that economics will deter the PEFE from operating year-round but there is no method other than conditioning the Project to evaluate this assumption. Since we don't have a crystal ball to predict the energy market in 2011, we have adopted Condition of Certification **EFFIC-1**, below, to ensure that the PEFE does not result in wasteful or inefficient fuel consumption.

FINDINGS AND CONCLUSIONS

Based on the evidence of record, the Commission makes the following findings and conclusions:

1. PEFE consists of a single General Electric Frame 7FA combustion turbine generator (CTG) used in simple cycle mode to respond to peaking demand in the Southern California electricity market

2. Under normal operating conditions, the PEFE will burn natural gas at a nominal rate of 37,535 million Btu per day lower heating value (LHV), which is a substantial rate of energy consumption that could impact energy supplies or resources.

3. The PEFE will not require the development of new fuel supply resources.

4. The PEFE has the ability to ramp up quickly and shut down quickly in response to fluctuating demand but it is unlikely that the CTG would operate in baseload mode due to the high cost of fuel and the competitive energy market.

5. The Condition of Certification, below, will ensure that PEFE does not consume natural gas in a wasteful, inefficient, or unnecessary manner.

6. The Project configuration and choice of generating equipment represent the most feasible combination to achieve Project objectives.

7. The anticipated operational flexibility of the Project to provide peaking capacity is more efficient than older steam boiler units or combined cycle plants currently used to supply peaking power in California.

The Commission therefore concludes that PEFE will not cause any significant direct, indirect, or cumulative adverse impacts upon energy resources. The Project will conform with all applicable laws, ordinances, regulations, and standards relating to fuel efficiency as identified in the pertinent portions of **Appendix A** of this Decision.

CONDITION OF CERTIFICATION

EFFIC-1 The Project Owner shall file quarterly reports with the CPM indicating the megawatt hours of operation per month during the preceding calendar quarter. In the event that the simple cycle unit generates electricity at a 75 percent or greater capacity factorfor two consecutive calendar quarters (i.e. generating more than 525,000 MW hours over six consecutive months), the Energy Commission shall hold a hearing on whether the use of the simple cycle unit is justified based on unusual circumstances, and whether continued operation of the Project in simple cycle mode will result in inefficient use of natural gas. If the Commission determines that the Project is likely to continue operating at high capacity, the Commission may order the Project Ownerto file an application to amend the Project to convert theunit to a combined cycle facility and/or mayprohibit the Project from operating at more than a fifty (50) percent factor over any two consecutive calendar quarters (i.e. generating more than 350,000 MW hours over six consecutive months) until the conversion to combined cycle is complete.

Verification: Within 30 days after the end of each calendar quarter, the Project Owner shall provide a report to the CPM, containing a detailed summary of the Project's megawatt hours of operation per month for the preceding calendar quarter, specifying the daily megawatt hours of operation and identifying the entities purchasing and/or dispatching power from the unit. If the unit operates at 75 percent capacity or more for two consecutive calendar quarters, the CPM will place an item on a Commission business meeting agenda within 30 days after the quarterly report is filed to discuss the reasons for the high utilization of the Project, and to consider whether continued unrestricted simple cycle operation should be allowed.

C. POWER PLANT RELIABILITY

The Warren-Alquist Act requires the Commission to examine the safety and reliability of the power plant, including provisions for emergency operation and shutdown. (Pub. Resources Code, § 25520(b).) There are currently no laws, ordinances, regulations, or standards (LORS) that establish either power plant reliability criteria or procedures for attaining reliable operation, except for the generation maintenance program established by the California Independent System Operator (CAISO).[12] (Ex. 100, p. 5.4-2.) Under our statutory mandate, however, the Commission must determine whether the Project will be designed, sited, and operated to ensure safe and reliable operation. (Cal. Code of Regs., tit. 20, § 1752(c)(2).)

SUMMARY AND DISCUSSION OF THE EVIDENCE

According to Staff, a new power plant is acceptable if it does not degrade the reliability of the utility system to which it is connected. This is likely if the new Project exhibits reliability at least equal to that of other power plants on that system. (Ex. 100, p. 5.4-2.)

Staff examined the Project's design criteria to determine whether it would be built in accordance with typical power industry norms for reliable electricity generation. Staff believes that reliable operation is a combination of factors, i.e, the power plant should be available when called upon to operate and it should be expected to operate for extended periods without shutdown for maintenance or repairs. (Ex. 100, p. 5.4-3.) According to Staff, Project safety and reliability are achieved

[12] CAISO's *Maintenance Performance Standards and Criteria* identify the maintenance standards expected of generators and provide a benchmark against which Generating Asset Owners and CAISO can judge the adequacy of maintenance programs used at each generating facility. (Ex. 100, p. 5.4-2.) Specifically, CAISO requires generators selling ancillary services and holding reliability must-run contracts to: (1) file periodic reports on reliability; (2) report all outages and their causes; (3) describe all remedial actions taken during outages; and (4) schedule all planned maintenance outages with CAISO. (*Ibid.*)

by ensuring equipment availability, plant maintainability, fuel and water availability, and adequate resistance to natural hazards. (*Id*. at p. 5.4-3.)

1. Equipment Availability

The Project Owner will ensure equipment availability by use of quality assurance/quality control programs (QA/QC), which include inventory review, and equipment inspection and testing on a regular basis during design, procurement, construction, and operation. (Ex. 1, Vol. 1, § 4.3.5.) Condition of Certification **MECH-1** requires the Project Owner to include applicable QA/QC procedures in the final design specifications for the Project. Qualified vendors of plant equipment and materials will be selected based on past performance and independent testing contracts to ensure acquisition of reliable equipment. (Ex. 1, Vol. 1, § 4.3.5; Ex. 100, p. 5.4-3.) The PEF's existing QA/QC program will be incorporated into PEFE's design development and updated, if necessary, based on the applicable CBSC.

2. Plant Maintainability

Project design includes sufficient redundancy of equipment to ensure continued operation in the event of equipment failure. (Ex. 100, p. 5.4-3; Ex. 1, Vol. I, § 4.3.) With the addition of the simple-cycle PEFE at the site, the facility will consist of four combustion turbine-generators and two steam turbine-generators configured as independent equipment trains that provide inherent reliability. A single equipment failure cannot disable more than one train so the plant may continue operating even at reduced output. Further, all plant ancillary systems are designed with adequate redundancy. Project design includes equipment redundancy and computer monitoring systems to provide inherent reliability. (Ex. 1, Vol. I, § 4.3.2.) Project maintenance will be typical of the industry, including preventive and predictive techniques. Any necessary maintenance outages can

be scheduled during periods of low electricity demand. (Ex. 100, p. 5.4-4; Ex. 1, Vol. I, §§ 3.9.2, 4.3; Ex. 22.)

3. Fuel and Water Availability

The PEFE will obtain natural gas from the Kern River/Mojave pipeline system via an existing 14-mile gas pipeline that conducts gas to the PEF.[13] (Ex. 1, Vol. I, §§ 1.3.3, 3.1, 3.4.7, 3.7.1; Table 1-1.) The Kern River/Mojave system transports natural gas to California from Wyoming and Texas. (*Id*. at §§4.3.3.1, 4.3.3.2.) Both Staff and Applicant assert this system represents an adequate and reliable source of fuel for the Project.[14] (Ex. 100, p. 5.4-4; Ex. 1, § 4.3.3.2.)

There is concern on a broader scale that natural gas availability could be compromised over the life of the Project. The Energy Commission's 2005 Integrated Energy Policy Report (IEPR) found that gas production in North America remains static relative to increasing demand in the western states due to the rapid development of new gas-fired power plants and the decline in gas production from existing gas wells. California faces significant challenges in ensuring adequate natural gas supplies at reasonable prices to meet growing demand particularly because the state is at the geographic end of the interstate pipelines. (*2005 IEPR*, p. 127 et seq.) While the Commission cannot conclude with certainty whether natural gas availability will continue to be adequate and reliable over the life of the Project, we believe that the 41.5 MMcf/day required by the PEFE is *de minimis* and would not adversely affect the overall capacity of the Kern River/Mojave system.

[13] The jointly-owned Kern River and Mojave pipelines represent a capacity of 1100 MMcf/day. The PEFE will require up to 41.5 MMcf/day, bringing the total peak winter demand to 166 MMcf/day for the entire PEF project. (Ex. 1, Vol. I, § 4.3.3.1.) The record is silent on total peak summer demand when it is anticipated that PEFE's peaking capacity would be most needed.

[14] Staff cites the Energy Commission's 2003 Natural Gas Market Assessment. (Aug. 2003, CEC Pub. No. 100-03-006.)

The PEFE will obtain water for turbine inlet air cooling and turbine auxiliary cooling from the Wheeler Ridge/Maricopa Water Storage District (WRMWSD) via the existing 0.15-mile water supply pipeline to the PEF. (Ex. 1, Vol. I, §§ 1.2, 1.3.4, 3.1, 3.4, 3.4.8.1, 3.7.2, 4.3.4; Table 1-1). Utility and plumbing system water will be provided by existing PEF water systems.

Maximum water consumption by the PEFE is estimated at 66,000 gallons per day. (Ex. 1, Vol. I, §§ 1.3.4, 3.1, 3.4.8.1.) Under existing water contracts for PEF, the WRMWSD provides sufficient water to meet this demand and thus, the PEFE does not require an increased water supply. (Ex. 1, Vol. I, § 1.3.4.) In the event that total plant water consumption should exceed the capacity of the WRMWSD connection, which could occur when all turbines are operating full load, onsite storage tanks contain adequate interim water supply. (*Id*. at § 4.3.4; Ex. 100, p. 5.4-4.)

4. Natural Hazards

The site is located in Seismic Zone 4 where nearby earthquake faults create the potential for seismic shaking to threaten reliable operation. (Ex. 100, p. 5.4-5; *See* **Geological/Paleontological Resources**.) The PEFE will be designed and constructed to comply with current applicable LORS for seismic design that improve seismic stability compared with older power plants.[15] The Conditions of Certification in the **Facility Design** section of this Decision ensure that the Project will conform with current design requirements for seismic events as well as strong winds, wind-blown dust, and high ambient temperatures. There are no special concerns about flooding events that would affect reliability. Site grading contours previously installed during construction of the PEF ensure adequate

[15] Staff expects the Project, as designed to current seismic standards, will perform at least as well as or better than existing plants in a seismic event. Staff noted that California's electric system has typically been reliable during seismic events. (Ex. 100, p. 5.4-5.)

control of stormwater drainage and channeling of runoff flows at the site. (Ex. 100, p. 4.9-11 et seq.; *See* **Soil and Water Resources**.)

5. Availability Factors

Calpine predicts the Project will have an overall availability factor of 95 percent during each six-year overhaul maintenance cycle. (Ex. 1, §§ 1.3.2, 3.4.1; 3.9.2.6; 4.3.1.) Industry statistics for power plant availability, which are compiled by the North American Electric Reliability Council (NERC), show an availability factor of 88.37 percent for gas turbine units of all sizes for the years 1999-2003. (Ex. 100, p. 5.4-5.) According to Staff, the Project's predicted 95 percent availability factor is reasonable since the GE 7FA turbine chosen by Calpine has been on the market for several years and exhibits typically high availability and reliability compared with the other generators included in NERC statistics. (*Id.* at, p. 5.4-6.) Staff also notes that maintenance schedules during low energy demand and QA/QC programs ensure reliable operation consistent with industry norms. (*Ibid*.)

FINDINGS AND CONCLUSIONS

Based on the evidence of record, the Commission makes the following findings and conclusions:

1. The Pastoria Energy Facility Expansion (PEFE) will ensure equipment availability by implementing quality assurance/quality control (QA/QC) programs and by providing adequate redundancy of auxiliary equipment to prevent unplanned off-line events.

2. PEFE's project design incorporates sufficient redundancy of equipment, and distributed control and monitoring systems to provide inherent reliability.

3. Planned maintenance outages will be scheduled during times of low electricity demand.

4. PEF's existing water supply contracts will meet PEFE's process water demand.

5. The Project will be designed to withstand seismic shaking that would compromise Project safety and reliability in accordance with Seismic Zone 4 requirements of the California Building Standards Code.

6. The Project's estimated 95 percent availability factor is consistent with industry norms for power plant reliability.

7. The natural gas distribution system has access to adequate natural gas supply and pipeline capacity to meet Project demand.

We therefore conclude that the Project will be constructed and operated in accordance with typical power industry norms for reliable electricity generation. To ensure implementation of the QA/QC programs and conformance with seismic design criteria as described above, appropriate Conditions of Certification are included in the **Facility Design** portion of this Decision.

D. TRANSMISSION SYSTEM ENGINEERING

The 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. Resources Code, § 25107.) The Commission assesses the engineering and planning design of new transmission facilities associated with a new power plant to ensure compliance with applicable law. Additionally, CEQA requires an environmental review of the "whole of the action," which may include impacts on facilities not licensed by this Commission. Thus, we also identify and evaluate the environmental effect of the interconnection of new transmission facilities on the existing transmission system.

SUMMARY AND DISCUSSION OF THE EVIDENCE

The new PEFE adds a nominal 160 MW to the PEF, by incorporating one additional F-class combustion turbine generator (CTG) operating in simple cycle mode into the original three-unit power plant for a total of four CTG units. The PEFE will interconnect to the recently constructed Lebec 230 kV Substation and utilize the PEF's 1.38-mile long, 230 kV transmission line connecting to the existing Southern California Edison (SCE) Pastoria Substation.

The generator output passes through two winding, oil filled, 18 kV to 230 kV, 150/250 MVA step-up transformer where the voltage is increased to a transmission level of 230 kV. The step-up transformer is connected to the grid through the existing 230 kV switchyard at the SCE Pastoria Substation. Surge arrestors are installed on the High Voltage bushings of the transformer to protect the transformer from surges due to lighting strikes, switching or other disturbances on the 230 kV system. The PEFE adds one 230 kV SF6 circuit breaker to the existing switchyard using one bay of the Lebec Substation. (Ex. 100, p. 5.5-3.) Conditions of Certification **TSE-1** through **TSE-8** ensure that

design, construction, and operation of the PEFE's transmission facilities will conform with all applicable LORS and industry standards. (*Id*. at p. 5.5-7 et seq.)

SCE issued a System Impact Study (SIS) on May 13, 2005, and a Technical Assessment Study (TAS) on January 19, 2006.[16] (Exs. 3 and 3A.). These documents include Power Flow Studies, Short Circuit Studies, Post Transient Governor Power Flow Analyses, and Dynamic Stability Analyses.[17] (*Ibid*.) On March 7, 2006, CAISO provided a preliminary approval for the PEFE to interconnect to the SCE grid subject to implementation of system upgrades and Special Protection Schemes (SPS) identified in the TAS and described below. (Ex. 26, p. 7.) The estimated operating date for PEFE is 2011; analyses contained in the SIS and TAS are based on the assumption that upgrades associated with higher-queued projects will materialize prior to the PEFE online date. (3/30/06 RT, pp. 31-34; Ex. 26, pp. 4-5.)

1. Potential Impacts

The SIS modeled the PEFE with a net output of 157 MW. The base case included all approved SCE, PG&E, and LADWP transmission projects, modeled major transmission system path flows, and the proposed queue of generation projects. The transmission grid was analyzed using 2006 Heavy Summer and

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[16] When a new interconnection facility is proposed, the utility (in this case, SCE) performs a System Impact Study (SIS) to determine the appropriate design for the new transmission facility, the potential downstream transmission system impacts, and the mitigation measures necessary to ensure conformance with system performance levels required by the utility's reliability criteria, NERC planning standards, WECC reliability criteria, and CAISO reliability criteria. The SIS identifies both positive and negative impacts, and in the event of reliability criteria violations (i.e., negative impacts), identifies alternate and/or preferred additional transmission facilities or other mitigation measures. (Ex. 100, p. 5.5-3.)

[17] The studies are conducted under the normal condition (N-0) of the system and also for all credible contingency/emergency conditions, which include the loss of a single system element (N-1) such as a transmission line, transformer, or a generator and the simultaneous loss of two system elements (N-2), such as two transmission lines or a transmission line and a generator. Equipment that is loaded beyond 100 percent of its rating constitutes a violation of the reliability criteria. (Ex. 100, p. 5.5-3.)

2007 Heavy Spring base cases under normal (N-0), CAISO Category B (N-1) and Category C (N-2) contingency conditions. (Ex. 100, p. 5.5-4; Ex. 3A.)

The SIS found no adverse reliability impacts directly attributable to the PEFE under normal or contingency conditions. However, the PEFE exacerbates existing overloads on the SCE transmission system and a Facility Study is necessary to determine both the appropriate mitigation and the parties responsible for the mitigation. (Ex. 100, p. 5.5-4; Ex. 3A.) Condition **TSE-5(f)**, below, requires the Project Owner to submit a final Facility Study prior to the start of construction of PEFE's transmission facilities.

The SIS provided a summary of the overload violations as follows:

Normal (N-0) Conditions

Under Heavy Summer conditions with the PEFE;

- Antelope-Mesa 230kV T/L loading was marginally increased from 100-percent to 115-percent.
- Antelope-Cottonwind 230kV T/L loading was marginally increased from 98-percent to 102-percent.

Under Light Spring conditions with the PEFE:

- Antelope-Mesa 230kV T/L loading was marginally increased from 109-percent to 114-percent.
- Antelope-Cottonwind 230kV T/L loading was marginally increased from 107-percent to 112-percent.
- Pardee-Pastoria-Warne 230kV T/L was marginally increased from 105-percent to 110-percent.

Contingency N-1/CAISO Category B Conditions

- The System Impact Study identified a total of eight single contingency overloads under heavy summer conditions and nine single contingency overloads under Light Spring conditions:
- Under Heavy Summer conditions, five different 230 kV transmission line overloads were increased by the PEFE. (Table 7-1 in the System Impact Study, Ex. 3A).

- Under Light Spring conditions, the pre-Project overloads on eight different 230 kV transmission lines were increased by the PEFE. (Table 7-2 in the System Impact Study, Ex. 3A.)

Contingency N-2/CA ISO Category C Conditions

- The SIS identified a total of fourteen double contingencies under heavy summer conditions and thirteen double contingencies under light spring conditions, which resulted in thermal overload problems on transmission facilities.
- Under Heavy Summer conditions, the PEFE exacerbates overloads on ten different 230 kV transmission lines. (Table 7-1 in the System Impact Study, Ex. 3A.)
- Under Light Spring conditions, the PEFE exacerbates overloads on nine different 230 kV transmission lines. (Table 7-3 in the System Impact Study, Ex. 3A).

2. Mitigation Proposals

The SIS identified several mitigation measures to address the existing overloads exacerbated by the PEFE; however, the specific measures must ultimately be described in the Facility Study and approved by CAISO as required in Condition **TSE-5(f)**.

The mitigation measures identified in the SIS include the following:

- The CAISO review of the SIS indicates that modification of the existing SPS or any new SPS would not be approved as mitigation because the SPS generation would exceed the CAISO Planning Standards (1,150 MW for N-1 contingency and 1,400 MW for N-2 contingency).

- Build a new 230kV transmission line from Pastoria to Pardee Substations.

- Rebuild the existing Antelope-Mesa 230kV transmission line with 500kV single-circuit construction between Antelope and Rio Hondo Substations, and 230kV double-circuit construction with a single-bundled 1590 ACSR conductor between Rio Hondo and Mesa Substations.

- Rebuild the Antelope-Magunden No.2 230kV transmission line south of the proposed Cottonwind 230kV Substation with bundled 1590 ACSR conductor.

- Reconductor the existing Pastoria-Pardee-Warne 230kV transmission line with new ACSS/TW class conductor to avoid a tear-down and rebuild of the existing tower structures.

- If reconductoring the existing Pastoria-Pardee-Warne 230kV transmission line with new ACSS/TW class conductor is not feasible, develop the cost estimates for the tear-down and rebuild of the Pastoria-Pardee-Warne 230kV transmission line with bundled 1590 ACSR conductor.

Transient stability simulations in the SIS indicated that the system remains stable under both single and double contingency conditions with the existing SPS for Big Creek and PEF. As a result, the PEFE will need to participate in a SPS that requires the entire PEFE to be tripped to mitigate the incremental contribution to thermal overload problems. Transient stability studies did not identify a violation of the WECC's recently approved Generator Electric Grid Fault Ride-Through Capability Criteria. (Ex. 100, p. 5.5-6.)

Short circuit studies indicated that the PEFE increases short-circuit duties by an amount equal to or greater than 0.1 kA at seven locations. Prior to PEFE construction, breakers at the following seven locations must be evaluated for replacement: Lugo 500 kV; Mammoth 230 kV; Magunden 230 kV; Pardee 230 kV; Pastoria 230 kV; Sylmar 230 kV; and Vincent 230 kV. The Facility Study will evaluate the breaker replacements. (Ex. 100, p. 5.5-6; Ex. 26, pp. 5-6.)

The TAS supports the conclusions described in the SIS regarding mitigation and provides the following guidance. (Ex. 3; Ex. 102C.)

- No additional new or modified interconnection transmission facilities, other than those identified by the Applicant for the outlet configuration, are required for the interconnection of the 157 MW PEFE.
- SCE proposes to add a new SPS or to modify the PEF's existing SPS to include the new PEFE unit to mitigate contingency impacts. If the existing

SPS cannot be readily modified and/or requires replacement of the existing SPS equipment, then SCE must consider alternative mitigation measures, such as new transmission reinforcements. CAISO does not recommend the addition of any new SPS due to operational concerns.

- Except for the modification of an existing SPS and the possible replacement of seven circuit breakers, there are no required mitigation measures that are a reasonably foreseeable consequence of the interconnection of the PEFE. The overloads identified in the SIS occur even without the interconnection of the PEFE and should be mitigated by SCE even if the PEFE is not built.

The TAS identified several transmission upgrades necessary to eliminate overloads caused by projects ahead of the PEFE in the generator interconnection queue. (Ex. 3; Ex. 102C, pp 16-17.)

(1) Antelope-Cottonwind Upgrades.

- A new 230kV substation located approximately 20 miles northwest of the Antelope 230kV substation, adjacent to the existing Antelope-Magunden No. 2 230kV transmission line.
- The tear-down and replacement, with a new 230 kV double circuit line, of the approximately 20-mile Antelope-Magunden No. 2 230kV line between the Antelope substation and the new Cottonwind substation.
- Connection of the remaining section of the existing Antelope-Magunden No. 2 230kV transmission line to the new Cottonwind substation.

(2) Antelope-Vincent-Rio Hondo-Mesa Upgrades.

- The tear-down of the existing Antelope-Mesa 230kV and Antelope-Vincent 230kV transmission lines.
- Construction of a second Antelope-Vincent 500kV transmission line initially energized at 230kV.
- Construction of a new 500kV transmission line section between the Vincent and the Rio Hondo area on the right-of-way vacated with tear-down of the Antelope-Mesa 230kV transmission line.
- Construction of a new Mesa-Rio Hondo 230kV transmission line.

Staff indicated that under the TAS, the following mitigation measures are required for reliable interconnection of the PEFE:

- Modification of the existing PEF Special Protection Scheme, adding the PEFE to the N-2 tripping logic.

- Evaluation of the circuit breakers at the seven 230 kV locations identified in the SIS and TAS and develop costs for any required breaker replacements. (Ex. 102C, p. 17.)

CAISO concurred with the assumptions and results identified in the TAS and the description of additional work to be completed under a Facility Study. (Ex. 26, p. 7.) CAISO noted, however, that the PEF's existing SPS has had a recent history of tripping the 750 MW PEF and has resulted in operational concerns over its continued use. The CAISO's preliminary interconnection approval for the PEFE was conditioned on the following:

1. SCE has proposed adding a new SPS or modifying the existing SPS for PEF to include the PEFE in order to mitigate contingency impacts. CAISO does not recommend the addition of any new SPS. If the existing SPS cannot be readily modified and/or requires replacement of the existing SPS equipment, then SCE must consider alternative mitigation measures, such as new transmission reinforcements.

2. SCE notes that SPS arming studies will be necessary to properly account for changes in system performance resulting from transmission line upgrades and that SCE will determine if additional sensitivity studies are necessary to determine the impact of PEFE's addition on transient system performance. Generation tripping levels in excess of SPS guides will not be allowed. Final approval to interconnect will be subject to CAISO review of these additional SPS arming studies.

3. If a modified PEF's SPS is implemented that results in operational concerns, CAISO reserves the right to review used of the PEF's SPS. (Ex. 26.)

CAISO stated that final approval to interconnect the Project is subject to satisfactory mitigation measures to eliminate all identified criteria violations to the CAISO Grid Planning Standards and the satisfactory completion and review of a Facility Study for the Project. If the higher queued projects do not materialize as expected, the PEFE may need to assume responsibility for the necessary upgrades identified in the SIS and TAS or other transmission reinforcements. (Ex. 26, pp. 4 and 7.)

FINDINGS AND CONCLUSIONS

Based on the evidence of record, the Commission makes the following findings and conclusions:

1. The PEFE will interconnect with the SCE grid at the recently constructed Lebec 230 kV Substation and utilize PEF's existing 1.38-mile long, 230 kV transmission line connecting to the SCE Pastoria Substation.

2. The PEFE adds one 230 kV SF6 circuit breaker to the existing Pastoria switchyard using one bay of the Lebec Substation.

3. A System Impact Study (SIS) and a Technical Assessment Study (TAS) prepared by SCE indicate that PEFE will exacerbate overload violations under Normal (N-0), Contingency N-1, and Contingency N-2 conditions.

4. The SIS and TAS assumed that upgrades associated with higher-queued projects will materialize prior to the PEFE online date in 2011.

5. The CAISO granted preliminary interconnection approval for PEFE based on assumptions and analyses contained in the SIS and TAS but conditioned final approval on the completion of upgrades anticipated for the higher queued projects and no addition of any new Special Protection Scheme (SPS) for PEFE.

6. CAISO will not allow generation tripping levels in excess of SPS guidelines.

7. CAISO recommends that if the existing SPS for PEF cannot be modified and/or requires replacement of the existing SPS equipment, then SCE must consider other mitigation measures such as new transmission reinforcements.

8. CAISO's final interconnection approval requires a final Facility Study from SCE that assures conformance with WECC, NERC, and CAISO planning standards and reliability criteria.

9. The Project Owner will submit a final Facility Study and Executed Generator Interconnection Agreement with SCE incorporating the mitigation measures approved by CAISO prior to construction of the transmission facilities.

10. The Conditions of Certification ensure that the transmission interconnection facilities will be designed, constructed, and operated in a manner consistent with all applicable laws, ordinances, regulations, and standards (LORS).

The Commission therefore concludes that implementation of the measures specified in the Conditions of Certification listed below will ensure compliance with all applicable laws, ordinances, regulations, and standards (LORS) related to transmission system engineering as identified in **Appendix A** of this Decision.

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
Take off facilities
Electrical Control Building
Switchyard Control Building
Transmission Pole/Tower
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.)

Protocol: 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.

Protocol: 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 to predicted conditions used as a basis for design of earthwork or foundations.

Protocol: 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. (CBSC in effect on date of construction, 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: Within 15 days of receipt, the Project Owner shall submit to the CPM a copy of the CBO's approval or disapproval of any corrective action taken to resolve a discrepancy. Within five days of any disapproval, the Project Owner shall advise the CPM of 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, including 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.

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", CAISO standards, National Electric Code (NEC) and related industry standards.

   i) The existing power plant switchyard shall include an additional 230kV circuit breaker due to the addition of the PEFE project.

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 from the project.

e) Termination facilities shall comply with applicable SCE interconnection standards.

f) The Project Owner shall provide to the CPM:

   i) The final Facility Study (FS) including a description of facility upgrades, operational mitigation measures, and/or Special Protection System (SPS) sequencing and timing if applicable,

   ii) The executed Project Owner and CAISO Facility Interconnection Agreement

Verification: At least 60 days prior to the start of construction of transmission facilities (or a lesser number of days mutually agree 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 NESC, Title 8, Articles 35, 36 and 37 of the "High Voltage Electric Safety Orders", NEC, applicable interconnection standards 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"[18] 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 NESC, Title 8, California Code of Regulations, Articles 35, 36 and 37 of the, "High Voltage Electric Safety Orders", NEC, applicable interconnection standards, and related industry standards.

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

d) The final Facility Study, including a description of facility upgrades, operational mitigation measures, and/or SPS sequencing and timing if applicable, and the executed Interconnection Agreement shall be provided concurrently to the CPM.

TSE-6 The Project Owner shall inform the CPM and CBO of any impending changes, which may not conform to the requirements of **TSE-5** a) through f, and have not received CPM and CBO approval, and request approval to implement such changes. A detailed description of the proposed change and complete engineering, environmental, and economic rationale for the change shall accompany the request. Construction involving changed equipment or substation configurations shall not begin without prior written approval of the changes by the CBO and the CPM

Verification: At least 60 days prior to the construction of transmission facilities, the Project Owner shall inform the CBO and the CPM of any impending changes which may not conform to requirements of **TSE-5** and request approval to implement such changes.

TSE-7 The Project Owner shall provide the following Notice to the California Independent System Operator (CAISO) prior to synchronizing the facility with the California Transmission system:

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

1. At least one week prior to synchronizing the facility with the grid for testing, provide the CAISO 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 ISO Outage Coordination Department.

Verification: The Project Owner shall provide copies of the CAISO letter to the CPM when it is sent to the CAISO one week prior to initial synchronization with the grid. The Project Owner shall contact the CAISO 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 CAISO shall be provided electronically to the CPM one day before synchronizing the facility with the California transmission system for the first time.

TSE-8 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 Project's transmission line must be constructed and operated consistent with applicable LORS that protect the environment and assure public health and safety. This topic discusses potential impacts of the transmission line on aviation safety, radio-frequency interference, audible noise, fire hazards, hazardous and nuisance shocks, and electric and magnetic field exposure (EMF).

Summary and Discussion of the Evidence

The electricity generated by PEFE will be transmitted to the power grid via the same 1.38-mile, 230 kV overhead transmission line currently used by the existing PEF to connect to SCE's Pastoria Substation. The PEF line was originally sized to accommodate increased capacity from an additional generating unit at the site. (Ex. 1, Vol. I, § 3.6.) The line was designed, built, and is currently operated according to CPUC safety requirements and SCE standards and practices regarding field reduction, line efficiency, reliability, and maintainability. (Ex, 1, Vol. I, § 9, PEF Decision, 99-AFC-7, p. 88 et seq.) Given this context, Staff assessed the potential of PEFE's increased power flow to cause transmission line impacts beyond acceptable limits. (Ex. 100, p. 4.11-1 et seq.)

1. Description of Transmission Line

The PEF's existing 1.38-mile, 230 kV double-circuit transmission line connects the onsite 230 kV switchyard to the Pastoria Substation to the south. The PEF line runs parallel to the 230 kV SCE Pastoria-Magunden transmission line for most of the route. It traverses a mostly undeveloped area with no residences within a 0.5-mile radius. (Ex. 100, p. 4.11-3; Ex. 1, Vol. II, Attachment H, § 5.9.1.3.) According to Staff, this means the long-term, line-related residential electric and magnetic field exposures should remain insignificant for the combined power transmission of both PEF and PEFE.[19] The only Project-related

[19] The possibility of deleterious health effects from exposure to EMF has raised public health concerns about living near high-voltage lines. While scientific research has not established a

exposures of potential significance would be short-term exposures to plant workers, regulatory inspectors, maintenance personnel, visitors, or individuals in transit under the Project's lines. However, the short-term nature of these exposures does not raise significant public health concerns. Several of SCE's 66 kV transmission lines are located in the area but not close enough to encounter significant system impacts from the flow of PEF and PEFE power. (Ex. 100, p. 4.11-3.)

The PEF line is supported by lattice structures, which are typical of area SCE lines of similar voltage and current-carrying capacity. The structures range in height from 100 to 120 feet to provide a minimum ground clearance of 30 feet. (Ex. 1, Vol, II, Attachment A, §3.6.3; Ex. 100, p. 4.11-3.).

2. Potential Impacts

The PEF line was designed and built to ensure aviation safety and to minimize the potential for hazardous shocks and contact-related fires. (Ex. 1, Vol. I, § 9, p. 88 et seq.). With the addition of PEFE, post-energization electric fields will remain the same and electric field-related impacts (such as interference with radio-frequency communication, audible noise, spark discharge-related fires, and nuisance shocks) will continue to be insignificant. According to Staff, this is reflected by the value of 0.06 kV/meter calculated at the edges of the 80-foot right of way, before and after PEF energization. (Ex. 100, p. 4.11-4; Ex. 15, p.3.) Only the line's magnetic field could potentially change with the added 160 MW of PEFE power. (Ex. 100, p. 4.11-4.)

The magnetic field change corresponding to PEFE-related power flow will depend on the interactive effects of fields between the 230 kV line and

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definitive correlation between EMF exposure and adverse health effects, the potential for EMF-related health hazards remains at issue. In this regard, the CPUC requires the regulated utilities, including SCE, to incorporate EMF-reducing measures in the design, construction, and maintenance of new transmission facilities and to operate existing facilities in accordance with those measures. (Ex. 1, Vol. I, § 9, p. 88; Ex. 100, p. 4.11-4 et seq.)

conductors from nearby SCE lines. Such interactive effects should not result in a net change to the 15 milligauss (mG) previously calculated at the edges of the right-of-way before and after PEF energization. (Ex. 100, p. 4.11-4.) However, to ensure there are no magnetic field changes and to verify the line's field reduction efficiency, we have adopted Condition of Certification **TLSN-1** requiring the Project Owner to measure field strengths before and after PEFE energization.

3. Cumulative Impacts

Since the PEF line is designed, maintained, and operated according to current CPUC standards on safety and EMF management, the actual contribution of the line to the area's EMF exposure and any other health and safety considerations will be insignificant given the present configuration of numerous transmission lines in the area. The field strength values originally calculated for the PEF line are typical for SCE lines of similar voltage and current-carrying capacity. (Ex. 100, pp. 4.11-5 and 4.11-6.) Condition **TLSN-1** ensures that field strengths remain acceptable.

FINDINGS AND CONCLUSIONS

Based on the evidence of record, the Commission makes the following findings and conclusions:

1. The PEFE will interconnect to SCE's Pastoria Substation via the existing 1.38-mile, 230 kV transmission line from the PEF switchyard.

2. The PEF transmission line was originally sized to accommodate increased capacity from an additional generating unit at the site.

3. The line was designed, built, and is currently operated according to CPUC safety requirements and SCE standards and practices regarding field reduction, line efficiency, reliability, and maintainability. .

4. The Project Owner shall provide field intensity measurements before and after energization to assess EMF contributions from the Project-related current flow.

5. The combined power transmission from both PEF and PEFE via the PEF transmission line will not result in significant adverse environmental impacts to public health and safety nor cause significant impacts in the areas of aviation safety, radio frequency communication, fire hazards, nuisance or hazardous shocks, or electric and magnetic field exposure.

We therefore conclude that implementation of the Condition of Certification, below, will ensure that the Project complies with all applicable laws, ordinances, regulations, and standards relating to transmission line safety and nuisance as identified in the pertinent portions of **Appendix A** of this Decision.

CONDITIONS OF CERTIFICATION

TLSN-1 The Project Owner shall engage a qualified consultant to measure the strengths of the transmission line's electric and magnetic fields from the PEF line before and after the introduction of the energy from the PEFE. Measurements shall be according to IEEE protocols and at the representative points along the route as necessary to establish the strengths at the edges of the right-of-way. These measurements shall be completed not later than six (6) months after the start of PEFE operations.

Verification: The Project Owner shall file copies of the pre- and post-energization measurements with the CPM within 60 days after completion of the measurements.

VI. PUBLIC HEALTH AND SAFETY ASSESSMENT

Operation of the PEFE will create combustion products and utilize certain hazardous materials that could expose the general public and workers at the facility to potential health effects. The following sections describe the regulatory programs, standards, protocols, and analyses that address these issues.

A. 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 result in significant air quality impacts, including violations of ambient air quality standards; whether the proposed mitigation measures will likely reduce potential impacts to insignificant levels; and whether the Project, as mitigated, will conform with applicable laws, ordinances, regulations and standards (LORS). (Ex. 100, p. 4.1-1.)

The U.S. Environmental Protection Agency (USEPA) has established national ambient air quality standards (NAAQS) for seven air contaminants identified as "criteria air pollutants." These include sulfur dioxide (SO_2), carbon monoxide (CO), ozone (O_3), nitrogen dioxide (NO_2), lead (Pb), particulate matter less than 10 microns in diameter (PM_{10}) and particulate matter less than 2.5 microns in diameter ($PM_{2.5}$). In addition, the California Air Resources Board (CARB) has established state standards (CAAQS) for ozone, CO, NO_2, SO, sulfates, PM_{10}, airborne lead, hydrogen sulfide, and vinyl chloride. The federal and state standards also identify precursor pollutants for ozone, which include nitrogen oxides (NO_x) and volatile organic compounds (VOC), and the precursors for PM_{10} and $PM_{2.5}$, which are primarily NO_x, sulfur oxides (SO_x), and ammonia (NH_3). (Ex. 1, § 5.2.2.)

The federal Clean Air Act[20] requires a new major stationary source of air pollution to comply with federal air quality requirements in order to obtain an Authority to Construct (ATC) permit. The USEPA, which administers the Clean Air Act, has designated all areas of the United States as attainment/unclassifiable (air quality better than the NAAQS or unable to determine) or nonattainment (worse than the NAAQS) for criteria air pollutants. (Ex. 1, § 5.2.2 et seq.)

There are two major components of air pollution law: New Source Review (NSR) for evaluating pollutants that violate federal standards and Prevention of Significant Deterioration (PSD) to evaluate pollutants that do not violate federal standards. Enforcement of NSR is typically delegated to the local air districts established under federal and state law. PSD rules are administered by the USEPA. A new major pollution source is also subject to the federal New Source Performance Standards (NSPS), which are generally delegated to the local air districts; however, local emissions rules are typically more restrictive than NSPS requirements. (Ex. 1, Vol. I, § 5.2.4.1.)

The applicable federal and state ambient air quality standards are presented in Staff's Air Quality Table 2, shown below. As indicated in this Table, the averaging times for the air quality standards (the duration over which they are measured) range from one-hour to annual average. The standards are read as a mass fraction, in parts per million (ppm), or as a concentration, in milligrams or micrograms of pollutant per cubic meter of air (mg/m^3 or $\mu g/m^3$).

[20] Title 42, United States Code, section 7401 et seq.

AIR QUALITY Table 2
Federal and State Ambient Air Quality Standards

Pollutant	Averaging Time	Federal Standard	California Standard
Ozone (O_3)	8 Hour	0.08 ppm (157 μg/m^3)	0.07 ppm (137 μg/m^3)
	1 Hour	0.12 ppm (235 μg/m^3)	0.09 ppm (180 μg/m^3)
Carbon Monoxide (CO)	8 Hour	9 ppm (10 mg/m^3)	9.0 ppm (10 mg/m^3)
	1 Hour	35 ppm (40 mg/m^3)	20 ppm (23 mg/m^3)
Nitrogen Dioxide (NO_2)	Annual Average	0.053 ppm (100 μg/m^3)	—
	1 Hour	—	0.25 ppm (470 μg/m^3)
Sulfur Dioxide (SO_2)	Annual Average	0.030 ppm (80 μg/m^3)	—
	24 Hour	0.14 ppm (365 μg/m^3)	0.04 ppm (105 μg/m^3)
	3 Hour	0.5 ppm (1300 μg/m^3)	—
	1 Hour	—	0.25 ppm (655 μg/m^3)
Respirable Particulate Matter (PM10)	Annual Arithmetic Mean	50 μg/m^3	20 μg/m^3
	24 Hour	150 μg/m^3	50 μg/m^3
Fine Particulate Matter (PM2.5)	Annual Arithmetic Mean	15 μg/m^3	12 μg/m^3
	24 Hour	65 μg/m^3	—
Sulfates (SO_4)	24 Hour	—	25 μg/m^3
Lead	30 Day Average	—	1.5 μg/m^3
	Calendar Quarter	1.5 μg/m^3	—
Hydrogen Sulfide (H_2S)	1 Hour	—	0.03 ppm (42 μg/m^3)
Vinyl Chloride (chloroethene)	24 Hour	—	0.01 ppm (26 μg/m^3)
Visibility Reducing Particulates	8 Hour	—	In sufficient amount to produce an extinction coefficient of 0.23 per kilometer due to particles when the relative humidity is less than 70 percent.

Source: CARB 2005a.

Summary of the Evidence

The San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD) has jurisdiction in Kern County, where the PEFE is located. (Ex. 100, p. 4.1-1.) The San Joaquin Valley Air Basin (SJVAB) is designated as nonattainment for federal and state ozone and PM_{10} standards. Staff's Air Quality Table 3, replicated

below, summarizes the federal and state attainment status of criteria pollutants for the SJVAB.

AIR QUALITY Table 3
Federal and State Attainment Status for the San Joaquin Valley Air Basin

Pollutant	Attainment Status	
	Federal	**State**
Ozone – One hour	Extreme Nonattainment	Severe Nonattainment
Ozone – Eight hour	Serious Nonattainment	No State Standard
CO	Unclassified/Attainment [a]	Attainment
NO_2	Unclassified/Attainment [a]	Attainment
SO_2	Attainment	Attainment
PM10	Serious Nonattainment	Nonattainment
PM2.5	Nonattainment	Nonattainment

Source: (SJVAPCD 2005d) web site accessed February 2005 (www.valleyair.org/aqinfo/attainment.htm), USEPA 2005b.
a. Unclassified/Attainment – The status for the subject pollutant is classified as either attainment or unclassified.

1. SJVUAPCD's Final Determination of Compliance

SJVUAPCD released its Final Determination of Compliance (FDOC) on November 4, 2005. The FDOC contains the permit Conditions specified by SJVUAPCD to ensure compliance with applicable federal, state, and local air quality requirements. (Ex. 5X, p. 41.) These Conditions include emissions limitations, operating limitations, offset requirements, and testing, monitoring, record keeping and reporting requirements that ensure compliance with air quality LORS. (*Ibid*.) In February 2006, the Air District approved Calpine's revised offset package and incorporated the changes into Conditions 44 and 45 of the FDOC. (Exs. 5Y and 5Z). The Conditions contained in the FDOC and those modified in Exhibits 5Y and 5Z are incorporated into this Decision. (Cal Code of Regs, tit. 20, §§ 1744.5, 1752.3.) In the power plant certification process, the Air District's FDOC serves as an in-lieu ATC permit. (Ex. 5X, p. 1, SJVUAPCD Rule 2201, § 5.8.)

2. California Environmental Quality Act (CEQA) Requirements

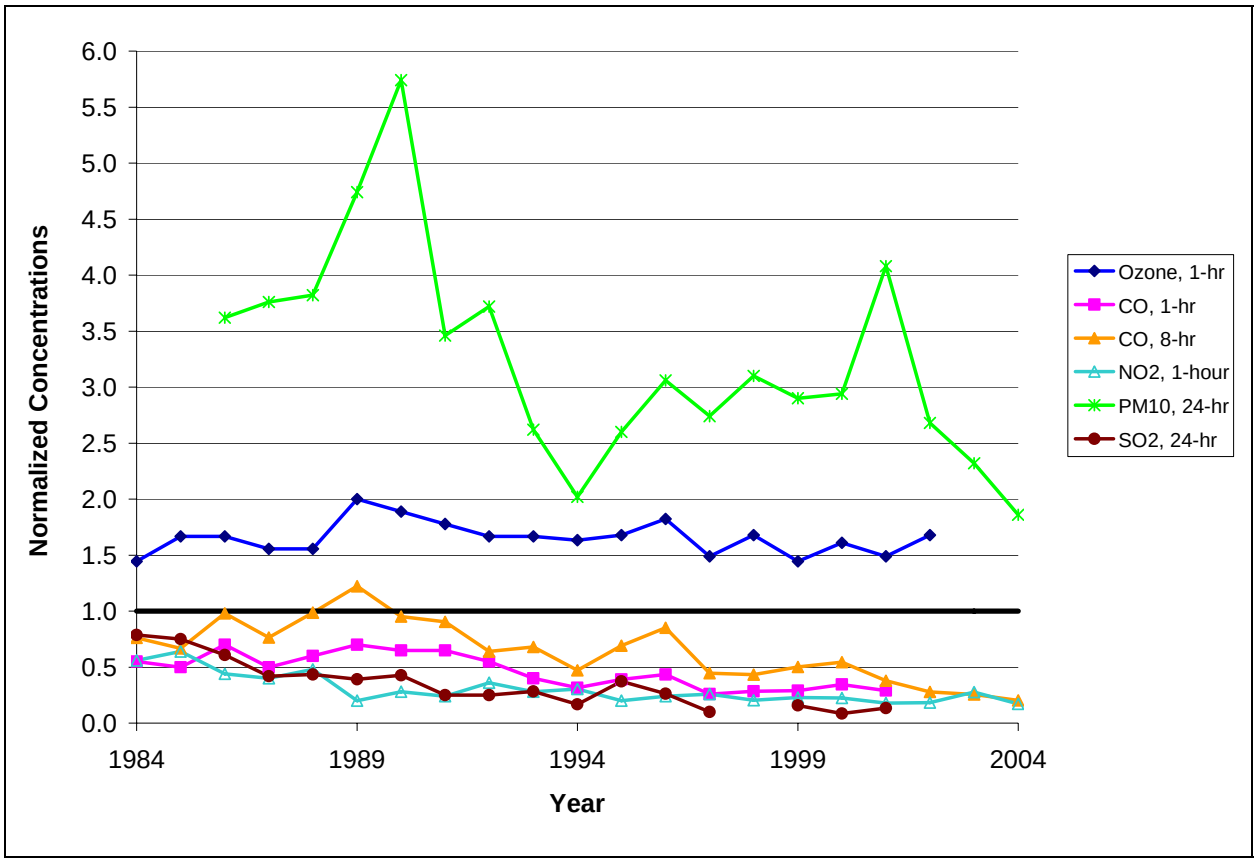
In addition to the Air District's requirements, CEQA Guidelines identify several significance criteria to determine whether a Project will: (1) conflict with or obstruct implementation of the applicable air quality plan; (2) violate any air quality standard or contribute substantially to an existing or projected air quality violation; (3) result in a cumulatively considerable net increase of any criteria pollutant for which the region is nonattainment for state or federal standards; (4) expose sensitive receptors to substantial pollutant concentrations; and (5) create objectionable odors affecting a substantial number of people. (Cal Code of Regs, tit. 14, § 15000 et seq., Appendix G.) The Guidelines note that where available, the significance criteria established by the applicable Air District may be relied upon to make a significance determination for CEQA review.

The following discussion provides an overview of ambient air quality in the SJVAB and describes the issues addressed by the parties in consultation with SJVUAPCD.

3. Ambient Air Quality

Staff's Air Quality Figure 1, below, summarizes the historical air quality data for the Project location, recorded at air monitoring stations located at: Bakersfield Chester Street (1984-1993 for PM_{10}, CO, and SO_2; 1984-1988 for ozone and NO_2); Bakersfield California Avenue (1994-2004 for PM_{10}, CO, and SO_2); and Arvin-Bear Mountain Boulevard (1989-2004 for ozone and NO_2). The short term normalized concentrations are provided from 1984 to 2004. Normalized concentrations represent the ratio of the highest measured concentrations in a given year to the most stringent applicable national or state ambient air quality standard. Therefore, normalized concentrations below 1.0 indicate that the measured concentrations were lower than the most stringent ambient air quality standard. (Ex. 100, p. 4.1-5.)

AIR QUALITY Figure 1
Normalized Maximum Short-Term Historical Air Pollutant Concentrations Bakersfield Chester St. (1984-1993), Bakersfield California Ave. (1994-2004), and Arvin-Bear Mountain Blvd. (1989-2004 for ozone and NO_2)



Source: CARB 2002, CARB 2005b.

A Normalized Concentration is the ratio of the highest measured concentration to the applicable most stringent air quality standard. For example, in 1999 the highest one-hour average ozone concentration measured at the Arvin-Bear Mountain Boulevard station was 0.130 ppm. Since the most stringent ambient air quality standard is the state standard of 0.09 ppm, the 1999 normalized concentration is 0.130/0.09 = 1.44.

Staff also provided a detailed analysis of ambient air quality conditions in the site vicinity for ozone, PM_{10}, $PM_{2.5}$, CO, NO_2, and SO_2. (Ex. 100, p. 4.1-6 et seq.)

- In the presence of ultraviolet radiation, both NO_x and VOCs are converted to ozone through several complex chemical reactions. Ozone formation is higher in the spring and summer and lower in the winter. The SJVAB is classified as a non-attainment area for federal and state ozone standards.

- PM_{10} can be emitted directly or formed downwind from emission sources when precursor pollutants, such as NO_x, SO_x and ROG from combustion and ammonia from NO_x control equipment and agricultural activities, interact

in the atmosphere and form secondary particulates. Violations of the state 24-hour PM_{10} standard occur predominately from October through February.

- The highest $PM_{2.5}$ (fine particulates) concentrations are likely to occur in the fall and winter with the contribution of wood-burning smoke particles adding to ground level releases. The SJVAB is classified non-attainment for the state $PM_{2.5}$ standard.

- The highest concentrations of CO occur in the winter months during the late afternoon, nighttime, and early morning hours when low wind speeds and a stable atmosphere trap pollutants emitted at or near ground level in a stable boundary layer. California's 1992 wintertime oxygenated gasoline program and Phases I and II of the reformulated gasoline program have been successful in decreasing CO concentrations in all areas of the state except certain locations within the Los Angeles area.

- The highest concentrations of NO_2 occur during the fall and not the winter, when atmospheric conditions lack significant photochemical activity. In the summer, the high temperatures and windy conditions disperse pollutants, preventing the accumulation of NO_2 to levels approaching the one-hour CAAQS.

- Sulfur dioxide is emitted by combustion of fuel containing sulfur. Since natural gas contains little sulfur and has low SO_2 emissions, PEFE will not cause a violation of nor contribute to ambient SO_2 concentrations in the site vicinity. Staff notes that the entire state is designated attainment or unclassified for all SO_2 ambient air quality standards.

To identify ambient air assumptions for the modeling and impacts analyses, Staff used the maximum ambient air concentrations from the most representative monitoring stations for the three-year period of 2002 through 2004. The background concentrations came from the monitoring stations with similar characteristics to the site vicinity. The ozone and NO_2 background concentrations were obtained from the Arvin-Bear Mountain Boulevard monitoring station. The PM_{10}, $PM_{2.5}$, CO, and SO_2 background concentrations were from the Bakersfield California Avenue monitoring station, which provided a conservative estimate more representative of the Project area than the Bakersfield Golden State Highway monitoring station, which had higher concentrations of these pollutants. Staff's Air Quality Table 10, replicated below,

presents the background ambient concentrations used for the PEFE impacts analysis. (Ex. 100, pp. 4.1-17 and 4.1-18.)

AIR QUALITY Table 10
Staff Recommended Background Concentrations for PEFE (ppm) [a]

Pollutant	Averaging Time	2002 (1999)	2003 (2000)	2004 (2001)	Most Restrictive Ambient Air Quality Standard
Ozone	1 hour	0.151	**0.156**	0.155	0.09
	8 hour	0.120	**0.127**	0.126	0.08
PM10 ($\mu g/m^3$)	24 hours	**134**	116	93	50
	Annual Arithmetic Mean	**49.0**	47.7	ND	20
PM2.5 ($\mu g/m^3$)	Daily 3-Year Avg. 98th Percentile	**86**	ND	ND	65
	Annual	22.8	**24.8**	ND	12
NO_2	1 hour [b]	0.046	**0.069**	0.043	0.25
	Annual	0.009	0.009	**0.009**	0.053
CO	1 hour	**4.4**	3.3	3.1	20
	8 hour	**2.51**	2.29	1.83	9
SO_2 [c]	1 hour	(0.011)	(0.019)	**(0.030)**	0.25
	3 hour [d]	(0.010)	(0.017)	**(0.027)**	0.5
	24 hours	**(0.0063)**	(0.0034)	(0.0054)	0.04
	Annual	**(0.0032)**	(0.0025)	(0.0017)	0.030

Note(s): ND – No Data available.
a. Bold values are the background concentrations used throughout the following air quality analysis.
b. The NO_x_OLM modeling conducted by the Applicant uses 1999 meteorological and hourly ozone data; therefore, for consistency the background NO_2 concentration used to assess the NO_x _OLM modeling results is the 1999 maximum hourly background of 0.057 ppm (107 ug/m^3).
c. The SO_2 values shown in parenthesis are from 1999 to 2001.
d. 3-hour SO_2 value is assumed to equal 90 percent of one-hour SO_2 value.

4. Potential Impacts

Methodology. To evaluate the Project's potential impacts on existing ambient air quality during construction and operation, Applicant performed an air dispersion modeling analysis using USEPA and CARB-approved models and procedures.[21]

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[21] Applicant used USEPA-approved screening (SCREEN3 and CTSCREEN) and refined (ISCST3 Version 02035) models to estimate the direct impacts of the Project's NO_x, PM_{10}, CO, and SO_x emissions. Staff added the Applicant's modeled impacts to the highest ambient background concentrations recorded from nearby monitoring stations. Staff then compared the results for each respective air contaminant with the AAQS to determine whether the Project's emission impacts would cause a new violation or contribute to an existing violation. (Ex. 100, p. 4.1-25.) Staff's review of the PSD modeling analysis indicated that the potential impacts are within allowable PSD increment consumption significance criteria. As part of the PSD analysis,

The refined modeling analysis used hourly meteorological data to characterize plume dispersion. (Ex. 1, § 5.2.5.4.1, Appendix D, and the Air Quality Technical Report.) SJVUAPCD confirmed the modeling was conducted in accordance with Air District rules. (Ex. 5X, Attachment E.)

Construction. Although the construction phase is temporary, air pollutant emissions will be generated from the diesel exhaust of heavy equipment and fugitive dust from activity on unpaved surfaces at the site.

Staff's Air Quality Table 19, below, summarizes the estimated levels of criteria pollutant emissions during construction. The total impact is the sum of existing ambient conditions plus the maximum impact due to Project activity predicted by the modeling analysis. The figures in bold print represent values that equal or exceed the relevant ambient air quality standard. As shown in Table 19, construction emissions of PM_{10} and $PM_{2.5}$ (24-hour and annual) exceed state and federal AAQS and are potentially significant. The evidence indicates, however, that the maximum NO_x, CO and SO_2 construction emissions will remain below the CAAQS and NAAQS. (Ex. 100, p. 4.1-27.)

Applicant also used the Calpuff model to analyze regional haze, acid deposition, and other air quality related value impacts to the San Rafael Wilderness Class 1 Area about 55 miles west of the site. The USEPA must approve the increment consumption modeling results before issuing a PSD permit for the Project. (*Id*. at p. 4.1-34; *See also* Exs. 5E and 5K.)

AIR QUALITY Table 19
PEFE Ambient Air Quality Impact
Applicant Construction ISC Modeling Results

Pollutant	Averaging Period	Project Impact ($\mu g/m^3$)	Background ($\mu g/m^3$) [b]	Total Impact ($\mu g/m^3$)	Limiting Standard ($\mu g/m^3$)	Type of Standard	Percent of Standard
NO_2 [a]	one-hour	252.7	107	360	470	CAAQS	77
	Annual	5.1	17.0	22.1	100	NAAQS	22
PM10	24-Hour	**51.7**	**134**	**186**	50	CAAQS	**371**
	Annual Arithmetic	**1.9**	**49**	**50.9**	20	CAAQS	**255**
PM2.5	24-Hour	**39.2**	**86**	**125**	65	NAAQS	**193**
	Annual Arithmetic	**0.5**	**24.8**	**25.3**	12	CAAQS	**211**
CO	one-hour	554.9	5,060	5,615	23,000	CAAQS	24
	eight-hour	162.5	2,887	3,049	10,000	CAAQS	30
SO_2	one-hour	1.8	78.6	80.4	655	CAAQS	12
	three-hour	1.1	70.2	71.3	1,300	NAAQS	5
	24-Hour	0.2	16.5	16.7	105	CAAQS	16
	Annual	0.01	8.5	8.5	80	NAAQS	11

From Ex. 1. § 5.2, Table D-4 and modeling files PSTRSC09.OUT (all except NO_2) and PSTRSC10.OUT (OLM for NO_2).
Note(s):
a. One-hour NO_x value was modeled using OLM_ISC. The annual value is multiplied by the Annual NO_x Ratio Method (ARM) EPA default value of 0.75.
b. Background values have been adjusted per staff recommended background concentrations shown in AIR QUALITY Table 10.

Applicant agreed to implement several mitigation measures that would reduce diesel emissions, including low-sulfur diesel fuel, certified diesel engines (Tier 2 CARB standards), soot filters, limited idling, electric motor options, and proper maintenance. Staff also proposed measures to reduce fugitive dust including lower speed limits, soil stabilization compounds, erosion control, covering storage piles and disturbed areas, and frequent watering of disturbed areas. The Construction Mitigation Plan (CMP) required by Conditions of Certification **AQ-SC2** through **AQ-SC5** incorporates these measures. Since calculations of construction-related emissions did not include the measures identified in the CMP, actual emissions should be lower than those estimated in Table 19 and impacts should be reduced to insignificant levels. (Ex. 100, 4.1-22.) Condition **AQ-SC1** requires the Project Owner to designate an on-site Air Quality Construction Mitigation Manager to ensure compliance with the CMP.

Operation. Criteria pollutants resulting from combustion of natural gas in the Project's new CTG will be emitted through the CTG exhaust stack. The CTG includes dry, low NO_x combustors to reduce NO_x emissions and a Selective Catalytic Reduction (SCR) system that will use anhydrous ammonia vapor to further reduce NO_x although ammonia slip may contribute to air quality degradation. The SCR system requires an exhaust dilution air system to reduce the exhaust temperature to acceptable levels below 850ºF. (Ex. 100, p. 4.1-20.)

The normal operating emission rates for the CTG are provided in Staff's Air Quality Table 13, below.

AIR QUALITY Table 13
Maximum Pollutant Emission Rates – Expansion CTG [a]

Pollutant	ppmv @ 15% O_2	lb/MMBtu	lb/hr
NO_x	2.5	0.0091	16.25
CO	6.0	0.0133	23.75
VOC	1.3	0.0016	2.95
PM10	---	---	9.0
SO_2	0.402 [b]	0.0020	3.495
NH_3	10.0	---	24.06

Ex. 1, Vol. I, § 5.2, Table 5.2-18 and AQ Technical Report Table A-1; Ex. 5J, Table 5.2-18 REVISED (VOC).
Note(s):
a. Maximum pollutant emissions estimated at 35°F and 100 percent load (Case 5 - Cold Base).
b. SO_2 emissions are based on annual average natural gas sulfur content of 0.75 grains/100 scf and the hourly SO_2 permit limit for the existing PEF CTGs.

Staff's Air Quality Table 15, below, summarizes the maximum (worst-case) estimated levels of the different criteria pollutants emitted from the new CTG. Maximum daily operations are based on full-load operations of the CTG for 22 hours and up to two 1-hour startups per day, with a total of 2 hours of startup/shutdown activity. Maximum annual emissions are based on full-time, full-load operation for 8,460 hours and 300 hours per year of startup activity. (Ex. 100, pp. 4.1-22 and 4.1-23; Ex. 1, Vol. I, § 5.2.5.1.2 et seq.)

AIR QUALITY Table 15
PEFE Worst-Case Hourly, Daily and Annual Emissions [a]

	Pollutant					
Emissions/Equipment	**NO_x**	**SO_2**	**CO**	**VOC**	**PM10**	**NH_3 [b]**
Maximum Hourly Emissions CTG, lb/hr	80.0	3.495	902	16.0	9.0	24.06
Maximum Daily Emissions CTG, lb/day	450	84	2,113	97	216	577
Maximum Annual Emissions CTG, lb/year	161,480	30,616	471,492	29,730	78,840	210,766

From Ex. 1, Vol. I § 5.2, Table 5.2-20 and AQ Technical Report, Table A-2; Ex. 5B, DR 14.
Note(s):
a. Table includes startup/shutdown events in hourly/daily totals but does not include combustor tuning events in these totals.
b. Maximum ammonia emissions base on 24 hours/day and 8,760 hours/year at base load conditions.

The Air District treats the PEFE as a modification to the existing PEF since the two facilities are located on the same property, owned by the same entity, and are interconnected. The total combined emissions from the existing PEF and the PEFE are summarized in Staff's Air Quality Table 16, below.

AIR QUALITY Table 16
Total Annual Emissions

	Maximum Annual, lb/year					
	NO_x	**SO_2**	**CO**	**VOC**	**PM10**	**NH_3**
PEF Expansion	161,480	30,616	471,492	29,730	78,840	210,766
Existing PEF	345,741	84,802	1,220,936	227,683	236,472	632,298
Total, lb/year	507,221	115,418	1,692,428	257,413	315,312	843,064
Total, tons/year	253.6	57.7	846.2	128.7	157.7	421.5

From Ex. 1, Vol. I, §5.2, Tables 5.2-20 and 5.2-21; Ex, 5J, Table 5.2-20, Table 5.2-36, and Table A-2 REVISED (VOC); and (PEFE 2005g) Table A-2 Second Revision (NO_x).

The Applicant's predicted maximum concentrations of the non-reactive pollutants for the PEFE (CTG only) are summarized below in Air Quality Table 20.

AIR QUALITY Table 20
PEFE Ambient Air Quality Impact
Applicant Normal Operating Impact ISC Modeling Results

Pollutant	Averaging Period	Project Impact ($\mu g/m^3$)	Background ($\mu g/m^3$) [a]	Total Impact ($\mu g/m^3$)	Limiting Standard ($\mu g/m^3$)	Type of Standard	Percent of Standard
NO_2	one-hour	5.9	130	136	470	CAAQS	29
	Annual	0.3	17.0	17.3	100	NAAQS	17
PM10	24-Hour	0.9	**134**	**134.9**	50	CAAQS	**270**
	Annual	0.2	**49**	**49.2**	20	CAAQS	**246**
PM2.5	24-Hour	0.9	**86**	**86.9**	65	NAAQS	**134**
	Annual	0.2	**24.8**	**25.0**	12	CAAQS	**209**
CO	one-hour	8.6	5,060	5,069	23,000	CAAQS	22
	eight-hour	4.3	2,887	2,891	10,000	CAAQS	29
SO_2	one-hour	1.3	78.6	79.9	655	CAAQS	12
	three-hour	0.9	70.2	71.1	1,300	NAAQS	5
	24-Hour	0.2	16.5	16.7	105	CAAQS	16
	Annual	0.06	8.5	8.6	80	NAAQS	11

From Ex. 1, Vol. I, § 5.2 Table 5.2-23 and AQ Technical Report, Table B-3.
Note: a. Background values have been adjusted per Staff recommended background concentrations shown in Air Quality Table 10.

The modeling results indicate that the Project's normal operational impacts would not create violations of NO_2, SO_2 or CO standards, but would exacerbate violations of the PM_{10} and $PM_{2.5}$ standards. In light of the existing PM_{10} and $PM_{2.5}$ non-attainment status for the Project vicinity, Staff found the modeled impacts would be significant and would require mitigation. (Ex. 100, p. 4.1-31.)

Since the PEFE will operate in concert with the existing PEF emission sources (CTGs, cooling tower), the total operational air quality impacts for the combined facilities were calculated by adding the normal operating modeled concentrations for the PEFE to the normal operating modeled emissions for the PEF as shown below in Air Quality Table 21. (Ex. 100, p. 4.1-31.)

The modeling results for the combined facilities (PEFE+PEF) also indicated that the Project's normal operational impacts would not create violations of NO_2, SO_2 or CO standards, but would exacerbate violations of the PM_{10} and $PM_{2.5}$ standards. Staff found these modeled impacts were significant and would require mitigation. (Ex. 100, p. 4.1-31.)

AIR QUALITY Table 21
PEFE and PEF Ambient Air Quality Impact
Applicant Normal Operating Impact ISC Modeling Results

Pollutant	Averaging Period	Project Impact ($\mu g/m^3$)	Background ($\mu g/m^3$) [b]	Total Impact ($\mu g/m^3$)	Limiting Standard ($\mu g/m^3$)	Type of Standard	Percent of Standard
NO_2	one-hour	59.6	130	190	470	CAAQS	40
	Annual	2.4 [a]	17.0	19.4	100	NAAQS	19
PM10	24-Hour	4.8	**134**	**139**	50	CAAQS	**278**
	Annual	2.0	**49**	**51.0**	20	CAAQS	**255**
PM2.5	24-Hour	4.8	**86**	**90.8**	65	NAAQS	**140**
	Annual	2.0	**24.8**	**26.8**	12	CAAQS	**223**
CO	one-hour	87.3	5,060	5,147	23,000	CAAQS	22
	eight-hour	56.0	2,887	2,953	10,000	CAAQS	30
SO_2	one-hour	12.2	78.6	90.8	655	CAAQS	14
	three-hour	11.0 [c]	70.2	81.2	1,300	NAAQS	6
	24-Hour	1.8	16.5	18.3	105	CAAQS	17
	Annual	0.4	8.5	8.9	80	NAAQS	11

Source: Ex. 5C, DR 25.
Note(s): a. Modeled annual NO_x corrected to NO_2 using ARM default value of 0.75.
b. Background values have been adjusted per staff recommended background concentrations shown in AIR QUALITY Table 10.
c. Staff used the applicant's CTSCREEN 1-hour results multiplied by 0.9 to convert to a 3-hour average.

Fumigation. Higher pollutant concentrations can occur under fumigation conditions early in the morning when the ground is heated during sunrise, causing a vertical mixing of air for several hundred feet. Exhaust stack emissions that enter this vertically mixed layer of air will also be vertically mixed, bringing some emissions down to ground level. Later in the day as the sun continues to heat the ground, this vertical mixing layer rises higher and the emissions plume is more widely dispersed. (Ex. 100, p. 4.1-31.)

Fumigation conditions are generally compared only to one-hour standards. In this case, the Applicant analyzed the maximum one-hour, three-hour, eight-hour, and 24-hour air quality impacts under fumigation conditions using the SCREEN3 model. The results of the analysis, as shown below in Air Quality Table 22, indicate that the fumigation impacts could further exacerbate violations of the PM_{10} and $PM_{2.5}$ standards. (Ex. 100, p. 4.1-32.)

AIR QUALITY Table 22
Maximum PEFE Fumigation Impacts, (µg/m^3)

Pollutant	Averaging Period	Project Impact (µg/m^3)	Background (µg/m^3) [d]	Total Impact (µg/m^3)	Limiting Standard (µg/m^3)	Type of Standard	Percent of Standard
NO_2	one-hour	0.60 [a]	130	131	470	CAAQS	28
PM10	24-Hour	0.13 [b]	**134**	**134**	50	CAAQS	**268**
PM2.5	24-Hour	0.13 [b]	**86**	**86**	65	NAAQS	**133**
CO	one-hour	0.87 [a]	5,060	5,061	23,000	CAAQS	22
	eight-hour	0.48 [a]	2,887	2,887	10,000	CAAQS	29
SO_2	one-hour	0.13 [c]	78.6	78.7	655	CAAQS	12
	three-hour	0.10 [c]	70.2	70.3	1,300	NAAQS	5
	24-hour	0.04 [c]	16.5	16.5	105	CAAQS	16

From Ex. 1, Vol. I, § 5.2, Table 5.2-23 and AQ Technical Report, Table B-5.
Note(s):
a. Inversion fumigation maxima from Case 5 - Cold Base.
b. Inversion fumigation maxima from Case 6 – Cold Low.
c. Inversion fumigation maxima from Case 3 – Avg. Base.
d. Background values have been adjusted per staff recommended background concentrations shown in AIR QUALITY Table 10.

Commissioning. Prior to commercial operation, the commissioning period involves the initial firing of fuel to test equipment and emission control systems. The Applicant modeled facility impacts during startup of the new turbine and simultaneous startup of one of the existing PEF combined cycle turbines to evaluate worst-case short-term impacts under startup conditions. Emission rates for this scenario were based on permitted NO_x and CO emission rates for startup. The results of the startup modeling analysis indicate that the worst-case emissions would not exceed the one-hour NO_2 standard or the one-hour and eight-hour CO standards. Thus, startup emissions should not result in significant short-term ambient air quality impacts. The same results were found for the worst-case estimated NO_x and CO emissions during commissioning (which assumed that the existing PEF turbines would all be operating at full load). (Ex. 100, p. 4.1-32 et seq.)

Precursor Pollutants. The Project's emissions of NO_x, SO_2, VOC, and ammonia are precursor pollutants that can contribute to the formation of secondary pollutants, ozone, PM_{10}, and $PM_{2.5}$. Significant secondary impacts would occur for PM_{10} and ozone because routine operational emissions of

precursor pollutants would contribute to existing violations of the PM_{10} and ozone standards. Staff believes that in conjunction with mitigation to reduce significant, direct impacts of PM_{10}, additional mitigation for emissions of NO_x, SO_2, and VOC is necessary to reduce secondary impacts to ambient concentrations of PM_{10} and ozone. Mitigation for these pollutants would also serve to reduce potential $PM_{2.5}$ impacts. (Ex. 100, p. 4.1-44.)

The Air District's PM_{10} Attainment Plan, which was approved by the USEPA in 2004, requires attainment with PM_{10} standards by the year 2010. According to Staff, the PEFE must comply with any additional applicable revisions to the District's PM_{10} rules (District Regulation VIII) that are implemented prior to the end of Project construction to ensure that the PEFE is consistent with the strategies and future emissions anticipated under the PM_{10} AQMP. (Ex. 100, p. 4.1-43.)

5. Mitigation

BACT. The Air District established the emission limits for Project operation based on best available control technology (BACT) specific to the power plant components identified by Applicant. (Ex. 5X.) Conditions **AQ-31** through **AQ-39** require the PEFE to limit air pollutant emissions as follows:

- NO_x Emissions - 2.5 ppmvd at 15 percent O_2 (one-hour average, excluding startup/shutdown) and 16.25 lb/hr, with up to 10 hours per year of excursions at a level of 30 ppmvd at 15 percent O_2
- CO Emissions - 6.0 ppmvd at 15 percent O_2 (3-hr rolling average, excluding startup/shutdown) and 23.75 lb/hr
- VOC Emissions – 1.3 ppmvd at 15 percent O_2 and 2.95 lb/hr
- PM_{10} Emissions – 9.00 lb/hr (3-hr rolling average)
- SO_2 Emissions – 0.40 ppmvd at 15 percent O_2 and 3.495 lb/hr with fuel sulfur content of 0.75 grains/100 scf
- NH_3 Emissions - 10 ppmvd at 15 percent O_2 (24-hour rolling average) and 24.06 lb/hr

According to Staff, the SJVUAPDC allows an ammonia slip level of 10 ppm for all large gas turbine projects, whether they are simple cycle or combined cycle. Staff believes that an ammonia slip of 5 ppm should be required for combined cycle projects but in this case, a 10 ppm ammonia slip level for the GE 7FA simple cycle turbine is adequate. Staff did not find any existing 7F simple cycle turbine performance data to indicate that a lower ammonia slip level is technically feasible. Additionally, the Air District's current PM_{10} Attainment Plan does not target ammonia emission reductions. The District maintains that the ammonia rich central valley will not gain significant benefits from reducing ammonia emissions; rather, it is more important to focus on emission reductions from primary sources of PM_{10} (primarily fugitive dust). Under the circumstances, Staff accepted the District's ammonia slip level of 10 ppm for this Project. (Ex. 100, p. 4.1-40.) Condition **AQ-46** addresses the protocol for calculating ammonia slip.

Although simple cycle and combined cycle power plant projects in California typically employ oxidation catalysts to control CO and VOC emissions, Calpine did not propose the use of an oxidation catalyst for the PEFE. Calpine's expert air quality witness testified that the dry low NOx combustors on the 7FA turbine have extremely low CO emissions without any after treatment, and consequently, an oxidation catalyst is not needed to meet BACT requirements for CO. In addition, although CO emissions from turbines of this type are normally elevated during startup, in simple cycle operation the startup is rapid so there is a shorter period and lower magnitude of CO emissions during startup. (3/30/06 RT, pp. 19-20.) Staff concurred that the PEFE's operating limit for CO at 6 ppm is lower than the hourly standard of 9 ppm and would be in compliance without the oxidation catalyst. (*Ibid*.; Ex. 100, p. 4.1-39.)

Conditions **AQ-5** and **AQ-14** require the installation of a continuous emission monitoring system (CEMS) on the CTG stack to monitor NO_x, CO, and oxygen concentrations in the flue gas to assure adherence with the emission limits. The CEMS will generate reports of emissions data in accordance with permit

requirements and send alarm signals to the plant's control room when the level of emissions approaches or exceeds the pre-selected limits. (Ex. 100, pp. 4.1-20 and 4.1-21.) Conditions **AQ-21** through **AQ-24** establish the operating protocol for the CEMS.

Cooling tower emissions of PM_{10} are controlled by the PEF's existing high efficiency drift eliminators. Under existing PEF Conditions **AQ-51** through **AQ-57,** the drift eliminators must control the drift fraction to 0.0005% of circulating water flow. (Ex. 1, Vol. I, § 9.)

Emission Offsets. Since the SJVAB is nonattainment for state and federal ozone standards and the state PM_{10} standard, SJVUAPCD Rule 2201 requires the Project Owner to provide emission reduction credits (ERCs) for new emissions of NO_x, VOC, SO_2, and PM_{10}. Applicant proposes to mitigate impacts for nonattainment pollutants (PM_{10} and ozone) and their precursor pollutants (NO_x, VOC, and SO_2) with the ERCs shown below in the revised Appendix A to Condition **AQ-SC7**. (*See* Ex. 102; Exs. 5Y and 5Z.)

Rule 2201 also requires that ERCs must be sufficient to fully offset emissions on a calendar quarter basis. Conditions **AQ-43** and **AQ-44** incorporate that requirement for the PEFE. According to Applicant, the quarterly basis for calculating offsets ensures that the Project will not exceed AAQS even if the CTG operates in simple cycle mode on a full capacity basis, 8,760 hours per year. (Ex. 21, p. 6; Prehearing Conference, 1/17/06 RT, pp. 37-40.)

Revised APPENDIX A - Condition of Certification AQ-SC7
Required Emission Reduction Credits [a]

Offset Source Location	Credit Number	Date of Reduction	Total Q1 (lb)	Total Q2 (lb)	Total Q3 (lb)	Total Q4 (lb)
NO_x Emission Reduction Credits [b]						
Section 16, Township 27S, Range 28E, Heavy Oil Central Stationary Source	S-2165-2 ~~S-1554-2~~	Pre-1990	104,902 ~~49,372~~	116,451 ~~52,008~~	122,889 ~~50,035~~	113,722 ~~49,586~~
Elk Hills Gas Plant, Kern County	S-1543-2	12/05/1990	10,354	8,381	11,018	11,467
Heavy Oil Projection Fields, Fresno County	C-481-2	3/1/1992	2,525	1,011	0	2,038
VOC Emission Reduction Credits						
757 11th Street, Tracy	N-444-1	1/31/1998	10,996	11,118	11,241	11,232
526 Mettler Frontage Rd. East	S-1666-1	Post-1990	0	0	0	9
~~**PM10 Emission Reduction Credits (NO_x for PM10)**~~						
~~**Section 16, Township 27S, Range 28E, Heavy Oil Central Stationary Source**~~	~~S-1554-2~~	~~Pre-1990~~	~~52,877~~	~~53,464~~	~~54,052~~	~~54,052~~
SO_2 Emission Reduction Credits						
Midway Premier Lease Section 32, Township 27S, Range 27E	S-1344-5	Post-1990	11,324	11,450	11,575	11,575

Source: (Ex.102; Exs. 5Y and 5Z.)
Note(s):
a. The quantities listed are the required quantities for offsetting. Some of the ERC certificates include more credits than those shown and those remaining credits will be maintained by the Project Owner after surrendering the required amounts as shown above. ERC requirements include all appropriate distance and interpollutant trading ratios. This includes the NOx for PM10 interpollutant offset requirements.

Calpine's use of pre-1990 offsets raised a concern about their continued mitigation value for the Project, which is not scheduled to begin operation until 2011. Calpine's expert witness explained that USEPA policy accepts pre-1990 offsets if the Air District accounts for them in non-attainment planning. The SJVUAPDC must file an annual reconciliation report that demonstrates that the District's offset requirements are as stringent as those that would be required by the USEPA. Based on that showing, the USEPA is satisfied that the use of free 1990 credits is legitimate. (3/30/06 RT, pp. 14-15.)

The Project's offset proposal for NO_x complies with the District's NO_x offset requirements by providing ERCs at a total offset ratio of 1.5:1. This offset ratio meets Staff's CEQA significant impact mitigation threshold requiring that all non-attainment pollutants and their precursors be fully offset (i.e. minimum offset ratio of 1:1). (Ex. 102, p. 4.)

Calpine also proposed the use of NO_x for PM_{10} interpollutant offsets at the same 2.22:1 ratio accepted for the original PEF permit. (Ex. 102, p. 4; *See also* Ex. 5Y.) The Air District approved this ratio in its January 2006 Notice of Revision to the FDOC; however, the USEPA recommended a higher total NO_x for PM_{10} offset ratio of 3.33:1. Calpine subsequently revised its offset proposal to meet the USEPA-recommended ratio. (Exs. 5Y and 5Z.) According to Staff, the 3.33:1 interpollutant offset ratio complies with Staff's CEQA significant impact mitigation threshold requiring that all non-attainment pollutants and their precursors be fully offset. (Ex. 102, p. 5.)

The Air District's 2005 Offset Equivalency Report indicates that the District's NSR program requires an equivalent amount or more offsets than the federal NSR program requires. (Ex. 4.) The 1-hour ozone standard was revoked last year, which means that the District is no longer considered an extreme non-attainment area. The District's ozone non-attainment designation for the 8-hour standard is currently serious. Since the federal NSR offset requirements for a serious non-attainment area are less stringent than the extreme requirements, the change in non-attainment status eases the ability to show equivalency between the District NSR and federal NSR programs. (Ex. 102, p. 5.)

According to Staff, the offset requirements for this Project, which are based on current District rules, should not significantly affect future NSR equivalency due to the change in the ozone attainment status. (Ex. 102, p. 5.)

Conditions of Certification **AQ-SC6** through **AQ-SC8** ensure ongoing compliance by the PEFE with applicable air quality LORS and require that the license be reviewed and amended as necessary to incorporate any changes to the air quality permits and to the offset proposal. This is particularly important since Calpine does not expect the PEFE to begin operation until 2011 while the District's PM_{10} AQMP requires attainment with PM_{10} standards by the year 2010. Condition **AQ-SC9** requires the Project's greenhouse gas emissions to be

calculated according to approved scientific methodologies and reported to the appropriate agencies.

7. Cumulative Impacts

CEQA requires a cumulative impacts analysis of the Project's impacts in combination with the impacts of other reasonably foreseeable future projects in the area. No known urban development is presently planned within six miles of the site. The area surrounding the PEF/PEFE site is undeveloped and vegetated with non-native grassland used for cattle grazing. (Ex. 100, p. 4.1-43.)

To ensure that potential cumulative impacts were adequately considered, the Applicant evaluated the combined operation of the existing PEF with the new PEFE. The PEF combined cycle turbine/HRGSs and the PEFE simple cycle turbine have significantly different exhaust conditions, with the PEFE turbine having a much hotter (approximately 800°F vs. 200°F) and more buoyant exhaust. The PEFE turbine also has a higher mass flow rate than the PEF turbines due to the dilution air that is added to cool the exhaust from 1100°F to 800°F for operation of the SCR system. This significant difference in plume buoyancy causes the PEF and PEFE plumes to rise at different rates and at different final heights. Consequently, the maximum impacts from each configuration occur in different locations in the elevated terrain south/southeast of the site. Therefore, the maximum cumulative impacts of the combined PEF and PEFE are predicted to be only marginally greater than the predicted maximum impacts of the existing PEF. (Ex. 100, p. 4.1-43.)

According to Staff, the combined impacts of the PEF/PEFE site would not create new exceedances of any criteria pollutant standard since the PEF/PEFE facility emissions are all offset at a ratio greater than 1:1; therefore, Staff believes that the cumulative impacts of the combined PEF/PEFE facility have been mitigated to insignificant levels. (Ex. 100, p. 4.1-43.)

9. Environmental Justice

The evidentiary record includes a discussion of local demographics to identify potential environmental justice concerns. *See* the Socioeconomics section of this Decision. Since there are no significant unmitigated air quality impacts resulting from construction and operation of the PEFE, there is no evidence of *disproportionate* air quality impacts on minority and/or low income populations. SJVUAPCD-required offsets and BACT measures ensure the Project will be fully mitigated. We therefore find there are no environmental justice issues that would trigger additional analysis.

FINDINGS AND CONCLUSIONS

Based on the evidence, the Commission makes the following findings and conclusions:

1. National ambient air quality standards (NAAQS) and California ambient air quality standards (CAAQS) have been established for seven air contaminants identified as criteria air pollutants, including sulfur dioxide (SO_2), carbon monoxide (CO), ozone (O_3), nitrogen dioxide (NO_2), lead (Pb), particulate matter less than 10 microns in diameter (PM_{10}) and particulate matter less than 2.5 microns in diameter ($PM_{2.5}$).

2. Construction and operation of the Pastoria Energy Facility Expansion (PEFE) will result in emissions of criteria pollutants and their precursors.

3. The PEFE is located in southern Kern County within the jurisdiction of the San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD).

4. SJVUAPCD is a nonattainment area for state and federal ozone standards, and state and federal PM_{10} and $PM_{2.5}$ standards; it is an attainment area for state and federal $NO_{2,}$ CO, and SO_2 standards.

5. Potential impacts from construction-related activities will be mitigated to insignificant levels with implementation of a Construction Mitigation Plan that specifies dust control and diesel particulate reduction measures.

6. The PEFE has the potential to exacerbate existing violations of the state and federal PM_{10} and $PM_{2.5}$ standards, resulting in significant direct impacts to air quality in the Project vicinity.

7. Project emissions of NO_x, SO_2, VOCs, and ammonia, which are precursor pollutants, will result in significant secondary impacts to ambient concentrations of ozone and PM_{10} and by implication, $PM_{2.5}$.

8. The Project Owner will employ the best available control technology (BACT) to limit pollutant emissions by installing dry low NO_x combustors and SCR technology, and using the existing PEF cooling tower drift eliminators.

9. Project NO_x emissions are limited to 2.5 parts per million volume dry (ppmvd) corrected to 15% O_2 over a one-hour average.

10. Project CO emissions are limited to 6.0 ppmvd corrected to 15% O_2 over a three-hour rolling average.

11. Project VOC emissions are limited to 1.3 ppmvd at 15% O_2 and 2.95 lbs/hr.

12. Project PM_{10} combustion emissions are limited to 9.00 lbs/hr on a three-hour rolling average.

13. Project ammonia slip emissions resulting from use of the SCR are limited to 10 ppmvd corrected to 15% O_2 on a 24-hour rolling average.

14. Project equipment shall be fired only by natural gas with a sulfur content limited to 0.75 grains per 100 dry standard cubic feet.

15. Emissions of SO_2 shall not exceed 0.40 ppmvd at 15% O_2 and 3.495 lb/hr.

16. The existing PEF cooling tower is equipped with high-efficiency drift eliminators with a maximum guaranteed drift rate of 0.0005%.

17. SJVUAPCD issued a Final Determination of Compliance that finds the PEFE will comply with all applicable District rules for Project operation.

18. The Project Owner will obtain sufficient Emission Reduction Credits (ERCs) to fully offset pollutant emissions on a calendar quarter basis and reduce the Project's potential air quality impacts to insignificant levels.

19. The combined operation of the PEF/PEFE will not create new exceedances of any criteria pollutant standard nor result in any cumulative impacts in the site vicinity.

20. Since there are no significant unmitigated air quality impacts resulting from the PEFE, there is no evidence of disproportionate impacts on minority and/or low income populations and, therefore, no environmental justice issues that require additional analysis.

21. The PEFE's air quality mitigation plan may be reviewed and amended by the Air District and the Commission, as necessary, to incorporate any changes to the air quality permits and to the offset proposal. This is particularly important since the PEFE is not expected to begin operation until 2011 while the District's PM_{10} AQMP requires attainment with PM_{10} standards by the year 2010.

22. With the Air District's approval of the Project's revised offset package, which incorporates with the USEPA offset equivalency ratio, and with the adoption of Condition **AQ-SC7**, below, the Project complies with Public Resources Code, section 25523 (d)(2).

23. Implementation of the Conditions of Certification, listed below, ensures that the PEFE will not result in any direct, indirect, or cumulative significant adverse impacts to air quality.

The Commission therefore concludes that the mitigation measures described in the evidentiary record and in the Conditions of Certification will ensure that the PEFE conforms with all applicable laws, ordinances, regulations, and standards relating to air quality as set forth in the pertinent portion of **Appendix A** of this Decision.

CONDITIONS OF CERTIFICATION

STAFF CONDITIONS

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 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 an AQCMP, for approval, which details the steps that will be taken and the reporting requirements necessary to ensure compliance with Conditions **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.

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 the purposes of controlling fugitive dust emissions. 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 can be reduced or eliminated during periods of precipitation.

B. No vehicle shall exceed 10 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 cleaned 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 washed or 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 at least twice daily (or less during periods of precipitation) on days when construction activity occurs or on any other day when dirt or runoff 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 shall be treated with appropriate dust suppressant compounds.

L. All vehicles that are used to transport solid bulk material on public roadways and that have potential to cause visible emissions shall be provided with a cover, or the materials shall be sufficiently wetted and loaded onto the trucks in a manner to provide at least one foot 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.

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 that have the potential to be transported (1) off the Project

site or (2) 200 feet beyond the centerline of the construction of linear facilities or (3) within 100 feet upwind of any regularly occupied structures not owned by the Project Owner indicate that existing mitigation measures are not resulting in effective mitigation. The AQCMM or Delegate shall implement the following procedures for additional mitigation measures in the event that such visible dust plumes are observed:

Step 1: The AQCMM or Delegate shall direct more intensive application of the existing mitigation methods within 15 minutes of making such a determination.

Step 2: The AQCMM or Delegate shall direct implementation of additional methods of dust suppression if step 1 specified above fails to result in adequate mitigation within 30 minutes of the original determination.

Step 3: The AQCMM or Delegate shall direct a temporary shutdown of the activity causing the emissions if step 2 specified above fails to result in effective mitigation within one hour of the original determination. 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 owner/operator 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 the additional mitigation measures will be accomplished within the time limits specified.

AQ-SC5 Diesel-Fueled Engines Control: The AQCMM shall submit to the CPM, in the Monthly Compliance Report (MCR), a construction mitigation report that demonstrates compliance with the following mitigation measures for the 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 be fueled only with ultra-low sulfur diesel, which contains no more than 15 ppm sulfur.

B. 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.

C. All construction diesel engines, which have a rating of 100 hp or more, shall meet, at a minimum, the Tier 2 California Emission Standards for Off-Road Compression-Ignition Engines as specified in California Code of

Regulations, Title 13, section 2423(b)(1) unless certified by the on-site AQCMM that such engine is not available for a particular item of equipment. In the event a Tier 2 engine is not available for any off-road engine larger than 100 hp, that engine shall be equipped with a Tier 1 engine. In the event a Tier 1 engine is not available for any off-road engine larger than 100 hp, that engine shall be equipped with a catalyzed diesel particulate filter (soot filter), 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" if, among other reasons:

1. There is no available soot filter that has been certified by either the California Air Resources Board or U.S. Environmental Protection Agency for the engine in question; or

2. The construction equipment is intended to be on-site for ten (10) days or less.

D. The use of a soot filter may be terminated immediately if one of the following Conditions exists, provided that the CPM is informed within ten (10) working days of the termination:

1. The use of the soot filter is excessively reducing normal availability of the construction equipment due to increased downtime for maintenance, and/or reduced power output due to an excessive increase in backpressure.

2. The soot filter is causing or is reasonably expected to cause significant engine damage.

3. The soot filter 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 the termination being implemented.

E. All heavy earthmoving equipment and heavy duty construction related trucks with engines meeting the requirements of (C) above shall be properly maintained and the engines tuned to the engine manufacturer's specifications.

F. All diesel heavy construction equipment shall not remain running at idle for more than five minutes, to the extent practical.

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 all diesel fuel purchase records, (3) 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 equipment has been properly maintained, and (4) 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.

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 its submittal either by (1) 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 shall surrender the emission offset credits listed in **Appendix A** at the end of these Conditions or a modified list, as allowed by this Condition, at the time that surrender is required by Conditions **AQ-43, AQ-44** and **AQ-45**. The Project Owner shall request CPM approval for any substitutions or modification of credits listed in Appendix A. 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, the requested change(s) clearly will not cause the Project to result in a significant environmental impact, and each requested change is consistent with applicable federal and state laws and regulations.

Verification: The Project Owner shall submit to the CPM a list of ERCs to be surrendered to the District at least 60 days prior to initial startup. If the CPM, in consultation with the District, approves a substitution or modification, the CPM shall file a statement of the approval with the Commission docket and mail a copy of the statement to every person on the post-certification mailing list. The CPM shall maintain an updated list of approved ERCs for the Project.

AQ-SC8 The Project Owner shall comply with all Commission staff (**AQ-SC**) and Air District (**AQ**) Conditions of Certification. The CPM, in consultation with the District, may approve as an insignificant change, any change to an air quality Condition of Certification, provided that: (1) the Project remains in compliance with all applicable laws, ordinances, regulations, and standards, (2) the requested change clearly will not cause the Project to result in a significant environmental impact, (3) no additional mitigation or offsets will be required as a result of the change, (4) no existing daily, quarterly, or annual permit limit will be exceeded as a result of the change, and (5) no increase in any daily, quarterly, or annual permit limit will be necessary as a result of the change.

Verification: The Project Owner shall notify the CPM in writing of any proposed change to a Condition of Certification pursuant to this Condition and shall provide the CPM with any additional information the CPM requests to substantiate the basis for approval.

AQ-SC9 The Project Owner shall notify the CPM if it does not participate in the voluntary California Climate Action Registry. The Project Owner shall report

to the CPM on an annual basis the quantity of greenhouse gases (GHG) emitted as a direct result of facility electricity production as follows:

The Project Owner shall maintain a record of fuel use in units of million-Btus (mmBtus) for all fuels burned on-site for the purpose of power production. These fuels shall include but are not limited to: (1) all fuel burned in the combustion turbines, (2) HRSGs (if applicable) or auxiliary boiler (if applicable) and (3) all fuels used in any capacity for the purpose of turbine startup, shutdown, operation, or emission controls.

The Project Owner shall perform annual source tests of CO_2 and CH_4 emissions from the exhaust stacks while firing the facility's primary fuel, using the following test methods or other test methods as approved by the CPM. The Project Owner shall produce fuel-based emission factors in units of lbs GHG per mmBtu of fuel burned from the annual source tests. If a secondary fuel is approved for the facility, the Project Owner shall also perform these source tests while firing the secondary fuel.

Pollutant	Test Method
CO_2	EPA Method 3A
CH_4	EPA Method 18 (VOC measured as CH_4)

As an alternative to performing annual source tests, the Project Owner may use the Intergovernmental Panel on Climate Change (IPCC) Methodologies for Estimating Greenhouse Gas EmOn (MEGGE) on an annual basis. If MEGGE is chosen, the Project Owner shall calculate the CO_2, CH_4 and N_2O emissions using the appropriate fuel-based carbon content coefficient (for CO_2) and the appropriate fuel-based emission factors (for CH_4 and N_2O).

The Project Owner shall convert the N_2O and CH_4 emissions into CO_2 equivalent emissions using the following IPCC Global Warming Potentials (GWP): 310 for N_2O (1 pound of N_2O is equivalent to 310 pounds of CO_2) and 21 for CH_4.

The Project Owner shall maintain a record of all SF_6 that is used for replenishing on-site transformers. At the end of each reporting period, the Project Owner shall total the mass of SF_6 used and convert that to a CO_2 equivalent emission using the IPCC GWP of 23,900 for SF_6.

On an annual basis, the Project Owner shall report the CO_2 and CO_2 equivalent emissions from the above-described emissions calculations of CO_2, N_2O, CH_4 and SF_6.

Verification: In the Annual Compliance Report, the Project Owner shall notify the CPM whether GHG emissions are being reported to the California Climate Action Registry. GHG emissions from the PEFE and from the combined PEF and PEFE shall be reported to the CPM annually in the fourth quarter as part of the Quarterly Air Quality

Reports required by Condition of Certification **AQ-65**. The GHG report shall indicate whether source testing or MEGGE methodology was used to calculate the GHG emissions.

DISTRICT FINAL DETERMINATION OF COMPLIANCE CONDITIONS

SJVAPCD Permit No. Unit S-3636-14 (Unit #4): 160 MW Nominally Rated Simple-Cycle Power Generating System Consisting of a General Electric 7FA Natural Gas-Fired Combustion Turbine Generator With Dry Low NO_x Combustors.

AQ-1 No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]

Verification: The Project Owner will document any complaints that it has received from the public in the Quarterly Operational Report (**AQ-65**). The Project Owner shall make the site available for inspection by representatives of the District, CARB and the Commission.

AQ-2 The Project Owner shall not begin actual onsite construction of the equipment until the lead agency satisfies the requirements of the California Environmental Quality Act (CEQA).

Verification: The Project Owner shall keep proof of the Project's District air permit and CEC certification including copies of all permit Conditions and Conditions of Certification onsite starting at the commencement of construction through the final decommissioning of the Project. The Project Owner shall make the District's permit Conditions and Conditions of Certification available at the Project site to representatives of the District, California Air Resource Board (CARB) and the Energy Commission for inspection.

AQ-3 The Project Owner shall notify the District of the date of initiation of construction no later than 30 days after such date, the date of anticipated startup not more than 60 days nor less than 30 days prior to such date, and the date of actual startup within 15 days after such date. [District Rule 4001]

Verification: The Project Owner shall notify the CPM and the District of the date of initiation of construction no later than 30 days after such date, the date of anticipated startup, defined here as first turbine fire, not more than 60 days or less than 30 days prior to such date, and the date of actual startup within fifteen (15) days after such date.

AQ-4 Selective catalytic reduction (SCR) system shall serve the gas turbine engine (GTE). Project Owner shall submit SCR catalyst design details to the District at least 30 days prior to commencement of construction. [District Rule 2201]

Verification: The Project Owner shall submit SCR and oxidation catalyst design details that demonstrate compliance with this Condition to the APCO and the CPM 30 days prior to commencement of construction.

AQ-5 Project Owner shall submit continuous emission monitor design, installation, and operational details to the District at least 30 days prior to commencement of construction. [District Rule 2201]

Verification: The Project Owner shall provide copies of drawings of the continuous emissions monitor design, installation, and operations details to the CPM and the District at least 30 days prior to construction of permanent foundations.

AQ-6 Project Owner shall minimize the emissions from GTE to the maximum extent possible during the commissioning period. Conditions **AQ-6** through **AQ-16** shall apply only during the commissioning period as defined below. Unless otherwise indicated, Conditions **AQ-17** through **AQ-66** shall only apply after the commissioning period has ended. [District Rule 2201]

Verification: The Project Owner shall provide in the monthly commissioning status report (see the verification for Condition **AQ-11**) information regarding the types and effectiveness of methods used to minimize commissioning period emissions.

AQ-7 Commissioning activities are defined as, but not limited to, all testing, adjustment, tuning, and calibration activities recommended by the equipment manufacturers and the construction contractor to insure safe and reliable steady state operation of the GTE and all ancillary equipment. [District Rule 2201]

Verification: The Project Owner shall provide written notification to the APCO and the CPM of the expected date of first turbine roll at least 15 days before the first turbine roll.

AQ-8 Commissioning period shall commence when all mechanical, electrical, and control systems are installed and individual system startup has been completed, or when the GTE is first fired, whichever occurs first. The commissioning period shall terminate when the GTE has successfully completed initial performance testing and is available for commercial operation. [District Rule 2201]

Verification: The Project Owner shall provide written notification to the APCO and the CPM of the expected date of first turbine roll at least 15 days before the first turbine roll. The Project Owner shall provide written notification to the APCO within 5 day after the turbines are available for commercial operation.

AQ-9 At the earliest feasible opportunity, in accordance with the recommendations of the equipment manufacturer and the construction contractor, the combustors of this unit shall be tuned to minimize emissions. [District Rule 2201]

Verification: The Project Owner shall provide combustor tuning information to demonstrate compliance with this Condition, and that information shall be submitted to the Energy Commission CPM as part of the monthly commissioning status report noted in the verification of Condition **AQ-11**.

AQ-10 At the earliest feasible opportunity, in accordance with the recommendations of the equipment manufacturer and the construction contractor, the Selective

Catalytic Reduction (SCR) system shall be installed, adjusted, and operated to minimize emissions from this unit. [District Rule 2201]

Verification: The Project Owner shall provide emission abatement system information (such as dates of catalyst installation and ammonia grid initial operation) to demonstrate compliance with this Condition, and that information shall be submitted to the Energy Commission CPM as part of the monthly commissioning status report noted in the verification of Condition **AQ-11**.

AQ-11 The Project Owner shall submit a plan to the District at least four weeks prior to the first firing of this unit, describing the procedures to be followed during the commissioning period. 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 limited to, the tuning of the combustors, the installation and operation of the SCR systems, the installation, calibration, and testing of the NO_x and CO continuous emissions monitors, and any activities requiring the firing of this unit without full abatement by the SCR system. [District Rule 2201]

Verification: The Project Owner shall submit a single commissioning plan to the District and the CPM at least four weeks prior to the first firing of the combustion turbine, describing in detail the procedures to be followed for the turbine. The Project Owner shall submit, commencing one month from the time of gas turbine first fire, a monthly commissioning status report throughout the duration of the commissioning phase that demonstrates compliance with the commissioning plan and demonstrates compliance with all other substantive requirements listed in Conditions **AQ-6** through **AQ-17**. The monthly commissioning status report shall be submitted to the CPM monthly within ten (10) days of the numeric calendar day of turbine first fire date.

AQ-12 Emission rates from this unit during the commissioning period shall not exceed any of the following: NO_x (as NO_2) 308 lb/hr or 3,200 lb/day; VOC (as methane) 273 lb/hr or 355 lb/day; CO 2,527 lb/hr or 10,824 lb/day; PM10 216 lb/day; or SO_x (as SO_2) 84 lb/day. [District Rule 2201]

Verification: The Project Owner shall provide emissions data to demonstrate compliance with this Condition, and that data shall be submitted to the CEC CPM as part of the monthly commissioning status report noted in the verification of Condition **AQ-11**.

AQ-13 During the commissioning period, the Project Owner shall demonstrate compliance with Conditions **AQ-12** through the use of properly operated and maintained continuous emissions monitors and recorders as specified in these permit Conditions. The monitored parameters for this unit shall be recorded at least once every 15 minutes (excluding normal calibration periods or when the monitored source is not in operation). [District Rule 2201]

Verification: The Project Owner shall provide CEM data to demonstrate compliance with Conditions **AQ-12**, and that data shall be submitted to the CEC CPM as part of the monthly commissioning phase status report noted in the verification of Condition **AQ-11**.

AQ-14 The continuous emissions monitors specified in these permit Conditions shall be installed, calibrated, and operational prior to the first firing of the unit. After first firing, the detection range of the CEMS shall be adjusted as necessary to accurately measure the resulting range of NO_x and CO emission concentrations. [District Rule 2201]

Verification: The Project Owner shall provide notification to the District and the CPM of the anticipated dates for installation, calibration and testing for the CEMS at least ten (10) days prior to installation. The Project Owner shall provide a report to the District and CPM for approval demonstrating compliance with CEMS calibration requirements prior to turbine first fire. The Project Owner shall provide ongoing calibration data in the monthly commissioning status reports (see verification of Condition **AQ-11**).

AQ-15 Firing of GTE without abatement of emissions by the SCR system shall be minimized to the extent possible. Such operation of this unit without abatement shall be limited to discrete commissioning activities that can only be properly executed without the SCR system catalyst in place. [District Rule 2201]

Verification: The Project Owner shall provide to the District and the CPM a reporting of the number of firing hours without abatement for the turbine in the monthly commissioning status reports (see verification of Condition **AQ-11**).

AQ-16 The total mass emissions of NO_x, CO, VOC, PM10, and SO_x that are emitted during the commissioning period shall accrue towards the consecutive twelve month emission limits specified in Condition **AQ-39**. [District Rule 2201]

Verification: The Project Owner shall provide emissions data to demonstrate compliance with this Condition as part of the Quarterly Operational Report (**AQ-65**).

AQ-17 The Project Owner shall submit to the District information correlating the NO_x control system operating parameters to the associated measured NO_x output. The information must be sufficient to allow the District to determine compliance with the NO_x emission limits of this permit during times that the CEMS is not functioning properly. [District Rule 4703]

Verification: The Project Owner shall compile the required NO_x control system and emissions data and submit the information to the CPM and the APCO in the Quarterly Operational Reports (**AQ-65**).

AQ-18 GTE and electrical generator lube oil vents shall be equipped with mist eliminators. Visible emissions from lube oil vents shall not exhibit opacity of 5% or greater, except for up to three minutes in any hour. [District Rules 2201 and 4101]

Verification: The Project Owner shall make the site available for inspection by representatives of the District, CARB and the Commission to verify the installation and proper operation of the lube oil vent mist eliminators.

AQ-19 GTE exhaust design shall provide space for additional selective catalytic reduction catalyst if required to meet NO_x emission limit. [District Rule 2201]

Verification: The Project Owner shall make the site available for inspection by representatives of the District, CARB and the Commission to verify the exhaust design.

AQ-20 The GTE shall be equipped with a continuous monitoring system to measure and record fuel consumption. [District Rules 2201 and 4001]

Verification: The Project Owner shall make the site available for inspection by representatives of the District, CARB and the Commission to verify the continuous monitoring system is properly installed and operational.

AQ-21 Exhaust duct downstream of the SCR unit shall be equipped with continuously recording emissions monitors (CEMS) for NO_x, CO, and O_2. All CEMS shall be dedicated to this unit. NO_x and O_2 CEMS shall meet the requirements of 40 CFR Part 75 and CO CEMS shall meet the requirements of 40 CFR Part 60. CEMS shall be capable of monitoring emissions during normal operating Conditions and during startups and shutdowns. If, as determined by District source test staff, the accuracy of CEMS during startup events is not demonstrated, CEMS results during startup and shutdown events shall be replaced with startup emission rates obtained during source testing to determine compliance with emission limits in Conditions **AQ-36**, **AQ-38** and **AQ-39**. [District Rule 2201]

Verification: The Project Owner shall make the site available for inspection by representatives of the District, CARB and the Commission to verify the continuous monitoring system is properly installed and operational.

AQ-22 Exhaust duct shall be equipped with a continuously recording emission monitor upstream of the SCR unit for measuring the NO_x concentration for the purposes of calculating ammonia slip. Project Owner shall check, record, and quantify the calibration drift (CD) at two concentration values at least once daily (approximately 24 hours). The calibration shall be adjusted whenever the daily zero or high-level CD exceeds 5%. If either the zero or high-level CD exceeds 5% for five consecutive daily periods, the analyzer shall be deemed out-of-control. If either the zero or high-level CD exceeds 10% during any CD check, analyzer shall be deemed out-of-control. If the analyzer is out-of-control, the Project Owner shall take appropriate corrective action and then repeat the CD check. [District Rule 2201]

Verification: The Project Owner shall submit to the CPM and APCO calibration drift data demonstrating compliance with this Condition as part of the Quarterly Operational Report (**AQ-65**).

AQ-23 The facility shall install and maintain equipment, facilities and systems compatible with the District's CEM data polling software system and shall make CEM data available to the District's automated polling system on a daily basis. [District Rule 1080]

Verification: The Project Owner shall provide a Continuous Emission Monitoring System (CEMS) protocol for approval by the CPM and the APCO at least 60 days prior to installation of the CEMS. The Project Owner shall make the site available for inspection of the CEMS by representatives of the District, CARB and the Commission.

AQ-24 Upon notice by the District that the facility's CEM system is not providing polling data, the facility may continue to operate without providing automated data for a maximum of 30 days per calendar year provided the CEM data is sent to the District by a District-approved alternative method. [District Rule 1080]

Verification: The Project Owner shall provide required non-polled CEM data to the District by a District-approved alternative method.

AQ-25 The exhaust stack shall be equipped with permanent provisions to allow collection of stack gas samples consistent with EPA test methods and shall be equipped with safe permanent provisions to sample stack gases with a portable NO_x, CO, and O_2 analyzer during District inspections. The sampling ports shall be located in accordance with the CARB regulation titled California Air Resources Board Air Monitoring Quality Assurance Volume VI, Standard Operating Procedures for Stationary Emission Monitoring and Testing. [District Rule 1081]

Verification: Prior to construction of the turbine stacks the Project Owner shall provide to the CPM for approval detailed plan drawings of the turbine stacks that show the sampling ports and demonstrate compliance with the requirements of this Condition. The Project Owner shall make the site available for inspection of the turbine stacks by representatives of the District, CARB and the Commission.

AQ-26 Ammonia injection grid shall be equipped with operational ammonia flow meter and injection pressure indicator. [District Rules 2201 and 4351]

Verification: The Project Owner shall make the site available for inspection by representatives of the District, CARB and the Commission.

AQ-27 Project Owner shall monitor and record exhaust gas temperature at selective catalytic reduction catalyst inlet. [District Rules 2201 and 4351]

Verification: The Project Owner shall compile the required exhaust gas temperature data and submit the information to the CPM and the APCO in the Quarterly Operational Reports (**AQ-65**).

AQ-28 GTE shall be fired exclusively on natural gas, consisting primarily of methane and ethane, with a sulfur content of no greater than 0.75 grains of sulfur compounds (as S) per 100 dry scf of natural gas. [District Rule 2201]

Verification: The Project Owner shall compile the required data on the sulfur content of the natural gas and submit the information to the CPM and the APCO in the Quarterly Operational Reports (**AQ-65**).

AQ-29 Startup is defined as the period beginning with GTE initial firing until the unit meets the lb/hr and ppmv emission limits in Condition **AQ-31**. Shutdown is defined as the period beginning with initiation of GTE shutdown sequence and ending with cessation of firing of the GTE. Startup and shutdown durations shall not exceed one hour per occurrence. [District Rule 2201 and 4001]

Verification: The Project Owner shall submit to the CPM and APCO the GTE startup and shutdown event duration data demonstrating compliance with this Condition as part of the Quarterly Operational Report (**AQ-65**).

AQ-30 Ammonia shall be injected when the selective catalytic reduction system catalyst temperature exceeds the minimum operating temperature recommended by the SCR manufacturer. Project Owner shall monitor and record catalyst temperature during periods of startup. [District Rule 2201]

Verification: The Project Owner shall compile the required catalyst temperature data and submit the information to the CPM and APCO as part of the Quarterly Operational Report (**AQ-65**).

AQ-31 Emission rates from GTE, except during startup and/or shutdown, shall not exceed any of the following: NO_x (as NO_2) 16.25 lb/hr and 2.5 ppmvd @ 15% O_2; VOC 2.95 lb/hr and 1.3 ppmvd @ 15% O_2; CO 23.75 lb/hr and 6 ppmvd @ 15% O_2 or ammonia 10 ppmvd @15% O_2. NO_x (as NO_2) emission limit is a one-hour average. Ammonia emission limit is a twenty-four hour rolling average. All other emission limits are three-hour rolling averages. [District Rules 2201, 4001, and 4703]

Verification: The Project Owner shall submit to the CPM and APCO GTE emissions data demonstrating compliance with this Condition as part of the Quarterly Operational Report (**AQ-65**).

AQ-32 Compliance with NO_x emission limitations specified in Condition **AQ-31** shall not be required during short-term excursions limited to a cumulative total of 10 hours per rolling 12-month period. Short-term excursions are defined as 15-minute periods designated by the owner/operator (and approved by the APCO) that are the direct result of transient load Conditions, not to exceed four consecutive 15-minute periods, when the 15-minute average NO_x concentration exceeds 2.5 ppmvd @ 15% O_2. The maximum 1-hour average NO_x concentration for periods that include short-term excursions shall not exceed 30 ppmvd @ 15% O_2. [District Rule 2201]

Verification: The Project Owner shall submit to the CPM and APCO turbine emissions data demonstrating compliance with this Condition as part of the Quarterly Operational Report (**AQ-65**).

AQ-33 Examples of transient load Conditions include, but are not limited to the following: (1) initiation/shutdown of GTE inlet air cooling and (2) rapid GTE load changes. All emissions during short-term excursions shall accrue towards the hourly, daily, and annual emissions limitations of this permit and shall be included in all calculations of hourly, daily, and annual mass emission rates as required by this permit. [District Rule 2201]

Verification: The Project Owner shall submit to the CPM and APCO GTE emissions data demonstrating compliance with this Condition as part of the Quarterly Operational Report (**AQ-65**).

AQ-34 Compliance with NOx, CO and VOC emissions limitations specified in Condition #31 shall not be required during combustor tuning activities. Combustor tuning activities are defined as any testing, adjustment, tuning, or calibration activities necessary to insure safe and reliable steady state operation of the GTE following replacement of the combustor components, during seasonal tuning events, when recommended by the turbine manufacturer, or as necessary to maintain low emissions performance. This includes, but is not limited to, adjusting the amount of fuel distributed between the combustion turbine's staged fuel systems to simultaneously minimize NOx and CO production while minimizing combustor dynamics and ensuring combustor stability. The exemption for combustor tuning activities shall be limited to 6 hours per calendar year. [District Rule 2201]

Verification: The Project Owner shall submit to the CPM and APCO GTE emissions data demonstrating compliance with this Condition as part of the Quarterly Operational Report (**AQ-65**).

AQ-35 Emission rates from GTE during combustor tuning shall not exceed any of the following: NO_x (as NO_2) 300 lb/hr and 600 lb/period; VOC 48 lb/hr and 96 lb/period; and CO 2,514 lb/hr and 2,514 lb/period. Hourly emissions are on a one-hour average basis. [District Rules 2201]

Verification: The Project Owner shall submit to the CPM and APCO turbine emissions data demonstrating compliance with this Condition as part of the Quarterly Operational Report (**AQ-65**).

AQ-36 Emission rates from the GTE shall not exceed either of the following: PM10 9.0 lb/hr and SO_x (as SO_2) 3.495 lb/hr. Emission limits are three-hour rolling averages. [District Rules 2201 and 4001]

Verification: The Project Owner shall submit to the CPM and APCO GTE emissions data demonstrating compliance with this Condition as part of the Quarterly Operational Report (**AQ-65**).

AQ-37 During startup or shutdown GTE exhaust emissions shall not exceed any of the following: NO_x (as NO_2) 80 lb; VOC 16 lb; or CO 902 lb in any one hour. [California Environmental Quality Act and District Rule 4102]

Verification: The Project Owner shall submit to the CPM and APCO GTE emissions data demonstrating compliance with this Condition as part of the Quarterly Operational Report (**AQ-65**).

AQ-38 On any day when a startup or shutdown occurs, emission rates from GTE shall not exceed any of the following: PM10 216 lb/day; SO_x (as SO_2) 84 lb/day; NO_x (as NO_2) 450 lb/day; VOC 96.9 lb/day; or CO 2,113 lb/day. On any day when combustor tuning occurs, emissions from GTE shall not exceed any of the following: PM10 216 lb/day; SO_x (as SO_2) 84 lb/day; NO_x (as NO_2) 957.5 lb/day; VOC 160.9 lb/day or CO 3036.5 lb/day. [District Rule 2201]

Verification: The Project Owner shall submit to the CPM and APCO GTE emissions data demonstrating compliance with this Condition as part of the Quarterly Operational Report (**AQ-65**).

AQ-39 Annual emissions from GTE, calculated on a twelve consecutive month rolling basis, shall not exceed any of the following: PM10 78,840 lb/year; SO_x (as SO_2) 30,616 lb/year; NO_x (as NO_2) 161,480 lb/year; VOC 29,730 lb/year; or CO 471,492 lb/year. [District Rule 2201]

Verification: The Project Owner shall submit to the CPM and APCO GTE emissions data demonstrating compliance with this Condition as part of the Quarterly Operational Report (**AQ-65**).

AQ-40 Combined annual emissions of all hazardous air pollutants (HAPs) from GTE, calculated on a twelve consecutive month rolling basis, shall not exceed 6 tons/year. Combined annual emissions of any single HAP from GTE, calculated on a twelve consecutive month rolling basis, shall not exceed 2.5 tons/year. [District Rule 4002]

Verification: The Project Owner shall submit to the CPM and APCO GTE emissions data demonstrating compliance with this Condition as part of the Quarterly Operational Report (**AQ-65**).

AQ-41 Each one-hour period shall commence on the hour. Each one-hour period in a three-hour rolling average will commence on the hour. The three-hour average will be compiled from the three most recent one-hour periods. Each one-hour period in a twenty-four-hour average for ammonia slip will commence on the hour. The twenty-four-hour average will be calculated starting and ending at twelve-midnight. [District Rule 2201]

Verification: The Project Owner shall compile required data and submit the information to the CPM and the APCO as part of the Quarterly Operational Report (**AQ-65**).

AQ-42 Daily emissions will be compiled for a twenty-four hour period starting and ending at twelve-midnight. Each month in the twelve-consecutive-month rolling average emissions shall commence at the beginning of the first day of the month. The twelve-consecutive-month rolling average emissions to determine compliance with annual emissions limitations shall be compiled from the twelve most recent calendar months. [District Rule 2201]

Verification: The Project Owner shall compile required data and submit the information to the CPM and the APCO as part of the Quarterly Operational Report (**AQ-65**).

AQ-43 Prior to initial operation, Project Owner shall provide emission reduction credits to offset the calendar quarter emissions increases set forth below, at the distance offset ratio specified in Rule 2201 (4/20/05 version) Table 4.2 and the interpollutant offset ratio specified in this permit, PM10 - Q1: 19,440 lb, Q2: 19,656 lb, Q3: 19,872 lb and Q4: 19,872 lb; SO_x (as SO_2) - Q1: 7,549 lb, Q2: 7,633 lb, Q3: 7,717 lb and Q4: 7,717 lb; NO_x (as NO_2) - Q1: 39,817 lb, Q2: 40,260 lb, Q3: 40,702 lb, and Q4: 40,702 lb; and VOC - Q1: 7,331 lb, Q2: 7,412 lb, Q3: 7,494 lb and Q4: 7,494 lb. [District Rule 2201]

Verification: At least 60 days prior to commencing GTE first fire, the Project Owner shall surrender ERC certificates in the amounts shown to the District and provide documentation of that surrender to the CPM.

AQ-44 ERC Certificate Numbers S-2165-2, S-1543-2 and C-481-2 (or certificates split from these certificates) shall be used to supply the required NOx and PM10 offsets, ERC Certificate Number N-444-1 and S-1666-1(or certificates split from these certificates) shall be used to supply the required VOC offsets and ERC Certificate Number S-1344-5 (or a certificate split from this certificate) shall be used to supply the required SOx, unless a revised offsetting proposal is received and approved by the District, upon which this Determination of Compliance shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Determination of Compliance. [District Rule 2201].

Verification: At least 60 days prior to commencing GTE first fire, the Project Owner shall surrender the identified ERC certificates and in the amounts shown in **AQ-43** to the District and provide documentation of that surrender to the CPM. Changes to the offsetting proposal must be provided to the District and CPM for review, public noticing, and approval.

AQ-45 NOx ERCs may be used to offset PM10 emission increases at a ratio of 3.33 lb NOx : 1 lb PM10. [District Rule 2201].

Verification: At least 60 days prior to commencing GTE first fire, the Project Owner shall surrender ERC certificates to the District and provide documentation of that surrender to the CPM, which confirms that the interpollutant offset ratios prescribed in **AQ-45** have been met.

AQ-46 Compliance with ammonia slip limit of 10 ppmvd @ 15% O_2 shall be demonstrated utilizing the following calculation procedure: ammonia slip ppmvd @ 15% O_2 = ((a-(bxc/1,000,000)) x (1,000,000 / b) x d), where a = ammonia injection rate (lb/hr) / (17 lb/lb mol), b = dry exhaust flow rate (lb/hr) / (29 lb/lb mol), c = change in measured NO_x concentration ppmv @ 15% O_2 across catalyst, and d = correction factor. The correction factor shall be derived annually during compliance testing by comparing the measured and calculated ammonia slip. Alternatively, the Project Owner may utilize a continuous in-stack ammonia monitor, acceptable to the District, to monitor compliance. At least 60 days prior to using a NH_3 CEM, the Project Owner shall submit a monitoring plan for District review and approval. [District Rule 4102]

Verification: The Project Owner shall compile required data and submit the information to the CPM and the APCO as part of the Quarterly Operational Report (**AQ-65**).

AQ-47 Compliance with NO_x, CO and VOC short term emission limits (ppmv @ 15% O_2 and lb/hr) shall be demonstrated within 90 days of initial operation of GTE and once every twelve months thereafter by District witnessed in situ

sampling of exhaust gases by a qualified independent source test firm at full load Conditions. [District Rule 2201]

Verification: The Project Owner shall provide NO_x, CO, and VOC short-term emissions to the CPM and the APCO within 90 days of initial operation of GTE and once every 12 months thereafter as part of the Quarterly Operational Report (**AQ-65**).

AQ-48 Compliance with PM10 (lb/hr) and ammonia (10 ppmvd @ 15% O_2) emissions rates shall be demonstrated within 90 days of initial operation of GTE and at least once every 12 months thereafter. [District Rule 2201]

Verification: The Project Owner shall provide PM10 and ammonia emissions to the CPM and the APCO within 90 days of initial operation of GTE and once every twelve months thereafter as part of the Quarterly Operational Report (**AQ-65**).

AQ-49 Source testing to measure startup NO_x, CO, and VOC mass emission rates for this GTE shall be demonstrated upon initial operation and at least every seven years thereafter by District witnessed in situ sampling of exhaust gases by a qualified independent source test firm. CEMS shall be operated during startup source testing. District source test staff shall evaluate CEMS results with source test results to assess the accuracy of CEMS during startups events. If, in the judgment of the District source staff, the reliability of CEMS results has not been demonstrated during startup testing for NO_x and CO, more frequent source testing to measure startup NO_x and CO mass emissions rates may be required. [District Rule 1081]

Verification: The results and field data collected during source tests shall be submitted to the CPM and the District within 60 days of testing. Testing shall be conducted for the GTE upon initial operation, and at least once every seven years.

AQ-50 Initial and annual compliance with the HAPS emissions limit (6 tpy all HAPS or 2.5 tpy any single HAP) shall be by the VOC emissions rate for GTE determined during initial and annual compliance source testing and the correlation between VOC emissions and HAP(S). [District Rule 4002]

Verification: The Project Owner shall submit to the CPM and APCO GTE emissions data demonstrating compliance with this Condition as part of the Quarterly Operational Report (**AQ-65**).

AQ-51 The sulfur content of each fuel source shall be: (i) documented in a valid purchase contract, a supplier certification, a tariff sheet or transportation contract or (ii) monitored weekly using ASTM Methods D4084, D5504, D6228, or Gas Processors Association Standard 2377. If sulfur content is less than 1.0 gr/100 scf for 8 consecutive weeks, then the monitoring frequency shall be every six (6) months. If any six (6) month monitoring shows an exceedance, weekly monitoring shall resume. [District Rules 1081, 2540, and 4001]

Verification: The documentation of the sulfur content of each fuel source, using the methods and procedures prescribed in AQ-51, shall be submitted to the CPM as part of the Quarterly Operational Report (**AQ-65**).

AQ-52 The District must be notified 30 days prior to any compliance source test, and a source test plan must be submitted for approval 15 days prior to testing. Official test results and field data collected by source tests required by Conditions on this permit shall be submitted to the District within 60 days of testing. [District Rule 1081]

Verification: The Project Owner shall notify the CPM and the District 30 days prior to any compliance source test. The Project Owner shall provide a source test plan to the CPM and District for approval 15 days prior to testing. The results and field data collected during source tests shall be submitted to the CPM and the District within 60 days of testing.

AQ-53 The following test methods shall be used: PM10 EPA method 5 (front half and back half); NO_x EPA Method 7E or 20; CO EPA method 10 or 10B; O_2 EPA Method 3, 3A, or 20; VOC EPA method 18 or 25; ammonia BAAQMD ST-1B; and fuel gas sulfur content ASTM D3246. EPA approved alternative test methods as approved by the District may also be used to address the source testing requirements of this permit. [District Rules 1081, 4001, and 4703]

Verification: The Project Owner shall notify the CPM and the District 30 days prior to any compliance source test. The Project Owner shall provide a source test plan to the CPM and District for the CPM and District approval 15 days prior to testing.

AQ-54 The Project Owner shall maintain hourly records of NO_x, CO, and ammonia emission concentrations (ppmv @ 15% O_2), and hourly, daily, and twelve month rolling average records of NO_x and CO mass emissions rates. Using annual and startup VOC source test results, Project Owner shall maintain hourly, daily and twelve month rolling average records of VOC mass emission rates. [District Rule 2201]

Verification: The Project Owner shall make the site available for inspection of records by representatives of the District, CARB and the Commission.

AQ-55 The Project Owner shall maintain records of SO_x lb/hr, lb/day, and lb/twelve month rolling average emissions. SO_x emissions shall be based on fuel use records, natural gas sulfur content, and mass balance calculations. [District Rule 2201]

Verification: The Project Owner shall make the site available for inspection of records by representatives of the District, CARB and the Commission.

AQ-56 Project Owner shall maintain the following records for the GTE: occurrence, duration, and type of any startup, shutdown, short term excursion, combustor tuning event, or malfunction; performance testing; emission measurements; total daily and rolling twelve month average hours of operation; hourly quantity of fuel used and gross three hour average operating load. [District Rules 2201 & 4703]

Verification: The Project Owner shall make the site available for inspection of records by representatives of the District, CARB and the Commission.

AQ-57 Project Owner shall maintain the following records for the continuous emissions monitoring system (CEMS): performance testing, evaluations, calibrations, checks, maintenance, adjustments, and any period during which a CEMS was inoperative. [District Rules 2201 & 4703]

Verification: The Project Owner shall make the site available for inspection of records by representatives of the District, CARB and the Commission.

AQ-58 Project Owner shall provide notification and record keeping as required under 40 CFR, Part 60, Subpart A, 60.7. [District Rule 4001]

Verification: The Project Owner shall comply with the notification and record keeping requirements specified under 40 CFR, Part 60, Subpart A, 60.7. The Project Owner shall make records available for inspection by representatives of the District, CARB and the Commission upon request.

AQ-59 All records required to be maintained by this permit shall be maintained for a period of five years and shall be made readily available for District inspection upon request. [District Rule 2201]

Verification: The Project Owner shall make records available for inspection by representatives of the District, CARB and the Commission upon request.

AQ-60 Results of continuous emissions monitoring shall be reduced according to the procedure established in 40 CFR, Part 51, Appendix P, paragraphs 5.0 through 5.3. 3, or by other methods deemed equivalent by mutual agreement with the District, the ARB, and the EPA. [District Rule 1080]

Verification: The Project Owner shall provide a Continuous Emission Monitoring System (CEMS) protocol for approval by the CPM and the APCO at least 60 days prior to installation of the CEMS.

AQ-61 The Project Owner shall notify the District of any breakdown Condition as soon as reasonably possible, but no later than one hour after its detection, unless the owner or operator demonstrates to the District's satisfaction that the longer reporting period was necessary. [District Rule 1100]

Verification: The Project Owner shall comply with the notification requirements of the District and submit written copies of these notification reports to the CPM and the APCO as part of the Quarterly Operational Report (**AQ-65**).

AQ-62 The District shall be notified in writing within ten days following the correction of any breakdown Condition. The breakdown notification shall include a description of the equipment malfunction or failure, the date and cause of the initial failure, the estimated emissions in excess of those allowed, and the methods utilized to restore normal operations. [District Rule 1100]

Verification: The Project Owner shall comply with the notification requirements of the District and submit written copies of these notification reports to the CPM and the APCO as part of the Quarterly Operational Report (**AQ-65**).

AQ-63 Audits of continuous emission monitors shall be conducted quarterly, except during quarters in which relative accuracy and total accuracy testing is performed, in accordance with EPA guidelines. The District shall be notified prior to completion of the audits. Audit reports shall be submitted along with quarterly compliance reports to the District. [District Rule 1080]

Verification: The Project Owner shall submit to the CPM and APCO the CEMS audits demonstrating compliance with this Condition as part of the Quarterly Operational Report (**AQ-65**).

AQ-64 The Project Owner shall comply with the applicable requirements for quality assurance testing and maintenance of the continuous emission monitor equipment in accordance with the procedures and guidance specified in 40 CFR Part 60, Appendix F . [District Rule 1080]

Verification: The Project Owner shall submit to the CPM and APCO the CEMS audits demonstrating compliance with this Condition as part of the Quarterly Operational Report (**AQ-65**).

AQ-65 The Project Owner shall submit a written report to the CPM and APCO for each calendar quarter, within 30 days of the end of the quarter, including: time intervals, data and magnitude of excess emissions, nature and cause of excess (if known), corrective actions taken and preventive measures adopted; averaging period used for data reporting shall correspond to the averaging period for each respective emission standard; applicable time and date of each period during which the CEM was inoperative (except for zero and span checks) and the nature of system repairs and adjustments; and a negative declaration when no excess emissions occurred . [District Rule 1080]

Verification: The Project Owner shall submit to the CPM and APCO the CEMS audits demonstrating compliance with this Condition as part of the Quarterly Operational Report (**AQ-65**).

AQ-66 The Project Owner of an affected source and each affected unit at the source shall submit the reports and compliance certifications required under the Acid Rain Program, including those under 40 CFR Part 75 Subpart. [District Rule 2540 and 40 CFR Part 75]

Verification: The Project Owner shall submit to the CPM copies of the reports and compliance certifications required under the Acid Rain Program in the first Quarterly Compliance Report (**AQ-65**) that is due after those reports and compliance certifications have been provided to the SJVAPCD.

APPENDIX A -- CONDITION AQ-SC7

Emissions Reduction Credit Requirement.

Condition of Certification AQ-SC7
Required Emission Reduction Credits [a]

Offset Source Location	Credit Number	Date of Reduction	Total Q1 (lb)	Total Q2 (lb)	Total Q3 (lb)	Total Q4 (lb)
NO_x Emission Reduction Credits [b]						
Section 16, Township 27S, Range 28E, Heavy Oil Central Stationary Source	S-2165-2	Pre-1990	104,902	116,451	122,889	113,722
Elk Hills Gas Plant, Kern County	S-1543-2	12/05/1990	10,354	8,381	11,018	11,467
Heavy Oil Projection Fields, Fresno County	C-481-2	3/1/1992	2,525	1,011	0	2,038
VOC Emission Reduction Credits						
757 11th Street, Tracy	N-444-1	1/31/1998	10,996	11,118	11,241	11,232
526 Mettler Frontage Rd. East	S-1666-1	Post-1990	0	0	0	9
SO_2 Emission Reduction Credits						
Midway Premier Lease Section 32, Township 27S, Range 27E	S-1344-5	Post-1990	11,324	11,450	11,575	11,575

Source: Exhibit 102; Exhibits. 5Y and 5Z; Air District's January 2006, Notice of Revision to FDOC.
Note:

a. The quantities listed are the required quantities for offsetting, some of the ERC certificates include more credits than those shown and those remaining credits will be maintained by the Project Owner after surrendering the amounts required as shown above. ERC requirements include all appropriate distance and interpollutant trading ratios. This includes the NOx for PM10 interpollutant offset requirements.

B. PUBLIC HEALTH

The public health analysis supplements the air quality section and assesses whether Project emissions of toxic air contaminants would exceed limits established for health protection and cause significant adverse public health impacts.[22]

Summary and Discussion of the Evidence

Project construction and operation will result in routine emissions of toxic air contaminants (TACs). These TACs are characterized as non-criteria pollutants because there are no ambient air quality standards established to regulate their emission levels.[23] (Ex. 100, p. 4.7-3.) In the absence of standards, state and federal regulatory programs have developed a health risk assessment procedure to evaluate potential health effects from TAC emissions.[24] The California Air Toxics "Hot Spots" Information and Assessment Act requires power plant facilities to identify and quantify TAC emissions by category and by proximity to sensitive receptors. (Health and Safety Code, § 44320 et seq.) This inventory program is administered by the air district where the facility is located, in this case the San Joaquin Valley Unified APCD (SJVUAPCD). Any facility that

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[22] Other public health concerns are discussed in separate sections of this Decision: the accidental release of hazardous materials is discussed in Hazardous Materials Management and Worker Safety and Fire Protection; electromagnetic fields are discussed in Transmission Line Safety and Nuisance; potential impacts to soils and surface water sources are discussed in Soil and Water Resources; and non-hazardous and hazardous wastes are described in Waste Management.

[23] Criteria pollutants are those pollutants for which ambient air quality standards have been established by state and federal regulatory agencies. The emission control technologies employed by PEFE to mitigate criteria pollutant emissions are considered effective for controlling non-criteria pollutant emissions from the same source. (Ex. 1, Vol. I, §§ 5.16.2.3 and 5.16.2.5.)

[24] The health risk assessment protocol is set forth in the Air Toxics "Hot Spot" Program Risk Assessment Guidelines developed by the California Air Pollution Control Officers Association (CAPCOA) pursuant to the Air Toxics "Hot Spots" Information and Assessment Act (Health and Safety Code, § 44300 et seq.). (Ex. 1, Vol. I, § 5.16.2.)

exceeds specified TAC emission limits must conduct a health risk assessment to determine potential health effects. (*See* Health & Safety Code, § 44360.) SJVUAPCD Rule 4002 establishes emission limits for Hazardous Air Pollutants (HAPs) and PEFE Condition **AQ-50** requires compliance source testing.

1. Health Risk Assessment

Applicant performed a health risk assessment that was reviewed by Staff and approved by SJVUAPCD in its Final Determination of Compliance (FDOC). (Ex. 100, p. 4.7-3 et seq.; Ex. 5X, Attachment E; Ex. 1, Vol. I, § 5.2, Air Quality Technical Report, Appendix C.) Applicant's risk assessment employed a scientific approach consistent with CAPCOA Guidelines and methods developed by the California Office of Environmental Health Hazard Assessment (OEHHA). (Ex. 1, Vol. I, § 5.16.2.2 et seq., § 5.2, Air Quality Technical Report, Appendix C.) This methodology emphasizes a worst-case "screening" analysis to evaluate the highest level of potential impact, using CARB's Hotspots Analysis and Reporting Program (HARP) modeling protocol. (Ex. 1, Vol. I, § 5.16.) The screening level risk assessment incorporates assumptions that are intentionally biased toward the protection of public health by:

- Using the highest levels of pollutants that could be emitted from the plant;
- Assuming weather conditions that would result in the maximum ambient concentration of pollutants;
- Using the air quality modeling program that predicts the greatest plausible impacts;
- Assuming health risks at the location where the pollutant concentrations are calculated to be the highest;
- Using health-based standards designed to protect the most sensitive members of the population (i.e., the young, elderly, and individuals with respiratory illnesses);
- Including exposure to substances that could affect noninhalation pathways such as soil ingestion, dermal exposure, and mother's milk; and
- Assuming an individual's exposure to cancer-causing agents occurs for 70 years. (Ex. 100, p. 4.2-4.)

Using the assumptions listed above, the risk assessment consists of the following steps:

- Identify the types and amounts of hazardous substances that the Project 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. 1, Vol. 1, § 5.16.2.2; Ex. 100, p. 4.7-3.)

The health risk assessment addresses three categories of health impacts: acute (short-term), chronic (long-term), and carcinogenic health effects. (Ex. 1, Vol. 1, § 5.16.2.2.2; Ex. 100, p. 4.7-4.)

Regulatory agencies use the hazard index method to assess the likelihood of acute or chronic non-cancer effects by comparing the maximum contaminant emission levels of the Project to safe levels called "reference exposure levels" (RELs). The RELs are based on the most sensitive adverse health effects reported in the medical and toxicological literature and include margins of safety to protect the most sensitive individuals in the population, such as infants, the aged, and people suffering from illness or disease. The margins of safety address uncertainties associated with inconclusive toxicological information and are intended to provide a reasonable degree of protection against hazards not yet identified by research. Health protection is achieved if the estimated worst-case exposure is below the pertinent REL. In such a case, it is presumed that an adequate margin of safety exists between the predicted exposure and the estimated threshold for toxicity. (Ex. 100, pp. 4.7-4 and 4.7-5.)

Exposure to multiple toxic substances may result in health effects that are equal to, less than, or greater than effects resulting from exposure to the individual substance. In conformance with CAPCOA guidelines, the health risk

assessment assumes that the effects of each substance are additive for a given organ system. Where the interactions are synergistic (the effects are greater than the sum), this approach could underestimate public health risks. (Ex. 100, p. 4.7-5; Ex. 1, Vol. I, § 5.16.2.2.2.)

The hazard index is a ratio that compares exposure from facility emissions with the pertinent REL. The hazard index for every toxic substance, which has the same type of health effect, is added to yield a total hazard index. A total hazard index of less than 1.0 establishes that the cumulative worst-case exposures are less than the RELs.[25] Under these conditions, health protection is likely to be achieved even for sensitive members of the population. (Ex. 100, p. 4.7-4.)

For inhalation cancer risk, the estimated airborne concentration level for each carcinogen released by the Project is multiplied by the respective inhalation unit risk. For non-inhalation exposures, the estimated exposure for each carcinogen released is multiplied by the potency factor for that carcinogen. The cancer risk factors and cancer potency factors are established by OEHHA. Once all the individual inhalation and non-inhalation cancer risks are determined, the total cancer risk is computed by summing the cancer risks for each carcinogen. The chief exposure assumption is one of continuous exposure to a maximally exposed individual (MEI) over a 70-year period at each identified receptor location. The calculated risk is not meant to predict the actual expected incidence of cancer, but rather a theoretical upper-bound number based on worst-case assumptions. The conservative nature of the screening assumptions ensures that actual cancer risks are likely to be considerably lower than estimated. (Ex. 1, § 5.16.2.2; Ex. 100, p. 4.7-5.)

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[25] The hazard index ratio is calculated separately for acute and chronic effects. (Ex. 100, p. 4.7-4.)

According to Staff, the threshold of significance for cancer risk is an incremental risk of ten in one million. (Ex. 100, p. 4.7-6.) This significance level is consistent with the standard used by SJVUAPCD and other air districts to comply with Health and Safety Code section 44362(b), which requires notification of nearby residents when there is a significant health risk from a facility.[26] (*Ibid*.; Ex. 1, Vol. I, p. 5.16-6.)

2. Potential Impacts

Features of the natural environment, such as meteorology and terrain, affect the Project's potential to cause public health impacts. An emissions plume affects elevated areas more rapidly than lower terrain due to reduced atmospheric mixing. Since the PEFE site is graded at an elevation of 1,070 feet above sea level, the Project's 131-foot tall stack would be about 1,200 feet above sea level. While there are elevated areas surrounding the site, no residences or planned urban developments are located within a 5-mile radius and no sensitive receptors are within 10 miles except for workers and visitors at the Edmonston Pumping Plant and the gravel mining operation within a two-mile radius. (Ex. 100, p. 4.7-2.) The Air Quality section of this Decision describes the meteorological conditions in the area.

a. Construction Phase

[26] Under the Air Toxics "Hot Spots" and the Proposition 65 programs, a risk of 10 in a million is considered significant and used as a threshold for public notification. The Proposition 65 significance level applies separately to each cancer-causing substance, whereas Staff determines significance based on the total risk from all cancer-causing chemicals. (Ex. 100, p. 4.7-6.) The Air District allows an incremental risk of ten in a million for a source such as PEFE where the best available control technology for air toxics (T-BACT) is used. (Ex. 1, Vol. I, § 5.16.2.2.2.)

The construction phase is expected to take approximately 12 months. Potential construction-related public health impacts could result from exposure to (1) contaminated soils; (2) diesel fuel emissions from heavy equipment and vehicles used in construction, and (3) windblown dust from grading and other construction-related activities. (Ex. 100, pp. 4.7-8 and 4.7-9.)

As described in the Waste Management section, a Phase 1 Environmental Site Assessment (ESA) was performed to determine whether contaminated soils exist on-site and none were identified. Conditions **WASTE-1** and **WASTE-2** provide appropriate guidance on handling any soil or groundwater contamination encountered during construction. (Ex. 100, p. 4.4-7.)

Particulate emissions from diesel-fueled engines are listed in the CARB inventory of TACs. Exposure to diesel exhaust can result in both short and long-term adverse health effects, including lung cancer. (Ex. 100, pp. 4.7-7 and 4.7-8.) The Project Owner will implement safe work practices to protect worker health and safety as described in the Worker Safety section of this Decision. The Applicant modeled diesel emissions from construction activities over a 12-month period and predicted annual average concentration of 0.0281 $\mu g/m^3$ of PM10 at any location. Using the OEHHA HARP model, the cancer risk predicted for this exposure is between 1.2 and 1.7 in one million, below the level of significance. (Ex. 1, Vol. I, § 5.16.2.1; § 5.2.5.6, Air Quality Technical Report, Appendix D.)

Condition of Certification **AQ-SC5** requires the Project Owner to use low-sulfur diesel fuel and to install soot filters on diesel-fueled equipment to reduce particulate matter, carbon monoxide, and hydrocarbon emissions. Conditions **AQ-SC3** and **AQ-SC4** require the Project Owner to implement a Fugitive Dust Mitigation Plan to minimize the potential for adverse health effects from dust inhalation. Implementation of these mitigation measures will ensure that potential construction-related health effects are reduced to insignificant levels.

b. Operation

Staff's Public Health Table 2, replicated below, lists the PEFE's anticipated toxic emissions and shows how each contributes to the health risk analysis.

Public Health Table 2
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				✔	✔
Benzene			✔	✔	✔
1,3-Butadiene			✔	✔	
Ethylbenzene				✔	
Hexane				✔	
Napthalene		✔	✔	✔	
Polynuclear Aromatic Hydrocarbons (PAHs)	✔	✔	✔	✔	
Propylene				✔	
Propylene oxide			✔	✔	✔
Toluene				✔	✔
Xylene				✔	✔

*Sources: OEHHA 2003 Appendix L and Ex. 1, Vol. I, § 5.16, Table 5.16-1.

Applicant employed the OEHHA HARP model to evaluate multipathway exposure to toxic substances and the incremental risks due to the combined PEFE and PEF emissions. Applicant then calculated health risks due to the PEFE turbine using the USEPA-approved ISCST3 dispersion model and compared the

results.[27] (Ex. 1, Vol. I, § 5.16.2.2.2; § 5.2, Air Quality Technical Report, Appendix C.)

Staff determined that the three existing CTGs at the site and the new PEFE would each contribute approximately the same emissions of each substance. However, the exhaust plume from the PEFE simple cycle is hotter and due to thermal buoyancy, would rise higher than a plume from the combined cycle configuration so the emissions would be more widely dispersed. Thus, the increase in ground exposure (and risk) is not proportional to the increase in emissions. (Ex. 100, pp. 4.7-10 and 4.7-11.) Staff compared the emissions data of the four CTGs for maximum hourly and annual emissions for each substance as shown in Public Health Table 4, replicated below.

Public Health Table 4
Comparison of Maximum Hourly and Annual Emissions for the Expansion CTG Compared with the Existing CTGs

Maximum Proposed Emissions				
	Expansion CTG		Existing CTGs (each)	
Substance	lb/hr	tpy	lb/yr	tpy
Ammonia	24.1	101.2	24.06	105.4
Propylene	1.3	5.7	1.34	5.87
Acetaldehyde	6.9E-02	0.3	7.09E-02	0.31
Acrolein	1.1E-02	4.9E-02	1.14E-02	4.98E-02
Benzene	2.1E-02	9.1E-02	2.14E-02	9.37E-02
1,3-Butadiene	7.4E-04	3.3E-03	7.63E-04	3.34E-03
Ethylbenzene	5.5E-02	0.24	5.67E-02	0.25
Formaldehyde	0.11	0.47	0.11	0.48
Hexane	0.44	1.9	0.45	1.97
Naphthalene	2.25E-03	9.9E-03	2.31E-03	1.01E-02
PAHs	3.0E-04	1.3E-03	3.11E-04	1.36E-03
Propylene oxide	4.6E-02	0.20	4.68E-02	0.20

[27] The ISCST3 model is designed to estimate pollutant impacts in complex terrain configurations. Maximum hourly (acute non-cancer effects) and annual (chronic non-cancer and carcinogenic effect) air toxic emission estimates for the gas-fired turbine, diesel fire pump, emergency generator, and cooling tower were input to the models. Dispersion modeling using the ISCST3 model estimated ground-level concentrations near the site and identified the locations of the highest health impacts from exposures through the inhalation pathway. (Ex. 1, Vol. I, § 5.16.2.2.2; § 5.16.2.2.3., Figure 5.16-1.)

Toluene	0.23	0.99	0.23	1.01
Xylene	0.11	0.48	0.11	0.50
Total Hazardous Air Pollutants		4.8		4.89

Source: Ex. 100, p. 4.7-11, Table 4.

Emission sources during Project operation include the new CTG, associated exhaust stack, emergency generator, diesel fire pump engine, and the cooling tower. Risk from the existing PEF, including emissions from the three existing CTGs, the emergency generator, and the diesel fire pump engine, is shown in Staff's Public Health Table 5, replicated below. (Ex. 1, Vol. I, § 5.2, Air Quality Technical Report, Appendix C, Attachment C-2; Ex. 100, p. 4.7-12.)

Public Health Table 5
Summary of Screening Health Risk Assessment Results

Equipment	Cancer Risk	Acute HI	Chronic HI
	(in one million)		
Expansion CTG	0.08	0.03	0.004
Existing CTGs	0.68	0.24	0.033
Emergency Generator	0.068	0.35	0.0014
Diesel Fire Pump Engine	2.2	n/a	0.0011
Totals	3.03	0.62	0.040

Source: Ex. 100, p. 4.7-12.

Staff concluded that the incremental risk due to the additional CTG does not represent a significant increase to overall facility risk. Staff's Public Health Table 3, below, summarizes the results of Applicant's risk assessment for the PEFE.

Public Health Table 3
Operation Hazard/Risk at Maximally Exposed Individuals

Type of Hazard/Risk	**Hazard Index/Risk**	**Significance Level**	**Significant?**
Acute Non-cancer	0.03	1.0	No
Chronic Non-cancer	0.004	1.0	No
Individual Cancer	0.08×10^{-6}	10.0×10^{-6}	No

Source: Ex. 1, Vol. I, § 5.16, Table 5.16-6.

The maximum incremental lifetime cancer risk during Project operation was calculated at 0.08 in one million at the point of maximum impact, which is "very close to the plant site." (Ex. 1, Vol. I, p. 5.16-11.) The cancer risk at the nearest residence is much lower, as the nearest residence is over five miles from the site.[28] (*Ibid.*) Since this incremental cancer risk is below the ten in one million significance threshold, Project operation represents an insignificant incremental cancer risk to the public. (Ex. 100, p. 4.7-12.)

The total chronic hazard index was calculated at 0.004 and falls below the 1.0 REL significance threshold. The maximum acute non-cancer hazard index of 0.03 is also below the 1.0 REL significance threshold. Thus, Project operation will not pose significant incremental chronic or acute non-cancer health risks. (Ex. 1, Vol. 1, § 5.16.2.2.3.)

3. Cooling Tower

The potential increase in cooling tower TAC emissions due to PEFE operations will be minimal and not likely to result in any significant health impacts. (Ex. 100, p. 4.7-12.)

Staff provided testimony concerning potential impacts from the growth of Legionella bacteria and other micro-organisms in cooling tower operations. Legionella grows in water and causes Legionellosis (Legionnaires' disease), which may present a health risk in immuno-compromised individuals. Emissions from untreated or inadequately treated cooling systems have been correlated with outbreaks of Legionellosis. (Ex. 100, p. 4.7-13 et seq.)

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[28] Applicant indicated that the majority of cancer risk from the existing PEF is due to the diesel fire pump engine, which was assessed by the SJVUAPCD in 2004 and found the maximum residential risk was 0.6 in a million. (Ex. 1, Vol. I, p. 5.16-12, § 5.2, Air Quality Technical Report, Appendix C, Attachment C-3.)

California requires the use of biocides to reduce the growth of micro-organisms in cooling systems using recycled water. (Cal. Code of Regs., tit. 22, § 60306) According to Staff, this requirement applies to the PEFE since the Project will recycle its own water for cooling purposes. (Ex. 100, p. 4.7-13.)

Staff recommended Condition of Certification **PUBLIC HEALTH-1** to protect both workers and the public from Legionella exposure. Staff found that bacteria in the existing PEF cooling tower, shared with the PEFE, may pose a risk to workers and the off-site public traveling on the access road. The Condition requires the Project Owner to prepare and implement a Cooling Water Management Plan consistent with the Cooling Technology Institute's (CTI's) recommendations to minimize the potential for bacterial growth in cooling water.[29] Although the requirement applies to the existing PEF cooling towers, it does not present an operational or engineering issue for the Project Owner since biocides are already added to the cooling water and the plan is required and approved at other power plants. (Ex. 100, pp. 4.7-13 and 4.7-14.)

Condition **PUBLIC HEALTH-1** specifically requires the Project Owner to implement a biocide and anti-biofilm agent monitoring program to ensure that: (1) proper levels of biocide and other agents are maintained in cooling tower water at all times; (2) periodic measurements of Legionella levels are conducted; and (3) periodic cleaning is performed to remove bio-film buildup. Staff's expert witness indicated that implementation of an aggressive antibacterial program coupled with consistent monitoring and biofilm removal would reduce the

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[29] The CTI serves as a forum for research on the effectiveness of cooling tower drift eliminators and use of biocides to control micro-organism growth in cooling towers. *See* CTI's February 2000 report entitled "Legionellosis, Guideline: Best Practices for Control of Legionella." The CTI recommends several strategies to minimize bacterial growth in cooling towers, including minimization of water stagnation, minimization of process leads into the cooling system that provide nutrients for bacteria, maintenance of overall system cleanliness, the application of scale and corrosion inhibitors as appropriate, the use of high-efficiency mist eliminators on cooling towers, and the overall general control of microbiological populations. (Ex. 100, p. 4.7-13.)

potential of Legionella growth and dispersal to insignificance. (Ex. 100, p. 4.7-14.)

In conjunction with the biocide monitoring program, previously adopted PEF Conditions **AQ-51** through **AQ-57**, required the PEF Project Owner to equip the cooling tower with high-efficiency drift eliminators to reduce the dispersal of pollutants in the cooling water.

4. Cumulative Impacts

To assess cumulative impacts from the combined PEFE and PEF facility, Applicant conducted a screening health risk assessment for the facility as a whole. (Ex. 1, Vol. I, § 5.16, Table 5.16-6.) Total cancer risk from the combined facility was calculated at 2.2 in one million at the location of the MEI, where pollutant concentrations would theoretically be the highest. Even at this location, the increase does not represent any real contribution to the average lifetime cancer incidence rate due to all causes (environmental as well as life-style and genetic). The acute hazard index at the MEI was 0.35, and the chronic hazard index was 0.03. These results are well below threshold levels, indicating that the risk of cumulative impacts is not significant. (Ex. 100, p. 4.7-14.)

FINDINGS AND CONCLUSIONS

Based on the evidence of record, the Commission makes the following findings and conclusions:

1. During Project construction, exposure to emissions from diesel-fueled construction equipment and from fugitive dust during excavation and grading activities could potentially result in adverse health effects.

2. During Project operation, the PEFE will emit criteria and non-criteria pollutants (toxic air contaminants) that could potentially result in adverse public health effects.

3. Project emissions of criteria pollutants will be mitigated to levels consistent with applicable regulatory standards as discussed in the Air Quality section of this Decision.

4. Best Available Control Technology (BACT) used to control emissions of criteria pollutants is also effective to control emissions of toxic air contaminants from the same source.

5. Applicant performed a health risk assessment, using well-established scientific protocol, to analyze potential adverse health effects of toxic air contaminants emitted by PEFE within a ten-mile radius of the Project site.

6. There are no sensitive receptors within a five-mile radius of the site; however the health risk assessment assumed any receptor within the area was a sensitive receptor, including workers and visitors on the access road.

7. Applicant's health risk assessment is based on worst-case assumptions using the highest emission factors, assuming the worst weather conditions, and calculating effects at the point of maximum impact so that actual risks are expected to be much lower at any other location.

8. The maximum incremental lifetime cancer risk during Project operation was calculated at 0.08 in one million, which is below the ten in one million significance threshold.

9. The total chronic hazard index was calculated at 0.004, which is below the 1.0 REL significance level.

10. The maximum acute non-cancer hazard index of 0.03 is below the 1.0 REL significance threshold.

11. The Project Owner will implement a Cooling Water Management Plan in accordance with applicable LORS and guidelines to minimize the potential of Legionella bacteria and other micro-organisms in cooling tower emissions.

12. The temporary nature of the construction phase and the implementation of PEFE's Construction Mitigation Plan ensure that construction-related emissions will not result in adverse public health effects.

13. Results of the health risk assessment indicate that potential public health risks from exposure to emissions of toxic air contaminants during Project operation will be insignificant.

14. Implementation of T-BACT and other mitigation measures identified in the Air Quality section of this Decision ensure that emissions of toxic air contaminants during operation will not result in adverse public health effects.

15. There is no evidence of cumulative public health impacts from Project emissions.

The Commission therefore concludes that Project emissions of non-criteria pollutants do not pose a significant direct, indirect, or cumulative adverse public health risk. All Conditions of Certification that control Project emissions are specified in the Air Quality section of this Decision, except for Condition of Certification **PUBLIC HEALTH-1**, below. Compliance with Condition of Certification **PUBLIC HEALTH-1** will reduce the potential risk of bacterial exposure from cooling tower emissions to insignificant levels.

CONDITION OF CERTIFICATION

PUBLIC HEALTH-1 The Project Owner shall develop and implement a Cooling Water Management Plan to ensure that the potential for bacterial growth in cooling water is kept at or below the minimum recommended by the Cooling Technology Institute (CTI). The Plan shall be consistent with either the Energy Commission's "Cooling Water Management Program Guidelines" or the CTI's most current "Best Practices for Control of Legionella Guidelines." Under either set of guidelines, the Plan shall include sampling and testing for the presence of Legionella bacteria at least every six months to ensure (1) proper levels of biocide and other agents are maintained in cooling tower water at all times; and (2) periodic cleaning is performed to remove bio-film buildup. After two years of operation, the Project Owner may request the CPM to revise the Legionella bacteria testing schedule.

Verification: At least 60 days prior to the start of cooling tower operations, the Cooling Water Management Plan shall be provided to the CPM for review and approval. Legionella bacteria testing results shall be submitted to the CPM every six months for the first two years of operation. After the first two years of operation, the Project Owner may request the CPM to revise the testing schedule if good cause is shown.

C. WORKER SAFETY AND FIRE PROTECTION

Industrial workers are exposed to potential health and safety hazards on a daily basis. This analysis reviews whether Applicant's proposed health and safety plans are designed to protect industrial workers and provide adequate fire protection and emergency response in accordance with all applicable laws, ordinances, regulations, and standards (LORS).

Summary and Discussion of the Evidence

1. Potential Impacts to Worker Safety

During construction and operation, workers may be exposed to chemical spills, hazardous wastes, fires, gas explosions, moving equipment, live electric conductors, confined space entry and egress problems. (Ex. 100, p. 4.14-5.) Exposure to these hazards can be minimized through adherence to appropriate design criteria and administrative controls, use of personal protective equipment (PPE), and compliance with applicable LORS.[30] (*Ibid.*)

2. Mitigation Measures

The Project Owner will update the PEF's existing "Construction Safety and Health Program," and the "Operation Safety and Health Program," both of which must be reviewed by the appropriate agencies prior to PEFE construction and operation. (Ex. 18; Ex. 100, pp. 4.14-5 et seq.) Separate Injury and Illness Prevention Programs, Personal Protective Equipment Programs, Exposure Monitoring Programs, Emergency Action Plans, Fire Protection and Prevention Plans, and other general safety procedures must be included in the both Safety

[30] California Occupational Health and Safety Administration (Cal/OSHA) regulations (Cal. Code of Regs., tit. 8, § 337 et seq. and § 1500 et seq.) and other applicable federal, state, and local laws affecting industrial workers are identified in Appendix A of this Decision. (*See* Ex. 100, p. 4.14-1 et seq.)

and Health Programs. (*Ibid*.) These comprehensive programs contain specific plans dealing with the site and ancillary facilities, such as the Emergency Action Plan, as well as additional programs under the General Industry Safety Orders, Electrical Safety Orders, and Unfired Pressure Vessel Safety Orders. (*Ibid.*) Conditions **Worker Safety-1** and **Worker Safety-2** require the Project Owner to consult with Cal/OSHA, as appropriate, and the Kern County Fire Department (KCFD) to ensure that these updated programs comply with applicable LORS.[31] Condition **Worker Safety-3** requires the Project Owner to employ a qualified Construction Safety Supervisor to ensure implementation of the Safety and Health Program.

3. Fire Protection and Prevention Plans

The Project will use the PEF's existing on-site fire protection and suppression systems in the event of fire. The Project will also rely on local fire protection services. (Ex. 100, p. 4.14-3.) To ensure that the fire protection and suppression systems comply with current standards, Condition **Worker Safety-1** requires the Project Owner to obtain approval of the Project's Construction Fire Protection and Prevention Plan from the KCFD and any other fire protection agencies serving the PEFE. Condition **Worker Safety-2** requires the Project Owner to provide a Fire Protection and Prevention Program for review by the fire protection agencies serving the PEFE prior to the start of Project operation.

The on-site fire protection system provides the first line of defense for small fires. The permanent PEF fire protection system will be extended to the PEFE site and

[31] According to Calpine, the PEFE would not change or add to the worker safety impacts associated with the existing PEF. (Ex. 18.) However, due to the unique nature of building an additional power plant that will tie-in at many points to the existing PEF (e.g., electrical, water, acutely hazardous materials, fire prevention, etc.), Staff believes the Project Owner should revise and update the Safety and Health programs to reflect current LORS. Additionally, since this Project will be built in the future, it is possible that LORS may change or that another Project Owner and/or contractor may not have the current Project Owner's commitment to protect worker safety. (Ex. 100, p. 4.14.-6.) To ensure adequate worker safety, we agree that the existing Safety and Health Programs must be updated.

placed in service as early as possible during the construction phase. The on-site programs include a fire protection water pumping system, carbon dioxide fire suppression systems for the combustion turbine generators (CTGs), and fire extinguishers. According to Staff, the fire prevention plan described in the evidentiary record complies with applicable LORS and provides an adequate quantity of fire-fighting water to hydrants, hose stations, and water spray and sprinkler systems.[32] (Ex. 100, p. 4.14-11.)

In addition, a carbon dioxide fire protection system will be provided for the new CTG and accessory equipment. The generator transformers and auxiliary transformer will be equipped with a deluge spray system. Smoke detectors, flame detectors, temperature detectors, portable extinguishers, fire hydrants, and sprinklers are located throughout the facility. According to record, these systems are located throughout the existing PEF site at appropriate intervals as required by the NFPA and the UFC and ensure adequate fire protection for the PEFE. (Ex. 100, p. 4.14-11.)

In the event of a major fire, trained firefighters and equipment for a sustained response would be provided by the KCFD. The Fire Station closest to the site is Mettler Station No. 55, recently relocated to the Tejon Industrial Complex at Interstate 5 and Laval Road about 7 miles from the site, with a response time of about 6 to 8 minutes. The second and third closest stations are Lebec Station 56 with a response time of about 14 minutes and Arvin Station 54 with a response time of about 30 minutes. Emergency medical services would be provided by the Westside District Hospital in Taft (45 miles), and/or five other hospitals in the Bakersfield vicinity (30 miles).

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[32] The fire protection water supply is contained in a dedicated 500,000-gallon water storage tank and delivered to the fire protection water piping network via electric motor-driven fire pumps with the capacity of 3,000 gallons/minute. (Ex. 100, p. 4.14-11.)

In the event of a chemical spill, Landco Station 66, located approximately 30 miles north of the site with a response time of about 30 minutes, will provide HazMat response. According to Staff, these fire suppression, HazMat, and emergency medical response times are consistent with other rural power plant locations previously certified by the Energy Commission. (Ex. 100, p. 4.14-3.)

Staff summarized the location of fire department responders and associated response times in the Table shown below. (Ex. 100, p. 4.14-4.)

Worker Safety and Fire Protection Table 1
Equipment and Personnel at KCFD

SFFD Station	Response Time	Distance to PEF	Equipment	Staff per shift
Mettler Station 55 **Current location:** 1801 Mettler Road, West Mettler **New location (After Dec 2005):** Tejon Industrial Complex	Approx. 15 minutes Approx. 6-8 minutes	Approx. 16 miles northwest of the project site Approx. 7 miles west of the project site	1 Type-1 engine 1 Type-4, FWD watershed patrol 1 Type-1 engine 1 Type-4, FWD watershed patrol	1 Captain 1 Engineer 1 Captain 1 Engineer
Lebec Station 56 1548 Golden State Hwy, Lebec	Approx. 13 to 14 minutes	Approx. 16 miles south of project site	2 Type-1 engines 1 Type-4, FWD watershed patrol	1 Captain 1 Engineer 1 Firefighter
Arvin Station 54 301 Campus Dr. Arvin	Approx. 30 minutes	Approx. 30 miles north of project site	2 Type-1 engines 1 Type-4, FWD watershed patrol	1 Captain 1 Engineer 1 Firefighter
Landco Station 66 3000 Landco Dr. Bakersfield	Approx. 30 minutes	Approx. 30 miles north of project site	2 Type-1 engines 1 Type-4, FWD watershed patrol 1 Hazmat unit	1 Captain 1 Engineer 3 Firefighters
Virginia Colony Station 41 2214 Virginia Ave. Bakersfield	Approx. 30 minutes	Approx. 30 miles north of project site	1 Type-1 engines 1 Type-4, FWD watershed patrol 1 Ladder truck	2 Captain 2 Engineers 2 Firefighters 1 Battalion Chief

Source: Ex. 100, p. 4.14-4.

According to Staff, emergency fire response represents an insignificant impact on the local fire department due to the effectiveness of on-site fire suppression systems. Staff has determined, however, that swift medical intervention for heart attacks or other medical emergencies requires the use of on-site cardiac defibrillator equipment. The existing PEF has a cardiac defibrillator located in the control room and trained employees are available to use the defibrillator in an emergency. Therefore, no additional requirement for this device at the PEFE is needed. (Ex. 100, p. 4.14-12.)

Staff reviewed the potential for PEFE-related activities to result in cumulative impacts on the fire and emergency response capabilities of the KCFD and determined that it is adequately staffed and equipped to deal with any incident at the PEFE facility and other industrial facilities in the area.[33] Given the rural area where the Project is located and the lack of unique fire hazards associated with a modern gas-fired power plant, Staff believes the potential cumulative impacts of this Project on fire and emergency services would be insignificant. (Ex. 100, p. 4.14-12.)

FINDINGS AND CONCLUSIONS

Based on the evidentiary record, the Commission makes the following findings and conclusions:

1. Industrial workers 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 update and implement comprehensive Safety and Health Programs for both the construction and operation phases of the project; each of the programs will include an Injury/Illness Prevention Program, a Personal Protective Equipment Program, an Exposure Monitoring Program, an Emergency Action Plan, a Fire Protection and Prevention Plan, and other general safety procedures.

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[33] The HazMat Response teams do not have hand-held ammonia detectors, which would be crucial in the event of an accidental spill or release. Condition **HAZ-8** requires the Project Owner to supply functioning ammonia detectors to the KCFD for this purpose.

3. The PEF site includes on-site fire protection and suppression systems that will be extended to the PEFE for first line defense in the event of fire.

4. The Kern County Fire Department (KCFD) will provide fire protection and emergency response services to the Project.

5. The KCFD Station closest to the site is Mettler Station No. 55, located at the Tejon Industrial Complex at Interstate 5 and Laval Road about 7 miles from the site, with a response time of about 6 to 8 minutes. The second and third closest stations are Lebec Station 56 with a response time of about 14 minutes and Arvin Station 54 with a response time of about 30 minutes.

6. HazMat response is provided by Landco Station 66, located approximately 30 miles north of the site with a response time of about 30 minutes.

7. Emergency medical services are provided by the Westside District Hospital in Taft (45 miles), and/or five other hospitals in the Bakersfield vicinity (30 miles).

8. Existing fire and emergency service resources are adequate to meet Project needs.

9. The PEFE will not result in cumulative impacts to the KCFD's emergency response capabilities.

10. Implementation of the Conditions of Certification, below, and the mitigation measures described in the evidentiary record will ensure that the Project conforms with all applicable laws, ordinances, regulations, and standards on industrial worker health and safety as identified in the pertinent portions of **Appendix A** of this Decision.

The Commission, therefore, concludes that implementation of the Project Owner's Safety and Health Programs and Fire Protection measures will reduce potential adverse impacts on the health and safety of industrial workers to levels of insignificance.

CONDITIONS OF CERTIFICATION

WORKER SAFETY-1 The Project Owner shall submit to the Compliance Project Manager (CPM) a copy of the PEF Project Construction Safety and Health Program revised and updated to address the unique safety and health hazards associated with construction at an active power plant, any current LORS, and containing the following revised and updated programs:

- Construction Personal Protective Equipment Program;
- Construction Injury and Illness Prevention Program;
- Construction Emergency Action Plan; and
- Construction Fire Prevention Plan.

The Personal Protective Equipment Program and the Injury and Illness Prevention Program shall be submitted to the CPM for review and approval. The Construction Emergency Action Plan and the Fire Prevention Plan shall be submitted to the Kern 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 revised and updated Project Construction Safety and Health Program. The Project Owner shall provide a letter from the Kern County Fire Department providing 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 revised and updated Project Operations and Maintenance Safety and Health Program, if necessary as determined by the CPM, containing the following:

- Operation Injury and Illness Prevention Plan;
- Emergency Action Plan;
- Hazardous Materials Management Program;
- Fire Prevention Program (8 CCR § 3221); and
- Personal Protective Equipment Program (8 CCR §§ 3401-3411).

The Operation Fire Prevention Plan and the Emergency Action Plan shall also be submitted to the Kern County Fire Department for review and comment.

Verification: At least 30 days prior to the first start-up of the combustion turbine or the energization of any part of the project, the Project Owner shall

submit to the CPM for approval a copy of the revised and updated Project Operations and Maintenance Safety & Health Program, if necessary as determined by the CPM. The Project Owner shall provide a letter from the Kern County Fire Department containing their comments on the Operations Fire Prevention Plan and the Emergency Action Plan.

WORKER SAFETY-3 The Project Owner shall employ a qualified site Construction Safety Supervisor (CSS) who, through training and/or experience, is knowledgeable about 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 with applicable worker safety requirements and mitigate workplace 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 & federal regulations related to power plant projects;
- Assure that all construction and commissioning workers and supervisors receive adequate safety training;
- Conduct accident and safety-related incident investigations prepare emergency response reports for injuries, and inform the CPM of safety-related incidents; and
- Assure that all the plans identified in **WORKER SAFETY-1 and 2** are implemented.

Verification: At least 30 days prior to the start of site mobilization, the Project Owner shall submit to the CPM the name, qualifications, and contact information for the CSS. The contact information of any replacement CSS shall be submitted to the CPM the next business day after the replacement.

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.

D. HAZARDOUS MATERIALS MANAGEMENT

This topic considers whether the use, handling, or storage of hazardous materials during construction and operation of the PEFE will cause significant impacts to public health and safety.[34] Specific measures to protect workers from unsafe exposure to hazardous materials are described in the Worker Safety and Fire Protection topic. Other related issues are addressed in the Waste Management, Public Health, and Traffic and Transportation portions of this Decision.

SUMMARY AND DISCUSSION OF THE EVIDENCE

Several factors affect the potential for Project-related hazardous materials to cause adverse impacts, including local meteorological conditions, terrain characteristics, special site factors, and the proximity of population centers and sensitive receptors. (Ex. 1, Vol. I, § 5.15; Ex. 100, p. 4.4-4.) The evidence indicates that no sensitive receptors are located within a 5-mile radius of the PEFE site and no new residences or sites are planned for urban development within a 5-mile radius. (*Ibid.*)

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[34] These include several substances such as anhydrous ammonia, sulfuric acid, hydrogen gas, and sodium hypochlorite, which are deemed *acutely hazardous* under the California Accidental Release Prevention Program (CalARP). The CalARP Program includes both federal and state programs established to prevent accidental release of regulated toxic and flammable substances. (CA Health & Safety Code, § 5531 et seq.; Cal. Code of Regs., tit. 19, § 2720 et seq.) Regulated substances are those stored or used in amounts exceeding threshold planning quantities (TPQs) that require the filing of a Risk Management Plan under the CalARP program. Anhydrous ammonia is stored at the PEF site in quantities that exceed the TPQs. (Ex. 1, Vol. 1 § 5.15.2.2.2.)

1. Potential Impacts

Hazardous Materials (HazMat) Appendix C, duplicated from Staff's testimony and attached to Condition of Certification **HAZ-1** at the end of this section, lists the hazardous materials that are currently used and stored on the PEF site. The increased amounts required for PEFE operations include hydrogen, carbon dioxide, lubricating oil, insulating oil, and various detergents. (Ex. 1, Vol. I, § 3.4, Table 3.4.10-2.) With the exception of hydrogen, none of these chemicals represent a risk of off-site hazards due to their relatively small quantities, low volatility, and/or low toxicity. Condition of Certification **HAZ-1** prohibits the Project Owner from using any hazardous materials not listed in HazMat Appendix C or in greater quantities than those identified in HazMat Appendix C without prior approval of the Energy Commission's Compliance Project Manager. (*See,* Ex. 1, Vol. I, § 3.4, Tables 3.4.10-1 and 3.4.10-2; Ex. 100, p. 4.4-39 et seq. HazMat Appendix C.)

During Project construction, the only hazardous materials proposed for use include gasoline, fuel oil, hydraulic fluid, lubricants, solvents, cleaners, sealants, welding flux, paint, and paint thinner. According to Staff, any potential impact from spills or other releases of these materials would be limited to the site due to the small quantities involved. (Ex. 100, p. 4.4-6.)

The existing PEF facility currently stores and uses acutely hazardous chemicals used for water treatment such as sodium hypochlorite, sodium hydroxide, sulfuric acid (93%), disodium phosphate, trisodium phosphate, and other chemicals. These chemicals are used and stored in relatively small amounts and represent limited off-site hazards due to their small quantities, low volatility, and/or low toxicity. The Applicant stated that quantities of these water treatment chemicals would not increase due to the PEFE. (Ex. 1, Vol. I, § 3.4, Table 3.4.10-1.) Measures employed by the PEF to handle these chemicals will continue for

PEFE operations. Condition **HAZ-2** requires the Project Owner to revise its Hazardous Materials Business Plan to include the PEFE.

a. Hydrogen

Hydrogen gas will be used by the PEFE as a generator coolant and poses a risk of both fire and explosion. A portion of the hydrogen will be stored within the generator cooling system and piping, while the remainder will be contained in the existing storage tanks. Initial fill of the PEFE generator will require about 2,800 cubic feet of hydrogen. A maximum 10,000 cubic feet of hydrogen for use by both PEF and PEFE will be present at the site at any time. As required by applicable LORS, the hydrogen storage facilities are located away from combustion sources to prevent contact with potential ignition sources and to minimize vehicular impact. (Ex. 1, Vol. I, § 5.15.2.2.1.) Staff concluded that mitigation measures in place for the PEF facility, including approved storage units and personnel training, will continue to reduce the risk of fire and/or explosion to insignificant levels. (Ex. 100, p. 4.4-7.)

b. Natural Gas

The Project requires large amounts of natural gas, which creates a risk of both fire and explosion. Natural gas is not stored on-site; it is continuously delivered via the Project's gas pipeline facilities (described in the **Facility Design** section of this Decision.) Since the PEFE will use the existing gas pipeline, potential off-site impacts were previously evaluated for PEF. (Ex. 100, pp. 4.4-7 and 4.4-8.) Staff believes the worst-case scenario is a large rupture of the pipeline caused by improper use of heavy equipment near the pipeline, which creates a safety hazard to construction workers. The probability of such an event has been reduced to insignificant levels through adherence to applicable codes and implementation of effective safety management practices. (*Ibid.*)

In addition, gas explosions can occur in the HRSG and during start-up. The National Fire Protection Association (NFPA) Code 85A requires: (1) the use of double block and bleed valves for gas shut-off; (2) automated combustion controls; and (3) burner management systems. These measures significantly reduce the likelihood of an explosion in gas-fired equipment. Additionally, start-up procedures require air purging of the gas turbines to prevent the presence of an explosive mixture. The PEF's Safety Management Plan for handling natural gas will continue in effect to reduce the potential for equipment failure due to improper maintenance or human error. (Ex. 100, pp. 4.4-7 and 4.4-8.)

c. Anhydrous Ammonia

The PEFE will use anhydrous ammonia in the Selective Catalytic Reduction (SCR) process to control NOx emissions from combustion of natural gas. Anhydrous ammonia is the only hazardous material that may pose a risk of off-site impacts in the event of a spill by causing the formation and release of toxic gases. The Applicant asserts that the amounts of anhydrous ammonia stored on-site in the two existing 30,000-gallon above-ground storage facilities would not change due to the PEFE.[35] (Ex. 1, Vol. 1, §§ 5.15.2.2.2, 5.15.2.3.1.)

Applicant performed an Off-Site Consequences Analysis (OCA) to evaluate potential public health impacts in a "worst-case scenario," which could result from an accidental release during truck unloading. The worst case scenario assumed the complete release of the contents of one anhydrous ammonia storage tank in ten minutes. Due to expansion of anhydrous ammonia, the storage tanks cannot be filled to capacity and, therefore, the worst-case assumed that the tank was 80

[35] Concern about storage tank failure in the event of seismic activity is addressed in the **Facility Design** section of this Decision, which requires all Project components including HazMat storage tanks, to comply with CBSC standards for seismic design. (Ex. 100, p. 4.4-13.)

percent full. The alternative scenario assumed that a three-inch vapor line from one of the ammonia tanks failed, releasing anhydrous ammonia for two hours before it could be controlled. (Ex. 1, Vol. I, §§ 5.15.2.3.1 and 5.15.2.3.3.)

The results indicated that concentrations exceeding 200 ppm in the worst-case scenario would extend about 0.83 mile from the storage tank at a height of 1.0 meter above ground level. This distance extends beyond the facility fence line in all directions. For the alternative scenario, concentrations exceeding 200 ppm would exist up to 0.24 mile from the tank, which extends beyond the facility's northern, eastern, and southern fence lines. (Ex. 1. Vol. I, § 5.15.2.3.4 and Figure 5.15-1.)

According to Staff, the health risk threshold level of 75 ppm would be exceeded at distances up to three miles. (Ex. 100, p. 4.4-9.) Although there are no homes or sensitive receptors within this three-mile radius, workers at the PEF site, at the nearby active gravel pit (approximately 200 yards to the southeast), and at the Edmonston Pumping Plant (approximately 1.5 miles to the southeast) would be affected. (*Ibid*., Ex. 8, pp. 3-4.) A release of anhydrous ammonia could also impact traffic on the access road from I-5 (Edmonston Pumping Plant Road). Although the quantities of anhydrous ammonia stored on-site will remain the same with the addition of PEFE, it will require two extra deliveries per year by a fully-loaded tanker truck. (Ex. 100, p. 4.4-9.)

Staff believes the existing Risk Management Plan (RMP) for the PEF sufficiently addresses storage and delivery of anhydrous ammonia and declines to recommend a revision to the current RMP. (Ex. 100, p. 4.4-9.) We disagree. The original design for PEF was based on the use of aqueous ammonia rather than anhydrous ammonia. Considering that the RMP was approved and subsequently modified several years ago and additional deliveries of anhydrous ammonia are expected for PEFE, **Condition HAZ-2** shall require the Project Owner to revise and update the RMP as well as the Business Plan.

2. Mitigation

Engineering controls help to prevent accidents and releases (spills) from moving off-site by incorporating safety design criteria into the design of the facility. The engineered safety features currently employed by the PEF include:

- secondary containment areas surrounding each of the hazardous materials storage areas and feed areas designed to contain accidental releases that might happen during storage, delivery, or transfer;
- physical separation of stored chemicals in isolated containment areas separated by a nonflammable and non-corrosive material in order to prevent accidental mixing of incompatible materials which may result in the evolution and release of toxic gases or fumes; and
- process protective systems including a fire detection and protection system, hazardous materials safety systems, and natural gas and chemical safety systems. (Ex. 100, pp. 4.4-9 and 4.4-10.)

According to Staff, the greatest risk of accidental release occurs during the transfer process from tanker truck to storage tank. Staff believes that an automatic water spray system would decrease the migration of an anhydrous ammonia cloud and reduce risks to workers. (Ex. 100, p. 4.4-10.) Condition of Certification **HAZ-5** requires the Project Owner to extend the existing water spray system to cover the tanker truck transfer pad.

Administrative controls also prevent accidents and releases from moving off-site by implementing worker training programs and safety management programs, and complying with applicable health and safety laws, ordinances and standards.

The existing PEF worker health and safety program includes the following elements, which are described more fully in the **Worker Safety and Fire Prevention** section:

- worker training regarding chemical hazards, health and safety issues, and hazard communication;
- procedures to ensure the proper use of personal protective equipment;

- safety operating procedures for operation and maintenance of systems utilizing hazardous materials;
- an anhydrous ammonia Safety Management Plan;
- fire safety and prevention; and
- emergency response actions including facility evacuation, hazardous material spill cleanup, and fire prevention**.**

Staff asserts that transportation of anhydrous ammonia poses the predominant risk associated with the transport of hazardous materials. (Ex. 100, pp. 4.4-11 and 4.4-12.) According to Staff, compliance with the extensive regulatory program that applies to shipment of hazardous materials on California Highways will ensure safe handling in general transportation.[36] To address the issue of tank truck safety, anhydrous ammonia is delivered to the site in U.S. Department of Transportation (DOT) certified vehicles that meet or exceed the specifications of DOT Code MC-307. These are high integrity tankers designed to haul caustic materials with a capacity of 8,000 gallons. (*Ibid.*) Condition **HAZ-3** requires any vendor supplying anhydrous ammonia to the Project must provide delivery by a tanker which meets or exceeds the specifications described in the applicable regulations.

The approved travel route for deliveries of hazardous materials takes the Grapevine Exit off I-5 to Edmonston Pumping Plant Road to the site. (Ex. 1, Vol. II, Attachment J, p. 5.11-7.) This route keeps tankers on the Interstate for the longest period and enables them to take the most direct route with the fewest intersections and turns. Condition **HAZ-4** requires the Project Owner to obtain Commission approval for any revisions to the route.

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[36] *See* the Federal Hazardous Materials Transportation Act at 49 USC §5101 et seq, the U.S. Department of Transportation Regulations at 49 CFR Subpart H, §172-700, and California DMV Regulations on Hazardous Cargo.

3. Site Security

The PEFE will use hazardous materials designated by USEPA to require special site security measures that would prevent unauthorized access. (Ex. 100, pp. 4.4-13 and 4.4-14.) Conditions **HAZ-6** and **HAZ-7** require the Project Owner to implement Site Security Plans for construction and operation and to maintain compliance with applicable security LORS over the life of the Project. To ensure that this facility or a shipment of hazardous material is not the target of unauthorized access, security measures include perimeter fencing, guards, alarms, law enforcement contact in the event of security breach, and fire detection systems. Additional security measures include site personnel background checks and strict control of site access to vendors. (*Ibid*.)

Staff initially proposed that Condition **HAZ-7** require installation of a perimeter breach detection system around the entire PEF site in conjunction with security guidelines recommended by both state and federal Homeland Security agencies. (Ex. 102A; Ex. 100, p. 4.4-13 and 4.4-14.) Applicant objected to the requirement, arguing that it would be too expensive, cause false alarms from wildlife movement in the area, and unnecessary due to the remote location of the site. (Ex. 8, pp. 4-5.) Staff subsequently withdrew the proposal but strongly recommended that the Project Owner voluntarily install the perimeter breach system. (Ex. 102A; 3/30 RT, pp. 22-24.)

4. HazMat First Responders

Kern County Fire Department (KCFD) Landco Station 66, located about 30 miles north of the Project site with a 30-minute response time, is the first responder for HazMat incidents. Staff believes the response time is acceptable and the KCFD HazMat Response Team is adequately trained. However, the Response Team is not adequately equipped to respond to an incident at PEFE. Neither Landco Station 66 nor the nearest fire station at Tejon Ranch has hand-held ammonia

detectors. According to Staff, hand-held ammonia detectors have been useful to check airborne levels of ammonia during release at other power plants. The KCFD has requested ammonia detectors for its first responders at both Station 66 and the Tejon Station. (Ex. 100, p. 4.4-11.) Condition **HAZ-8** requires the Project Owner to provide these detectors to the KCFD.

FINDINGS AND CONCLUSIONS

Based on the evidence of record, the Commission makes the following findings and conclusions:

1. The PEFE will use hazardous materials during construction and operation, including the *acutely hazardous* anhydrous ammonia, hydrogen, sulfuric acid, sodium hypochlorite, and natural gas.

2. The major public health and safety hazards associated with these hazardous materials include the accidental release of anhydrous ammonia and fire and explosion from natural gas.

3. The Off-Site Consequences Analysis indicated that no significant off-site public health effects would result from an accidental release of anhydrous ammonia since no sensitive receptors are located within the three-mile radius of the modeled ammonia cloud dispersion but workers in the vicinity are at risk.

4. Compliance with appropriate engineering, administrative, and regulatory requirements for safe transportation, delivery, and storage of ammonia will reduce potential risks of accidental release to insignificant levels.

5. 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.

6. Potential impacts from the other hazardous substances used on-site are not considered significant since quantities will be limited and appropriate storage will be maintained in accordance with applicable law.

7. The Project Owner will submit an updated Hazardous Materials Business Plan and an updated Risk Management Plan prior to delivery of any hazardous materials to the site.

8. The Project Owner will ensure that truck deliveries of anhydrous ammonia are restricted to the HazMat truck delivery route identified in the evidentiary record or otherwise approved by the Commission's Compliance Project Manager.

9. The Project Owner will provide functioning hand-held ammonia detectors to the Kern County Fire Department's first responder HazMat teams.

10. The Project Owner will implement Site Security Plans for construction and operation and to maintain compliance with applicable security LORS over the life of the Project.

11. Implementation of the mitigation measures described in the evidentiary record 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 hazardous materials.

12. With implementation of the Conditions of Certification, below, the PEFE 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.

The Commission therefore concludes that the use of hazardous materials by the Pastoria Energy Facility Expansion will not result in any significant adverse public health and safety impacts.

CONDITIONS OF CERTIFICATION

HAZ-1 The Project Owner shall not use any hazardous materials not listed in Appendix C, attached below, or in greater quantities than those identified by chemical name in Appendix C unless approved in advance by the CPM.

Verification: The Project Owner shall provide to the Compliance Project Manager (CPM), in the Annual Compliance Report, a list of hazardous materials and quantities contained at the facility.

HAZ-2 The Project Owner shall provide a revised and updated Hazardous Materials Business Plan and a revised and updated Risk Management Plan (RMP) incorporating the 160 MW PEFE for consideration by the Certified Unified Program Authority (CUPA), i.e., Kern County Environmental Health Services Department for consultation and to the CPM for review and approval.

Verification: At least 60 days prior to commissioning, the Project Owner shall provide copies of the final updated Business Plan and the final updated RMP to the CUPA for consultation and to the CPM for review and approval.

HAZ-3 The Project Owner shall direct all vendors delivering anhydrous 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 thirty (30) days prior to commissioning, 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-4 The Project Owner shall direct all vendors delivering any hazardous material to the site to use only the route approved by the CPM. The Project Owner shall obtain approval of the CPM if an alternate route is desired.

Verification: At least thirty (30) days prior to commissioning, the Project Owner shall submit copies of the required transportation route limitation to the CPM for review and approval.

HAZ-5 The Project Owner shall extend or aim the existing emergency water spray system at the anhydrous ammonia storage tanks to cover and operate in the area of the tanker truck transfer pad.

Verification: At least 30 days prior to commissioning, the Project Owner shall submit evidence to the CPM that the emergency water spray system at the anhydrous ammonia storage tanks has been extended or aimed to cover and operate in the tank truck transfer pad.

HAZ-6 The Project Owner shall submit to the CPM a site-specific Construction Security Plan for the construction phase for review and approval.

The Construction Security Plan shall include the following:

1. Perimeter security consisting of fencing enclosing the construction and laydown areas;

2. Protocol, job description, and qualification requirements for security guards;

3. Site access control consisting of a check-in procedure or tag system for construction personnel and visitors;

4. Written standard procedures for employees, contractors and vendors when encountering suspicious objects or packages on-site or off-site;

5. Protocol for contacting law enforcement and the CPM in the event of suspicious activity or emergency; and
6. Evacuation procedures.

Verification: At least 30 days prior to commencing construction, the Project Owner shall provide the CPM a final copy of the site-specific Construction Security Plan for review and approval.

HAZ-7 The Project Owner shall prepare a site-specific Operation Security Plan, which shall be submitted to the CPM for review and approval. The Project Owner shall implement site security measures addressing physical site security and hazardous materials storage. The level of security to be implemented shall in no case be less than that described below (per NERC 2002).

The Operation Security Plan shall include the following:

1. Permanent full perimeter fence or wall, at least 8 feet high;
2. Main entrance security gate, either hand operable or motorized;
3. Evacuation procedures;
4. Protocol for contacting law enforcement and the CPM in the event of suspicious activity or emergency;
5. Written standard procedures for employees, contractors, and vendors when encountering suspicious objects or packages on-site or off-site;
6. 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 restricted to ascertain the accuracy of employee identity and employment history, and shall be conducted in accordance with state and federal law regarding security and privacy;
7. 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 contractor personnel that visit the Project site. Background investigations shall be restricted to ascertain the

accuracy of employee identity and employment history, and shall be conducted in accordance with state and federal law regarding security and privacy;

8. Site access controls for employees, contractors, vendors, and visitors;

9. 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 conformity with 49 CFR 172.880, and that they have conducted employee background investigations in accordance with 49 CFR Part 1572, subparts A and B;

10. 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, at a minimum, the main entrance gate and the anhydrous ammonia storage tank;

11. The CCTV monitoring system required in item Number 10, above, shall include cameras that are able to pan, tilt, and zoom (PTZ), have low-light capability, are recordable, and are able to view 100% of the perimeter fence, the anhydrous ammonia storage tank and transfer pad, the outside entrance to the control room, and the front gate from a monitor in the power plant control room;

12. On-site motion detectors; and

13. Security guards present 24 hours per day, 7 days per week **or** power plant personnel on-site 24 hours per day, seven 7 days per week.

Protocol: The Project Owner shall fully implement the security plans and obtain CPM approval of any substantive modifications to the security plans. The CPM may authorize modifications or require additional measures, such as protective barriers for critical power pant components (e.g., transformers, gas lines, compressors, etc.) depending on circumstances unique to the facility or in response to industry-related standards, security concerns, or additional guidance provided by the U.S. Dept. of Homeland Security, the U.S. Dept. of Energy, or the North American Electrical Reliability Council.

Verification: At least 30 days prior to commissioning, the Project Owner shall provide the CPM with a final copy of the site-specific Operation Security Plan for

review and approval. In the Annual Compliance Report, the Project Owner shall provide evidence that all current Project employee and appropriate contractor background investigations have been performed, and that all updated certification statements are appended to the Operation Security Plan. In the Annual Compliance Report, the Project Owner shall also provide evidence that the Operation Security Plan includes all current hazardous materials transport vendor certifications for security plans and employee background investigations.

HAZ-8 The Project Owner shall provide to the Kern County Fire Department (KCFD) a total of four (4) functioning hand-held ammonia detectors with the ability to detect ammonia from 0-200 ppm or better.

Verification: At least 30 days prior to site mobilization, the Project Owner shall submit documentary evidence to the CPM that four (4) functioning hand-held ammonia detectors have been provided to the Kern County Fire Department.

SAMPLE CERTIFICATION (Attachment "A")

Affidavit of Compliance for Project Owners

I,

_____

(Name of person signing affidavit)(Title)

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 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 "B")

Affidavit of Compliance for Contractors

I,

_____

(Name of person signing affidavit)(Title)

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 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 Hazardous Materials Transport Vendors

I,

_____

(Name of person signing affidavit)(Title)

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 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.

APPENDIX C

Hazardous Materials Use at the Pastoria Energy Facility 160 MW Expansion

Material	Application	Average amount stored at Existing PEF	Average amount stored at Existing PEF + Expansion[b]
Aluminum Sulfate	Water treatment coagulant	500 gallons	No Change
Ammonium bifluoride	HRSG Cleaning	200 lbs Prior to startup	Not Required
Anhydrous Ammonia	NO_X Emissions Control	30,000 gallons (max amount is 60,000 gallons)	No Change
Bromine biocide and biodispersant	Water treatment	1,500 gallons	No Change
Carbon dioxide	Fire protection, generator purging	12,000 lbs Initial fill	**15,000 lbs** Initial fill
Cleaning chemicals/ Detergents	Combustion turbine cleaning	1,300 lbs Prior to startup	**500 lbs** Prior to startup
Dehalogenation agent – Nalco 1316 or equal	Neutralize oxidant from chlorine and bromine	1,500 gallons	No Change
Diesel fuel	Firewater pump	100 gallons Initial fill	No Change
Disodium phosphate	Boiler pH and scale control	750 lbs	No Change
Hydrochloric acid	HRSG cleaning	10,000 lbs Prior to startup	Not Required
Hydrogen	Generator cooling	11,200 cubic feet Initial fill	**14,000 cubic feet** Initial fill
Insulating Oil	Electric equipment	60,000 gallons Initial fill	**83,000 gallons** Initial fill
Lubricating Oil	Rotating equipment	7,000 gallons Initial fill	**9,000 gallons** Initial fill
Neutralizing amine 20%	Boiler chemical	150 gallons	No Change
Oxygen scavenger 30%	Boiler chemical	100 gallons	No Change
Phosphate 20%	Removal of dissolved hardness ions (water treatment)	100 gallons	No Change
Polymer	Water treatment coagulant	800 gallons	No Change
Scale inhibitors	Scale reduction in cooling water	200 gallons	No Change
Sodium Hydroxide (32 %)	pH control of cooling towers	3,500 gallons	No Change
Sodium Hypochlorite (12.5 %)	Biocide for cooling water	1,500 gallons	No Change
Sulfuric Acid (93 %)	pH control of cooling towers, neutralize excess alkalinity	3,500 gallons	No Change
Trisodium phosphate	Boiler pH and scale control	750 lbs	No Change

a. Source: PEFE 2005a Tables 3.4.10-1 and 3.4.10-2.

b. Amounts that have changed (increased) due to the Expansion are shown in **bold**.

E. WASTE MANAGEMENT

Project-related excavation and ground moving activities prior to construction could expose contaminated soils at the site or along the linear alignments. During construction and operation, the Project will generate nonhazardous and hazardous wastes that must be transported from the site. This topic reviews Applicant's waste management plans for reducing the risks and environmental impacts associated with removing contaminated soils as well as the handling, storage, and disposal of nonhazardous and hazardous wastes.

Nonhazardous wastes are degradable or inert materials, which do not contain soluble pollutants in concentrations that would cause degradation of water quality, and may be deposited at Class III disposal facilities. (Cal. Code of Regs., tit. 14, § 17200 et seq.)

Hazardous waste is material that exceeds the criteria for toxicity, corrosivity, ignitability, or reactivity established by the Department of Toxic Substances Control (DTSC). (Cal. Code of Regs., tit. 22, 66261 et seq.) Hazardous waste generators must obtain USEPA identification numbers and use permitted treatment, storage, and disposal facilities. Registered hazardous waste transporters handle the transfer of 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

A Phase I Environmental Site Assessment (ESA) was conducted on the 31-acre PEF site by environmental consultants URS Greiner Woodward Clyde in 1999 as part of the original proceedings for PEF. A second Phase I ESA was conducted by URS in February 2005, which included the entire PEF plant site (31 acres),

the access road, construction laydown area, transmission line, water supply line, and gas pipeline. (Ex. 17A.) The ESAs were conducted in accordance with methods prescribed by the American Society for Testing and Materials (ASTM Standard E 1527-00). Neither assessment revealed evidence of "recognized environmental conditions" that would indicate the presence of contaminated soils caused by the use, storage, or disposal of hazardous substances on the site, nor any other concern that would require remedial action. (Ex. 1, Vol. 1, § 5.14.1.2; Ex. 17A; Ex. 100, p. 4.13-3.)

We have incorporated specific mitigation measures in the Conditions of Certification to ensure that any contaminated materials found at the site and/or along the linear alignments will be managed appropriately. Condition **WASTE-1** requires the Project Owner to designate a Registered Professional Engineer or Geologist for consultation during soil excavation and grading activities to monitor any soil or groundwater contamination encountered during ground moving activities. Condition **WASTE-2** establishes the process for handling potentially contaminated materials unearthed at the site and along the linear alignments.

2. Construction

Site preparation and construction of the PEFE and linear facilities will generate both nonhazardous and hazardous wastes in solid and liquid forms.

a. Nonhazardous wastes

Construction activities will generate up to 10 cubic yards per week of nonhazardous solid waste products comprised of excess concrete, lumber, scrap metal, insulation, packaging materials, empty non-hazardous chemical containers, paper, glass, plastics, and some amount of vegetation debris from grading activities. (Ex. 100, p. 4.13-3; Ex. 1, Vol. 1 §§ 3.4.9.1, 5.4.2.1.1.) The waste metal will be segregated and recycled where practical. Non-recyclable

wastes will be collected by a licensed hauler and disposed of in a Class III landfill. Any soils collected during site excavation that are unsuitable for backfill will be transported to a Class III landfill. (*Ibid*.) See also Applicant's Table 3.4.9-1, replicated at the end of this section. (Ex. 1, Vol. 1, § 3.4.9, Table 3.4.9-1.)

Nonhazardous liquid wastes generated during construction are discussed in the **Soils and Water Resources** section of this Decision. Storm water runoff will be managed in accordance with National Pollutant Discharge Elimination System (NPDES) construction permit requirements and applicable Best Management Practices. (Ex. 100, p. 4.13-5.)

b. Hazardous Wastes

Hazardous wastes generated during construction include waste oil, spent welding materials, spent batteries, waste paint, and spent solvents. The quantities of these wastes and disposal methods are listed in Applicant's Table 3.4.9-1, replicated at the end of this section. Wastes will be accumulated at satellite locations and transported daily to the construction contractor's 90-day hazardous waste storage area. The accumulated wastes will be properly manifested, transported, and disposed by licensed hazardous waste collection and disposal companies. According to Staff, the disposal methods described in Table 3.4.9-1 are consistent with applicable LORS. (Ex. 100, pp. 4.13-5, 4.13-7.)

3. Operation

a. Nonhazardous Waste

Nonhazardous solid wastes generated during operation include small amounts of maintenance wastes and office wastes, which include paper, packing materials, glass, metal, and plastic. These wastes will be recycled to the extent possible. Non-recyclable wastes will be regularly transported offsite to a solid waste

disposal facility. (Ex. 1, Vol. 1, §§ 3.4.9.1.2; 5.14.2.1.2.) Nonhazardous wastes will also include 700 used air filters every five years and 180 oily rags per year. Spent air filters will be recycled and oily rags will be cleaned at an authorized laundry facility. (Ex. 1, Vol. I, § 3.4.9, Table 3.4.9-2.) The PEF currently generates 2-4 cubic yards per day of salt cake from the zero liquid discharge (ZLD) system. The salt cake is transported to an appropriate landfill consistent with the results of testing and classification. (Ex. 1, Vol.1 § 5.14.2.2.2 and § 9 PEF Decision, 99-AFC-7, Condition **WASTE-8**.). No increase in salt cake waste is expected from PEFE operation. (Ex. 100, p. 4.13-5; Ex. 1, Vol. I, § 3.4.9, Table 3.4.9-2.)

Nonhazardous liquid wastes generated operation are discussed in the **Soil and Water Resources** section of this document. Storm water runoff will be managed in accordance with the Erosion and Sediment Control Plan. Process wastewater will be mostly recovered by the ZLD system after passing through an oil-water separator. No increase in sanitary wastewater is expected from the addition of the PEFE. (Ex. 100, p. 4.13-6; Ex. 1, Vol. 1, § 3.4.9, Table 3.4.9-2.)

b. Hazardous Waste

Hazardous wastes generated during routine operation include waste lubricating oil, lubrication oil filters, used hydraulic fluid, spent batteries, spent SCR catalyst, and oil absorbents. Applicant's Table 3.4.9-2, replicated below, shows that the amounts of hazardous wastes generated during operation will be minimal and recycling methods will be used to the extent possible. Remaining hazardous waste will be disposed by licensed hazardous waste collection and disposal companies in accordance with applicable LORS.[37] (Ex. 100, p. 4.13-6.)

[37] California Health and Safety Code § 25100 et seq. (Hazardous Waste Control Act of 1972, as amended), 42 United States Code (Resource Conservation and Recovery Act), Title 40 of Code of Fed. Regulations (regulations for implementing RCRA), and Title 22 of Cal. Code of Regulations (requirements for generators of hazardous waste).

4. Potential Impacts on Waste Disposal Facilities

Applicant's Table 5.14-1, replicated below, shows the three Class II and Class III facilities that would accept nonhazardous solid wastes from the PEFE. (Ex. 1, Vol. 1, § 5.14.2.1, Table 5.14-1.) The Bena Landfill, closest to the site and the one currently used by the PEF is located approximately 45 miles away, with a remaining capacity of 31.1 million tons and an estimated closure date of 2033. The combined total capacity of the three landfills is more than 39 million tons. Thus, the volume of solid nonhazardous waste from PEFE would be less than 0.01 percent of the existing capacity of the available Class III landfills and would not significantly impact the capacity or remaining life of any of these facilities. (Ex. 1, Vol. I, § 5.14.2.1.2; Ex. 100, p. 4.13-6.)

Hazardous wastes

The Class I landfills in California include the Buttonwillow Landfill in Kern County, the Superstition Hills Landfill in Imperial County, and the Kettleman Hills Landfill in King's County. (Ex. 100, p. 4.13-6; Ex. 1, Vol. II, Attachment M, § 5.14.1.2.) The Kettleman Hills facility also accepts Class II and Class III wastes. In total, there is an excess of 20 million cubic yards of remaining hazardous waste disposal capacity at these landfills, with up to 16 years of remaining operating lifetimes. In addition, the Kettleman Hills facility is in the process of permitting an additional 15 million cubic yards of disposal capacity, and the Buttonwillow facility is not expected to reach its capacity until 2040 at current disposal rates.[38]

All hazardous wastes will be transported offsite to a permitted treatment, storage, or disposal (TSD) facility for appropriate disposition. The evidentiary record indicates that the volume of hazardous waste from PEFE will be a small fraction

[38] According to Staff, the amount of hazardous waste transported to these landfills has decreased in recent years due to source reduction efforts by generators and the transport of waste out of state that is hazardous under California law, but not federal law. (Ex. 100, pp. 4.13-6 and 4.13-7.)

(far less than 1 percent) of the existing combined capacity of the three Class I landfills, and will not significantly impact the capacity or remaining life of any of these facilities. (Ex. 100, p. 4.13-7.)

Hazardous waste generator identification numbers are site specific for each location that generates hazardous waste. The PEF site already has a hazardous waste generator identification number from the DTSC.[39] A new DTSC permit may be required if it is determined that hazardous wastes are, or will be (a) stored in tanks or containers for more than 90 days, (b) treated onsite, or (c) disposed onsite. Condition of Certification **WASTE-5** requires the Project Owner to contact DTSC to initiate pre-application discussions and determine the permitting process applicable to the facility. (Ex. 100, p. 4.13-7.)

6. Cumulative Impacts

The evidentiary record indicates that minimal quantities of waste will be generated by the Project, recycling efforts will be prioritized wherever practical, and capacity is available in a variety of treatment and disposal facilities. We therefore conclude that the waste materials generated by PEFE will not result in significant cumulative waste management impacts. (Ex. 100, p. 4.13-8.) Condition of Certification **WASTE-4** requires the Project Owner to prepare separate waste management plans for construction and operation or to revise the existing PEF plans to ensure that no adverse environmental impacts result from PEFE-related waste management or disposal.

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[39] Business locations that generate California-only or non-RCRA wastes or RCRA wastes less than 100 kg per month, may operate with a CAL-EPA I.D. Number issued by DTSC. Businesses that generate RCRA waste greater than 100 kg per month require a USEPA I.D. Number. According to Staff, the amounts of hazardous waste generated by PEFE would be far below the

FINDINGS AND CONCLUSIONS

Based on the evidence of record, the Commission makes the following findings and conclusions:

1. The PEFE will generate nonhazardous and hazardous wastes during excavation, construction, and operation of the Project and linear alignments.

2. Applicant's Phase I Environmental Site Assessments (ESA) did not find any recognized adverse environmental conditions at the site or linear alignments that would indicate potential for contaminated soils.

3. The PEFE will recycle nonhazardous and hazardous wastes to the extent possible and in compliance with applicable law.

4. Hazardous wastes that cannot be recycled will be transported by registered hazardous waste transporters to appropriate Class I landfills.

5. Solid nonhazardous wastes that cannot be recycled will be deposited at Class III landfills in the local area.

6. In compliance with Condition **WASTE-8** for the existing PEF, the Project Owner will test the salt cake resulting from the Zero Liquid Discharge process to determine whether it should be classified as hazardous waste for disposal at a Class I landfill or designated waste for disposal at a Class II landfill.

7. Disposal of Project wastes will not result in any significant direct, indirect, or cumulative impacts to existing waste disposal facilities.

8. 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.

The Commission therefore concludes that the management of Project wastes will comply with all applicable laws, ordinances, regulations, and standards related to waste management as identified in the pertinent portion of **Appendix A** of this Decision.

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100 kg/month RCRA threshold and would not require a new generator identification number. (Ex. 100, p. 4.13-7.)

CONDITIONS OF CERTIFICATION

WASTE-1 The Project Owner shall provide the resume of a Registered Professional Engineer or Geologist, who shall be available for consultation during soil excavation and grading activities, to the Compliance Project Manager (CPM) for review and approval. The resume shall show experience in remedial investigation and feasibility studies.

The Registered Professional Engineer or 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 unearthed during excavation at either the proposed site or linear facilities as evidenced by discoloration, odor, detection by handheld instruments, or other signs, the Registered Professional Engineer or Geologist shall inspect the site, determine the need for sampling to confirm the nature and extent of contamination, and file a written report to the Project Owner and CPM stating the recommended course of action.

Depending on the nature and extent of contamination, the Registered Professional Engineer or 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 Registered Professional Engineer or Geologist, significant remediation may be required, the Project Owner shall contact representatives of the Kern County Environmental Health Services Department, the Kern County Fire Department, and the regional office of the Department of Toxic Substances Control for guidance and possible oversight.

Verification: The Project Owner shall submit any final reports filed by the Registered Professional Engineer or 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 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 manner in which Project -related wastes are managed.

WASTE-4 The Project Owner shall prepare a Construction Waste Management Plan and an Operations Waste Management Plan for all wastes generated during construction and operation of the facility, respectively, or shall revise the existing Pastoria Energy Facility waste management plan, and shall submit both plans to the CPM for review and approval, and to the appropriate local agency for review. The plans shall contain, at a minimum, the following:

- A description of all waste streams, including Project ions of frequency, amounts generated and hazard classifications; and
- Methods of managing each waste, including treatment methods and companies contracted with for treatment services, waste testing methods to assure correct classification, methods of transportation, disposal requirements and sites, and recycling and waste minimization/reduction plans.

Verification: No less than 30 days prior to the start of site mobilization, the Project Owner shall submit the Construction Waste Management Plan or a revised Pastoria Energy Facility plan to the CPM for approval and to the appropriate local agency for review.

The Operations Waste Management Plan or a revised Pastoria Energy Facility plan shall be submitted to the CPM no less than 30 days prior to the start of Project operation. The Project Owner shall submit any required revisions within 20 days of notification by the CPM.

In the Annual Compliance Reports, the Project Owner shall document the actual waste management methods used during the year and provide a comparison of the actual methods used to those the planned management methods proposed in the original Operations Waste Management Plan.

WASTE-5 If it is determined that hazardous wastes are, or will be (a) stored in tanks or containers for more than ninety (90) days, (b) treated on-site, or (c) disposed of on-site, then a permit from the Department of Toxic Substances Control (DTSC) may be required. The Project Owner shall contact DTSC to initiate pre-application discussions and determine the permitting process applicable to the facility.

No less than seven (7) days after determining that hazardous wastes are, or will be (a) stored in tanks or containers for more than ninety (90) days, (b) treated on-site, or (c) disposed of on-site, the Project shall inform the CPM that DTSC has been informed and that discussions have commenced.

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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 critical biological interest such as unique habitats. The following review describes the biological resources in the vicinity of the Project site and linear alignments, assesses the potential for adverse impacts on biological resources, and determines whether mitigation measures are necessary to ensure compliance with applicable laws, ordinances, regulations, and standards (LORS).

SUMMARY AND DISCUSSION OF THE EVIDENCE

1. The Setting

The Project site, currently covered with gravel and barren of vegetation, is subject to disturbance due to on-going construction activities. Prior to construction of the PEF, the site was used for cattle ranching and characterized by non-native grassland. Other land uses near the site include agriculture to the north and an active gravel mining operation to the southwest. (Ex. 100, p. 4.2-3 et seq.)

Direct and indirect impacts and mitigation measures due to PEF construction were described in the previous PEF certification process in 1999. The current Applicant's discussion of potential impacts to biological resources due to PEFE construction relies on the findings described in the 1999 analysis. The previous impact assessments and mitigation measures are still applicable to the PEFE. Specifically, the mitigation measures identified in the original PEF Conditions of Certification **BIO-1**, **BIO-2**, **BIO-3**, and **BIO-4,** that require a Designated Biologist

to monitor biological resource compliance efforts are also appropriate for PEFE construction and are reiterated in this Decision to apply to the PEFE.

Listed species with potential to occur in the immediate vicinity of the site and along the plant access road include the San Joaquin kit fox (*Vulpes macrotis mutica*) and blunt-nosed leopard lizard (*Gambelia sila*).[40] The leopard lizard is listed as Endangered under both the federal and state Endangered Species Acts, and the kit fox is listed as state Threatened and federal Endangered. (Ex. 100, p. 4.2-3; Ex. 6A.)

San Joaquin kit fox were not detected at or near the site or access road during Project surveys, and the likelihood of kit fox occurrence near the Project area is relatively low given the lack of kit fox records even after intensive survey efforts. However, the PEF area is within the current and historical range of San Joaquin kit fox, and the areas surrounding the Project site could provide marginal denning and foraging habitat. Kit fox have been recorded in urban, disturbed settings, scavenging food from parking lots and dumpsters. Thus, the high level of disturbance, lack of high quality habitat in the Project area, and absence of records does not necessarily preclude the possibility of San Joaquin kit fox occurring near the site and access road. (Ex. 100, p. 4.2-3 et seq; Ex. 6A.)

The blunt-nosed leopard lizard could also occur near the Project area. This species was recorded in 2003, approximately 1.5 miles east/northeast of the site along the natural gas pipeline right-of-way during surveys conducted for the PEF. During monitoring activities for the PEF, biologists also observed a blunt-nosed leopard lizard in 2004, approximately 1.5 miles southeast of the PEF plant, on an access road to Tejon Ranch, 0.8 miles north/northwest of the Edmonston Pumping Plant. (Ex. 6A, pp. 4-5 and 7-8; Ex. 100, p. 4.2-3.)

[40] Applicant submitted comprehensive lists of sensitive plant and animal species that occur in the Project region. (Ex. 6A, Tables 1 and 2; Ex. 1, Vol. II, Attachment E, Table 5.6-1.) Staff concurs that the lists are complete. (Ex. 100, p. 4.2-3.)

No state or federal listed species are likely to occur in the Project area; however, one special status species has been recorded within the site. In 2005, western spadefoot toads (*Scaphiopus hammondii*), a California Department of Fish and Game (CDFG) and U.S. Fish and Wildlife Service (USFWS) Species of Special Concern, were recorded breeding in the Pastoria Water Retention Pond north of the PEFE footprint area. (Ex. 6A, p. 6.)

2. Potential Impacts

No additional habitat loss would occur due to PEFE construction because it is already graveled and disturbed. No listed species or their habitats were found within the PEFE footprint during biological resources surveys conducted for the PEF in 1999 or during 2005 field surveys for PEFE. The entire site is fenced, barren of vegetation, subject to human disturbance, and is unlikely to attract listed wildlife species. Similarly, no sensitive species or their habitats were found within the fenced laydown area during biological resources surveys conducted in 1999 or 2005.[41] (Ex. 100, pp. 4.2-4 and 4.2-5.)

To verify the absence of sensitive species within the PEFE site and laydown area prior to construction, the USFWS recommends that pre-construction surveys for the San Joaquin kit fox, blunt-nosed leopard lizard, and other special concern species including western spadefoot toads, be conducted 14 to 30 days prior to PEFE construction. (Ex. 100, p. 4.2-5.) Condition **BIO-6**, below, requires the Project Owner to include pre-construction surveys at the PEFE site and laydown area in the revised Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP).

Construction of the plant access road occurred in non-native grassland habitat, but required the addition of a culvert in a Pastoria Creek tributary, affecting 0.03

[41] The laydown area is a temporary construction facility, and would be removed upon completion of PEFE construction. Following construction, the laydown area must be revegetated with an appropriate seed mix, in accordance with the previously adopted PEF Condition **LAND USE-2**.

acres of freshwater marsh. Compensatory mitigation was already provided by the PEF for habitat loss associated with this road construction, but PEFE construction traffic on the road may pose a potential threat to special status wildlife resulting in the direct take of San Joaquin kit fox and blunt-nosed leopard lizards. According to Staff, traffic-related mortality has been identified as one of the threats to the survival of both San Joaquin kit fox and blunt-nosed leopard lizards. Blunt-nosed leopard lizards are of particular concern because of the recent, nearby records for this species within 1.5 miles of the plant access road.[42] The various mitigation measures identified in Conditions **BIO-1** through **BIO-6**, below, are designed to avoid these potential impacts.

Project noise has the potential to affect wildlife in the area. According to Staff, noise caused by construction activities may frighten wildlife away, disrupt nesting, foraging, or prevent use of habitats near the site. Staff believes, however, that many species are likely to adapt to construction noise, and as a temporary disruption it will not cause significant impacts to local wildlife populations. Construction-related noise during PEFE construction will not differ substantially from the existing levels of construction noise during PEF construction, an impact determined to be less than significant. After construction of the PEFE, the overall noise levels from the entire PEF with the addition of the PEFE would be increased by less than one decibel. This increase is considered less than significant, and no mitigation measures are required. (Ex. 100, p. 4.2-6.)

The PEFE must comply with state and federal permit requirements. In conjunction with the required Section 7 consultation with the U.S. Environmental Protection Agency for the PEF, the USFWS issued a Biological Opinion in 2000

[42] The USFWS Amended (2004) Biological Opinion for the PEF noted that noise and vibration from vehicles, repair activities, and work crews could disrupt normal behavior of the blunt-nosed leopard lizard, including foraging, reproduction, and their ability to detect or avoid predators. Further, increased vehicle traffic could lead to an increased mortality level for blunt-nosed leopard lizards. Construction-related mortality of a San Joaquin kit fox or blunt-nosed leopard lizard is considered a significant impact. (Ex. 100, p. 4.2-6; Ex. 6B, Response to Data Request 35.)

(subsequently amended in 2001 and 2004) that identified measures to protect listed species that were potentially vulnerable to adverse impacts due to PEF construction. These measures were incorporated as elements of the original Conditions of Certification for PEF and are extended to the PEFE to mitigate construction-related impacts. The PEFE Conditions of Certification, below, also reflect coordination between Staff and the USFWS regarding additional measures needed to ensure protection of listed species. (Ex. 100, p. 4.2-7.)

Staff believes that with implementation of the mitigation measures described in the Conditions of Certification, the PEFE will comply with all federal, state, and local LORS regarding impacts to listed species, and migratory birds and their habitats. (Ex. 100, p. 4.2-7.)

5. Cumulative Impacts

Construction of the Project will not cause significant cumulative impacts to biological resources since the PEFE will be confined to the existing PEF site and the mitigation measures ensure that no additional habitat losses or sensitive biological resources impacts will occur. (Ex. 100, p. 4.2-6.)

FINDINGS AND CONCLUSIONS

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

1. The PEFE site, laydown area, and linear facilities traverse areas where sensitive habitat and special status species occur.

2. The previous impact assessments identified for the PEF are applicable to the PEFE and the mitigation measures identified in the original PEF Conditions of Certification that require a Designated Biologist to monitor biological resource compliance efforts are appropriate for PEFE construction and are reiterated in this Decision to apply to the PEFE.

3. The original Biological Opinion and related amendments issued by the USFWS for PEF also apply to the PEFE and pertinent measures included in the Biological Opinion and its amendments are included in the Conditions of Certification for the PEFE.

4. The Project Owner will implement a construction mitigation management plan by conducting pre-construction surveys, employing appropriate avoidance and minimization measures, educating workers on habitat protection, and designating a qualified biologist and biological monitors with authority to halt activities to avoid impacts to sensitive resources.

5. Prior to the start of any Project mobilization activities, the Project Owner shall submit a revised Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP) incorporating all biological mitigation and compliance measures required by applicable local, state, and federal agencies.

6. No additional habitat loss would occur due to PEFE construction because the site and laydown areas are graveled and disturbed and construction of the existing access road and other linear facilities were previously mitigated.

7. Potential effects of construction noise on surrounding wildlife will be insignificant.

8. With implementation of the mitigation measures described in the evidentiary record and incorporated into the Conditions of Certification below, the PEFE will not result in cumulative impacts to biological resources.

9. With implementation of the mitigation measures described in the evidentiary record and incorporated into the Conditions of Certification listed below, the PEFE will conform with all applicable laws, ordinances, regulations, and standards related to biological resources as identified in the pertinent portions of **Appendix A** of this Decision.

The Commission concludes, therefore, that implementation of the Conditions of Certification, below, will ensure the Project conforms with all applicable laws, ordinances, regulations, and standards relating to biological resources.

CONDITIONS OF CERTIFICATION

DESIGNATED BIOLOGIST SELECTION

BIO-1 The Project Owner shall submit the resume of the proposed Designated Biologist, with at least three references and contact information, to the Compliance Project Manager (CPM) for approval.

The Designated Biologist must at least 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. At least one year of field experience with biological resources found in or near the Project area.

In lieu of the above 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 90 days prior to the start of any site (or related facilities) mobilization. No site or related facility activities 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 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 during any site (or related facilities) 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. The Designated Biologist will:

4. Advise the Project Owner's Construction and Operation Managers on the implementation of the biological resources Conditions of Certification;

5. Consult on the preparation of the Biological Resources Mitigation Implementation and Monitoring Plan, to be submitted by the Project Owner;

6. Be available to supervise, conduct and coordinate mitigation, monitoring, and other biological resources compliance efforts, particularly in areas requiring avoidance or containing sensitive biological resources, such as wetlands and special status species or their habitat;

7. Clearly mark sensitive biological resource areas and inspect these areas at appropriate intervals for compliance with regulatory terms and conditions;

8. 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 harms way;

9. Notify the Project Owner and the CPM of any non-compliance with any biological resources Condition of Certification;

10. Respond directly to inquiries of the CPM regarding biological resource issues;

11. 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

12. Train the Biological Monitors as appropriate, and ensure their familiarity with the Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP), Worker Environmental Awareness Program (WEAP) training and all permits.

Verification: The Designated Biologist shall submit in the Monthly 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 ceased as approved by the CPM.

BIOLOGICAL MONITOR QUALIFICATIONS

BIO-3 The Project Owner's CPM approved Designated Biologist shall submit the resume, at least three references and contact information, of the proposed Biological Monitors to the CPM for approval. The resume shall demonstrate to the satisfaction of the CPM, the appropriate education and experience to accomplish the assigned biological resource tasks.

Biological Monitor(s) training by the Designated Biologist shall include familiarity with the Conditions of Certification and the BRMIMP, WEAP and all permits.

Verification: The Project Owner shall submit the specified information to the CPM for approval at least 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 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 CPM for approval ten days prior to their first day 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, 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.

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, 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 five 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 revise the CPM approved Worker Environmental Awareness Program (WEAP) for the existing PEF, as appropriate, 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, ground disturbance, grading, construction, operation, and closure are informed about sensitive biological resources associated with the Project.

The revised WEAP must:

1. 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;

2. Discuss the locations and types of sensitive biological resources on the Project site and adjacent areas;

3. Present the reasons for protecting these resources;

4. Present the meaning of various temporary and permanent habitat protection measures;

5. Identify whom to contact if there are further comments and questions about the material discussed in the program; and

6. Include a training acknowledgment form to be signed by each worker indicating that they received training and shall abide by the guidelines.

A competent individual acceptable to the Designated Biologist can administer the specific program.

The WEAP previously approved for the PEF shall be presented for the PEFE. The WEAP may be presented in the form of a video or power point presentation in lieu of in-person training.

Verification: At least 60 days prior to the start of any site (or related facilities) mobilization, the Project Owner shall provide to the CPM two copies of the proposed revised 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. At least ten days prior to site and related facilities mobilization submit two copies of the CPM-approved materials.

The signed training acknowledgement forms from construction shall be kept on file by the Project Owner for a period of at least six months after the start of commercial operation.

During Project operation, signed statements for active Project operational personnel shall be kept on file for six months following the termination of an individual's employment.

BIOLOGICAL RESOURCES MITIGATION IMPLEMENTATION AND MONITORING PLAN (BRMIMP)

BIO-6 The Project Owner shall submit two copies of the proposed BRMIMP to the CPM (for review and approval) and to the USFWS (for review and comment) and shall implement the measures identified in the approved revised BRMIMP.

The revised BRMIMP shall be prepared in consultation with the Designated Biologist and shall identify:

1. All biological resources mitigation, monitoring, and compliance measures proposed and agreed to by the Project Owner;

2. All biological resources Conditions of Certification identified as necessary to avoid or mitigate impacts;

3. All biological resources mitigation, monitoring, and compliance measures required by staff and the USFWS, including pre-construction surveys;

4. All sensitive biological resources to be impacted, avoided, or mitigated by Project construction, operation and closure;

5. All required mitigation measures for each sensitive biological resource;

6. A detailed description of measures that shall be taken to avoid or mitigate temporary disturbances from construction activities;

7. 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;

8. Duration for each type of monitoring and a description of monitoring methodologies and frequency;

9. Performance standards to be used to help decide if/when proposed mitigation is or is not successful;

10. All remedial measures to be implemented if performance standards are not met;

11. A preliminary discussion of biological resources related facility closure measures;

12. Restoration and revegetation plan for the laydown area; and

13. A process for proposing plan modifications to the CPM and appropriate agencies for review and approval.

Verification: The Project Owner shall provide the specified document at least 60 days prior to start of any site (or related facilities) mobilization.

The CPM will determine the revised BRMIMP's acceptability within 45 days of receipt. Ten 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 five working days before implementing any modifications to the approved revised BRMIMP to obtain CPM approval. Any changes to the approved BRMIMP must also be approved by the CPM in consultation with the USFWS and 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.

CLOSURE PLAN MEASURES

BIO-7 The Project Owner shall append, as necessary, to the permanent or unexpected permanent closure plan required for the existing PEF and the revised BRMIMP, measures that address the local biological resources.

The planned permanent or unexpected permanent closure plan shall address the following biological resources related mitigation measures (typical measures are):

1. Removal of transmission conductors when they are no longer used and useful;

2. Removal of all power plant site facilities and related facilities;

3. Measures to restore wildlife habitat to promote the re-establishment of native plant and wildlife species; and

4. Revegetation of the plant site and other disturbed areas utilizing appropriate seed mixture.

Verification: Any revisions to the draft permanent or unexpected closure measures for the existing PEF shall be made part of the revised BRMIMP. At least 12 months prior to commencement of closure activities, the Project Owner shall address all biological resources related issues associated with facility closure, and provide final measures as part of the Biological Resources Element of the Facility Closure Plan for the existing PEF. The Biological Resources Element shall be incorporated into the Facility Closure Plan and include a complete discussion of the local biological resources and proposed facility closure mitigation measures.

B. SOIL AND WATER RESOURCES

This section focuses on the soil and water resources associated with the Project, specifically the Project's potential to induce erosion and sedimentation, adversely affect water supplies, and degrade water quality. Several mitigation measures are included in the Conditions of Certification to ensure that the Project complies with all applicable federal, state, and local LORS.

Summary and Discussion of the Evidence

1. Erosion Prevention and Storm Water Management

Erosion control and stormwater management measures must be implemented during the construction and operational phases of the Project to avoid potential adverse impacts to water quality and soil resources.

Accelerated wind and water induced erosion may result from earth moving activities associated with construction of the Project, particularly because the protective cover of vegetation was removed during PEF construction and the surface soil is vulnerable to erosion. Site preparation for the PEFE would include excavation and removal of material; however, no additional grading would be required because the PEFE site was graded and tiered during PEF construction. A comprehensive stormwater drainage system and a stormwater pond have already been installed at the PEF site; therefore, any potential increase in sediment loading caused by water erosion to creeks and natural drainages would be avoided. (Ex. 1, Vol. I, § 3.4.8.4.) However, wind erosion due to PEFE construction could cause an increase in sediment loading of creeks and drainages. After construction, the addition of PEFE would increase the amount of impervious surfaces at the site resulting in increased runoff and leading to the erosion of unprotected surfaces. (Ex. 100, p. 4.9-12.)

The PEF stormwater control system was designed with sufficient capacity to accommodate the addition of the PEFE. (Ex. 1, Vol. 1, § 3.4.8.4.3.) Ditches, culverts, catch basins, and maintenance holes convey stormwater to the unlined stormwater detention pond located in the northwestern corner of the site. Stormwater that does not infiltrate into the soils or evaporate is discharged to the Pastoria Creek in compliance with the applicable National Pollutant Discharge Elimination System (NPDES) permit for the PEF site. (*Id*. at p. 3-3; Ex. 100, pp. 4.9-4 and 4.9-5.)

Conditions of Certification **SOIL&WATER-1**, **SOIL&WATER-2**, and **SOIL&WATER-3**, below, address mitigation measures designed to reduce any soil erosion and stormwater impacts to less than significant levels. The PEFE is subject to the existing NPDES permits for the site under these Conditions.

Condition **SOIL&WATER-1** requires the Project Owner to comply with all requirements of the General NPDES Permit for Discharges of Storm Water Associated with Construction Activity, including the development and implementation of a Storm Water Pollution Prevention Plan for Construction, which is administered by the Central Valley Regional Water Quality Control Board (RWQCB).

Condition **SOIL&WATER-2** requires the Project Owner to obtain CPM approval for a site-specific final Drainage, Erosion and Sedimentation Control Plan (DESCP) that addresses all Project elements and ensures protection of water and soil resources for the construction and operational phases of the Project. The DESCP was developed for the existing PEF to standardize the elements of the Energy Commission-administered requirements for the protection of water quality and soil resources.[43]

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[43] The DESCP requires the Project Owner to follow Best Management Practices (BMPs) in designing the drainage and erosion management plans to prevent the occurrence of significant impacts. (Ex. 100, p. 4.9-11.)

Condition **SOIL&WATER-3** requires the Project Owner to comply with all requirements of the General NPDES Permit for Discharges of Storm Water Associated with Industrial Activity, including the development and implementation of an operational Storm Water Pollution Prevention Plan, which is administered by the Central Valley RWQCB.[44]

2. Water Supply and State Water Policy

The PEFE's water supply, water delivery system, and water processing systems will be provided under a facilities-sharing agreement with the existing PEF. Condition **SOIL&WATER-6** requires the Project Owner to submit the facilities-sharing agreement prior to the start of construction.

PEF's primary water supply is provided through a long-term industrial water service agreement with the Wheeler Ridge-Maricopa Water Storage District (WRMWSD) (Ex. 13D.) PEF's backup water supply is provided through a contract with the Kern Water Bank Authority (KWBA). The PEF's maximum water supply specified by the contracts is 5,000 acre-feet per year (AFY), which is sufficient to supply both the existing PEF and the PEFE.[45] (Ex. 100, p. 4.9-8.) Although both contracts contain provisions to increase the amount of annual delivery, Applicant asserts that the combined PEF and PEFE would require less than 5,000 AFY at full plant load. (Ex. 13; Ex. 1, Vol. I, § 5.5.1.1.)

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[44] Prior to PEF construction, Calpine's consultants performed a Hydrology Analysis and Flood Inundation Study to identify design features that would protect the power plant from potential flooding hazards associated with Pastoria Creek. These studies and the final design plan for PEF were approved by the Kern County Engineering and Survey Services Department. In addition, the PEF's Storm Water Pollution Prevention Plan (SWPPP) was approved by the Central Valley RWQCB, Kern County, and the Energy Commission's Compliance Project Manager (CPM), and implemented for both construction and operation phases. (Ex. 100, p. 4.9-5.)

[45] According to Applicant, the PEFE would require up to 55 AFY of water for cooling and other process activities. (Ex. 13.)

PEF's primary water supply is provided by WRMWSD from excess water sold through the district's pool that is delivered directly or exchanged for State Water Project (SWP) surface water.[46] The WRMWSD is entitled to 197,088 AFY from the SWP under its contract with the Kern County Water Agency (KCWA) and the California Department of Water Resources (DWR), which will remain in effect through 2035.[47] SWP water is provided to the WRMWSD through the KCWA. In addition to the SWP contract allocation, the WRMWSD is also entitled to flood flows or interruptible water that is usually available January to March. (Ex. 100, p. 4.9-8.)

Backup water for PEFE would be available from the Kern Water Bank (KWB) through the existing PEF contract with the KWBA. The use of banked water from the KWB by PEF is consistent with the designated beneficial uses for KWB. The KWBA administers the KWB under established and approved rules and includes an active monitoring program. (Ex. 100, p. 4.9-9.)

The PEF's backup water supply was originally secured by a contract between its water broker, Azurix-Pastoria, Inc., and the KWBA for water banked by the Westside Mutual Water Company (Westside) in the KWB. Upon PEF's request in 2001, the Energy Commission amended PEF Condition **SOIL&WATER-5** to provide that backup water would be obtained directly from the KWBA, rather than from the Westside water reserves. The backup water supply contract with the KWBA was subsequently transferred from Azurix to the Pastoria Energy Facility, LLC, owned by Calpine in August 2001. (Ex. 100, p. 4.9-9.)

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[46] WRMWSD provides water to PEF from the district's "pool," which is the unused portion of the district's SWP annual allocation. The purchase of water through the WRMWSD pool is governed by established rules contained in the WRMWSD Rules and Regulations for the Distribution of Water. (Ex. 100, p. 4.9-8.)

[47] Over the period of 1995-2004, WRMWSD delivered an annual average of 163,000 AFY of water to its customers. (Ex. 100, p. 4.9-8.)

In the PEF certification proceeding, the Commission concluded in 2000 that use of fresh inland water was the most feasible and economical method of cooling for the power plant. Since Calpine proposes the same cooling method six years later for PEFE, Staff assessed whether PEFE's proposed water use would be consistent with state water conservation policy given the forecasts for future statewide water demand.[48]

Conservation of the state's fresh inland water supplies is mandated under the provisions of state water use policy. Article X, Section 2 of the California Constitution promotes the conservation of water resources for beneficial uses as follows:

> It is hereby declared that because of the conditions prevailing in this State the general welfare requires that the water resources of the State be put to beneficial use to the fullest extent of which they are capable, and that the waste or unreasonable use of unreasonable method of use of water be prevented, and that the conservation of such waters is to be exercised with a view to the reasonable and beneficial use thereof in the interest of the people and for the public welfare…

In addition, State Water Resources Control Board (SWRCB) Resolution 75-58 establishes priority for sources of power plant cooling water with high quality inland fresh water considered the least preferable source: "where the [SWRCB] has jurisdiction, use of fresh inland waters for powerplant cooling will be approved by the [SWRCB] only when it is demonstrated that the use of other

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[48] Several state policy documents published by DWR detail existing and Projected statewide shortages of fresh water supplies, noting that California is currently experiencing a statewide overdraft of fresh water and has been using Colorado River water in excess of its allotment (up to 1 million AFY above its apportionments). DWR has determined that a 1.6 million AFY shortage of water supply currently exists in California. With the exceptions of the North Coast and San Francisco Bay, most of the state experiences average year and drought year shortages with increased shortages expected by 2020. The largest future shortages are forecast for the Tulare Lake (including Kern County) and South Coast regions. [California Water Plan Updates 2003; SWP Delivery Reliability Report (Aug. 20, 2002); California Colorado River Water Use Plan; "Potential Effects of Global Warming on the Sacramento/San Joaquin Watershed and the San Francisco Estuary," Scripts Institute of Oceanography, Experimental Climate Prediction Center, UC San Diego (Knowles and Cayan, 2002.)]

water supply sources or other methods of cooling would be environmentally undesirable or economically unsound."

The Commission's 2003 Integrated Energy Policy Report (IEPR) provides that "…the Commission will approve the use of fresh water for cooling purposes …only where alternative water supply sources and alternative cooling technologies are shown to be "environmentally undesirable" or "economically unsound." (2003 IEPR, p. 41.) The 2005 IEPR reiterates that California will face reduced water supplies in the future due to enforcement of the Colorado River contract under which California has historically used more than its allotted water share. Water demand in the Colorado River basin and Nevada is increasing dramatically and this will significantly impact water agencies in Southern California. (2005 IEPR, p.140.)

The Commission's regulations require the Applicant to provide information on the source of water supply, the rationale for its selection, and if fresh water is to be used for cooling purposes, to discuss all other potential sources and why they were not considered feasible. (Cal. Code Regs., tit. 20, (following § 2012) Appendix B(g)(14)(C)(i).)

Although in this case, Applicant did not provide an adequate discussion of alternatives to its fresh water proposal such as the alternative of dry cooling technology, the evidentiary record indicates that PEFE would implement water-conserving processes through reuse of cooling tower water and use of the existing zero liquid discharge (ZLD) wastewater processing system. As a result of these water conservation measures, PEFE would require a maximum water supply of 55 AFY. Since the combined PEF and the additional PEFE would not exceed the existing water supply agreements for 5,000 AFY of water, the amount of fresh water allocated to PEFE would be *de minimis.*[49] (Ex. 100, pp. 4.9-14,

[49] Considering the costs and benefits associated with dry cooling for the PEFE and the lack of any potentially significant adverse impacts resulting from PEFE's use of SWP and KWB

4.9-19.) Condition **SOIL&WATER-4** limits the amount of water consumed by the combination of PEF and PEFE to 5,000 AFY and requires the Project Owner to install or verify that the WRMWSD has installed a metering device to record the volume of water supplied to the combined facilities.[50]

Staff also notes that DWR is in the process of updating its EIR for the Monterey Agreement, which addresses environmental impacts for water provided by the SWP to the KWBA. Staff assumes that any environmental impacts caused by the Project's water use would be addressed and mitigated through the provisions of the Monterey Agreement and any subsequently adopted amendments. (Ex. 100, p. 4.9-14.)

3. Wastewater Discharge

The PEFE will cause a slight increase in the volume of wash water and stormwater at the site. The existing PEF wastewater treatment systems will be used for processing all wastewater generated by the Project. The PEFE will employ the wastewater management procedures that have been established for PEF to ensure that liquid and solid wastes are properly collected, treated, and discharged from the facility. The Applicant's water balance diagrams of the combined PEF and PEFE indicated that the Project would have a negligible impact on the existing PEF wastewater and discharge systems and that no significant modification of these systems would be required. (Ex. 1, Vol. I, § 3.4.8.1.1.) Staff concurs with the Applicant's impacts assessment. (Ex. 100, pp. 4.9-16 and 4.9-17.) Any potential impacts would be mitigated by adherence to the requirements described in Conditions **SOIL&WATER 1**, **2**, and **3**.

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resources, Staff determined that dry cooling for PEFE would be feasible, but not required, and that the water supply as proposed by Calpine would be acceptable under SWRCB Policy 75-58. (Ex. 100, p. 4.9-16.)

[50] Exhibit 102B reflects the parties' agreement to the terms of this Condition.

The PEFE does not require an increase in the operational workforce, so the Project would not cause an increase in volume of sanitary sewage wastewater. The Applicant expects that wastewater during construction would be limited to construction staff sanitary sewage waste in portable chemical toilets, which would be serviced regularly by the vendor. Staff considers this impact minimal, with no adverse impacts. (Ex. 100, p. 4.9-17.)

The PEFE will use the existing on-site ZLD wastewater treatment system for handling wastewater resulting from the production of demineralized water for the CTG inlet evaporative cooling. (Ex. 100, p. 4.9-5.) According to the Applicant, the ZLD system has sufficient capacity to accommodate the volume of additional wastewater generated by PEFE without significant modification. (Ex. 1, Vol. I, § 3.4.8.1, Figures 3.4-4 and 3.4-5.) PEF Condition **SOIL&WATER-6** requires an accounting of the amount of salt cake generated by the ZLD. Since wastewater from PEFE will be processed by the existing ZLD system, we have adopted Condition **SOIL&WATER-5**, below, that requires the Project Owner to report the combined amount of ZLD salt cake generated by PEFE and PEF. The evidentiary record does not indicate that PEFE's use of the existing ZLD system would cause any adverse impact to water resources. See also the **Waste Management** section of this Decision for discussion of the ZLD waste removal process.

The existing PEF Hazardous Materials Management Program (HMMP) and the existing PEF SWPPP will be extended to the PEFE or a new HMMP and SWPPP will be developed for the PEFE. (Ex. 1, Vol. I, § 3.4.10.) The HMMP includes spill control and prevention procedures for hazardous materials stored and used on-site. The SWPPP includes procedures to prevent stormwater pollution due to on-site hazardous chemicals. (Ex. 100, pp. 4.9-17 and 4.9-18.) Implementation of Conditions **SOIL&WATER-1**, **2**, and **3**, below, will ensure the development of a new HMMP and SWPPP or the modification of the PEF HMMP and PEF SWPPP to include the PEFE and ensure that the Project complies with all applicable

LORS related to the use and storage of hazardous materials by the Project. See also the **Hazardous Materials Management** section of this Decision.

FINDINGS AND CONCLUSIONS

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

1. Soils at the PEFE site are susceptible to erosion during excavation and construction causing an increase in sediment loading of creeks and drainages.

2. After construction, the facility's components would increase the amount of impervious surfaces at the site resulting in more stormwater runoff and potential erosion of unprotected surfaces.

3. A comprehensive stormwater drainage system and stormwater pond have already been installed at the PEF site; therefore, any potential increase in sediment loading caused by water erosion to creeks and natural drainages would be avoided.

4. The PEFE's water supply, water delivery system, and water processing systems will be provided by the existing PEF under a facilities-sharing agreement.

5. The PEFE requires a maximum of 55 acre feet of water per year (AFY) for cooling and other industrial processes.

6. PEF's primary water supply is secured through an industrial water service contract with the Wheeler Ridge-Maricopa Water Storage District (WRMWSD) and the backup water supply is provided through a contract with the Kern Water Bank Authority (KWBA).

7. The PEF's maximum contracted water supply is limited to 5,000 AFY, which is sufficient to supply both the existing PEF and the PEFE.

8. Although use of fresh water for power plant cooling is contrary to state water policy, the PEFE's water demand is reduced by water conservation processes and does not exceed the contracted water supply already provided to the existing PEF.

9. The Project Owner will submit a Storm Water Pollution Prevention Plan (SWPPP) and a Sedimentation and Erosion Control Plan (SECP) for both construction and operation phases of the PEFE.

10. The SWPPP and SECP plans will be consistent with Kern County requirements, including Best Management Practices (BMPs), and shall comply with requirements of the Central Valley RWQCB.

11. The Project Owner will submit a Notice of Intent for construction under the General National Pollutant Discharge Elimination System (NPDES) Permit for Discharges of Strom Water Associated with Construction Activity consistent with requirements of the Central Valley RWQCB.

12. The Project Owner will obtain a General NPDES Permit for Discharges of Storm Water Associated with Industrial Activity consistent with requirements of the Central Valley RWQCB.

13. The PEFE will use the existing PEF zero liquid discharge (ZLD) system to remove all process liquid waste and monitor the volume of residual solid cake waste produced by the ZLD for the combined PEF and PEFE.

14. Implementation of the Conditions of Certification, below, ensures that the Project will conform with all applicable laws, ordinances, regulations, and standards (LORS) concerning erosion and sedimentation impacts to soil and water resources as identified in the pertinent portions of **Appendix A** of this Decision.

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 Construction Activity. The Project Owner shall develop and implement a Storm Water Pollution Prevention Plan for the construction of the entire Pastoria Energy Facility Expansion (PEFE) Project (Construction SWPPP).

Verification: The Project Owner shall submit copies to the 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 within 10 days of its receipt (when the Project Owner receives correspondence from the RWQCB) or within 10 days of its mailing (when the Project Owner sends correspondence to the RWQCB). This information shall include copies of the Notice of Intent sent to the State Water Resources Control Board, the Construction SWPPP, and the Notice of Termination for the Project.

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 operations 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 off-site flooding potential, meet local requirements, and identify all monitoring and maintenance activities. The DESCP shall contain the following elements:

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 PEFE site and all Project elements 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. Indicate the proximity of those features to the PEFE construction site.

Drainage – The DESCP shall provide a topographic site map showing all existing, interim and proposed drainage systems; drainage area boundaries and water shed sizes in acres; the hydraulic analysis to support the selection of Best Management Practices (BMPs) to divert off-site drainage around or through the site and laydown areas. On the map, spot elevations are 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.

Clearing and Grading – The plan shall provide a delineation of all areas to be cleared of vegetation and areas to be preserved. The plan shall provide elevations, slopes, locations, and extent of all proposed grading as shown by contours, cross sections or other means. The locations of any disposal areas, fills, or other special features will also be shown. Illustrate existing and proposed topography tying in proposed contours with existing topography. The DESCP shall include a statement of the quantities of material excavated or filled for each element of the PEFE (for example, Project site, transmission corridors, and pipeline corridors), whether such excavations or fill is temporary or permanent, and the amount of such material to be imported or exported.

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, final grading/stabilization, and post-construction. BMPs shall include measures designed to control dust and stabilize construction access roads and entrances. The maintenance schedule should include post-construction maintenance of treatment control BMPs applied to disturbed areas following construction.

Erosion Control Drawings -- The erosion control drawings and narrative must be designed and sealed by a professional engineer/erosion control specialist.

Verification: No later than 90 days prior to start of site mobilization, the Project Owner shall submit a copy of the plan to Kern County for review and comment. No later than 60 days prior to the start of site mobilization, the Project Owner shall provide a copy of the plan, addressing Kern County comments, to the CPM for review and approval. 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 monitoring and maintenance activities. The plan shall be consistent with the grading and drainage plan as required by Condition of Certification **CIVIL-1** and may incorporate by reference any SWPPP developed in conjunction with any NPDES permit.

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 for the operation of the PEFE site (Operational SWPPP).

Verification: At least 30 days prior to commercial operation, the Project Owner shall submit copies to the CPM of the Operational SWPPP for the entire PEFE site. 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 and the Notice of Termination. 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 will satisfy this condition.

SOIL&WATER-4: Water used for Project operation shall be State Water Project (SWP) water obtained from the Wheeler Ridge-Maricopa Water Storage District (WRMWSD), excess water sold through the District's pool, or banked water obtained from the Kern Water Bank (KWB), which is directly delivered or exchanged for SWP surface water.

The combined water use for the PEFE and the PEF shall not exceed the annual water-use limit of 5,000 acre-feet without prior approval by the CPM.

Protocol: Prior to the use of any water by the PEFE, a metering device shall be installed to monitor and record the volume of water supplied to the combined PEFE and PEF. The Project Owner shall either install and maintain a metering device as part of the water supply system or provide evidence that the WRMWSD has installed and will maintain a metering device to monitor water deliveries to the combined PEFE and PEF. The metering device shall be operational for the life of the Project. The Project Owner shall maintain a monthly record of the total amount of water used by the combined operation of the PEFE and PEF.

Verification: At least 60 days prior to use of any water source at the PEFE, the Project Owner shall submit to the CPM evidence that a metering device has been installed on the water supply pipeline serving the PEFE and PEF and is operational. The Project Owner shall provide a detailed report on the servicing, testing, and calibration of the metering devices in the annual compliance report.

The annual compliance report shall include a water-accounting summary for the combined PEFE and PEF, describing the source and quantity of water used on a monthly basis in units of gallons per minute and on an annual basis in units of acre-feet. The annual compliance report shall also indicate whether the water was obtained through the WRMWSD's district pool, direct pumping of KWB banked water for delivery to PEFE, or the result of surface water exchanges.

If the amount of water that is to be used by the combined PEFE and PEF will exceed 5,000 acre-feet per year during any single annual reporting period, the Project Owner shall submit a written request and explanation for the anticipated water-use increase to the CPM at least 30 days prior to the date when the water-use limit is expected to be exceeded. If the Project Owner can demonstrate that the requested increase is necessary and is not caused by wasteful practices or malfunctions in the water processing systems, the CPM may approve an increase in the water-use limit for a period not to exceed three months (one calendar quarter).

SOIL&WATER-5: Following the commencement of Project operation, the Project Owner shall maintain a log of the volume of residual cake solid waste produced by the zero liquid discharge (ZLD) system. The Project Owner shall coordinate reporting with the PEF.

Verification: Within 60 days after Project operation begins, the Project Owner shall submit to the CPM a report on the volume of residual cake solids generated by the combined operation of the PEFE and the PEF. The tally sheets from the trucks disposing the cake shall be used to confirm this information and shall be attached to the CPM report. A status report on the volumes of residual cake solids generated and the landfills used for disposal, shall also be included in the annual compliance report submitted to the CPM.

SOIL&WATER-6: Prior to the start of construction, the Project Owner shall execute the PEF-PEFE facilities-sharing agreement, which shall incorporate the WRMWSD and KWBA water supply contracts, and describe the interconnection of the water delivery system, the water supply pipeline, and the water processing systems, including the ZLD.

Verification: At least 30 days prior to the start of construction, the Project Owner shall provide to the CPM, an authorized, executed copy of the PEF-PEFE facilities-sharing agreement. The Project Owner shall provide copies of any amendments to the facilities-sharing agreement as part of the annual compliance reporting.

C. CULTURAL RESOURCES

Cultural resource materials such as artifacts, structures, or land modifications reflect the history of human development. Native American burial sites and other sites important to national/ethnic groups are also considered valuable cultural resources. This topic analyzes the structural and cultural evidence of human development in the Project vicinity where cultural resources could be disturbed by excavation and construction. Federal and state laws require a Project developer to implement mitigation measures that minimize potential adverse impacts to *significant* cultural resources.

SUMMARY AND DISCUSSION OF THE EVIDENCE

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. Resources Code, § 5024.1; Cal. Code of 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 CEQA. (*See* Pub. Resources 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. (Cal. Code of Regs., tit. 14, § 4852 (d)(2) [CRHR].)

1. Background

For the past century, the Project site and vicinity were used primarily for cattle ranching, gravel mining, agriculture, and oil production. There has also been substantial construction disturbance in the area related to development of the California Aqueduct, the PEF, and SCE transmission facilities. (PEFE 2005a p. 5.7-2). Archaeological data for the site and general vicinity are scarce because

the site is located on the private property of Tejon Ranch and few investigations had been done prior to the archaeological research conducted for the PEF. Calpine relied on the previous research for PEF as the basis for this analysis.

2. Methodology

The investigation of cultural resources in the Project vicinity involved both archival research and field surveys. (Ex. 1, Vol. I, § 5.7, Vol. II, Attachment F, § 5.7; Ex. 7.)[51] Archival research for the PEF was conducted at the Southern San Joaquin Valley Information Center of the California Historical Resources Information System (CHRIS) to compile existing culture resource data. Archival research specifically covered the Area of Potential Effect (APE) for the site and linear facilities.[52] (Ex. 1, Vol. II, § 5.7, Attachment F.)

The Commission's PEF Decision summarized the archival research and concluded that none of the historical or archaeological sites revealed by the CHRIS research was a significant cultural resource. (Ex. 1, Vol. 1, § 9, PEF Decision, 99-AFC-7, pp. 197-198; Ex. 100, p. 4.3-5.)

The field studies described in the PEF Decision were conducted in 1999 and revealed ten newly observed archaeological sites and 10 isolates. Four of the new sites, either within or adjacent to the APE, were recommended for testing to evaluate their significance. Calpine submitted a *Cultural Resources Test Plan* prior to construction of PEF. (Ex. 100, p. 4.3-5.)

During PEF construction, Native American monitors identified by the Native American Heritage Commission (NAHC) were on-site during all ground moving

[51] Regarding Vol. II Attachment F, the PEF Cultural Resources Technical Report and the Cultural Resources Compliance Report were submitted to the Commission as confidential records per Section 2505 of the Commission's regulations. (Cal. Code of Regs., tit. 20, § 2505 et seq.)

[52] The APE comprised a 0.50-mile radius around the power plant site and on either side of the natural gas pipeline route and transmission line. (Ex. 1, Vol. II, Attachment F, § 5.7.1.1.)

activities. Procedures were in place for the proper treatment of Native American remains in accordance with applicable LORS, but no remains were found. (Ex. 100, p. 4.3-5.)

In response to notification of the PEFE proposal, the Tejon Indian Tribe requested information about Project development and requested the opportunity to monitor construction activities in the event that human remains and/or burial artifacts are uncovered. The tribe also requested that the NAHC be contacted if any burial sites are unearthed. (Exs. 7A and 7B, Ex. 100, p. 4.3-5 et seq.)

2. Potential Impacts

Prior to ground disturbance for the PEF, numerous artifacts and sites were identified during surveys of the facility footprint and adjacent soils. Only one isolated flake, (small, flat, thin layer or stone chip often generated as a by product of tool making) was identified adjacent to the plant site. (Ex. 100, p. 4.3-9.)

Flakes and bedrock mortar sites were discovered during PEF excavation activities.[53] Given the presence of several milling complexes in the vicinity and the discovery of material during PEF construction, it is likely that additional, potentially significant cultural resources could be encountered during ground disturbance for the PEFE. (Ex. 100, p. 4.3-9.)

The Conditions of Certification for PEF required implementation of a Cultural Resources Monitoring and Mitigation Plan (CRMMP). Applicant and Staff recommended that a separate CRMMP be required for the PEFE. We agree. We have adopted Conditions of Certification **CUL-1** through **CUL-12** specific to

[53] Two bedrock mortar sites and CA-KER-6622 and CA-KER-6623 were detected during monitoring near the laydown area and access road. The sites were tested for subsurface components but nothing was found. Both site locations were fenced and avoided during construction. A granite bowl was also discovered during monitoring of ground disturbance at the plant site, as well as two flakes. (Ex. 100, p. 4.3-9.)

the PEFE. These Conditions include monitoring by both a Cultural Resources Specialist and a Native American representative to ensure that any cultural resources encountered during ground disturbance are recognized and treated appropriately. In addition, they require a worker training program to identify cultural resources. The Conditions also require monitoring of areas deemed sensitive for cultural resources. All cultural resources collected as a result of Project activities will be curated. Significance determinations and mitigation measures will be developed in consultation with the Commission's Compliance Project Manager (CPM).

4. Cumulative Impacts

The 341-acre Tejon Industrial Complex, several miles west of the PEFE at Laval Road and Interstate 5 (I-5), is the nearest construction site in the Project area. According to Staff, the combined construction of PEFE and the Industrial Complex will not result in cumulative impacts to cultural resources in the area since each development requires cultural resources mitigation specific to its respective site. (Ex. 100, p. 4.3-10.)

5. Mitigation

Condition **CUL-1** requires the Project Owner to designate a qualified cultural resource specialist to be responsible for implementing the CRMMP. The preferred mitigation is avoidance of known resources. If avoidance cannot be achieved, then surface collection, subsurface testing, and data recovery will be implemented. To prevent adverse impacts to known or unknown resources, Staff proposed several mitigation measures, which are outlined below and incorporated in the Conditions of Certification:

- Avoidance
- Physical Demarcation and Protection
- Worker Education

- Archeological Monitoring
- Native American Monitoring
- Authority of Monitor to Halt Construction
- Cultural Resources Report and Significance Review

If cultural resources are encountered during construction activities, the totality of mitigation measures contained in the Conditions of Certification will ensure that the resources are protected.

FINDINGS AND CONCLUSIONS

Based on the evidence of record, the Commission makes the following findings and conclusions:

1. The Tejon Indian Tribe has requested the opportunity to provide monitors during ground moving activities and to coordinate any burial site recovery efforts with the Native American Heritage Commission (NAHC) in accordance with applicable LORS.

2. Archival research at the California Historical Resources Information System (CHRIS) revealed several known archaeological and historic resources within the Area of Potential Effect (APE) for the Project site.

3. Pedestrian surveys of the APE did not reveal any sites that would be eligible for listing as historic resources in the National Register of Historic Places (NRHP) or the California Register of Historical Resources (CRHR).

4. PEF-related excavation and construction activities revealed artifacts within the site boundaries, raising the potential for uncovering additional artifacts during PEFE-related ground moving activities.

5. The potential for impacts to unknown cultural resources may not be discovered until subsurface soils are exposed during excavation and construction.

6. The Project Owner will implement a Cultural Resources Monitoring and Mitigation Plan (CRMMP) to protect known and unknown resources, including avoidance, physical demarcation and protection, worker education, archeological monitoring, Native American monitoring, authority of monitor to halt construction, and the filing of a cultural resources report and significance review.

7. The potential for cumulative impacts to cultural resources is insignificant.

8. The mitigation measures contained in the Conditions of Certification below ensure that any direct, indirect, or cumulative adverse impacts to cultural resources resulting from Project-related activities will be insignificant.

The Commission therefore concludes that implementation of the Conditions of Certification, below, will ensure the Project conforms with all applicable laws, ordinances, regulations, and standards relating to cultural resources as set forth in the pertinent portions of **Appendix A** of this Decision.

CONDITIONS OF CERTIFICATION

CUL-1 Prior to the start of any ground disturbance, including the movement or parking of heavy equipment onto or over the Project surface, the Project Owner shall provide the Compliance Project Manager (CPM) with the name and statement of qualifications for its designated cultural resource specialist (CRS) and alternate CRS, if an alternate is proposed, who will be responsible for implementation of all cultural resources conditions of certification. The designated CRS shall also provide the names and qualifications of any known consultants such as historian or architectural historian who may participate.

No ground disturbance shall occur prior to CPM approval of the CRS, unless specifically approved by the CPM.

The designated CRS and alternate shall either meet the minimum qualifications specified by the National Park Service, Heritage Preservation Services, or shall be qualified by the Register of Professional Archaeologists (RPA). The minimum qualifications include the following:

A. a graduate degree in archaeology, cultural resource management, or a comparable field;

B. at least three years of archaeological resource evaluation, management, impact mitigation and field experience in California; and

C. at least one year's experience in each of the following areas:

1. leading archaeological resource field surveys;

2. leading site and artifact mapping, recording, and recovery operations;

3. marshaling and use of equipment necessary for cultural resource recovery and testing;

4. preparing recovered materials for analysis and identification;

5. determining the need for appropriate sampling and/or testing in the field and in the laboratory;

6. directing the analyses of mapped and recovered artifacts of both Native American and historical origin;

7. completing the identification and inventory of recovered cultural resource materials; and

8. preparing appropriate reports to be filed with the receiving curation repository, the State Historic Preservation Officer (SHPO), and all appropriate regional information center(s) CHRIS.

The statement of qualifications for the designated CRS and alternate CRS shall include all information needed to demonstrate that the specialists meet at least the minimum qualifications described above, including:

A. a list of specific Projects the specialist has previously directed;

B. the role and responsibilities of the specialist for each Project listed; and

C. the names and phone numbers of contacts familiar with the specialist's work on these referenced Projects.

Verification: At least 60 days prior to the start of construction-related vegetation clearance, or earth-disturbing activities or Project site preparation, or the movement or parking of heavy equipment onto or over the Project surface, the Project Owner shall submit the name and statement of qualifications of its designated cultural resource specialist and alternate cultural resource specialist, if an alternate is proposed, to the CPM for review and approval.

At least 10 days but no more than 30 days prior to the start of any ground-disturbing action, the Project Owner shall confirm in writing to the CPM that the approved designated cultural resource specialist will be available at the start of earth-disturbing activities and is prepared to implement the cultural resources conditions of certification.

At least 10 days prior to the termination or release of a designated cultural resource specialist or field director, the Project Owner shall obtain CPM approval of the replacement professionals by submitting to the CPM the name and resume of the proposed new designated individuals.

CUL-2 Prior to the start of any construction-related vegetation clearance, or earth-disturbing activities or Project site preparation, or the movement or parking of heavy equipment onto or over the Project surface, the Project Owner shall provide the designated cultural resources specialist and the CPM with maps and drawings showing the footprint of the power plant and all linear facilities. Maps provided will include the USGS 7.5 minute topographic quadrangle map and a map at an appropriate scale (e.g., 1:2000 or 1" = 200') for plotting individual artifacts. If the designated cultural resource specialist requests enlargements or strip maps for linear facility routes, the Project Owner shall provide them. In addition, the Project Owner shall provide a set of these maps to the CPM at the same time that they are provided to the specialist. If the footprint of the power plant or linear facilities changes, the Project Owner shall provide maps and drawings reflecting these changes, to the cultural resources specialist and the CPM within five days. Maps shall show the location of all areas where surface disturbance may be associated with Project related access roads and any other Project components. Maps and drawings may be limited to the boundaries of the PEFE Project.

Verification: At least 30 days prior to the start of construction-related vegetation clearance, or earth-disturbing activities or Project site preparation on the Project, or the movement or parking of heavy equipment onto or over the Project surface, the Project Owner shall provide the designated cultural resources specialist and the CPM with the maps and drawings. Copies of maps or drawings of the PEFE reflecting changes to the footprint of the power plant and/or linear facilities shall be submitted to the cultural resources specialist and the CPM within five days of the changes.

CUL-3 Prior to the start of construction-related vegetation clearance or earth-disturbing activities, or Project site preparation, or the movement or parking of heavy equipment onto or over the Project surface, the designated cultural resources specialist shall prepare, and the Project Owner shall submit to the CPM for review and written approval, a Cultural Resources Monitoring and Mitigation Plan (CRMMP), identifying general and specific measures to minimize potential impacts to cultural resources within areas subject to Project related earth disturbance. Approval of the CRMMP by the CPM shall occur prior to any vegetation clearance or other earth-disturbing activities of construction or site preparation. The Energy Commission approved PEF CRMMP shall be appended to reflect cultural resources activities that will be necessary during the ground disturbance specific to the PEFE. Recommendations

for programmatic treatment of designated resources may be included in the appendix. The appendix shall be submitted as a separate document to be appended to the Energy Commission approved PEF CRMMP. No ground disturbance shall occur prior to CPM approval of the PEFE appendix to the PEF CRMMP, unless specifically approved by the CPM.

The CRMMP shall include, but not be limited to, the following elements and measures for the PEFE Project:

A. A research design for both prehistoric and historical archaeology that includes a discussion of questions that may be answered by the mapping, data and artifact recovery conducted during monitoring and mitigation activities, and by the analysis of recovered data and materials. It shall provide details of the data needed to address the research issues and the methods proposed to obtain such data.

B. Identification of the person(s) expected to perform each of the tasks, a description of each team member's qualifications (please provide resumes) and responsibilities, the structure of the mitigation team, and the reporting relationships between Project construction management and the monitoring and mitigation team. The cultural resources team shall include one member professionally qualified in historical or industrial archaeology;

C. A discussion of the inclusion of Native American observers or monitors, the procedures to be used to select them, the areas where they will be needed, and their role and responsibilities;

D. A discussion of measures such as flagging or fencing, to prohibit or otherwise restrict access to sensitive resource areas that are to be avoided during pre-construction, construction and/or operation, and identification of areas where these measures are to be implemented. The discussion shall address how these measures will be implemented prior to the start of earth-disturbing activities and how long they will be needed to protect the resources from Project-related effects;

E. A discussion of the requirement that all cultural resources encountered will be recorded and mapped (may include photos) and all cultural resources as identified in the research design will be collected for analysis and eventual curation into a retrievable storage collection in a public repository or museum that meets the State of California Guidelines for the Curation of Archaeological Collections.

F. A discussion of the availability and the designated specialist's access to equipment and supplies necessary for site mapping, photographing, and recovering any cultural resource materials encountered during earth-disturbing activities or construction; and

G. Identification of the public institution that has agreed to receive any data and cultural resources recovered during Project-related monitoring and mitigation work. Discussion of the requirements, specifications, or funding needed for the materials to be delivered for curation and how they will be met. Also include the name and phone number of the contact person at the institution.

Verification: At least 30 days prior to the start any construction-related vegetation clearance or earth-disturbing activities or Project site preparation or the movement or parking of heavy equipment onto or over the Project surface, the Project Owner shall provide the PEFE appendix to the PEF Cultural Resources Monitoring and Mitigation Plan, prepared by the designated cultural resource specialist, to the CPM for review and approval.

CUL-4 Prior to the start of any construction-related vegetation clearance, or earth-disturbing activities or Project site preparation or the movement or parking of heavy equipment onto or over the Project surface, the designated cultural resources specialist shall prepare an employee training program. The Project Owner shall submit the cultural resources training program to the CPM for review and approval.

The training program shall discuss the potential to encounter cultural resources in the field, the sensitivity and importance of these resources, and the legal obligations to preserve and protect such resources. The program shall include the set of resource reporting procedures and work curtailment procedures that workers are to follow if previously unknown cultural resources are encountered during Project activities. The training program shall be presented by the designated cultural resource specialist or qualified individual(s) approved by the CPM, and may be combined with other training programs prepared for biological resources, paleontologic resources, hazardous materials, or any other areas of interest or concern. The training program previously approved for the PEF shall be presented for the PEFE. It may be presented in the form of a video.

Verification: At least 30 days prior to the start of construction-related vegetation clearance or earth-disturbing activities or Project site preparation, or the movement or parking of heavy equipment onto or over the Project surface, the Project Owner shall submit to the CPM for review and approval, the proposed employee training program, the set of reporting procedures, and the work curtailment procedures that the workers are to follow if previously unknown cultural resources are encountered during earth-disturbing activities or

construction. The Project Owner shall provide the name and “resume” of the individual(s) performing the training.

CUL-5 Prior to the start of construction-related vegetation clearance, or earth-disturbing activities or Project site preparation or the movement or parking of heavy equipment onto or over the Project surface and throughout ground disturbance as needed for all new employees, the Project Owner shall ensure that the designated cultural resource trainer(s) provide(s) the CPM-approved cultural resources training to all Project managers, construction supervisors, and workers during ground disturbance. The Project Owner shall ensure that the designated trainer provides the workers with the CPM-approved set of procedures for reporting any sensitive resources that may be discovered during Project-related ground disturbance and the work curtailment procedures that the workers are to follow if previously unknown cultural resources are encountered during earth-disturbing activities or construction.

Verification: Within 7 days of the start of construction-related vegetation clearance, or earth-disturbing activities or Project site preparation or the movement or parking of heavy equipment onto or over the Project surface, the Project Owner shall provide the CPM with documentation that the designated cultural resources trainer(s) has/have provided the CPM-approved cultural resources training and the set of reporting and work curtailment procedures to all Project managers, construction supervisors, and workers hired before the start of earth-disturbing activities.

In each Monthly Compliance Report after the start of earth-disturbing or earth moving activities, the Project Owner shall provide the CPM with documentation that the designated cultural resource trainer(s) has/have provided to all Project managers hired in the month to which the report applies the CPM-approved cultural resources training and the set of reporting and work curtailment procedures.

CUL-6 The designated CRS, alternate CRS, or the specialist’s delegated monitor(s) shall have the authority to halt or redirect earth-disturbing activities or construction, if previously unknown cultural resource sites or materials are encountered or if an unforeseen impact to an identified cultural resource is recognized during Project-related land clearing, grading, augering, excavation or other earth-disturbing activities. Cultural resources monitors shall be members of the cultural resources team with a background and experience appropriate to the Project area being monitored.

If such resources are found or an unforeseen impact is recognized, the halting or redirection of earth-disturbing activities or construction shall remain in effect until:

A. The CRS has notified the Project Owner and the CPM within 24 hours of the discovery, or by Monday morning if the cultural resources discovery occurs between 8:00 AM on Friday and 12:00 AM on Sunday, including a description of the discovery (or changes in character or attributes), the action taken (i.e. work stoppage or redirection), a recommendation of eligibility, and recommendations for mitigation of any cultural resources discoveries.

B. The CRS and the Project Owner have consulted with the CPM and the CPM has concurred with the recommended eligibility of the discovery and proposed data recovery or other mitigation; and

C. any needed data recovery and mitigation has been completed.

The designated CRS, the Project Owner, and the CPM shall confer within 5 working days of the notification of the CPM to determine what, if any, data recovery or other mitigation is needed.

If data recovery or other mitigation measures are required, the designated CRS and team members shall monitor earth-disturbing and construction activities and implement the agreed upon data recovery and mitigation measures, as needed.

All required data recovery and mitigation shall be completed expeditiously unless all parties agree to additional time.

Verification: At least 30 days prior to the start of construction-related vegetation clearance, or earth-disturbing activities or Project site preparation or the movement or parking of heavy equipment onto or over the Project surface, the Project Owner shall provide the CPM with a letter confirming that the designated cultural resources specialist, and/or alternate cultural resource specialist and delegated monitor(s) have the authority to halt earth-disturbing or construction activities in the vicinity of a cultural resource find.

CUL-7 Prior to the start of any construction-related vegetation clearance, or earth-disturbing activities or Project site preparation or the movement or parking of heavy equipment onto or over the Project surface, and each week throughout the Project construction period, the Project Owner shall provide the designated cultural resource specialist with a current schedule of anticipated Project activity in the following month. The schedule shall include a map indicating the area(s) where ground disturbing or construction activities will occur or where other specialists may be conducting mitigation measures. The designated CRS shall

consult weekly with the Project superintendent or construction field manager to confirm the area(s) to be worked on the next day(s).

Verification: At least 10 days prior to the start of Project construction-related vegetation clearance, earth-disturbing activities or Project site preparation or the movement or parking of heavy equipment onto or over the Project surface, and in each Monthly Compliance Report thereafter, the Project Owner shall provide the CPM with a copy of the weekly schedule of the construction activities. The Project Owner shall notify the CPM when all ground disturbing activities, including landscaping, are completed.

CUL-8 The Project Owner shall ensure that the CRS, alternate CRS, or CRMs shall monitor ground disturbance (including grading and landscaping) full-time in the vicinity of the Project site and linears, and ground disturbance at laydown areas or other ancillary areas, to ensure there are no impacts to undiscovered resources and to ensure that known resources are not impacted in an unanticipated manner. In the event that the CRS determines that full-time monitoring is not necessary in certain locations, a letter or e-mail providing a detailed justification for the decision to reduce the level of monitoring shall be provided to the CPM for review and approval prior to any reduction in monitoring.

Throughout the monitoring and mitigation phases of the Project, the designated cultural resources specialist and/or alternate cultural resource specialist and delegated monitor(s) shall keep a daily log of any resource finds, and the progress or status of the resource monitoring, collections, mitigation, preparation, identification, and analytical work being conducted for the Project. The daily logs shall indicate by tenths of a post mile, where and when monitoring has taken place, where monitoring has been deemed unnecessary, and where cultural resources were found.

The designated CRS shall prepare a weekly summary of the daily logs on the progress or status of cultural resource-related activities.

The designated CRS and delegated monitor(s) may informally discuss the CRMMP activities with Commission technical staff.

Verification: Throughout any construction-related vegetation clearance, or earth-disturbing activity or Project site preparation or the movement or parking of heavy equipment onto or over the Project surface, and the Project construction period, the Project Owner shall ensure that the daily logs prepared by the designated cultural resource specialist and delegated monitor(s) are available for periodic audit by the CPM.

Requests for a reduction in the level of cultural resources monitoring shall be submitted to the CPM for review and approval at least 24 hours prior to the date of planned reduction.

CUL-9 The Project Owner shall ensure that the designated CRS performs the supervision, recovery, preparation for analysis, analysis, preparation for curation, and delivery for curation of all cultural materials encountered and collected during surveys, monitoring, testing, data recovery, mapping, and mitigation activities related to the Project as identified in the research design.

Verification: The Project Owner shall maintain in its compliance files, copies of signed contracts or agreements with the museum, university, or other appropriate research specialists responsible for cultural resource services. The Project Owner shall maintain these files for the life of the Project, and the files shall be available for periodic audit by the CPM. The specific locations of sensitive cultural resource sites shall be kept confidential and accessible only to qualified cultural resource specialists.

CUL-10 The Project Owner shall ensure that the designated CRS prepares a Cultural Resources Report. The Project Owner shall submit the report to the CPM for review and approval.

The Cultural Resources Report shall include (but not be limited to) the following:

A. For all Projects:

1. a description of pre-Project literature search, surveys, and any testing activities;

2. maps showing areas surveyed or tested;

3. description of any monitoring activities;

4. maps depicting areas monitored and site locations on 7.5 minute USGS topographic base; and

5. conclusions and recommendations.

B. For Projects in which cultural resources were encountered, include the items above and also provide:

1. records and maps for sites and isolates;

2. description of any testing and determinations of significance, and potential eligibility

3. discussion of research questions raised or addressed by data from the Project.

C. For Projects for which cultural resource data were recovered, include a. and b. above, plus the following:

1. description of the methods used in the field and laboratory;

2. verbal description and graphic illustration of recovered cultural materials;

3. results and findings of any special analyses conducted on recovered cultural materials;

4. catalogue of recovered cultural materials; interpretation of the site(s) with regard to the research design; and

5. the name and location of the qualified public repository receiving the recovered cultural resources for curation.

The cultural resources report for PEFE shall be appended to the cultural resources report for PEF.

Verification: The Project Owner shall ensure that the designated cultural resource specialist completes the PEFE appendix Cultural Resources Report within 90 days following completion of the collections analysis. Within 7 days after completion of the report, the Project Owner shall submit the Cultural Resources Report to the CPM for review and approval.

CUL-11 The Project Owner shall submit an original copy, an original-quality copy, and a computer disc copy (or other electronic format required by the repository) of the CPM-approved Cultural Resource Report to the public repository to receive the recovered data and materials for curation, with copies to the State Historic Preservation Officer (SHPO) and to the appropriate regional archaeological information center(s). Any disc files must meet SHPO requirements for format and content.

The copies of the Cultural Resource Report to be sent to the curating repository, the SHPO, and the regional information center shall include the following:

A. originals or original-quality copies of all text;

B. originals of any topographic maps showing survey, site, and monitored resource locations;

C. originals or original-quality copies of drawings of significant or diagnostic materials found during survey, monitoring, testing or mitigation, and subject to analysis and evaluation; and

D. photographs of the cultural resource site(s) and the various cultural resource materials recovered during Project monitoring and mitigation and subjected to post-recovery analysis and evaluation. The Project Owner shall provide the curating repository with a set of negatives for all of the photographs.

Verification: Within 30 days after receiving approval of the Cultural Resources Report, the Project Owner shall provide to the CPM documentation that the report has been sent to the public repository receiving the recovered data and materials for curation, the SHPO, and the appropriate archaeological information center.

For the life of the Project, the Project Owner shall maintain in its compliance files copies of all documentation related to the filing of the CPM-approved Cultural Resources Report with the public repository receiving the recovered data and materials for curation, the SHPO, and the appropriate CHRIS information center.

CUL-12 Except for those materials subject to PRC 5097.99, following the filing of the CPM-approved Cultural Resource Report with the appropriate entities specified in **CUL-11**, above, the Project Owner shall ensure that all cultural resource materials, maps and data collected during survey, testing, and data recovery and mitigation for the Project as identified in the research design are delivered to a public repository that meets the State of California Guidelines for the Curation of Archeological Collections for the curation of cultural resources. The Project Owner shall pay any fees for curation required by the repository. Collections and documents will be prepared to satisfy the requirements of the designated repository.

Verification: The Project Owner shall ensure that all recovered cultural resource materials are delivered for curation within 30 days after providing the CPM-approved Cultural Resource Report to the entities specified in **Cul-11**.

For the life of the Project, the Project Owner shall maintain in its compliance files, copies of signed contracts or agreements with the public repository to which the Project Owner has delivered for curation all cultural resource materials collected during cultural resource services for the Project, except for materials subject to PRC 5097.99.

CUL-13 Prior to the start of any vegetation clearing or other earth-disturbing activity related to site preparation, construction, or site testing, a Native American monitor shall be obtained to monitor ground disturbance in areas where Native American artifacts may be discovered. Informational lists of concerned 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.

Verification: At least 7 days prior to ground disturbance in areas where there is a potential to discover Native American artifacts, the Project Owner shall send notification to the CPM identifying the person(s) retained to conduct Native American monitoring. The Project Owner shall also provide a plan identifying the proposed monitoring schedule and information explaining how Native Americans who wish to provide comments will be allowed to comment. If efforts to obtain the services of a qualified Native American monitor are unsuccessful, the Project Owner shall inform the CPM one week prior to ground disturbance. The CPM will either identify potential monitors or will allow ground disturbance to proceed without a Native American monitor. Native American monitoring may resume when a monitor becomes available. Copies of monthly summaries mailed or e-mailed to the Tejon Indian Tribe shall be provided to the CPM.

D. GEOLOGY AND PALEONTOLOGY

This section discusses the Project's potential impacts on significant geological, mineralogical, and paleontological resources. It also evaluates whether Project-related activities could result in public exposure to geological hazards; and if so, whether proposed mitigation measures would adequately protect public health and safety.

SUMMARY AND DISCUSSION OF THE EVIDENCE

The Project site is located in the mouth of Pastoria Canyon in an area of the southern margin of the San Joaquin Valley, known as the Tejon Embayment.[54] The existing PEF is constructed on Pleistocene alluvial and fanglomerate deposits generated by erosion made up of silty sands and gravels. Fanglomerates, consisting of dense sands, gravels, and cobbles are present locally, but are restricted to areas of the alluvial fan that have experienced high velocity water discharge (flash floods) in the past. (Ex. 100, p. 5.2-2; Ex. 1, Vol. 1, §§ 5.3 and 5.8.)

The original grade for the PEF footprint was shallow (four percent). The 31-acre site varies in elevation from 1,058 feet to 1,088 feet above mean sea level. Cut and fill operations have modified the uniform natural slope into a series of stepped construction pads. No permanent surface water bodies are located on or adjacent to the site; however, there is an ephemeral stream drainage (Pastoria Creek) located approximately 1,000 feet to the west. (Ex. 100, p. 5.2-3.)

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[54] Three other geological units exist in the site vicinity and/or beneath the fanglomerate and alluvium. These units are Oligocene to Miocene in age and include the Vaqueros Formation, the Santa Margarita Formation, and the Chanac Formation. The Vaqueros Formation includes marine sediments and is considered highly sensitive since it contains vertebrate fossils outside the site area in a subunit called the Teyuca Beds. The Santa Margarita Formation is made up of marine and non-marine sands and gravels. Both terrestrial and marine vertebrate fossils have been reported in this unit. The Chanac Formation is a continental and marine formation in the Tejon Hills made up of poorly sorted and poorly bedded detritus from nearby mountains, claystone, and rhyolite. Terrestrial vertebrate fossils have also been reported in this unit. Staff notes that significant fossils were recorded in PEF Construction Compliance Reports. (Ex. 100, pp. 5.2-2, 5.2-8.)

Geological hazards that could affect the PEFE include faulting and seismicity, liquefaction, dynamic compaction, hydrocompaction, subsidence, expansive soils, landslides, and tsunamis and seiches. (Ex. 100, p. 5.2-3.) Staff reviewed available geological maps, reports, and related data for the Project site, including information from the California Geological Survey (CGS), California Division of Mines and Geology (CDMG), and other governmental organizations. The only geological hazard that could be a potential concern is ground shaking during an earthquake since the site is located in Seismic Zone 4. However, no active faults are known to cross the site.[55] Conditions of Certification **GEN-1, GEN-5,** and **CIVIL-1** listed in the **Facility Design** section require the Project Owner to comply with the California Building Standards Code (CBSC) and other applicable LORS to mitigate potential seismic impacts to less than significant levels. (Ex. 100, p. 5.2-5; Ex.1, Vol. I, § 3.3.2.2, Vol. II, Attachment C.)

The Federal Emergency Management Agency has mapped the site as lying within Flood Zone A, where flooding is expected during a 100-year storm but base flood elevations have not been determined. According to Staff, PEF construction included diversion structures to mitigate flooding hazards that could potentially affect either PEF or PEFE. (Ex. 100, p. 5.2-7.) **Facility Design** conditions incorporate these measures.

No viable geological or mineralogical resources are known to exist in the area. However, paleontological resources were documented on the PEF site and the native materials exhibit a high sensitivity rating for significant paleontological resources. Since construction of the PEFE will involve ground-moving activities such as grading, foundation excavation, and utility trenching, there is potential for paleontological resources to be encountered. This assessment is based on Society of Vertebrate Paleontology (SVP) criteria and monitoring reports compiled during PEF construction. Conditions of Certification **PAL-1** to **PAL-7** require the Project Owner to implement a

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[55] The closest known active faults near the site are the Pleito fault, located 0.6 mile south of the Project site, and the White Wolf fault, located approximately 10 miles north of the site. In July 1952, a magnitude 7.5 earthquake occurred on the White Wolf fault east of the site. In June 1988, a magnitude 5.2 earthquake occurred 33 miles south-southeast of Bakersfield but that fault was never determined. There was evidence of ground shaking at the Edmonston Pumping Plant, about 0.75 mile from the site, during the 1988 earthquake with some equipment damage and ground cracking of the access road. However, Staff did not find any surface evidence of soil failures at the Project site that could have been attributed to strong ground shaking from either earthquake. (Ex. 100, p. 5.2-5.)

Paleontological Resources Monitoring and Mitigation Plan, which would mitigate any paleontological resource impacts to less than significant levels. (Ex. 100, p. 5.2-8.)

FINDINGS AND CONCLUSIONS

Based on the evidence of record, the Commission makes the following findings and conclusions:

1. The Project is located in Seismic Zone 4, which presents significant earthquake hazards.

2. The Project will be designed to withstand strong earthquake shaking in accordance with the requirements for Seismic Zone 4 established in the California Building Standards Code (CBSC).

3. Final Project design will comply with the CBSC and include measures to mitigate potential risk from ground rupture, liquefaction, dynamic compaction, hydrocollapse, subsidence, expansive soils, and landslides associated with strong seismic shaking.

4. There is minimal to no potential for flooding at the PEFE site since appropriate flood protection measures were incorporated during PEF construction.

5. There is no evidence of existing or potential geological or mineralogical resources at the Project site or along the linear alignments.

6. Paleontological resources have been identified at the site and the probability of encountering paleontological resources during Project construction is high.

7. The Project Owner will implement several mitigation measures to avoid impacts to paleontological resources, including a Paleontological Monitoring and Mitigation Plan.

8. Compliance with the Conditions of Certification specified below will ensure the Project conforms with all applicable laws, ordinances, regulations, and standards related to geological, mineralogical, and paleontologic resources as identified in **Appendix A** of this Decision.

The Commission therefore concludes that implementation of the Conditions of Certification in the **Facility Design** section of this Decision and the Conditions listed below ensure that Project activities will not cause adverse impacts to either geological, mineralogical, or paleontological resources or expose the public to geological hazards.

CONDITIONS OF CERTIFICATION

General Conditions of Certification with respect to geological resources are covered under Conditions of Certification **GEN-1**, **GEN-5**, **CIVIL-1,** and **STRUC-1** in the **Facility Design** section. Paleontological Conditions of Certification are specified below.

PAL-1 The project owner shall provide the Compliance Project Manager (CPM) with the resume and qualifications of its Paleontological Resource Specialist (PRS) for review and approval. If the approved PRS is replaced prior to completion of project mitigation and submittal of the Paleontological Resources Report, then the project owner shall obtain CPM approval of the replacement PRS. The project owner shall submit to the CPM to keep on file, resumes of the 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 Society of Vertebrate Paleontology (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 geologicalal 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 paleontological resource monitors to monitor as he or she deems necessary on the project. Paleontologic resource monitors (PRMs) shall have the equivalent of the following qualifications:

- BS or BA degree in geology or paleontology and one year 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 and 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 beginning on-site duties.

3. Prior to the termination or release of a PRS, the project owner shall submit the resume of the proposed new 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 laydown areas, and all related facilities. Maps shall identify all areas of the project where ground disturbance is anticipated. If the PRS requests enlargements, the project owner shall provide copies to the PRS and CPM. The site grading plan and the 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 can be at a scale of 1 inch = 40 feet to 1 inch = 100 feet range. If the footprint of the power plant changes, then the project owner shall provide maps and drawings reflecting these changes to the PRS and CPM. Maps and drawings may be limited to the boundaries of the PEFE project.

If construction of the project will proceed 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. Prior to work commencing 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 during the next week, 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 revision, as appropriate, to the Paleontological Resources Monitoring and Mitigation Plan (PRMMP) for the existing PEF to identify general and specific measures to minimize potential impacts to significant paleontological resources. Approval of the revised PRMMP by the CPM shall occur prior to any ground disturbance. The revised 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 a basis for discussion in the event that on-site decisions or changes are proposed. Copies of the revised PRMMP shall reside with the PRS, each monitor, the project owner's on-site manager, and the CPM.

The revised PRMMP shall be developed in accordance with the guidelines of the Society of Vertebrate Paleontology (SVP, 1995) and shall update, as necessary, the following elements of the approved PRMMP for the existing PEF:

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 the 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 geological 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 the monitoring and sampling;

6. A discussion of the 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 meets the Society of Vertebrate Paleontology standards and requirements for the curation of paleontological resources;

9. Identification of the institution that has agreed to receive any 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 revised PRMMP to the CPM. The revised PRMMP shall include an affidavit of authorship by the PRS, and acceptance of the revised 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 in areas where no previous significant excavation has occurred, the project owner and the PRS shall prepare and conduct weekly CPM-approved training for all recently employed project managers, construction supervisors and workers who are involved with or 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 in-person PRS training during the project kick-off for those mentioned above. Following initial training, a CPM-approved video 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 any other areas of interest or concern. No ground disturbance shall occur prior to CPM approval of the WEAP, unless specifically approved by the CPM.

The revised Worker Environmental Awareness Program (WEAP) shall address the potential to encounter paleontological resources in the field, the sensitivity and importance of these resources, and the legal obligations to preserve and protect such 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 shall be provided 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 Certification of Completion of WEAP form signed by each worker indicating that they have 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 revised WEAP including the brochure with the set of reporting procedures the workers are to follow.

2. At least 30 days prior to ground disturbance, the project owner shall submit the script and final video to the CPM for approval if the project owner is planning on using a video for interim 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 video) 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 revised PRMMP all construction-related grading, excavation, trenching, and augering in areas where potentially fossil-bearing materials have been identified. In the event that the PRS determines full time monitoring is not necessary in locations that were identified as potentially fossil-bearing in the revised 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 different from the accepted schedule presented in the revised 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 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) keeps a daily log of monitoring 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 immediately 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 when construction has been halted due to a paleontological find.

The project owner shall ensure that the PRS prepares a summary of the monitoring and other paleontological activities that will be placed in the Monthly Compliance Reports (MCR). 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, etc. A section of the report shall include the geological units or subunits encountered; descriptions of sampling 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 and 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 revised 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 revised 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 the project construction.

Verification: The project owner shall maintain in their 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 completion and approval of the CPM-approved revised Paleontological Resource Report (See **PAL-7**). The project owner shall be responsible to pay 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 revision to the Paleontological Resources Report (PRR) for the existing PEF 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 submitted 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 revised Paleontological Resources Report under confidential cover to the CPM.

Certification of Completion
Worker Environmental Awareness Program
Pastoria Energy Facility Expansion (Docket #05-AFC-01)

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, Paleontology and Biological Resources for all personnel (i.e., construction supervisors, crews and plant operators) working on-site or at related facilities. By signing below, the participant indicates that they understand 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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2			
3			
4			
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Cultural Trainer: _____ Signature:_____Date: ___/___/____

Paleo Trainer: _____ Signature:_____Date: ___/___/____

Biological Trainer: _____ Signature:_____Date: ___/___/____

VII. LOCAL IMPACT ASSESSMENT

All aspects of a power plant development will affect the community in which it is located. The impact on the local area depends upon the nature of the community and the extent of the associated impacts. Technical topics discussed in this portion of the Decision consider issues of local concern, including land use, traffic and transportation, visual resources, noise, and socioeconomics.

A. LAND USE

To determine whether the Project will result in a significant effect on land use and/or agricultural resources, this topic focuses on two main issues (1) whether the Project is consistent with local land use plans, ordinances, and policies; and (2) whether the Project is compatible with existing and planned land uses.

Summary and Discussion of the Evidence

Our analysis is based on the factors identified in Appendix G of the CEQA Guidelines (Cal. Code Regs., tit. 14, § 21000 et seq.), which require the lead agency to assess whether the Project will:

- Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the Project adopted for the purpose of avoiding or mitigating an environmental effect;
- Disrupt or divide the physical arrangement of an established community;
- 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 use.

Local ordinances and policies applicable to the PEFE include the Kern County General Plan and the Kern County Zoning Ordinance. (Ex. 100, p. 4.5-1.) The PEF site was previously evaluated for compliance with Kern County's land use policies and zoning LORS. Conditions of Certification for the PEF required a site development plan consistent with the Kern County General Plan. Because the PEFE is an intensification of the existing use at the site, the land use and zoning designations for PEF also apply to PEFE. (*Id* at p. 4.5-2.)

1. The Site

Land use in the area consists of agriculture, grazing, and oil and gas development. There are no residences, parks, recreational, educational, religious, health care facilities, or commercial uses on the site or within a one-mile radius of the site. The Project site is designated Extensive Agriculture, Intensive Agriculture, Mineral and Petroleum, and Nonjurisdictional lands in the Kern County General Plan. Based on policies which permit uses such as power plants in agricultural areas in the Kern County General Plan, the proposed expansion is compatible with existing land use designations and zoning. (Ex. 100, p. 4.5-3.)

The 31-acre PEF site was previously subject to a Williamson Act Land Conservation ("Williamson Act") Contract,[55] which was held by the property owner Tejon Ranchcorp. The Kern County Board of Supervisors approved the Tejon Ranchcorp's petition to cancel the contract and approved a zoning variance for the parcel prior to certification of the PEF. (Ex. 1, Vol. 1, § 9, p. 229 et seq.)

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[55] The California Land Conservation Act (Gov. Code, § 51200 et seq.), known as the Williamson Act, enables local governments to enter into contracts with private landowners for the purpose of restricting specific parcels to agricultural or related open space uses. The landowner commits the parcel to an annually renewing ten-year period during which no conversion of agricultural use is

2. Consistency with Land Use LORS

The site itself is zoned Exclusive Agriculture (A). The Kern County Zoning Ordinance states that resource extraction and energy development uses in this zone are permitted by right and require no discretionary permits from the county. However, power plants are a conditional use in this zone. To satisfy the applicable sections of the zoning ordinance, the PEFE must comply with the following sections of the Kern County Zoning Ordinance: Section 19.80.30 of Chapter 19.80 (Special Development Standards – Commercial and Industrial Districts); Sections 19.82.030 and 19.82.090 of Chapter 19.82 (Off street Parking - Design and Development Standards); and Section 19.86.060 of Chapter 19.86 (Landscaping Standards – Industrial Uses). To ensure compliance with these LORS, Condition **LAND-1** requires the Project Owner to prepare a site development plan that satisfies the applicable sections of the Kern County Zoning Ordinance.

3. Compatibility with Existing and Planned Uses

The PEFE site and linear facilities are compatible with existing and planned land uses. There are no established communities within the immediate vicinity of the site. The PEFE will be located entirely within the existing PEF 31-acre parcel. The land on which the existing PEF is situated has, in the past, been used for grazing rather than cultivation. It is not “prime farmland”, “unique farmland”, or “farmland of statewide importance” under the Farmland Mapping and Monitoring Program of the California Resources Agency. Rather, it is marginal, uncultivated agricultural land whose agricultural value is further compromised by proximate non-agricultural uses such as the sand and gravel mines, the Edmonston Pumping Plant, and the California Aqueduct. Moreover, the proposed expansion

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permitted. In return, the land is taxed at a rate based on actual use of the land for agricultural purposes instead of the unrestricted market value of the property.

is not expected to trigger adjacent development that would cause further agricultural land conversion. In light of these qualifying circumstances, the potential impact of the PEFE on agricultural land is less than significant. (Ex. 100, p. 4.5-4; Ex. 9.)

4. Cumulative Impacts

Section 15130(a) of the CEQA Guidelines requires the lead agency to discuss cumulative impacts of a project when its incremental effect is cumulatively considerable. (Cal. Code Regs., tit. 14, § 15130(a).) "Cumulatively considerable" means that the incremental effects of an individual project are considerable when viewed in connection with the effects of past, present, and probable future projects. (*Id*. at §15065(c.))

Foreseeable development in the Project vicinity includes phased construction of the 341-acre Tejon Industrial Complex, located on the west side of Interstate 5 (I-5) on Laval Road, about seven miles from the PEF site. The combined effect of the PEF, the Tejon Industrial Complex, the San Emidio New Town Specific Plan (adopted by Kern County in October 1992) and other commercial, industrial, and residential uses proposed or currently under construction in southern Kern County represents a conversion of about 9,800 acres of agricultural land to urban uses. At build out of all projects, a total of about 20,219 dwelling units, 850 acres of industrial uses, 376 acres of commercial uses, and facilities such as schools and parks would be developed in southern Kern County. Each development is subject to land use controls, zoning, and development standards in effect at the time of project submittal to the appropriate permitting agency. Due to its location on the previously approved PEF site, the PEFE would not preclude or restrict existing or planned land uses or the conduct of agricultural and grazing uses on neighboring properties. Therefore no significant cumulative impacts resulting in the conversion of agricultural lands can be attributed to development of the PEFE. (Ex. 100, p. 4.5-5.)

FINDINGS AND CONCLUSIONS

Based on the evidence of record, the Commission makes the following findings and conclusions:

1. The Project site is subject to the Kern County General Plan and the Kern County Zoning Ordinance.

2. The Project site is designated Extensive Agriculture, Intensive Agriculture, Mineral and Petroleum, and Nonjurisdictional lands in the Kern County General Plan and the site itself is zoned Exclusive Agriculture (A).

3. Land use effects of developing the site for industrial uses were evaluated prior to certification of the PEF.

4. The site was originally subject to a Williamson Act Land Conservation Contract, which was cancelled by the Kern County Board of Supervisors upon petition by the property owner, Tejon Ranchcorp, and the County subsequently granted a zoning variance for PEF development.

5. There is no evidence that significant farmland will be affected by development of the PEFE on the existing site.

6. The Project Owner shall submit a site development plan to ensure compliance with applicable provisions of Kern County's land use LORS.

7. The Project is compatible with Kern County's existing and planned uses and zoning designations for the site and surrounding areas.

8. There is no potential for the PEFE to disrupt or divide the physical arrangement of an established community or unduly restrict existing or planned land uses.

9. There is no evidence that the PEFE will result in a significant cumulative contribution to land use impacts caused by foreseeable regional development.

10. The Conditions of Certification, below, ensure that the PEFE will comply with the relevant land use requirements in accord with all applicable laws, ordinances, regulations, and standards (LORS) identified in the evidentiary record and included in the pertinent portion of **Appendix A** of this Decision.

We therefore conclude that construction and operation of the PEFE will not result in direct, indirect, or cumulative land use impacts. Implementation of the Conditions of Certification, below, ensure that the PEFE will comply with all applicable laws, ordinances, regulations, and standards (LORS) related to land use.

CONDITIONS OF CERTIFICATION

LAND USE-1 Prior to the issuance of building or grading permits, the Project Owner shall submit a site development plan for the project to Kern County for their review and comment, and to the California Energy Commission Compliance Project Manager (CPM) for review and approval. The site development plan shall comply with all applicable provisions of the following sections of the Kern County Zoning Ordinance: Section 19.80.30 of Chapter 19.80 (Special Development Standards – Commercial and Industrial Districts); Sections 19.82.030 and 19.82.090 of Chapter 19.82 (Off street Parking - Design and Development Standards); and Section 19.86.060 of Chapter 19.86 (Landscaping Standards – Industrial Uses). The Project Owner shall provide a comment letter from the Kern County Planning Director stating that the Project is consistent with the provisions of the Kern County General Plan and Zoning Ordinance. The Project Owner shall submit a letter to the CPM from the Kern County Planning Director stating that the site development plan conforms to Kern County's Zoning Code and is consistent with the General Plan. If the CPM notifies the Project Owner that revisions of the plan are needed before the CPM will approve the plan, the Project Owner shall prepare and submit to the CPM a revised plan.

Verification: At least 60 days prior to the start of any ground disturbance related to construction, the Project Owner shall submit the site development plan and a copy of the comment letter from the Kern County Planning Director to the CPM for review and approval. The Project Owner shall submit any required revisions within 30 days of notification by the CPM.

B. TRAFFIC AND TRANSPORTATION

In this section, we examine the extent to which the Project will affect regional and local transportation systems. Construction and operation of a power plant have the potential to adversely affect roadways in the Project vicinity. 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. During plant operation, any increase in traffic will be minimal due to the limited number of vehicles involved; however, a slight increase in deliveries of hazardous materials is expected. Any transportation 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 anticipated number of deliveries of oversized/overweight equipment; the anticipated encroachments upon public rights-of-way; and the frequency of and routes associated with the delivery of hazardous materials. (Ex. 1, Vol. I, § 5.11; Ex. 100, p. 4.10-1 et seq.)

SUMMARY AND DISCUSSION OF THE EVIDENCE

The Project site is accessed from Interstate 5 (I-5) at the Grapevine Exit. Traffic then follows the Edmonston Pumping Plant Road for 6.5 miles before turning onto the paved PEF access road for about 0.85 mile to the site.[56]

The highway and state routes that could be affected by the PEFE include:

- Interstate 5 from Mt. Pinos Road to Highway 46;
- Highway 33 from Highway 166 to Highway 119;
- Highway 43, from Interstate 5 to Highway 46;

[56] The California Department of Water Resources (DWR) holds an easement for the Edmonston Pumping Plant Road, which is a private 2-lane road.

- Highway 58 from Highway 223 to Highway 202;
- Highway 99 from Interstate 5 to Highway 155;
- Highway 166, from Highway 33 (near Taft) to Highway 99; and
- Highway 223 from Interstate 5 to Highway 58.

Although traffic for the facility would impact these roads to a certain extent, all Project-related traffic eventually must use I-5 and then exit onto the Edmonston Pumping Plant Road. (Ex. 100, p. 4.10-4.)

The operating conditions of a roadway system, including intersections, are described by the term "level of service" (LOS), which describes a driver's experience based on the level of congestion (delay). LOS can range from "A", representing free-flow conditions with little or no delay to "F", representing saturated conditions with substantial delay. (Ex. 100, p. 4.10-7.)

The evidentiary record on this topic incorporated data about traffic characteristics on area highways from the PEF applicant's analysis in 1998. Staff used traffic volume counts from 1998 because the Caltrans 2003 traffic volume count data did not identify current traffic roadway locations (mile posts) in the Project area. According to Staff, the LOS capacities in the Project area were considered stable traffic flow patterns in 1998 when the original PEF was analyzed.[57] Staff therefore assumed the current LOS characteristics had not changed dramatically. (Ex. 100, pp. 4.10-7 and 4.10-8.)

1. Potential Construction-Related Impacts

The Project will require an estimated construction workforce of 146 workers per month, assuming a single shift and a 40-hour five-day workweek. During the

[57] Since Edmonston Pumping Plant Road is a private road, traffic data was not available from the Kern County Road Department. An estimate of traffic characteristics for Edmonston Pumping Plant Road was based on field observations of traffic conditions by PEF's consultants in 1999. (Ex. 1, Vol. II, Attachment J; Ex. 100, p. 4.10-9.)

peak construction period (in the 6th to the 9th month after the Notice to Proceed) an estimated 227 workers will be required at the construction site. Of those 227 workers, 155 are assumed to come from the local Bakersfield area and the remaining workers are expected to make up the non-local workforce commuting from Tehachapi and Southern California. (Ex. 100, p. 4.10-10; Ex. 1, Vol. I, § 5.11, Table 5.11-1a.). Applicant assumed most workers would commute from Bakersfield, Delano, and McFarland by way of Highway 99 and Interstate 5, consistent with the original PEF construction workforce commuting habits. (*Ibid*.)

Applicant's Table 5.11-1a, replicated below, shows the expected origin and distribution of the workforce that would commute to the site during construction.

Table 5.11-1a
Plant Construction Workforce Distribution

Origin of Vehicle Travel to PEF Site	Distribution of Local Workforce	Ave. Local Workforce	Peak Local Workforce	Ave. Non-Local Workforce	Peak Non-Local Workforce	Total Ave. Workforce (1)	Total Peak Workforce (2)
Bakersfield	69%	90	145	10	10	100	155
Delano	11%	14	23	2	2	16	25
Wasco	6%	8	13	1	1	10	14
Arvin	4%	5	8	1	1	6	9
McFarland	3%	4	6	0	0	4	7
Shafter	3%	4	6	0	0	4	7
Taft / Maricopa	2%	3	4	0	0	3	5
Other Areas Including Tehachapi & SoCal	2%	3	4	0	0	3	5
TOTAL	100%	131	209	14	14	146	227

Source: Ex. 1, Vol. I, § 5.11, Table 5.11-1a.
(1) Sum of average local workforce and average non-local workforce.
(2) Sum of total peak local workforce and total peak non-local workforce.

Applicant's Table 5.11-1b, replicated below, indicates the estimated workforce vehicle trip generation. Based on a worst-case scenario, it is assumed that each of the 146 workers during the non-peak months would drive a separate vehicle to the site, making two trips per day (from home to the site and reverse). This

calculation results in approximately 292 total vehicle trips per day on average and approximately 454 vehicle trips per day during the peak construction period. (Ex. 1, Vol. I, § 5.11.2.2; Ex. 100, p. 4.10-11.)

Table 5.11-1b
Construction Workforce Trip Generation and Workforce Distribution

Origin of Trip, Distribution To/From Pastoria Energy Facility Project Generating Plant Site	Average Workforce (1)	Average Vehicle Trips (2) per day	Peak Workforce	Peak Vehicle Trips per day
Bakersfield	100	202	155	310
Delano	16	32	25	50
Wasco	10	17	14	28
Arvin	6	11	9	18
McFarland	4	9	7	14
Shaffer	4	9	7	14
Taft and Maricopa	3	6	5	10
Other Areas Including Tehachapi and Southern California	3	6	5	10
Total	146	292	227	454

Source: Ex. 1, Vol. I, §5.11 Table 5.11-1b.
(1) From Table 5.11-1a, Total Average Workforce.
(2) From Table 5.11-1a, Total Peak Workforce.

According to Staff, the anticipated increase in traffic on local roads due to plant construction would mostly affect Highways 99 and 223. The resulting traffic increases on these roads during the peak months would be from 0.7 to 2.6 percent. Over the duration of construction, the related increase in traffic for these roads would average 0.4 to one percent. Construction-related commuter traffic is not expected to reduce the existing LOS on any of the highways in the Project area, and therefore no significant impacts are anticipated on local highways. (Ex. 100, p. 4.10-12.)

Since all traffic must use Edmonston Pumping Plant Road to access the site, this road would be the most affected by the construction workforce and truck delivery traffic. (Ex. 100, p. 4.10-12.) To ensure access to the road, Condition **TRANS-2** requires the Project Owner to obtain all necessary encroachment permits from local and state agencies for encroachment rights within the right-of-way.

The existing average daily traffic on the Edmonston Pumping Plant Road is about 60 trips per hour with a LOS rating of A. Due to the low traffic level on the road, it can accommodate the large increase in construction traffic without significantly affecting its LOS rating. Thus, the peak-period traffic increases due to construction workforce commuters should not result in a significant adverse traffic impact. (Ex. 100, p. 4.10-12.) To reduce any potential problems that could be associated with peak traffic conditions, Condition **TRANS-4** requires the Project Owner to prepare and implement a construction traffic control plan. Condition **TRANS-5** requires the Project Owner to repair any construction-related traffic damage to Edmonston Pumping Road.

The Applicant estimated that 269 truck deliveries would be made to the Project site over the course of the 12-month construction period (about 20 truck deliveries per month). The Applicant also assumed that most truck deliveries would originate in Bakersfield or north of Bakersfield and drivers would use Highway 99 south or Highway 43 south to I-5 to the Grapevine exit. Truck deliveries from the Los Angeles area would use I-5 north. Most construction and operation deliveries would occur between 7 a.m. and 5 p.m. on weekdays although there might be infrequent deliveries at other times. To minimize truck traffic, rail lines would be used whenever possible to transport heavy equipment closer to the site via the Union Pacific and Southern Pacific Railroad Arvin Branch[58]. (Ex. 1, Vol. I, § 5.11.2.3 et seq.)

According to Applicant, the average influx of one truck per day due to construction-related activity would have a negligible effect on the expected travel routes compared with existing passenger car/truck traffic ratios on those highways. Therefore, the impact of construction related traffic on highways will not be significant. (Ex. 1, Vol. I, § 5.11.2.6; Ex. 14.) Condition **TRANS-1** requires the Project Owner to comply with Caltrans and Kern County limitations

[58] Trucks would transport equipment from the Arvin Station to the site via Highway 223 to Hwy 99 south to I-5. (Ex. 100, p. 4.10-16.)

on vehicle sizes and weights and to obtain all necessary transportation permits for roadway use from Caltrans and other pertinent jurisdictions.

Deliveries and removal of hazardous materials used during Project construction are addressed in the **Waste Management** and **Hazardous Materials** sections of this Decision. Potential impacts due to transport of hazardous substances will be mitigated to insignificant levels by compliance with Condition **TRANS-3**, which requires the Project Owner to ensure that all permits are secured from the appropriate regulatory agencies and that all federal and state standards are observed by trucks carrying such materials to the PEFE. Condition **HAZ-4** in the **Hazardous Materials** section identifies the local route for HazMat deliveries.

2. Operational Impacts

Potential traffic impacts associated with Project operation include incremental commute trips by permanent staff and periodic truck deliveries. The PEFE will not add any additional fulltime employees to the existing PEF staff. Except for two additional truck deliveries of anhydrous ammonia per year, daily truck deliveries to the site will not increase due to the PEFE. Adequate parking for staff is available on-site. Thus, there should be no long-term traffic impacts due to PEFE operations. (Ex. 14; Ex. 100, p. 4.10-16.)

3. Cumulative Impacts

The Tejon Industrial Complex, located on the west side of Interstate 5 at the Laval Road Exit, began construction in 2000 and subsequent phases will continue in the coming years. Cumulative traffic impacts could occur if PEFE construction overlaps with Industrial Complex construction and the workforce and/or equipment delivery traffic occur concurrently on I-5 and local roadways. However, no regular PEFE-related traffic is expected to use the I-5 Laval Road Exit. Since traffic associated with PEFE can be accommodated by the existing

freeways and highways, no significant cumulative traffic impacts are predicted. (Ex. 100, p. 4.10-17.)

FINDINGS AND CONCLUSIONS

Based on the evidence of record, the Commission makes the following findings and conclusions:

1. Commuter and truck traffic associated with construction and operation of the PEFE will not have a significant effect on area freeways or existing LOS on local roadways.

2. The Project Owner will implement a traffic construction plan to mitigate any construction-related traffic concerns on area freeways, at the Grapevine Exit off Interstate 5, and on local access roads.

3. The Project Owner will obtain all necessary encroachment permits on local roadways.

4. Potential adverse impacts associated with the transportation of hazardous materials during construction and operation of the Project will be mitigated to insignificance by compliance with applicable federal and state laws.

5. 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 traffic impacts in the Project area.

6. Implementation of the Conditions of Certification, below, will ensure that both construction and operation of the Project comply with all applicable laws, ordinances, regulations, and standards regarding traffic and transportation as identified in the pertinent portions of **Appendix A**.

The Commission, therefore, concludes that construction and operation of the Project, as mitigated in the Conditions of Certification, will not cause any significant, direct, indirect, or cumulative adverse impacts to the local or regional traffic and transportation system, and will comply with all applicable LORS.

CONDITIONS OF CERTIFICATION

TRANS-1 The Project Owner shall comply with Caltrans and Kern County limitations on vehicle sizes and weights. 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, the Project Owner shall submit copies of any oversize and overweight transportation permits received during that reporting period. In addition, the Project Owner shall retain copies of these permits and supporting documentation in its compliance file for at least six months after the start of commercial operation.

TRANS-2 The Project Owner or its contractor shall comply with Caltrans and Kern County limitations for encroachment into public rights-of-way and shall obtain necessary encroachment permits from Caltrans (for temporary signalization during construction at the intersection of Interstate 5/Grapevine Exit and Edmonston Pumping Plant Road if necessary) and all relevant jurisdictions.

Verification: In Monthly Compliance Reports, the Project Owner shall submit copies of any encroachment permits received during the reporting period. In addition, the Project Owner shall retain copies of these permits and supporting documentation in its compliance file for at least six months after the start of commercial operation.

TRANS-3 The Project Owner shall ensure that permits and/or licenses are secured from the California Highway Patrol and Caltrans for the transport of hazardous materials.

Verification: The Project Owner shall include in its Monthly Compliance Reports, copies of all permits/licenses acquired by the Project Owner and/or subcontractors concerning the transport of hazardous substances.

TRANS-4 Prior to commencing on-site work to install permanent equipment or structures for the facility, the Project Owner shall consult with Kern County, and prepare and submit to the Compliance Project Manager (CPM) for approval a construction traffic control plan and implementation program which addresses the following issues:

- Timing of heavy equipment and building materials deliveries;
- Redirecting construction traffic with a flag person;

- Signing, lighting, and traffic control device placement if required;
- Need for construction work hours outside of peak traffic periods;
- Insure access for emergency vehicles to the project site; and
- Temporary travel lane closure.

Verification: At least thirty days prior to commencing on-site work to install permanent equipment or structures for the facility, the Project Owner shall provide to the CPM for review and approval, and to Kern County for review and comment, a copy of its construction traffic control plan and implementation program. Prior to the commencing on-site work to install permanent equipment or structures for the facility the Project Owner shall provide a copy of Kern County's comments on the plan.

TRANS-5 Following construction of the power plant and all related facilities, the Project Owner shall complete the repair of Edmonston Pumping Plant Road to original or as near original condition as possible.

Prior to commencing on-site work to install permanent equipment or structures for the facility, the Project Owner shall photograph Edmonston Pumping Plant Road between Interstate-5 and the plant entrance road. The Project Owner shall provide the CPM, DWR, and Kern County with a copy of the photographs.

Verification: At least thirty days prior to the commencing on-site work to install permanent equipment or structures for the facility the Project Owner shall provide copies of the photographs taken of the Edmonston Pumping Plant Road. Within 30 days of the completion of project construction, the Project Owner shall meet with the CPM and DWR to discuss appropriate road repairs for Edmonston Pumping Plant Road. The Project Owner shall provide a copy of a letter from DWR acknowledging satisfactory completion of the roadway repairs in the first Annual Compliance Report following start of operation.

C. SOCIOECONOMICS

This review of "socioeconomics" 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 these needs. The public benefits of the Project, including economic, environmental, and electricity reliability benefits are also reviewed. In addition, an environmental justice screening analysis is 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

The analysis focuses on the construction phase due to the potential influx of workers into the area. Socioeconomic impacts are considered significant if a large influx of non-resident workers and dependents move to the Project area, increasing demand for community resources that are not readily available.

Applicant's study area included: southern Kern County, Arvin, Bakersfield, California City, Delano, Maricopa, McFarland, Ridgecrest, Taft, Shafter, Tehachapi, Wasco, and 50 smaller communities within 80 miles of the site. The smaller communities within the study area are unlikely to be affected because of their small size, access, and limited available housing resources. (Ex. 100, § 4.8.1.)

Communities within the Project study area are within a two-hour one-way commute distance of the power plant site. Both Staff and Applicant concluded that construction workers could potentially be drawn from these areas, or if non-local workers are required for the Project, they would temporarily relocate to these communities during construction. (Ex. 1, p. 5.10-2 to 5.10-4; Ex. 12A; Ex. 100, p. 4.8-1.)

1. Potential Impacts

The construction period will take about 12 months with a peak workforce of 225 workers in the busiest 7th month of the construction period, with an overall average workforce of about 145 workers consisting of skilled workers and contractor staff. (Ex. 100, p. 4.8-9; Ex. 1, Vol. I, § 5.10-2.) The current staffing level of 25 permanent employees at the PEF site will not increase with the addition of PEFE. (Ex. 1, p. 5.10-2.)

Since the majority of construction workers are expected to commute on a daily basis, very few will relocate to the site vicinity during the construction period and, therefore, Project construction is not likely to increase demand for housing. According to Staff, there is adequate motel space available in Kern County to accommodate those workers who might choose to commute on a work-week basis. (Ex. 100, p. 4.8-7.)

The evidentiary record demonstrates there is ample and varied housing in Kern County and in the local communities to accommodate the minimal number of temporary construction workers or permanent employees with specialized skills from outside the area who may need to relocate. Some workers will locate in Delano and other areas of Kern County such as Arvin, Taft, Wasco, and possibly in Southern California. Impacts on housing and related services will be negligible in relation to the supply of available housing and services available. No replacement or displacement of residential housing will be necessary as a result of the Project. (Ex. 1, Vol. I, § 5.10.2.4; Ex. 100, p. 4.8-7.)

Since Project-induced potential population increases will be temporary or non-existent, construction and operation of the PEFE will not result in significant adverse impacts on schools, public utilities, or emergency services in the local communities. (Ex. 1, Vol. I, p 5.10-5; Ex. 12; Ex. 100, p. 4.8-7.)

Applicant anticipates an estimated construction payroll of $16 million over twelve months and an estimated $ 1million will be spent on local purchases of materials and equipment during construction. The Project will generate property tax revenues of approximately $2.1 million per year.[59] Annual operations expenses of approximately $100,000 and local purchases of supplies will yield an estimated $7,250 per year in sales tax revenues. Total capital cost of the Project including payroll is estimated at $70 million. (Ex. 12A, p. 11; Ex. 100 4.8-7.)

Public Benefit Findings

Public Resources Code section 25523(h) requires a discussion of the Project's public benefits. Project construction will provide local economic benefits by creating indirect short-term employment, as well as generating additional sales tax revenues due to the multiplier effect from local payroll expenditures and local purchases of materials and equipment. Property tax revenues from the Project will be allocated to local schools and for city and county infrastructure, and redevelopment. According to both Staff and the Applicant, the project will not have any significant adverse impacts on the socioeconomic environment, but rather will benefit the local economy. (Ex. 12, p. 2.; Ex. 100, p. 4.8-1.)

3. Environmental Justice Screening Analysis

Staff previously conducted a screening analysis for the PEF to determine whether environmental justice concerns were present.[60] (Ex. 100, pp. 4.8-2 and

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[59] Under AB 81 (Rev. and Taxation Code, § 100.9), the responsibility for property tax assessment for large power plants such as the PEFE shifted from the County Assessor to the State Board of Equalization (BOE) as of January 1, 2003. The statute requires an annual reassessment at fair market value and provides that property taxes be distributed exclusively to the taxing jurisdictions in which the facility is located.

[60] Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations" requires the U.S. Environmental Protection Agency (EPA) and all other federal agencies and state agencies receiving federal aid to identify and address disproportionately high and adverse human health or environmental effects of their programs on minority and low-income populations. Although the Energy Commission is not

4.8-5.) The screening analysis assessed (1) whether the potentially affected community includes minority and/or low-income populations; and (2) whether the Project's potential environmental impacts are likely to fall disproportionately on minority and/or low-income members of the community. According to EPA guidelines, a minority population exists if the low-income and/or minority populations of the affected area constitute 50 percent or more of the general population. (*Ibid*.)

Staff reviewed relevant 2000 Census data within a 6-mile radius of the site to determine whether low income/minority populations constitute more than 50 percent of the general population.[61] Census 2000 data by census block group information shows that the low income population is 15.33 percent within the same radius. This poverty status excludes institutionalized people, people in military quarters or college dormitories, and unrelated individuals under 15 years old. There is no population at a one or two mile radius and no evidence of potentially disproportionate impacts on low income populations. (Ex. 100, p. 4.8-2.)

The construction and operation of the PEFE project would not cause a significant direct or cumulative adverse socioeconomic impact on the study area's housing, schools, law enforcement, emergency services, hospitals, and utilities. There are no socioeconomic environmental justice issues related to this project.

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obligated as a matter of law to conduct an environmental justice analysis, we include this analysis in power plant siting decisions to ensure that any potential adverse impacts on identified populations will be addressed. Section 65040.12(c) of the California Public Resources Code defines environmental justice as "the 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." Government Code section 71100 mandates the Cal-EPA to develop a state mission to address environmental justice in its programs, policies, and standards.

[61] Staff requires a 6-mile radius for this analysis because it is the same radius used for Staff's cumulative air quality and public health analyses and captures the areas most likely to be impacted by the Project. (Ex. 100, p. 4.8-2.)

Compliance with all Conditions of Certification required by this Decision ensures that no unmitigated significant adverse impacts will result from Project-related activities. As described in the Air Quality and Public Health sections, changes in air quality values and public health indices that could occur as a result of Project operations are below regulatory thresholds for significant impact. Since we find that the mitigated air quality and public health impacts associated with the PEFE will not be significant, no population, including environmental justice populations, will be disproportionately impacted by the PEFE and no further environmental justice analysis is required. (Ex.100, pp. 4.8-2 and 4.8-10.)

3. Cumulative Impacts

While construction of the Tejon Industrial Complex (about seven miles north of the PEFE site) may coincide with PEFE construction activities, the large local labor force in Kern County will be able to provide workers for both Projects. (Ex. 1, § 5.10-5.) Since the PEFE will not result in any significant adverse socioeconomic impacts on housing, schools, or public services, it is not expected to contribute to significant cumulative socioeconomic impacts in the Project vicinity.

FINDINGS AND CONCLUSIONS

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

1. A large skilled labor pool in Kern County is available for construction and operation of the Project.

2. The Project will not cause an influx of a significant number of construction or operation workers to relocate in the local area.

3. Ample and varied housing is available in Kern County and in the local communities to accommodate the minimal influx of temporary construction workers.

4. The Project will not result in significant adverse effects to local employment, housing, schools, public utilities, or emergency services.

5. The PEFE will provide a construction payroll of about $16 million (2005 dollars).

6. The PEFE will spend an estimated $1 million on local purchases of materials and equipment during construction.

7. The PEFE will generate property tax revenues of approximately $2.1 million per year.

8. The annual operating expenses of approximately $100,000 and local purchases of supplies will yield an estimated $72,500 per year in sales tax revenues.

9. Total capital cost of the Project including payroll is estimated at $70 million.

10. The demographic environmental justice screening analysis indicates that low income and/or minority populations are not disproportionately represented in the six-mile radius surrounding the PEFE site.

11. Since PEFE will not result in adverse effects to any population, there will be no disproportionate impacts to low-income and/or minority populations.

12. The Project will provide public benefits, including economic and environmental benefits, and electricity reliability to the SCE service area.

13. Construction and operation of the Project will not result in any direct, indirect, or cumulative adverse socioeconomic impacts.

We therefore conclude that the Project will comply with all applicable laws, ordinances, regulations, and standards relating to socioeconomic factors as identified in the pertinent portions of **Appendix A**.

CONDITIONS OF CERTIFICATION

None required.

D. NOISE AND VIBRATION

The construction and operation of any power plant produces unwanted sound or noise. The character and loudness of the noise, the times of day or night during which it is produced, and the proximity of the facility to sensitive receptors are factors that determine whether the noise will cause significant adverse impacts to the environment. In some cases, vibration may be produced as a result of construction activities, which have the potential to cause structural damage and annoyance. This review evaluates whether noise and vibration produced during construction and operation will be sufficiently mitigated to comply with applicable law.

Summary of the Evidence

Laws that regulate noise disturbances in the Project vicinity are included in the Kern County General Plan. Two policies in the Noise Element apply to noise-related impacts due to construction and operation. Policy 5(a) prohibits new noise-sensitive land uses in noise-impacted areas unless effective mitigation measures are incorporated into project design to reduce noise levels in outdoor activity areas to 65 dB Ldn or less. Policy 5(b) prohibits new noise-sensitive land uses in noise-impacted areas unless effective mitigation measures are incorporated into project design to reduce interior noise levels within living spaces or other noise sensitive interior spaces to 45 dB Ldn or less. There are no current noise ordinances in Kern County.

1. Potential Impacts

The nearest residential noise receptors to the PEFE site are located 4.4 miles to the northeast (Laval Road) and 5.4 miles to the northeast (Lower Citrus). The Laval Road location has about a dozen residences with industrial/agricultural facilities on either side. The Lower Citrus area contains a field office, equipment

storage and maintenance buildings, with four adjacent units housing twelve permanent occupants. (Ex. 1, Vol. II, Attachment K.). Since 1999, no new noise-sensitive development has been approved or proposed within a five-mile radius of the existing PEF site. (Ex. 1, Vol. I, § 5.9.1.)

The PEF applicant conducted an ambient sound level survey in 1999 at the site and at ten selected locations in the site vicinity. (Ex. 1, Vol. II, Attachment K.) Since the PEFE will be constructed at the same location as the PEF and there have been no changes in the noise regime near the Project site other than operation-related noise due to the PEF, Calpine asserts that the previous survey remains valid. (Ex. 10.)

Survey results indicated that the ambient noise level near the site and throughout the general area was influenced primarily by mining machinery and transportation activities associated with the nearby gravel mining operation. Other background noise contributions came from traffic, agricultural operations, and industrial activities in the area. The ambient noise level at the closest receptor along Laval Road was 41 dBA L_{eq}. The next closest at the Lower Citrus agricultural activity area had a noise level of 40 dBA L_{eq}. (Ex. 1, Vol. II, Attachment K.) Under Conditions of Certification for the PEF, operational noise emissions were limited to 46 dBA L_{eq} at the nearest residence along Laval.[62] (Ex. 1, Vol. 1, § 9, p. 265 et seq., Condition Noise-6.)

2. Mitigation Measures

Under CEQA Guidelines, the following factors are considered indicative of significant noise effects: (Cal. Code Regs., tit. 14, Appendix G.)

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[62] Staff uses the significance threshold of 5 dBA when project-related noise emissions exceed existing ambient noise levels at the nearest sensitive receptor. This threshold was applied to the original noise calculations for the PEF. (Ex. 1, Vol. 1, § 9, p. 272; Ex. 100, p. 4.6-4.)

- exposure of persons to, or generation of, noise levels in excess of standards established in the local General Plan or noise ordinance, or applicable standards of other agencies;
- exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels;
- substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project; or
- substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.

a. Construction

Construction of an industrial facility such as a power plant is typically noisier than permissible under usual noise ordinances. To encourage construction of new facilities, construction noise during certain hours of the day is commonly exempt from enforcement by local ordinances. There are no specific LORS limiting construction noise in Kern County. (Ex. 100, p. 4.6-5.)

Calpine predicted that potential PEFE construction noise impacts on the nearest sensitive receptors would be 36 dBA for most work, which is less than the ambient background noise levels of 40 dBA L_{eq}.[63] Since construction activities are temporary and do not occur simultaneously, it is unlikely that existing ambient noise levels would be adversely impacted. (Ex. 1, Vol. I, § 5.12.2.1.)

In the event that construction noise should concern nearby workers or residents, Conditions of Certification **NOISE-1** and **NOISE-2** establish a Noise Complaint Process that requires the Project Owner to resolve any problems caused by construction or operational noise. Condition **NOISE-**6 limits noisy construction work to the period of 7 a.m. to 10 p.m. According to the evidentiary record,

[63] If all the construction equipment for PEFE were to operate simultaneously at maximum power, a total noise level of approximately 89 dBA would occur at a distance of 50 feet from the acoustic center of the construction activity. Accounting for the attenuation of sound by distance, the noise would reduce to ambient levels at sensitive locations. (Ex. 1, Vol. I, § 5.12.2.1.)

steam blows, the loudest construction-related sounds, are not required for PEFE start-up. (Ex. 1, Vol. I, § 5.12.2.1.)

Pile driving is the only construction activity likely to produce significant vibration that could be perceived off-site. According to the evidentiary record, pile driving will not be required for PEFE construction and, therefore, no vibration impacts are anticipated. (Ex. 100, p. 4.6-6.)

To protect on-site construction workers from injury due to excessive noise during construction-related activities, Condition **NOISE-3** requires the Project Owner to implement a noise control program for construction workers in accordance with OSHA and Cal/OSHA standards.[64]

b. Operation

A power plant emits steady, continuous, broadband noise, unlike the intermittent sounds that comprise the majority of the noise environment. Typically, power plant noise becomes part of the ambient noise or the sound heard when most intermittent noises cease. Where power plant noise is audible, it will tend to define the background noise level. To examine the contribution of PEFE noise to the existing noise environment, it was compared to the background (L_{90}) noise levels at the affected sensitive receptors. (Ex. 100, p. 4.6-7.)

Calpine's noise impact calculations indicated that the normal noise level due to PEFE operation would be less than 20 dbA L_{eq} at the nearest residential receptor locations, well below the maximum allowable noise level of 46 dBA L_{eq} for the PEF. This noise level is below the existing ambient noise levels at the sensitive receptor locations and should be inaudible. (Ex. 1, §§ 5.12.2.2.1 and 5.12.2.2.)

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[64] Regulations adopted by the federal Occupational Safety and Health Administration (OSHA) and the state Cal/OSHA protect workers from noise-related health and safety hazards. (29 C.F.R., §1910 et seq.; Cal. Code of Regs., tit. 8, § 5095 et seq.)

Previous noise impact calculations for the PEF indicated that the operating noise level was approximately 37 dBA Ldn at the closest residential receptor. According to Calpine, the Community Noise Equivalent Level (CNEL) for PEFE would be approximately 24 dBA L_{dn} at the closest residential receptor, well below the Kern County maximum allowable noise level of 65 dBA L_{dn}. When added (on a logarithmic basis) to the equipment noise levels at the existing PEF, the resultant increase in total operating noise levels from the combined PEF and PEFE was estimated to be 0.3 dBA at the nearest noise-sensitive land use. Based on Kern County standards and applicable LORS, it is reasonable to conclude that the Project will not result in significant noise impacts. (Ex. 1, § 5.12.2.1.1; Ex. 100, p. 4.6-7.)

Condition **NOISE-4** requires the Project Owner to conduct a noise survey when the PEFE achieves 80 percent of capacity at the same time that the entire PEF is operating to ensure that the addition of PEFE does not exceed the established level of 46 dBA L_{eq} for PEF at noise-sensitive receptors. Condition **NOISE-4** also requires Project design to blend noise levels and muffle equipment to prevent legitimate complaints from affected residential receptors.

Vibration from an operating power plant could be transmitted by two chief means; through the ground (groundborne vibration), and through the air (airborne vibration). (Ex. 100, p. 4.6-8 et seq.)

The operating components of a simple cycle power plant consist of high-speed gas turbines, compressors, and various pumps. All of these pieces of equipment must be balanced in order to operate; permanent vibration sensors are attached to the turbines and generators. It is unlikely that any groundborne vibration would be detectable by any potential receptor. (Ex. 100, p. 4.6-9.)

Airborne vibration (low frequency noise) can rattle windows and objects on shelves, and the walls of lightweight structures. The PEFE's chief source of

airborne vibration would be the gas turbine's exhaust, which passes through the selective catalytic reduction (SCR) module and the stack silencer before it reaches the atmosphere. The SCR acts as an efficient muffler; the combination of SCR unit and stack silencer makes it highly unlikely that the PEFE would cause perceptible airborne vibration effects. (Ex. 100, p. 4.6-9.)

The ambient noise analysis identified all existing noise sources and the addition of the PEFE does not cumulatively contribute to noise impacts in the area. Construction of the Tejon Industrial Complex, which is located several miles from the site, is beyond any noise impact radius. (Ex. 100, p. 4.6-9.)

FINDINGS AND CONCLUSIONS

Based on the evidence of record, the Commission makes the following findings and conclusions:

1. Construction and operation of PEFE will not 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 sound reduction devices, limiting construction to specified hours, and providing notice to nearby residences and businesses, as appropriate.

3. The Project Owner shall implement measures to protect construction workers from injury due to excessive noise levels by complying with pertinent OSHA and Cal/OSHA regulations.

4. The nearest sensitive noise receptors are located 4.4 miles (Laval Road) and 5.4 miles (Lower Citrus) southeast of the Project site, where the existing average ambient noise levels are 41 dBA L_{eq} and 40 dBA L_{eq}, respectively.

5. Under Conditions of Certification for the PEF, operational noise emissions are limited to 46 dBA L_{eq} at the nearest residence along Laval.

6. Calpine's noise prediction calculations indicate the PEFE's normal operating noise contribution to the ambient noise level would be inaudible at either of the nearest noise-sensitive areas.

7. Noise reduction measures will be incorporated in the Project design to ensure that operation noise does not audibly increase ambient noise levels.

8. There is no evidence of potential cumulative noise impacts resulting from the addition of PEFE in the area.

9. The Project Owner will implement the mitigation measures identified in the evidentiary record and the Conditions of Certification to ensure that Project-related noise emissions do not cause significant adverse impacts to sensitive noise receptors.

The Commission concludes that implementation of the following Conditions of Certification ensure that PEFE will comply with the applicable laws, ordinances, regulations, and standards on noise and vibration as set forth in the pertinent portions of **Appendix A** of this Decision.

CONDITIONS OF CERTIFICATION

NOISE-1 At least 15 days prior to the start of ground disturbance, the Project Owner shall notify all residences and businesses within one mile of the site and the linear facilities, by mail or 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 per 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 in a manner visible to passersby. This telephone number shall be maintained until the Project has been operational for at least one year.

Verification: Prior to ground disturbance, the Project Owner shall transmit to the Compliance Project Manager (CPM) a statement, signed by the Project Owner's authorized representative, stating that the above notification has been performed, and describing the method of that notification, verifying that the telephone number is functional and posted at the site, and providing that telephone number to the CPM.

NOISE COMPLAINT PROCESS

NOISE-2 Throughout the 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 related to the complaint;
- If the noise is Project-related, take all feasible measures to reduce the noise at its source; and
- Submit a report documenting the complaint and the actions taken. The report shall include: a complaint summary, including final results of noise reduction efforts; and if obtainable, a signed statement by the complainant indicating 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 copy of the Noise Complaint Resolution Form, with the local jurisdiction and the CPM, documenting the resolution of the complaint. If mitigation is required to resolve a complaint, and the complaint is not resolved within a 3-day period, the Project Owner shall submit an updated Noise Complaint Resolution Form providing evidence that the necessary mitigation has been implemented.

NOISE-3 The Project Owner shall submit to the CPM for review and approval a noise control program. The noise control program shall be designed and implemented to reduce employee exposure to high noise levels during construction in compliance with applicable OSHA and Cal-OSHA standards.

Verification: At least 30 days prior to the start of ground disturbance, the Project Owner shall submit to the CPM the noise control program. The Project Owner shall make the program available to Cal-OSHA upon request.

NOISE RESTRICTIONS

NOISE-4 Within 30 days of the Pastoria 160 MW Expansion first achieving a sustained output of 80 percent or greater of rated capacity, the Project Owner shall conduct a 25-hour community noise survey, at a time when the entire Pastoria Energy Facility is operating, utilizing the same monitoring sites employed in the pre-Project ambient noise survey as a minimum. The survey shall also include the octave band pressure levels to ensure that no new pure-tone noise components have been introduced. No single piece of equipment shall be allowed to stand out as a source of noise that draws legitimate complaints. Steam relief valves shall be adequately muffled to preclude noise that draws legitimate complaints. If the results from the survey indicate that the Project's noise levels are in excess of 46 dBA L_{eq} (41 dBA L_{eq} + 5 dBA threshold) at the residence along Laval Road (4.4 miles northeast of the proposed site), additional mitigation measures shall be implemented to reduce noise to a level of compliance with this limit.

Verification: Within 30 days after completing the survey, the Project Owner shall submit a summary report of the survey to the Kern County Environmental Health Services Department, and to the CPM. Included in the report will be a description of any additional mitigation measures necessary to achieve compliance with the above listed noise limits, and a schedule, subject to CPM approval, for implementing these measures. Within 30 days of completion of installation of these measures, the Project Owner shall submit to the CPM a summary report of a new noise survey, performed as described above and showing compliance with this condition.

NOISE-5 Following the Project first achieving a sustained output of 80 percent or greater of rated capacity, the Project Owner shall conduct an occupational noise survey to identify the noise hazardous areas in the facility.

The survey shall be conducted by a qualified person in accordance with the provisions of Title 8, California Code of Regulations, sections 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 that will be employed 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 TIME RESTRICTIONS

NOISE-6 Heavy equipment operation and noisy construction work relating to any Project features shall be restricted to the times of day delineated below:

Any Day	7 a.m. to 10 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 ground disturbance, 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
PASTORIA ENERGY FACILITY EXPANSION
05-AFC-1(C)

NOISE COMPLAINT LOG NUMBER _____

Complainant's name and address:

Phone number: _____

Date complaint received: _____

Time complaint received: _____

Nature of noise complaint:

Definition of problem after investigation by plant personnel:

Date complainant first contacted: _____

Initial noise levels at 3 feet from noise source _____ dBA Date: _____

Initial noise levels at complainant's property: _____ dBA Date: _____

Final noise levels at 3 feet from noise source: _____ dBA Date: _____

Final noise levels at complainant's property: _____ dBA Date: _____

Description of corrective measures taken:

Complainant's signature: _____ Date: _____

Approximate installed cost of corrective measures: $ _____

Date installation completed: _____

Date first letter sent to complainant: _____ (copy attached)

Date final letter sent to complainant: _____(copy attached)

This information is certified to be correct:

Plant Manager's Signature: _____

(Attach additional pages and supporting documentation, as required).

Noise Table Appendix 1 Definition of Some Technical Terms Related to Noise	
Terms	**Definitions**
Decibel, dB	A unit describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure, which is 20 micropascals (20 micronewtons per square meter).
Frequency, Hz	The number of complete pressure fluctuations per second above and below atmospheric pressure.
A-Weighted Sound Level, dBA	The sound pressure level in decibels as measured on a Sound Level Meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise. All sound levels in this testimony are A-weighted.
L_{10}, L_{50}, & L_{90}	The A-weighted noise levels that are exceeded 10%, 50%, and 90% of the time, respectively, during the measurement period. L_{90} is generally taken as the background noise level.
Equivalent Noise Level, L_{eq}	The energy average A-weighted noise level during the Noise Level measurement period.
Community Noise Equivalent Level, CNEL	The average A-weighted noise level during a 24-hour day, obtained after addition of 4.8 decibels to levels in the evening from 7 p.m. to 10 p.m., and after addition of 10 decibels to sound levels in the night between 10 p.m. and 7 a.m.
Day-Night Level, L_{dn} or DNL	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.
Ambient Noise Level	The composite of noise from all sources, near and far. The normal or existing level of environmental noise at a given location.
Intrusive Noise	That noise that intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends upon its amplitude, duration, frequency, and time of occurrence and tonal or informational content as well as the prevailing ambient noise level.
Pure Tone	A pure tone is defined by the Model Community Noise Control Ordinance as existing if the one-third octave band sound pressure level in the band with the tone exceeds the arithmetic average of the two contiguous bands by 5 decibels (dB) for center frequencies of 500 Hz and above, or by 8 dB for center frequencies between 160 Hz and 400 Hz, or by 15 dB for center frequencies less than or equal to 125 Hz.

Source: California Department of Health Services 1976, 1977.

Noise Table Appendix 2 Typical Environmental and Industry Sound Levels			
Noise Source (at distance)	A-Weighted Sound Level in Decibels (dBA)	Noise Environment	Subjective Impression
Civil Defense Siren (100')	140-130		Pain Threshold
Jet Takeoff (200')	120		Very Loud
Very Loud Music	110	Rock Music Concert	
Pile Driver (50')	100		
Ambulance Siren (100')	90	Boiler Room	
Freight Cars (50')	85		
Pneumatic Drill (50')	80	Printing Press Kitchen with Garbage Disposal Running	Loud
Freeway (100')	70		Moderately Loud
Vacuum Cleaner (100')	60	Data Processing Center Department Store/Office	
Light Traffic (100')	50	Private Business Office	
Large Transformer (200')	40		Quiet
Soft Whisper (5')	30	Quiet Bedroom	
	20	Recording Studio	
	10		Threshold of Hearing

Source: Peterson and Gross 1974

SUBJECTIVE RESPONSE TO NOISE

The adverse effects of noise on people can be classified into three general categories:

- Subjective effects of annoyance, nuisance, dissatisfaction.
- Interference with activities such as speech, sleep, and learning.
- Physiological effects such as anxiety or hearing loss.

The sound levels associated with environmental noise, in almost every case, produce effects only in the first two categories. Workers in industrial plants can experience noise effects in the last category. There is no completely satisfactory way to measure the subjective effects of noise, or of the corresponding reactions of annoyance and dissatisfaction, primarily because of the wide variation in individual tolerance of noise.

One way to determine a person's subjective reaction to a new noise is to compare the level of the existing (background) noise, to which one has become

accustomed, with the level of the new noise. In general, the more the level or the tonal variations of a new noise exceed the previously existing ambient noise level or tonal quality, the less acceptable the new noise will be, as judged by the exposed individual.

With regard to increases in A-weighted noise levels, knowledge of the following relationships (Kryter 1970) can be helpful in understanding the significance of human exposure to noise.

1. Except under special conditions, a change in sound level of one dB cannot be perceived.
2. Outside of the laboratory, a three dB change is considered a barely noticeable difference.
3. A change in level of at least five dB is required before any noticeable change in community response would be expected.
4. A ten dB change is subjectively heard as an approximate doubling in loudness and almost always causes an adverse community response.

Combination of Sound Levels

People perceive both the level and frequency of sound in a non-linear way. A doubling of sound energy (for instance, from two identical automobiles passing simultaneously) creates a three dB increase (i.e., the resultant sound level is the sound level from a single passing automobile plus three dB). The rules for decibel addition used in community noise prediction are:

Noise Table Appendix 3
Addition of Decibel Values

When Two Decibel Values Differ by:	Add the Following Amount to the Larger value
0 to 1 dB	3 dB
2 to 3 dB	2 dB
4 to 9 dB	1 dB
10 dB or more	0

Figures in this table are accurate to ± 1 dB.
Source: Thumann, Table 2.3

Sound and Distance

1. Doubling the distance from a noise source reduces the sound pressure level by six dB.

2. Increasing the distance from a noise source ten times reduces the sound pressure level by 20 dB.

Worker Protection

OSHA noise regulations are designed to protect workers against the effects of noise exposure, and list permissible noise level exposure as a function of the amount of time to which the worker is exposed:

Noise Table Appendix 4
OSHA Worker Noise Exposure Standards

Duration of Noise (Hrs/day)	A-Weighted Noise Level (dBA)
8.0	90
6.0	92
4.0	95
3.0	97
2.0	100
1.5	102
1.0	105
0.5	110
0.25	115

Source: 29 CFR § 1910.95

E. VISUAL RESOURCES

Visual resources are the natural and cultural 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 on the environment which, in this case, will focus on the Project's potential to cause substantial degradation to the existing visual character of the site and its surroundings. (Cal. Code of Regs., tit. 14, § 15382, Appendix G.)

Summary and Discussion of the Evidence

The PEFE will be constructed on a two-acre site entirely within the existing PEF site boundary and does not require any modification to the existing linear facilities. The site is surrounded by open fields and is in close proximity to the Tejon Hills to the east. In general, the views are open and panoramic. (Ex. 100, p. 4.12-2.)

The most visible component of the PEFE would be the 131-foot tall combustion turbine generator stack.[65] The new stack would be about 20 feet shorter than the existing generator stacks. The only other new structure would be a generator step-up transformer added to the existing switchyard. The Project would use 12 acres of the 25-acre construction laydown area adjacent to the PEF site. (Ex. 100, p. 4.12-2.)

Within the Project vicinity, foreground to middle-ground views (two miles or less) of the site are generally not available due to private land owned by Tejon Ranch that is used for growing grapes and other fruit crops. Views toward the site from local roads (Laval and Edmonston Pumping Plant Road) are either open or obscured by orchards. The nearest residences are more than three miles away

[65] The PEFE's new exhaust stack will not generate a visible plume. (Ex. 100, p. 4.12-5; Ex. 16.)

along Laval Road. Other features in the view include fields, orchards, the Tejon Hills, and Tehachapi Mountains. (Ex. 100, p. 4.12-2.)

Northbound travelers on Interstate-5 (I-5) looking towards the site (90 degrees to the right), approximately 6.5 miles to the east, would barely see the Project and would have a disrupted view due to intervening orchards, grassy fields, and elevated hillsides. The view for southbound travelers on I-5 would be partially blocked by the row of oleander bushes in the center divide although the Project (90 degrees to the left) would be briefly visible in the distance. (Ex. 100, p. 4.12-3.)

1. Methodology

The visual impact analysis for the power plant was based on an assessment of potential viewshed impacts at one defined Key Observation Point (KOP 1) along I-5, which represents a viewpoint of the site from a location adjacent to the northbound lanes of I-5. A large number of motorists use this major highway as evidenced by average annual daily traffic counts ranging from 67,000 at the intersection with SR-99, to 29,500 at the intersections with SR-223 and SR-119. Staff traveled this highway segment, as well as other locations in the Project vicinity, and believes KOP 1 is appropriate for the analysis.[66] (Ex. 100, p. 4.12-4.)

The view from KOP1 is an open panoramic scene of agricultural fields in the fore and mid-ground with one or two fruit orchards visible. On a clear day, the PEF is

[66] Applicant selected two other KOPs; one looking north from Edmonston Pumping Plant Road (1.1 miles south of the site), and another looking south from the intersection of Laval and Rancho Roads 2.75 miles north of the PEF. According to Staff, these are not necessary because Edmonston Pumping Plant Road is a private road primarily used by plant employees who are familiar with the existing PEF. Similarly, the Rancho-Laval Roads intersection has little traffic since there are only three residences on Laval Road located two miles west of this intersection, and there are many orchards blocking the view toward the PEF/PEFE site. For these reasons, Staff was satisfied that KOP 1 best represents public views of the PEFE. (Ex. 100, p. 4.12-4.)

barely visible in the center of the view at the base of the mountains. The existing heat recovery steam generator (HRSG) stacks are the most noticeable structures. Northbound motorists at KOP1 would have to look to the right about 90 degrees to see the combined PEF and PEFE, which would appear very small given the panoramic view. Southbound motorists would have a brief opportunity to see the power plant site, 90 degrees to the left, because it would be partially screened by the oleander bushes. During construction and/or operation of the PEFE, it is unlikely that drivers would notice any significant physical change.[67] (Ex. 100, p. 4.12-4.)

2. Potential Impacts

Staff's analysis was based on an accepted visual quality evaluation system that uses a scale of High, Moderately High, Moderate, Moderately Low, and Low to evaluate elements including contrast with natural and manmade features, visual dominance, and view blockage to reach an overall finding regarding visual impact severity. (Ex. 100, p. 4.12-5 et seq.) A summary of the Visual Resources analysis was compiled in Staff's Appendix VR-1. (*Id*., Visual Resources, Appendix VR-1.)

According to Staff, the view from KOP 1 provides a panoramic view of agricultural fields, orchards, mountains, and sky with good visual quality. The power plant site is barely visible to passing motorists and therefore viewer concern and sensitivity is low. (Ex. 100, p. 4.12-5.)

The PEFE would introduce one additional vertical structure: a fourth turbine generator stack but it would blend in with existing PEF structures. The introduction of a tan-colored structure into the view would present a minor color

[67] During the construction period, the view of tall cranes and other heavy equipment, building materials, and piles of debris would be visible to Edmonston Pump Plant visitors and employees. Viewers from KOP 1 would not be able to see construction equipment or activities. (Ex. 100, pp. 4.12-3 and 4.12-4.)

contrast with the more prominent green, brown, and blue colors of the agricultural fields, mountains, and sky. (Ex. 100, p. 4.12-5.) To ensure that PEFE color treatment blends with the surrounding landscape, Condition of Certification **VIS-1** requires the Project Owner to submit a color treatment plan prior to ordering color-treated Project components. With this color control, overall visual contrast with the existing setting would be low.

From KOP1, the overall visual change caused by the PEFE would be low due to the low visual contrast, the low dominance, and the low degree of view disruption. When considered within the context of low visual sensitivity of the existing landscape and viewing characteristics, and the low visual change that would be perceived from KOP 1, the Project would not cause a significant adverse visual impact. (Ex. 100, p. 4.12-5.)

The PEF has already implemented measures to reduce potential sources of light or glare that would adversely affect daytime and nighttime views in the area. Additional lighting needed for PEFE would be subject to Condition **VIS-2**, below, which requires the Project Owner to submit a lighting plan for any exterior lighting associated with PEFE to ensure that there is no significant off-site increase in light or glare.

The PEFE does not contribute to any significant cumulative impact to visual resources since the only foreseeable development in the area, the Tejon Industrial Complex, is seven miles west of the PEFE site. The PEFE's impact on visual resources is very low within the panoramic landscape, and in combination with the Industrial Complex, its impact would not be cumulatively considerable. (Ex. 100, p. 4.12-6.)

The PEFE must comply with LORS in the Kern County General Plan and Zoning Code that pertain to the protection and maintenance of visual/scenic resources.

Specifically, the County's General Plan contains one applicable element for review: the Land Use, Open Space, and Conservation Element.

Staff's Visual Resources Table 2, replicated below, provides a consistency review discussion of the applicable local LORS.

Visual Resources Table 2
Project's Consistency with LORS Specific To Visual Resources

State	**California Government Code**
Section 65302(a)	Requires that a land use element designate the proposed general distribution, general location, and extent of land uses for a variety of uses including the enjoyment of scenic beauty.
Project is consistent	The proposed Project is not in an area that has been designated as a special scenic resource.
Local	**Kern County General Plan** **Land Use, Open Space, and Conservation Element**
Provision	Industrial policies encourage upgrading the visual character of existing industrial areas through the use of landscaping, screening, or buffering. An additional requirement pertains to industrial uses providing design features such as screen walls, landscaping, increased height and/or setbacks, and lighting restriction, etc.
Project is consistent	The applicant has agreed to maintain the conditions of certification related to landscaping, screening trash receptacles, and signs. These conditions are acceptable to Kern County.
Local	**Kern County Zoning Code**
Chapter 19.86 Landscaping	The purpose of this chapter is to ensure that development is aesthetically pleasing and compatible with surrounding development by requiring the provision of adequate landscaping in connection with new development, and the expansion of existing development and changes in use.
Project is consistent	The applicant's implementation of landscaping is acceptable to Kern County.

The evidence indicates that the PEFE is consistent with applicable visual policies in the Kern County General Plan -- Land Use, Open Space, and Conservation Element. Because Kern County has an approved General Plan, state LORS are also met. With mitigation, construction and operation of the PEFE would not cause any significant visual impacts to adjacent land uses, nor would the PEFE contribute considerably to any cumulative visual impacts. (Ex. 100, p.4.12-8.)

FINDINGS AND CONCLUSIONS

Based on the evidence of record, the Commission makes the following findings and conclusions:

1. The PEFE will be located within the existing PEF site in a rural area several miles from residential areas and Interstate Highway 5 (I-5), where the views are open and panoramic.

2. Construction activities will be transitory and noticeable only on the private Edmonston Pump Plant Road.

3. The most visible component of the PEFE will be the new 131-foot tall combustion turbine generator stack but it will blend in with existing taller components at the PEF site.

4. The Project's potential impacts on the viewshed were analyzed at one defined Key Observation Point (KOP 1), which represents a view of the site from a location adjacent to the northbound lanes of I-5.

5. The PEF site is barely visible to passing drivers at KOP 1 and the addition of PEFE would not create any significant visual impacts.

6. The Project Owner will treat Project surfaces with colors that minimize visual intrusion and contrast.

7. The Project Owner will implement appropriate mitigation measures to reduce or eliminate visual impacts from nighttime lighting and glare.

8. The PEFE will comply with all applicable LORS regarding Project design, architecture, landscaping, and other zoning requirements.

9. There is no evidence of cumulative visual impacts.

10. Implementation of the Conditions of Certification, below, will insure that PEFE complies with all applicable laws, ordinances, regulations, and standards relating to visual resources as identified in Visual Resources Table 2 in this section and in the pertinent portions of **Appendix A** of this Decision.

The Commission concludes that implementation of the mitigation measures identified in the Conditions of Certification and otherwise described in the

evidentiary record ensures that the PEFE will not result in significant adverse impacts to visual resources.

CONDITIONS OF CERTIFICATION

VIS-1 The Project Owner shall treat the Project structures, buildings, and tanks in an earthen hue or hues that minimize visual intrusion and contrast by blending with the surrounding landscape, and shall treat those items and the switchyard structures and electric transmission towers in a non-reflective finish with a low gloss.

The Project Owner shall submit a treatment plan for the Project to the Energy Commission Compliance Project Manager (CPM) for review and approval. The treatment plan shall include:

- Specification, and 11" x 17" color simulations, of the treatment proposed for use on Project structures, including structures treated during manufacture;
- List of each major Project structure, building, and tank, specifying the color(s) proposed for each item;
- Documentation that a non-reflective finish will be used on all Project elements visible to the public;
- Detailed schedule for completion of the treatment; and,
- Procedure to ensure proper treatment maintenance for the life of the Project.

If the CPM notifies the Project Owner that revisions of the plan are needed before the CPM will approve the plan, the Project Owner shall submit a revised plan to the CPM.

After approval of the plan by the CPM, the Project Owner shall implement the plan according to the schedule and shall ensure that the color treatment is properly maintained for the life of the Project.

For any structures that are treated during manufacture, the Project Owner shall not specify the treatment of such structures to the vendors until the Project Owner receives notification of approval of the treatment plan by the CPM.

The Project Owner shall not perform the final treatment on any structures until the Project Owner receives notification of approval of the treatment plan from the CPM.

The Project Owner shall notify the CPM within one week after all pre-colored structures have been erected and all structures to be treated in the field have been treated and the structures are ready for inspection.

Verification: At least sixty (60) days prior to ordering the first structures that are color-treated during manufacture, the Project Owner shall submit its proposed plan to the CPM for review and approval.

If the CPM notifies the Project Owner that any revisions of the plan are needed before the CPM will approve the plan, the Project Owner shall submit to the CPM a revised plan within thirty (30) days of receiving that notification.

Within thirty (30) days following the start of commercial operation, the Project Owner shall notify the CPM that all structures treated during manufacture and all structures treated in the field are ready for inspection.

The Project Owner shall provide a status report regarding treatment maintenance in the Annual Compliance Report.

VIS-2 The Project Owner shall design and install all lighting such that light bulbs and reflectors are not visible from public viewing areas and illumination of the vicinity and the nighttime sky is minimized. To meet these requirements:

The Project Owner shall develop and submit a Project lighting plan to the CPM for review and approval. The lighting plan shall require that:

- Lighting is designed so that exterior light fixtures are hooded, with lights directed downward or toward the area to be illuminated and so that backscatter to the nighttime sky is minimized. The design of this outdoor lighting shall be such that the luminescence or light source shall not cause obtrusive spill light beyond the Project, and;
- High illumination areas not occupied on a continuous basis such as maintenance platforms or the main entrance shall be provided with switches or motion detectors to light the area only when occupied.

If the CPM notifies the Project Owner that revisions of the plan are needed before the CPM will approve the plan, the Project Owner shall prepare and submit to the CPM a revised plan. Lighting shall not be installed before the plan is approved. The Project Owner shall notify the CPM when the lighting has been installed and is ready for inspection.

Verification: At least ninety (90) days before ordering the exterior lighting, the Project Owner shall provide the lighting plan to the CPM for review and approval.

If the CPM notifies the Project Owner that any revisions of the plan are needed before the CPM will approve the plan, the Project Owner shall submit to the CPM a revised plan within thirty (30) days of receiving that notification.

Appendix A: *Laws, Ordinances, Regulations, and Standards*

Appendix B: *Proof of Service List*

Appendix C: *Exhibit List*

APPENDICES

AIR QUALITY

Federal	
40 CFR 52	Nonattainment New Source Review (NSR) requires permit and requires Best Available Control Technology (BACT) and Offsets. Permitting and enforcement delegated to SJVAPCD. Prevention of Significant Deterioration (PSD) requires major sources obtain permits for attainment pollutants. PEFE is a major source of NO_x and CO. United States Environmental Protection Agency (USEPA) retains jurisdiction for PSD permitting in the San Joaquin Valley.
40 CFR 60 Subpart GG	New Source Performance Standard for gas turbines: 75 ppm NO_x and 150 ppm SO_x @15%O_2. BACT will be more restrictive. Enforcement delegated to SJVAPCD
40 CFR Part 70	Title V: Federal permit. Title V permit application required within one year of start of operation. Permitting and enforcement delegated to SJVAPCD.
40 CFR Part 72	Acid Rain Program. Requires permit and obtaining of sulfur oxides credits. Permitting and enforcement delegated to SJVAPCD.
State	
HSC Section 40910-40930	Permitting of source needs to be consistent with approved Clean Air Plan.
HSC Section 39606	Provides for California Air Resources Board to set State Ambient Air Quality Standards.
HSC Section 41700	Restricts emissions that would cause nuisance or injury.
Local	
Regulation I – General Provisions	Rule 1080 defines requirements for stack monitoring. Rule 1081 defines requirements for stack testing.
	Rule 1100 defines procedures for equipment breakdowns.
Regulation II – Permits	Rule 2010 specifies permit requirements.
Rule 2201	New Source Review - Specifies requirements for permitting major and minor sources.
	Section 4.1 specifies the use of BACT for sources with criteria pollutant emissions greater than 2 lbs/day (except CO – 200,000 lbs/yr). PM2.5 is not currently a listed criteria pollutant in the District's NSR regulation. PEFE triggers BACT for all criteria pollutants.
	Section 4.5 specifies emission offset requirements where the appropriate offset triggers for the PEFE project are: 20,000

	lbs/year for NO_x and VOC, 29,200 lbs/year for PM10, 54,750 lbs/year for SO_x, and 200,000 lbs/year for CO (Section 4.6 specifies exemption for CO offset requirements when CO emissions are shown to not cause or contribute to a violation of an Ambient Air Quality Standard (AAQS). The entire PEFE/PEF facility triggers offsets for NO_x, VOC, PM10 and SO_x.
	Section 4.8 specifies distance ratios for emission offsets which are 1:1 for on-site emission reductions, 1:3 to 1 for emission reductions that occurred within 15 miles from project, and 1:5 to 1 for emission reductions occurring greater than 15 miles from project.
	Section 4.13 allows the use of interpollutant offsets on a case by case basis.
Rule 2520	Federally Mandated Operating Permits – Requires major sources such as PEF/PEFE, to obtain Title V permit within one year of commencing operation.
Rule 2540	Acid Rain Program – Requires permit and specifies emission monitoring requirements. Permit will be part of Title V permit.
Regulation IV – Prohibitions	Rules within Regulation IV specify New Source Performance Standards (Rule 4001 – see Federal 40 CFR 60 Subpart GG), restrict visible emissions (Rule 4101), prohibit nuisance emissions (Rule 4102), specify particulate matter concentration and emission rate limits (Rules 4201 and 4202), specify NO_x emission limit of ppm and NO_x and CO monitoring requirements for gas turbines (Rule 4703), and limit sulfur compound emissions (Rule 4801).
Regulation VIII – Fugitive PM10 Prohibitions	Rules within Regulation VIII specify general fugitive dust control definitions, requirements, and recordkeeping (Rule 8011), and require the control of fugitive dust emissions from construction activities (Rule 8021), bulk material handling (Rule 8031), material carryout and trackout (Rule 8041), open areas (Rule 8051), paved and unpaved roads (Rule 8061), and unpaved vehicle/equipment traffic areas (Rule 8071).

FEDERAL

The District is responsible for issuing the Federal New Source Review (NSR) permit. This project in combination with the PEF will require a PSD permit. The Applicant has provided the PSD permit applicant to the USEPA (Ex. 1), which was deemed administratively complete on June 6, 2005 (USEPA 2005a). The PSD permit will most likely be completed subsequent to the completion of this licensing case.

The USEPA provided several comments to the District regarding the PDOC. USEPA is satisfied with most of the District's responses to their comments. However, one of these comments regarded the interpollutant offset ratio and distance offset ratio calculation. USEPA noted that these two offset ratios should be multiplied rather than added, which would require an additional 24.1 tons of NOx offsets to offset the PM10 emissions from the project. The District responded to this comment in the FDOC noting that their methodology ensures adequate offsets and that this method has been consistently applied in the past (SJVAPCD 2005e, Attachment H). The USEPA has not completed their review of this particular comment response; therefore, there is a potential that this offset ratio LORS interpretation issue may be continued by the USEPA.

Staff provided the District an additional PDOC comment regarding the interpollutant offset calculation methodology. This comment concerned the use of a single worst-case event basis rather than or in combination with longer term average conditions to determine the NOx to nitrate particulate conversion. The District responded that they believe using the worst-case event data is preferable for their attainment planning purposes (SJVAPCD 2005e, Attachment H). Additionally, USEPA has indicated that they believe the NOx to particulate conversion calculation methods for this case are supportable and consistent with the SIP.

State

Staff believes that the operation of the project, after the implementation of staff's recommended mitigation measures, and the District's recommended conditions specified in the PDOC (**AQ-1** to **66**), would comply with all applicable state LORS.

Local

The District has issued an FDOC, which states that the proposed project is expected to comply with all applicable District rules and regulations, and that offsets will be provided prior to initial operation.

ALTERNATIVES

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(e)].

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. The California Environmental Quality Act 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(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 Dist. 1989) 214 Cal. App. 3d 1438.]

BIOLOGICAL RESOURCES

FEDERAL	
Federal Endangered Species Act (1973) Title 16, U. S. Code section 1531	Projects that could adversely impact a federally listed species must consult with the U. S. Fish and Wildlife Service and mitigate potential impacts.
Migratory Bird Treaty Act Title 16, U. S. Code sections 703 to 712	Protects all migratory birds, including their nests and eggs.
Bald and Golden Eagle Protection Act Title 16, U. S. Code section 668	Protects bald and golden eagles from harm or trade in parts.
STATE	
State Endangered Species Act (1984) Fish and Game Code, section 2050 et seq.	For species that are protected (listed) by the state, these species can not be 'taken' or harmed w/out a 'take' permit provided by the California Department of Fish & Game.
Fully Protected Species Fish and Game Code, sections 3511, 4700, 5050 and 5515	Prohibits take of species that are classified as Fully Protected.
Nests and Eggs – Take, Possess or Destroy, Fish and Game Code, sections 3503 and 3503.5	Protects birds by making it unlawful to take, possess, or needlessly destroy the nest or eggs of any bird. Also, specifically protects birds of prey and their eggs.
Migratory Birds Fish and Game Code, section 3513	Protects California's migratory birds by making it unlawful to take or possess any migratory non-game bird as designated by the Migratory Bird Treaty Act.
Native Plant Protection Act (1977) Fish and Game Code, section 1900 et seq.	Designates and protects rare, threatened, and endangered California plants.
LOCAL	
Land Use/ Conservation/Open Space, Element of Kern County General Plan, 2004	Kern County Planning Department determines if proposed projects are compatible with protection of threatened or endangered species and their habitat.

The USFWS administers the federal Endangered Species Act, which provides for protection and management of federally listed species and their designated critical habitat. As part of a formal Section 7 consultation with the U.S. Environmental Protection Agency for the PEF project, the USFWS established reasonable and prudent measures to protect listed species that could potentially be impacted by construction of the PEF. These measures were part of the Biological Opinion

(USFWS 2000) and subsequent amendment (USFWS 2001) for the PEF project, and were eventually incorporated as elements of the original Conditions of Certification for the PEF. Many of these same Conditions of Certification, originating with the USFWS measures, are again included to extend the mitigation measures needed for PEFE construction activities. The Conditions of Certification in this FSA also reflect informal coordination with USFWS regarding additional measures needed to ensure protection of listed species (Holbrook 2005).

Appendix G of the California Environmental Quality Act (CEQA, Public Resources Code 21000 et seq.) includes a list of impacts that are likely to be determined to be *significant* if they occur. Regarding biological resources impacts, CEQA considers impacts to state or federal listed species, interference with fish and wildlife migration and loss of habitat to be *significant* if one or more of these impacts is likely to occur. With implementation of mitigation measures described in the Conditions of Certification, the proposed project will comply with all federal, state, and local LORS regarding impacts to listed species, and migratory birds and their habitats.

CULTURAL RESOURCES

State	
Public Resources Code (California Environmental Quality Act or CEQA), Section 21083.2	This section states that the lead agency determines whether a project may have a significant effect on “unique” archaeological resources. If a potential for damage to unique archaeological resources can be demonstrated, the lead agency may require reasonable steps to preserve the resource in place. Otherwise, the project applicant is required to fund mitigation measures to the extent prescribed in this section. This section also allows a lead agency to make provisions for archaeological resources unexpectedly encountered during construction, which may require the project applicant to fund mitigation and delay construction in the area of the find.
California Code of Regulations, Title 14, Division 6, Chapter 3 (CEQA Guidelines), Section 15064.5, Subsections (d), (e), and (f)	Subsection (d) allows the project applicant to develop an agreement with Native Americans on a plan for the disposition of remains from known Native American burials impacted by the project. Subsection (e) requires the landowner [possibly the project applicant] to rebury Native American remains elsewhere on the property if other disposition cannot be negotiated within 24 hours of accidental discovery and required construction stoppage. Subsection (f) directs the lead agency to make provisions for historical or unique archeological resources that are accidentally discovered during construction, which may require the project applicant to fund mitigation and delay construction in the area of the find.
California Code of Regulations, Title 14, Division 6, Chapter 3 (CEQA Guidelines), Section 15126.4(b)	This section describes options for the lead agency and for the applicant to arrive at appropriate, reasonable, enforceable mitigation measures for minimizing significant adverse impacts from a project. It prescribes the manner of maintenance, repair, stabilization, restoration, conservation, or reconstruction as mitigation of a project’s impact on a historical resource; discusses documentation as a mitigation measure; and advises mitigation through avoidance of damaging effects on historical resources of an archaeological nature, preferably by preservation in place, or by data recovery through excavation if avoidance or preservation in place is not feasible. Data recovery must be conducted in accordance with an adopted data recovery plan.
Penal Code, Section 622 1/2	This states that anyone who willfully damages an object or thing of archaeological or historical interest is guilty of a misdemeanor.
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.

Local	
Kern County General Plan, Policy	The Kern County General Plan promotes the preservation of cultural and historic resources which constitute a heritage value to residences and visitors (Kern 2004, p. 66-67)

Kern County provides guidance regarding the preservation of heritage resources. The General Plan advises compliance with CEQA as a method to implement its preservation policy. If the following conditions of certification are properly implemented, the project would result in a less than significant impact on newly found cultural resources or on those known resources that may be impacted in an unanticipated manner. The project would therefore be in compliance with CEQA and all other applicable laws, ordinances, regulations, and standards.

FACILITY DESIGN

Federal	
	Title 29 Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health Standards.
State	
	2001 California Building Standards Code (CBSC) (also known as Title 24, California Code of Regulations).
Local	
	Kern County Ordinances
General	
	American National Standards Institute (ANSI) American Society of Mechanical Engineers (ASME) American Welding Society (AWS) American Society for Testing and Materials (ASTM)

GEOLOGY AND PALEONTOLOGY

Federal	
	The proposed PEFE is not located on federal land. There are no federal LORS for geologic hazards and resources for this site.
State	
CBSC, 2001 (particularly Part 2, CBC)	The CBC includes a series of standards that are used in project investigation, design and construction (including grading and erosion control).
Local	
SVP, 1995	The “Measures for Assessment and Mitigation of Adverse Impacts to Non-renewable Paleontologic 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 Society for Vertebrate Paleontology, a national organization of professional scientists.

The applicable LORS are listed in the Application for Certification (AFC), in Section 5.3, 5.5, and 5.8 (Ex. 1).

HAZARDOUS MATERIALS MANAGEMENT

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 which store, handle, or produce significant quantities of extremely hazardous materials.
The CAA section on Risk Management Plans (42 USC §112(r))	Requires the states to implement a comprehensive system to inform 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	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.
State	
The California Health and Safety Code, section 25534	Directs facility owners, storing or handling acutely hazardous materials in reportable quantities, to develop a Risk Management Plan (RMP) and submit it to appropriate local authorities, the United States Environmental Protection Agency (EPA), and the designated local administering agency for review and approval. The plan must include an evaluation of the potential impacts associated with an accidental release, the likelihood of an accidental release occurring, the magnitude of potential human exposure, any preexisting evaluations or studies of the material, the likelihood of the substance being handled in the manner indicated, and the accident history of the material. This new, recently developed program supersedes the California Risk Management and Prevention Plan (RMPP).
Title 8, California Code of Regulations, Section 5189	Requires facility owners to develop and implement effective safety management plans to insure 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 RMP process.

Title 8, California Code of Regulations, Section 458 and Sections 500 to 515	Set forth requirements for 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 for Material Engineering (ASME) 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 storage facilities.
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."
California Safe Drinking Water and Toxic Enforcement Act (Proposition 65)	Prevents certain chemicals that cause cancer and reproductive toxicity to be discharged into sources of drinking water.
Local or Locally Enforced	
Uniform Fire Code	Contains requirements for fire protection and neutralization systems for emergency venting compressed gases. Enforced by the Kern County Fire Dept. (KCFD).

LAND USE

Federal	
	There are no federal land use LORS that apply to this project.
State	
	There are no state land use LORS that apply to this project.
Local	
Kern County General Plan and Chapters 19.80, 19.82, and 19.86 of the Kern County Zoning Ordinance.	The general plan is the legal document that acts as a constitution for land use and development in Kern County. It consists of the seven mandatory elements: land use, circulation, open space, conservation, housing, safety and seismic safety, and noise; and four optional elements: recreation, energy, hazardous waste management, and public services and facilities. The project site is designated Extensive Agriculture, Intensive Agriculture, Mineral and Petroleum, and Nonjurisdictional Land in the Kern County General Plan. Based on staff's review and consultation with Kern County, these general plan designations do not preclude construction and operation of power plants; thus, the PEFE complies with Kern County's General Plan land use designations for the site. The site is zoned Exclusive Agriculture (A). The Kern County Zoning Ordinance states that resource extraction and energy development uses in this zone are permitted by right and require no discretionary permits from the county, however, power plants are a conditional use in this zone. To satisfy the applicable sections of the zoning ordinance, the PEFE must comply with the following sections of the Zoning Ordinance: Section 19.80.30 of Chapter 19.80 (Special Development Standards – Commercial and Industrial Districts); Sections 19.82.030 and 19.82.090 of Chapter 19.82 (Off-street Parking - Design and Development Standards); and Section 19.86.060 of Chapter 19.86 (Landscaping Standards – Industrial Uses). PEFE shall prepare a site development plan to satisfy the applicable sections of the Kern County Zoning Ordinance and are identified in proposed Condition of Certification **LAND-1**.

NOISE AND VIBRATION

Federal	
(OSHA): 29 C.F.R. § 1910.95	Protects workers from the effects of occupational noise exposure
State	
(Cal-OSHA): 8 C.C.R. §§ 5095-5099	Protects workers from the effects of occupational noise exposure
Local	
Kern County General Plan Noise Element Policies (5)(a) and (5)(b)	Policy (5) prohibits new noise-sensitive land uses in noise-impacted areas unless effective mitigation measures are incorporated to (a) reduce noise levels in outdoor activity areas to 65 dBA L_{dn} or less, and (b) reduce interior noise levels to 45 dBA L_{dn} or less

FEDERAL

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) has 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. 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.

There are no federal laws governing off-site (community) noise.

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 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 sensitive structures is 100 VdB, which correlates to a peak particle velocity of about 0.2 in/sec.

STATE

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.

The State of California, Office of Noise Control, prepared a Model Community Noise Control Ordinance, which provides guidance for acceptable noise levels in the absence of local noise standards. The Model also contains a definition of a simple tone, or “pure tone,” in terms of 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 dBA.

Other State LORS include the California Occupational Safety and Health Administration (Cal-OSHA) regulations. 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 the federal OSHA standards.

LOCAL

Kern County General Plan – Noise Element

Two policies enunciated in this noise element (Kern County 2004) impact the construction and operation of a project such as the PEFE. Policy (5) (a) prohibits new noise-sensitive land uses in noise-impacted areas unless effective mitigation measures are incorporated into the project design to reduce noise levels in outdoor activity areas to 65 dB L_{dn} or less. Policy (5) (b) prohibits new noise-sensitive land uses in noise-impacted areas unless effective mitigation measures are incorporated into the project design to reduce interior noise levels within living spaces or other noise sensitive interior spaces to 45 dB L_{dn} or less. It should be noted that there are no current noise ordinances in Kern County.

PUBLIC HEALTH

Federal	
Clean Air Act § 112 (42 USC § 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 §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 & Safety Code § 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.”

SOCIOECONOMICS

California Government Code, Sections 65996-65997

These sections include provisions for school district levies against development projects. As amended by SB 50 (Stats. 1998, chapter 407, sec. 23), these sections state that public agencies may not impose fees, charges, or other financial requirements to offset the cost for school facilities.

SOIL AND WATER RESOURCES

Federal LORS	
Clean Water Act (33 U.S.C. Section 1257 et seq.)	The Clean Water Act (33 USC § 1257 et seq.) requires states to set standards to protect water quality through the regulation of point source and certain non-point source discharges to surface water. These discharges are regulated through requirements set forth in specific or general National Pollutant Discharge Elimination System (NPDES) permits. Stormwater discharges during construction and operation of a facility are addressed through a general NPDES permit. In California, requirements of the Clean Water Act regarding regulation of point source discharges and stormwater discharges are delegated to and administered by the nine Regional Water Quality Control Boards (RWQCB). Section 404 of the act regulates the discharge of dredged or fill material into waters of the United States, including rivers, streams and wetlands. Site-specific or general (nationwide) permits for such discharges are issued by the Army Corp of Engineers (ACOE) and are certified by the RWQCB.
State	
California Constitution, Article X, Section 2	This section 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	The Porter-Cologne Water Quality Control Act of 1967, Water Code section 13000 et seq., requires the State Water Resources Control Board (SWRCB) and the nine RWQCBs to adopt water quality criteria to protect state waters. These criteria include the identification of beneficial uses, narrative and numerical water quality standards and implementation procedures. The criteria for the project area are contained in the Water Quality Control Plan for the Tulare Lake Basin (1995). The Porter-Cologne Water Quality Control Act also requires the SWRCB and the nine RWQCBs to ensure the protection of water quality through the regulation of waste discharges to land. Such discharges are regulated under Title 23, California Code of Regulations, Chapter 15, Division 3.
State Water Resources Control Board Policy 75-58	The SWRCB has also adopted a number of policies that provide guidelines for conservation and water quality protection of the state's water supplies. State water policy regarding power plants is specified in Resolution 75-58 adopted by the adopted by the SWRCB on June 19, 1976. With respect to using fresh water, the Resolution articulates an underlying policy "to protect beneficial uses of the state's water resources and to keep the

	consumptive use of freshwater for power plant cooling to that minimally essential for the welfare of the citizens of the state." This policy further states that use of fresh inland waters should only be approved for power plant cooling if other water supply sources or other methods of cooling would be environmentally undesirable or economically unsound. The SWRCB Policy 75-58 requires that power plant cooling water should, in order of priority come from wastewater being discharged to the ocean, ocean water, brackish water from natural sources or irrigation return flow, inland waste waters of low total dissolved solids, and other inland waters. The policy also reflects the state's concerns regarding discharges from power plants, as well as the conservation of fresh water, and addresses cooling water discharge prohibitions.
Warren-Alquist Act	The Warren-Alquist Act reiterates state water policy in terms of conserving water and using alternative sources of water supply: "It is further the policy of the state and the intent of the Legislature to promote all feasible means of energy and water conservation and all feasible uses of alternative energy and water supply sources."
Energy Commission Power Plant Water Use and Waste Water Discharge Policy	In the 2003 Integrated Energy Policy Report (IEPR), consistent with State Water Resources Control Board Policy 75-58 and the Warren-Alquist Act, the Energy Commission adopted a policy stating they 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 is the legislatively mandated guidance document for the California Energy Commission (CEC). As stated in the IEPR, the CEC has the "responsibility to apply state water policy to minimize the use of fresh water, promote alternative cooling technologies, and minimize or avoid degradation of the quality of the state's water resources." The IEPR specifically cites state policy that applies the use of water by power plants in Article X Section 2 of the State Constitution, SWRCB Resolution 75-58, and the Warren-Alquist Act. (CEC 2003).
State and Local Guidance	
Monterey Agreement	The Monterey Agreement was the result of extensive negotiations between State Water Project (SWP) contractors and the State to resolve disputes among them. Included in this agreement was the exchange of 45,000 acre-feet of SWP contractor entitlements for the Kern Water Bank (KWB) property and transfer of the bank to the Kern Water Bank Authority (KWBA). A final Program EIR was completed on the Monterey Agreement in 1995 that included possible impacts associated

	with the water use from the SWP and the KWB. An Initial Study and Addendum to the Monterey Agreement EIR (KWB Addendum EIR) was completed for the KWBA. Subsequent to this KWB Addendum EIR, mitigation measures were developed to address possible impacts associated with the construction, operation and maintenance of the KWB, as well as a water recharge and recovery, farming and conservation bank program proposed for approximately 20,000 acres in Kern County. Implementation of the KWB program and subsequent sale of groundwater to third parties were considered and addressed in these documents.
Wheeler Ridge-Maricopa Water Storage District Rules and Regulations for the Distribution of Water	*"Rules and Regulations for the Distribution of Water"* is the guidance document for water allocations from Wheeler Ridge-Maricopa Water Storage District, which is developed by the district. Rule 4p., Priority of Requests, specifies that water requests from pre-existing Agricultural Water Service Contracts receive priority for allocation of district water supplies over Industrial Water Service Contracts.
Kern Water Bank Authority MOU	The 1995 MOU between KWBA and its member agencies and surrounding entities specifies a set of rules and processes (i.e., minimum operating criteria, a comprehensive monitoring program and a dispute resolution process) to ensure that the KWB provides maximum benefits to its participants without adversely impacting water levels, water quality or resulting in land subsidence in the area.

Clean Water Act

The PEFE will satisfy the requirements of the General National Pollutant Discharge Elimination System (NPDES) Permit with the adoption of condition of certification **SOIL&WATER-1**, which requires the development and implementation of a SWPPP for construction and condition of certification **SOIL&WATER-3**, which require the development and implementation of a SWPPP for operations.

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. The proposed project will conserve water through the reuse of cooling tower water, which will undergo 10 cycles of concentration, and the use of a zero liquid discharge waste water processing system. If the project is constructed and operated as proposed, fresh water use would be minimized. Therefore, with the adoption of Condition of Certification **SOIL&WATER-4**, which limits the use of water, the PEFE will be consistent with terms of the California Constitution, Article X, Section 2.

Porter-Cologne Water Quality Control Act
Since the project will have no industrial wastewater discharge as a result of the use of the ZLD system, no further discussion is required. For a discussion of the project's compliance with solid waste requirements, please see the **Waste Management** section of this PMPD.

SWRCB Policy 75-58
SWRCB Policy 75-58 states that 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. Given that the proposed PEFE water supply would be provided under an existing contract and that the project can use an existing water delivery system and water treatment system, it would be economically unsound to use an alternative water source.

The SWRCB policy also calls for water availability studies for projects to be constructed in the Central Valley to consider potential impacts on Delta outflow and water quality objectives. Since PEFE proposes to use water supplied under the PEF contract with WRMWSD, which is derived from excess water supplies from existing, approved SWP entitlement or from KWB resources, additional studies are not required.

SWRCB Policy 75-58 states that "…studies associated with power plants should include an analysis of the cost and water use associated with the use of alternative cooling facilities employing dry, or wet/dry modes of operation." Since the proposed project would use existing cooling towers and associated water supply, which were analyzed in PEF, an analysis of alternative cooling technologies is not necessary.

Finally, the proposed project will conserve water through the reuse of cooling tower water and the use of a zero liquid discharge waste water processing system. If the project is constructed and operated as proposed, the use of fresh inland water by the PEFE would be minimized.

Based on this review and with the adoption of condition of certification **SOIL&WATER-4**, the water supply, as proposed by the Applicant, would be consistent with SWRCB 75-58.

Warren-Alquist Act
The Warren-Alquist Act promotes all feasible means of water conservation. The proposed project will conserve water through the reuse of cooling tower water and the use of a zero liquid discharge waste water processing system. As a result of the water conservation processes proposed by the applicant, the use of fresh inland water by the PEFE would be minimized. Therefore, with the adoption of Condition of Certification **SOIL&WATER-4**, which limits the use of water by PEFE, the PEFE would be consistent with terms of the Warren-Alquist Act.

Monterey Agreement and the Kern Water Bank Authority
The PEFE backup water supply would be obtained from the KWB through the existing PEF contract with the KWBA. The rules for sales from the KWB to third parties are specified in the Monterey Agreement and administered by the KCWA. The authority to resolve conflicts between KWB water contractors is assigned to the KWBA through the 1995 MOU between KWBA and its member agencies. As a contractor with the KWBA,

PEFE would be subject to these rules and regulations. Based on this review, the water supply, as proposed by the Applicant, would be consistent with the rules of both the Monterey Agreement and KCWA.

Wheeler Ridge-Maricopa Water Storage district

Water sales and deliveries from the WRMWSD are governed by the district's Rules and Regulations for the Distribution of Water. The proposed water contract for PEFE with WRMWSD specifically requires compliance with these rules and regulations. Therefore, the water supply, as proposed by the Applicant, would be consistent with the rules of WRMWSD.

California Energy Commission Integrated Energy Policy Report: Power Plant Water Use and Waste Water Discharge Policy

The California Energy Commission, under legislative mandate specified in the 2003 Integrated Energy Policy Report (IEPR), has the "responsibility to apply state water policy to minimize the use of fresh water, promote alternative cooling technologies, and minimize or avoid degradation of the quality of the state's water resources."

With the adoption of the Condition of Certification **SOIL&WATER-4**, the proposed PEFE would be consistent with terms of the 2003 IEPR.

TRAFFIC AND TRANSPORTATION

Federal	
Title 49, Code of Federal Regulations (CFR), Sections 171-177; Sections 350-399 & Appendices A-G; Sections 350-399, and Appendices A-G, Federal Motor Carrier Safety Regulations.	Governs the transportation and definition of hazardous materials, the types of materials defined as hazardous; criteria and regulations for the safe transportation of hazardous materials.
State	
California Street and Highways Code (S&HC), Sections 660, 670, 1450, 1460 et seq., 1470, and 1480.	Regulates right-of-way encroachment and granting of permits for encroachments on state and county roads.
S & HC Sections 13369, 15275,2500-2505 and 15278, 25160 ET SEQ; 31303-31309, 31600-31620; 32000-32053, 32100-32109;3400-3421;34500,34501,34510-11 S & HC Sec. 117 & 660 &72, California Vehicle Code (CVC) Sec. 35780, ET SEQ; 35550-35559	Addresses licensing of drivers required for operation of particular types of vehicles, including those transporting hazardous, explosive, flammable, and/or combustible material; such as ammonia; safety requirements; hazardous material transport routes.
California State Planning Law, Government Code Section 65302 a&b	Requires permits for transport of oversized loads on county roads and state highways; requirements for encroachment permits on state highway; CALTRANS specific weight/load limitations for all state and local roadways. Requires cities and counties to adopt a general plan to guide its development, including a mandatory circulation element. All construction in public right-of-way needs to comply with the “Manual of Traffic Controls for Construction and Maintenance of Work Zones” (Caltrans, 1996).
California Street and Highways Code (S&HC), Sections 660,	Regulates right-of-way encroachment and granting of permits for encroachments on state and county roads.

670, 1450, 1460 et seq.,1470-1480	
Sections 13369, 15275, and 15278	Addresses the licensing of drivers and classifications of licenses required for operation of particular types of vehicles. In addition, certificates permitting the operation of vehicles transporting hazardous materials are addressed.
Sections 25160 et seq.	Describes requirements for the safe transport of hazardous materials.
Sections 2500-2505	Authorizes the issuance of licenses by the Commissioner of the California Highway Patrol (CHP) to transport hazardous materials, including explosives.
California Vehicle Code (CVC) Sections 31303-31309	Regulates the highway transportation of hazardous materials, routes used, and restrictions. CVC Section 31303 requires hazardous materials to be transported on state or interstate highways that offer the shortest overall transit time possible.
Sections 31600-31620	Regulates the transportation of explosive materials.
Sections 32000-32053	Regulates the licensing of carriers of hazardous materials and include noticing requirements.
Sections 32100-32109	Establishes special requirements for the transportation of substances presenting inhalation hazards and poisonous gases. CVC Section 32105 requires shippers of inhalation or explosive materials to contact the CHP and apply for a Hazardous Material Transportation License. Upon receiving this license, the shipper will obtain a handbook specifying approved routes.
Sections 34000-34121	Establishes special requirements for transporting flammable and combustible liquids over public roads and highways.
Sections 34500, 34501, 34501.2, 34501.3, 34501.4, 34501.10, 34505.5-7, 34506, 34507.5, and 34510-11	Regulates the safe operation of vehicles, including those used to transport hazardous materials.
S&HC, Sections 117 and 660-72, and CVC, Sections 35780 et seq.,	Require permits to transport oversized loads on county roads. California S&HC Sections 117 and 660 to 711 requires permits for any construction, maintenance, or repair involving encroachment on state highway rights-

	of-way. CVC Section 35780 requires approval for a permit to transport oversized or excessive loads over state highways.
California Department of Transportation (Caltrans)	Weight and load limitations for state highways apply to all state and local roadways. The weight and load limitations are specified in the CVC Sections 35550 to 35559.
County of Kern	
General Plan Circulation Element	The project, and construction and operation traffic routes connecting to highways, are located entirely within the boundaries of the County of Kern. The Kern Circulation Element of the General Plan is required by State law. Kern County General Plan sets up local goals and guidance policies about building and transportation improvements. It introduces planning tools essential for achieving the local transportation goals and policies (County of Kern, 1972).

TRANSMISSION LINE SAFETY AND NUISANCE

Aviation Safety	
Federal	
Title 14, Part 77 of the Code of Federal Regulations (CFR),"Objects Affecting the Navigable 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. 70/7460-2H, " 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 Communication (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	Not to exceed applicable local noise ordinances. (There are no design-specific federal or state regulations for noise from transmission lines)
Hazardous and Nuisance Shocks	
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

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
l Electrical Safety Code	Specifies grounding procedures to limit nuisance shocks
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	
GO-131-D, CPUC "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/IEE) 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 specify when and where standards apply
CPUC, "Rules for Overhead Electric Line Construction," Section 35	Covers all aspects of design, construction, operation, and maintenance of electrical transmission line and fire hazards

TRANSMISSION SYSTEM ENGINEERING

Federal	
North American Electric Reliability Council (NERC Planning Standards)	Principles designed to insure the adequacy and security of the transmission network.
National Electric Safety Code 1999 (NESC)	Provides electrical, mechanical, civil and structural requirements for overhead electric line construction and operation.
Regional	
Western Electricity Coordinating Council (WECC) Reliability Criteria	Insure continuity of load service and protection of the interconnected grid.
State	
California Public Utilities Commission (CPUC) General Order (GO) 95 and 98	Rules for overhead and underground line construction
CA ISO Reliability Criteria	Incorporate NERC and WECC standards and some additional requirements.

The project will comply with the NERC, WECC, and Cal-ISO planning standards and reliability criteria. The proposed PEFE interconnection facilities include transmission lines, substation and switchyard facilities involving underground and overhead equipment. The applicant will design, build and operate the proposed facilities according the provisions of GO 95 and 128 or the NESC, Title 8, NEC, applicable interconnection and related industry standards.

Addition Laws, Ordinances, Regulations, and Standards

- North American Electric Reliability Council (NERC) Planning Standards provide policies, standards, principles and guides to assure the adequacy and security of the electric transmission system. With regard to power flow and stability simulations, these Planning Standards are similar to WSCC's Criteria for Transmission System Contingency Performance. The NERC planning standards provide for acceptable system performance under normal and contingency conditions. The NERC planning standards apply not only to interconnected system operation but also to individual service areas (NERC 1998).
- Western Systems Coordinating Council (WSCC) Reliability Criteria provide the performance standards used in assessing the reliability of the

interconnected system. These Reliability Criteria require the continuity of service to loads as the first priority and preservation of interconnected operation as a secondary priority. The WSCC Reliability Criteria include the Reliability Criteria for Transmission System Planning, Power Supply Design Criteria, and Minimum Operating Reliability Criteria. Analysis of the WSCC system is based to a large degree on WSCC Section 4 “Criteria for Transmission System Contingency Performance” which requires that the results of power flow and stability simulations verify established performance levels. Performance levels are defined by specifying the allowable variations in voltage, frequency and loading that may occur on systems other than the one in which a disturbance originated. Levels of performance range from no significant adverse effect outside a system area during a minor disturbance (loss of load or facility loading outside emergency limits) to a performance level that only seeks to prevent system cascading and the subsequent blackout of islanded areas. While controlled loss of generation, load, or system separation is permitted in extreme circumstances, their uncontrolled loss is not permitted (WSCC 1998).

- 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, operation, or use of overhead electric lines and to the public in general.
- National Electric Safety Code 1999 provides electrical, mechanical, civil and structural requirements for overhead electric line construction and operation.
- Cal-ISO’s Reliability Criteria also provide policies, standards, principles, and guides to assure the adequacy and security of the electric transmission system. With regard to power flow and stability simulations, these Planning Standards are similar to WSCCs Criteria for Transmission System Contingency Performance and the NERC Planning Standards. The Cal-ISO Reliability Criteria incorporate the WSCC Criteria and NERC Planning Standards. However, the Cal-ISO Reliability Criteria also provide some additional requirements that are not found in the WSCC Criteria or the NERC Planning Standards. The Cal-ISO Reliability Criteria apply to all existing and proposed facilities interconnecting to the Cal-ISO controlled grid. It also applies when there are any impacts to the Cal-ISO grid due to facilities interconnecting to adjacent controlled grids not operated by the Cal-ISO.

DEFINITION OF TERMS	
AAC	All Aluminum conductor.
ADR	Alternative Dispute Resolution
Ancillary Services Market	The market for services other than scheduled energy that is required to maintain system reliability and meet WSCC/NERC operating criteria. Such services include spinning, non-spinning, replacement reserves, regulation (AGC), voltage control and black start capability.
Ampacity	Current-carrying capacity, expressed in amperes, of a conductor at specified ambient conditions, at which damage to the conductor is nonexistent or deemed acceptable based on economic, safety, and reliability considerations.
Ampere	The unit of measure of electric current; specifically, a measure of the rate of flow of electrons past a given point in an electric conductor such as a power line.
Available Transmission Capacity (i.e., ATC)	Available Transmission Capacity in any hour is equal to Operational Transmission Capacity for that hour minus Existing Transmission Contracts for that same hour (ATC = OTC - ETC). (See the other definitions below).
Breaker	Circuit breaker - An automatic switch that stops the flow of electric current in a suddenly overloaded or otherwise abnormally stressed electric circuit.
Bundled Conductor	Two or more wires, connected in parallel through common switches, that act together to carry current in a single phase of an electric circuit.
Bus	Conductors that serve as a common connection for multiple transmission lines.
Cal-ISO	California Independent System Operator - The Cal-ISO is the FERC regulated control area

operator of the Cal-ISO transmission grid. Its responsibilities include providing non-discriminatory access to the grid, managing congestion, maintaining the reliability and security of the grid, and providing billing and settlement services. The Cal-ISO has no affiliation with any market participant.

Cal-ISO Controlled Grid — The combined transmission assets of the Participating Transmission Owners (PTOs) that are collectively under the control of the Cal-ISO.

Cal-ISO Reliability Criteria — Reliability standards established by the NERC, WSCC, and the ISO, as amended from time to time, including any requirements of the NRC.

Cal-ISO Planning Process — Annual studies conducted by the PTO's and Cal-ISO in an open stakeholder process. These studies determine the future transmission reinforcements necessary to enable the ISO Controlled Grid to meet the ISO Reliability Criteria. The Cal-ISO Planning Process also includes studies of new resource connections and third party proposals for new additions to the ISO Controlled Grid.

Cal-ISO Tariff — Document filed with the appropriate regulatory authority (FERC) specifying lawful rates, charges, rules, and conditions under which the utilities provide services to parties. A tariff typically includes rate schedules, list of contracts, rules, and sample forms.

Capacitor — An electric device used to store charge temporarily, generally consisting of two metallic plates separated by a dielectric.

Cogeneration — The consecutive generation of thermal and electric or mechanical energy.

Conductor — The part of the transmission line (the wire) which carries the current.

Congestion — The condition that exists when market participants seek to dispatch in a pattern which would result in power flows that cannot be physically

	accommodated by the system. Although the system will not normally be operated in an overloaded condition, it may be described as congested based on requested/desired schedules.
Congestion Management	Congestion management is a Cal-ISO scheduling protocol that is used to resolve Congestion.
Contingency	Disconnection or separation, planned or forced, of one or more components from the electric system.
Day-Ahead Market	The forward market for the supply of electrical power at least 24 hours before delivery to Buyers and End-Use Customers.
Demand	Load plus any exports from an electric system.
Demand Forecast	An estimate of demand (electric load) over a designated period of time.
Dispatch	The operating control of an integrated electric system to: (i) assign specific generators and other sources of supply to effect the supply to meet the relevant area Demand taken as Load rises of falls; (ii) control operations and maintenance of high voltage lines, substations, and equipment, including administration of safety procedures; (iii) operate interconnections (iv) manage energy transactions with other interconnected Control Areas; and (v) curtail Demand.
dV/dQ	The partial derivative of the voltage at a bus with respect to the reactive injection at that bus. (See any elementary college calculus text for further discussion of partial derivatives.) The point at which dV/dQ approaches infinity is defined as the point of voltage collapse.
Emergency Condition	The system condition when one or more system elements are forced (not scheduled) out of service.
Emergency Overload	Loading of a transmission system element above its Emergency Rating during an Emergency Condition.

Emergency Rating	A special rating established for short-term use in the event of a forced line or transformer outage (e.g., an emergency). An emergency rating may be expressed as a percentage of the normal rating (e.g., 115 percent of normal) or as an elevated current rating. For example, the normal rating for a conductor may be 1000 amperes and the emergency rating may be 1100 amperes.
Excessive Voltage Deviation	A sudden change in voltage at any substation as a result of a Contingency that exceeds established allowable levels of change.
Existing Transmission Contract (i.e., ETC)	A contract for transmission services that was in place prior to the start of ISO operations.
Fault Duty	The maximum amount of short-circuit current which must be interrupted by a given circuit breaker.
FERC	Federal Energy Regulatory Commission
General Order 95	California Public Utilities Commission (CPUC) General Order which specifies transmission line clearance requirements.
Generation Outlet Line	Transmission facilities (circuit, transformer, circuit breaker, etc.) linking generation to the main grid.
Generation Tie	Transmission facilities (circuit, transformer, circuit breaker, etc.) linking generation to the main grid.
Generator	A machine capable of converting mechanical energy into electrical energy.
Heat Rate	The amount of energy input to an electric generator required to obtain a given value of energy output. Usually expressed in terms of British Thermal Units per kilowatt hour (Btu/kWh).
Hour-Ahead Market	The electric power futures market that is established 1-hour before delivery to End-Use Customers.
Imbalance Energy	Energy not scheduled in advance that is required to meet energy imbalances in real-time. This

	energy is supplied by Participating Generators under the Cal-ISO's control, providing spinning and non-spinning reserves, replacement reserves, and regulation, and other generators able to respond to the Cal-ISO's request for more or less energy.
Interconnected System Reliability	See Reliability.
Kcmil or kcm	One thousand circular mils. A unit of the conductor's cross sectional area which, when divided by 1,273, gives the area in square inches.
Kv	Kilovolt - A unit of potential difference, or voltage, between two conductors of a circuit, or between a conductor and the ground.
Load	The rate expressed in kilowatts, or megawatts, at which electric energy is delivered to or by a system, or part of a system to end use customers at a given instant or averaged over an designated interval of time. (Also see Demand.)
Load Factor	The average Load over a given period (e.g., one year) divided by the peak Load in the period.
Loop	An electrical connection where a line is opened and a new substation is inserted into the opening. A looped configuration creates two lines, one from each of the original end points to the new substation. A looped configuration is more reliable than a tap configuration because the looped configuration provides two lines into the substation rather than just one in a tap configuration. Also, see Tap below.
Low Voltage	Voltage at any substation that is below the minimum acceptable level.
Marginal Unit	The Generator (or Load) that sets the market clearing price in the ISO's Ancillary Services Market (or the Power Exchange's energy market). The marginal unit is the Generator or Load that had the highest accepted bid for energy or Demand reduction.

Verification: MVAr	Megavar - One megavolt ampere reactive (a measure of reactive power). Reactive power demand is generally associated with motor loads and generation units or static reactive sources must supply this demand in the system.
MVA	Megavolt ampere - A unit of apparent power: equal to the product of the line voltage in kilovolts, the current in amperes, and the square root of 3 divided by 1000.
MW	Megawatt - A unit of power equivalent to 1,341 horsepower.
NERC	North American Electric Reliability Council
Nominal Voltage	Also known as Normal Voltage. The voltage at which power can be delivered to loads without damage to customer equipment or violation of Cal-ISO Reliability Criteria when the system is under Normal Operation.
Normal Operation	When all customers receive the power they are entitled to without interruption and at steady voltage, and no element of the transmission system is loaded beyond its continuous rating.
NRC	Nuclear Regulatory Commission
N-1 Contingency	A forced outage of one system element (e.g., a transmission line or generator).
N-2 Contingency	A forced outage of two system elements usually (but not exclusively) caused by one single event. Examples of an N-2 Contingency include loss of two transmission circuits on a single tower line or loss of two elements connected by a common circuit breaker due to the failure of that common breaker.
Operational Transfer Capability (i.e., OTC)	The maximum amount of power which can be reliably transmitted over an electrical path in conjunction with the simultaneous reliable operation of all other paths. This limit is typically defined by seasonal operating studies, and should not be confused with a path rating. Also referred to as OTC.

Outlet	Transmission facilities (circuit, transformer, circuit breaker, etc.) linking generation to the main grid.
Participating Generator	A generator that has signed an agreement with the Cal-ISO to abide by the rules and conditions specified in the Cal-ISO Tariff.
Participating Transmission Owner (i.e., PTO)	A Participating Transmission Owner is an electric transmission owning company that has turned over operational control of some or all of their electric transmission facilities to the Cal-ISO. Currently, the three Participating Transmission Owners are PG&E, SCE, and SDG&E.
Path Rating	The maximum amount of power which can be reliably transmitted over an electrical path under the best set of conditions. Path ratings are defined and specified in the WSCC Path Rating Catalog.
PG&E	Pacific Gas & Electric Company
PG&E Interconnection Handbook	Detailed instructions to new customers (either load or generation) on how to interconnect to the PG&E electric system.
Post-Transient Voltage Deviation	The change in voltage from pre-contingency to post-contingency conditions once the system has had time to readjust.
Power Flow	A generic term used to describe the type, direction, and magnitude of actual or simulated electrical power flows on electrical systems.
Power Flow Analysis	A power flow analysis is a forward looking computer simulation of all major generation and transmission system facilities that identifies overloaded circuits, transformers and other equipment as well as system voltage levels under both Normal and Emergency Conditions.
Pump	A hydroelectric generator that acts as a motor and pumps water stored in a reservoir to a higher elevation.

Q/V Curve	A graphical representation of the voltage a given substation bus as a function of the reactive injection at that bus.
RAS	Remedial Action Scheme - An automatic control provision (e.g., trip a generation unit to mitigate a circuit overload).
Reactive Power	The portion of apparent power that does no work in an alternating current circuit but must be available to operate certain types of electrical equipment. Reactive Power is most commonly supplied by generators or by electrostatic equipment, such as shunt capacitors.
Reactive Margin	Reactive Power must be available at all load buses to prevent voltage collapse. Reactive margin is the amount of additional reactive load, usually measured in MVAR's, which may be added at a particular bus before the system experiences voltage collapse.
Reactor	An electric device used to store electric current temporarily, generally consisting of a coil of wire wound around a magnetic core.
Real Power	Real power is the work-producing component of apparent power and is required to operate any electrical equipment that performs energy conversion. Examples of this electrical equipment would be a heater, a lamp, or a motor. Real power is usually metered in units of kilowatt-hours (kWh).
Real-Time Market	The competitive generation market controlled and coordinated by the Cal-ISO for arranging real-time imbalance power.
Reconductor	The removal of old conductors on a transmission or distribution line followed by replacement of these conductors with new higher capacity conductors.
Reliability	The degree of performance of the elements of the bulk electric system that results in electricity being delivered to customers within accepted standards and in the amount desired. May be measured by

	the frequency, duration, and magnitude of adverse effects on the electric supply.
Reliability Criteria	Principals used to design, plan, operate, and assess the actual or projected reliability of an electric system.
Reliability Must-Run (i.e., RMR)	The minimum generation (number of units or MW output) required by the Cal-ISO to be on line to maintain system reliability in a local area.
SCE	Southern California Edison Company
SDG&E	San Diego Gas and Electric Company
Sensitivity Study	An analysis to determine the impact of varying one or more parameters on the results of the original analysis.
Series Capacitor	A static electrical device that is connected in-line with a transmission circuit that allows for higher power transfer capability by reducing the circuit's overall impedance.
Shunt Capacitor	A static electrical device that is connected between an electrical conductor and ground. A shunt capacitor normally will increase the voltage on a transmission circuit by providing reactive power to the electrical system.
Single Contingency	See N-1 Contingency.
Solid Dielectric Cable	Copper or aluminum conductors that are insulated by solid polyethylene type insulation and covered by a metallic shield and outer polyethylene jacket.
Source or Sink of Reactive Power	A source of Reactive Power is a device that injects reactive power into the power system (e.g., a Generator or a Capacitor). A sink of Reactive Power absorbs reactive power from the power system. Examples of reactive power sinks are shunt Reactors and motor loads.
Static Compensator	StatCom - a shunt connected power system device that includes Capacitors and Reactors controlled by solid state electronic devices as

	opposed to mechanically operated switches.
Substation	An assemblage of equipment that switches, changes, or regulates voltage in the electric transmission and distribution system.
Switchyard	A substation that is used as an outlet for one or more electric generators.
Switched Reactive Devices	A shunt Capacitor or shunt Reactor controlled by mechanically operated switches.
Switching Station	Similar to a substation, but there is only one voltage level.
Synchronous Condenser	A rotating mechanical device very similar to a Generator. The Synchronous Condenser has no mechanical power input and cannot produce Real Power. It can only produce or absorb Reactive Power.
System Reliability	See “Reliability”.
Tap	An electrical connection where a new line is connected to an intermediate point on an existing transmission line and a new substation is connected to the end of the new line. A tapped configuration creates a single transmission circuit with more than two end points (for example, a “T”). A tapped configuration is less reliable than a looped configuration because a fault on any portion of the tapped circuit causes a complete loss of power to the new substation. Also, see Loop above.
Tap Changing Transformer	A Transformer that has the ability to change the number of windings in service. By changing the number of windings in service (by moving to a different tap), the Tap Changing Transformer has the ability to maintain a nearly constant voltage at its output terminals even though the input voltage to the Transformer may vary.
Thermal Loading Capability	The current-carrying capacity (in Amperes) of a conductor at specified ambient conditions, at which damage to the conductor is non-existent or

	deemed acceptable based on economic, safety, and reliability considerations.
Thermal overload	A thermal overload occurs when electrical equipment is operated in excess of its current carrying capability. Overloads are generally given in percent. For example, a transmission line may be said to be loaded to 105 percent of its rating.
Thermal rating	See Ampacity.
Transformer	A device that changes the voltage of alternating current electricity.
Transformer Loading Capability	The current-carrying capacity (in Amperes) of a transformer at specified ambient conditions, at which damage to the transformer is non-existent or deemed acceptable based on economic, safety, and reliability considerations.
TSE	Transmission System Engineering.
Underbuild	A transmission or distribution configuration where a transmission or distribution circuit is attached to a transmission tower or pole below (under) the principle transmission line conductors.
Undercrossing	A transmission configuration where a transmission line crosses below the conductors of another transmission line, generally at 90 degrees.
VAr	One Volt ampere reactive. Also see the definition for MVAr.
Voltage	Electromotive force or potential difference.
Voltage Collapse	The point at which the reactive demand at a substation bus exceeds the reactive supply at that bus. When the reactive demand is greater than the supply, the voltage at that point in the system will drop. Eventually, the voltage will drop to a point at which it is no longer possible to serve load at that bus.
Wheeling	A service provided by an entity, such as a utility, that owns transmission facilities whereby it

	receives electric energy into its system from one party and then uses its system to deliver that energy to a third party. The wheeling entity is usually paid a fee for this service.
WECC	Western Electricity Coordinating Council

VISUAL

Federal	
	The proposed project is not located on federally administered public lands, and is not subject to federal regulations pertaining to visual resources.
State	
Government Code § 65302(a)	Includes requirements that a land use element designate the proposed general distribution, general location, and extent of land for a variety of uses including the enjoyment of scenic beauty.
Local	
Kern County General Plan Land Use, Open Space, and Conservation Element	Industrial policies encourage upgrading the visual character of existing industrial areas through the use of landscaping, screening, or buffering. An additional requirement pertains to industrial uses providing design features such as screen walls, landscaping, increased height and/or setbacks, and lighting restriction etc.
Kern County Zoning Code Chapter 19.86- Landscaping	The purpose of the chapter is to ensure that development is aesthetically pleasing and compatible with surrounding development by requiring the provision of adequate landscaping in connection with new development, and the expansion of existing development and changes in use.

The proposed power plant would be constructed within the jurisdiction of Kern County. Therefore, the PEFE would be subject to LORS pertaining to the protection and maintenance of visual/scenic resources that are found in the Kern County General Plan and Zoning Code. Specifically, the County's General Plan contains one applicable element for review: the Land Use, Open Space, and Conservation Element. The Kern County Zoning Code provides applicable zoning provisions for development on the project site.

VISUAL RESOURCES Table 2 provides a consistency review discussion of the applicable local LORS.

VISUAL RESOURCES
Table 2

State	California Government Code
Section 65302(a)	Requires that a land use element designate the proposed general distribution, general location, and extent of land uses for a variety of uses including the enjoyment of scenic beauty.
Project is consistent	The proposed project is not in an area that has been designated as a special scenic resource.
Local	**Kern County General Plan Land Use, Open Space, and Conservation Element**
Provision	Industrial policies encourage upgrading the visual character of existing industrial areas through the use of landscaping, screening, or buffering. An additional requirement pertains to industrial uses providing design features such as screen walls, landscaping, increased height and/or setbacks, and lighting restriction, etc.
Project is consistent	The applicant has agreed to maintain the conditions of certification related to landscaping, screening trash receptacles, and signs. These conditions are acceptable to Kern County.
Local	**Kern County Zoning Code**
Chapter 19.86 Landscaping	The purpose of this chapter is to ensure that development is aesthetically pleasing and compatible with surrounding development by requiring the provision of adequate landscaping in connection with new development, and the expansion of existing development and changes in use.
Project is consistent	The applicant's implementation of landscaping is acceptable to Kern County.

WASTE MANAGEMENT

Federal	
42 U.S.C. § 6922 Resource Conservation and Recovery Act (RCRA)	The RCRA establishes requirements for the management of hazardous wastes from the time of generation to the point of ultimate treatment or disposal. Section 6922 requires generators of hazardous waste to comply with requirements regarding: • Record keeping practices which identify quantities of hazardous wastes generated and their disposition, • Labeling practices and use of appropriate containers, • Use of a manifest system for transportation, and • Submission of periodic reports to the EPA or authorized state agency.
Title 40, Code of Federal Regulations, part 260	These sections contain regulations promulgated by the EPA to implement the requirements of RCRA as described above. Characteristics of hazardous waste are described in terms of ignitability, corrosivity, reactivity, and toxicity, and specific types of wastes are listed.
State	
California Health and Safety Code §25100 et seq. (Hazardous Waste Control Act of 1972, as amended)	This act creates the framework under which hazardous wastes must be managed in California. It mandates the State Department of Health Services (now the Department of Toxic Substances Control (DTSC) under the California Environmental Protection Agency, or Cal EPA) to develop and publish a list of hazardous and extremely hazardous wastes, and to develop and adopt criteria and guidelines for the identification of such wastes. It also requires hazardous waste generators to file notification statements with Cal EPA and creates a manifest system to be used when transporting such wastes. The Kern County Environmental Health Services Department along with EPA and DTSC enforce this Act.
Title 14, California Code of Regulations, §17200 et seq. (Minimum Standards for Solid Waste Handling and Disposal)	These regulations set forth minimum standards for solid waste handling and disposal, guidelines to ensure conformance of solid waste facilities with county solid waste management plans, as well as enforcement and administration provisions.
Title 22, California Code of Regulations, §66262.10 et	These sections establish requirements for generators of hazardous waste. Under these sections, waste generators must determine if their wastes are hazardous according to either specified characteristics or lists of wastes. As in the federal

seq. (Generator Standards)	program, hazardous waste generators must obtain EPA identification numbers, prepare manifests before transporting the waste off-site, and use only permitted treatment, storage, and disposal facilities. Additionally, hazardous waste must only be handled by registered hazardous waste transporters. Generator requirements for record keeping, reporting, packaging, and labeling are also established.
Title 22, California Code of Regulations, §67100.1 et seq.	Hazardous Waste Source Reduction and Management Review. These sections establish reporting requirements for generators of certain hazardous and extremely hazardous wastes in excess of specified limits. The required reports must indicate the generator's waste management plans and performance over the reporting period.
Title 23, California Code of Regulations, §2510 Article 9 et seq.	The California Porter-Cologne Water Quality Control Act contains requirements for storage or disposal of solid and liquid wastes. These requirements are enforced by the Regional Water Quality Control Board and the State Water Resources Control Board.
Local	
California Fire Code and/or Uniform Fire Code	Enforced by the Kern County Fire Department, and includes a requirement that businesses obtain permits for the use and storage of specified hazardous materials. This permit must be obtained before storing regulated hazardous wastes at the project site.

Energy Commission staff concluded that the PEFE would be able to comply with all applicable LORS regulating the management of hazardous and non-hazardous wastes during project construction and operation. The Applicant is required to dispose of hazardous and non-hazardous wastes at facilities approved by the various departments within the California Environmental Protection Agency (CalEPA). Because hazardous wastes would be produced during both project construction and operation, the PEFE project would be required to use the existing hazardous waste generator identification number and would be required to properly store, package and label waste, use only approved transporters, prepare hazardous waste manifests, keep detailed records, and appropriately train employees. Pursuant to California Code of Regulations, Title 22, section 67100.1 et seq., a hazardous waste Source Reduction and Evaluation Review and Plan must be prepared for this Expansion or the existing Pastoria Waste Management Plan revised to reflect the expansion.

WORKER SAFETY AND FIRE PREVENTION

Federal	
29 U.S. Code sections 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).
40 U.S. Code sections 327 et seq (Contract Work Hours and Safety Standards Act)	These sections require employee health and safety standards for construction activities as specified by CCR Title 8, General Construction Safety Orders.
29 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 §1910.1 to 1910.1500.
State	
8 CCR all sections (Cal/OSHA regulations)	Requires that an employer maintain a safe and healthy workplace for both facility construction and operational phases. It describes many regulations including but not limited to requirements for fire prevention plans, confined space rules, lockout/tagout requirements, hazardous materials use, worker personal protection equipment including respiratory protection, and other detailed safety and health items.
24 CCR section 3, et seq.	Incorporates the current addition of the Uniform Building Code
Health and Safety Code section 25500, et seq.	Risk Management Plan requirements for threshold quantity of listed acutely hazardous materials at a facility.

Health and Safety Code sections 25500 to 25541	Requires a Hazardous Material Business Plan detailing emergency response plans for hazardous materials emergency at a facility.
Local (or locally enforced)	
Uniform Fire Code, 1997 And NFPA 1 (2005)	Contain standards of the American Society for Testing and Materials (ASTM) and the National Fire Protection Association (NFPA). It is the United State's premier model fire code. It is updated annually as a supplement and published every third year by the International Fire Code Institute to include all approved code changes in a new edition. The Kern County Fire Department is the administrating agency for the UFC.
1998 Edition of California Fire Code and all applicable NFPA standards (24 CCR Part 9)	NFPA standards are incorporated into the California Uniform Fire Code. The fire code contains general provisions for fire safety, including: 1) required road and building access; 2) water supplies; 3) installation of fire protection and life safety systems; 4) fire-resistive construction; 5) general fire safety precautions; 6) storage of combustible materials; 7) exits and emergency escapes; and 8) fire alarm systems. The California Fire Code incorporates current editions of the UFC standards. The Kern County Fire Department is the administering agency for the CFC standards.
Kern County Zoning Ordinance, Development Standards section 19.80.030.	Contains safety setbacks required by the Kern County Fire Department.
NFPA 850	Contains industry standards for fire prevention, detection, and suppression for power plant construction and operation including testing and maintenance of systems.

BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION OF THE STATE OF CALIFORNIA

IN THE MATTER OF: **APPLICATION FOR CERTIFICATION FOR THE PASTORIA ENERGY FACILITY (PEF) 160 MW EXPANSION BY CALPINE CORPORATION**	**DOCKET NO. 05-AFC-1**

EXHIBIT LIST

Joint Exhibit A	*Joint Stipulation Regarding Testimony and Exhibits of Applicant and Commission Staff, Attachment 1, Exhibit List*, *with Attachment A, Topic and Witness Schedule,* dated and docketed March 17, 2006. Received into evidence on March 30, 2006.
Exhibit 1	Application for Certification (AFC), Pastoria Energy Facility Expansion, dated April 25, 2005. Docketed April 29, 2005. Sponsored by Applicant, and received into evidence on March 30, 2006.
Exhibit 2	Pastoria-Pardee Transmission Line Project Environmental Analysis, dated November 8, 2005. Docketed November 9, 2005. Sponsored by Applicant, and received into evidence on March 30, 2006.
Exhibit 3	Pastoria Energy Facility Addition, Technical Assessment Study, Prepared by Southern California Edison, dated January 19, 2006. Docketed January 23, 2006. Sponsored by Applicant, and received into evidence on March 30, 2006.
Exhibit 3A	Southern California Edison document entitled System Impact Study, dated May 13, 2005. Docketed June 13, 2005, as part of a Data Adequacy Response package dated June 10, 2005. Sponsored by Applicant, and received into evidence on March 30, 2006.
Exhibit 4	Offset Equivalency Report, San Joaquin Valley Air Pollution Control District, dated November 18, 2005. Docketed March 30, 2006. Sponsored by Applicant, and received into evidence on March 30, 2006.

Exhibit 5 Air Quality – Applicant's Testimony. Docketed January 10, 2006. Sponsored by Applicant, and received into evidence on March 30, 2006.

Exhibit 5A Applicant's Supplement in Response to Data Adequacy Comments on the Air Quality section of the AFC, dated June 9, 2005. Docketed June 10, 2006. Sponsored by Applicant, and received into evidence on March 30, 2006.

Exhibit 5B Applicant's Response to CEC Staff Data Requests Set 1, dated July 25, 2005, Request Nos. 1 through 33. Docketed July 25, 2005. Sponsored by Applicant, and received into evidence on March 30, 2006.

Exhibit 5C Applicant's Response to CEC Staff Data Requests Set 2, dated August 12, 2005, Request Nos. 8, 10, 11, 12, 25, 29, 30, 31 and supplemental information regarding separate permits. Docketed August 12, 2005. Sponsored by Applicant, and received into evidence on March 30, 2006.

Exhibit 5D Air Quality Modeling Files in support of Application for Certification, dated April 2005. (Docket No. 31127). Docketed April 29, 2005. Sponsored by Applicant, and received into evidence on March 30, 2006.

Exhibit 5E Application for a Prevention of Significant Deterioration Permit, dated May 2, 2005, filed with the US EPA. (Docket Nos. 34223, 34277) This document consists of a transmittal letter, and the following sections of the AFC: Table of Contents, Executive Summary (1.0), Facility Description and Location (3.0), Air Quality (5.2) including the Air Quality Technical Report (Appendices A through F), Agriculture and Soils (5.4), Land Use (5.9) and Biological Resources (5.6), and air quality modeling files on CD. Docketed May 2, 2005. Sponsored by Applicant, and received into evidence on March 30, 2006.

Exhibit 5F Application for Determination of Compliance and Authority to Construct, filed with the SJVAPCD, dated May 3, 2005. (Docket No. 34224) This document consists of a transmittal letter with application forms, and the following sections of the AFC: Table of Contents, Executive Summary (1.0), Facility Description and Location (3.0), Air Quality (5.2) including the Air Quality Technical Report (Appendices A through F), Public Health (5.16 and air quality modeling files on CD). Docketed May 3, 2005. Sponsored by Applicant, and received into evidence on March 30, 2006.

Exhibit 5G Letter from Nancy Matthews, Sierra Research to Dr. James Reede, CEC, transmitting additional information responding to informal CEC Staff requests, dated May 18, 2005. (Docket No. 34842). Docketed May 18, 2005. Sponsored by Applicant, and received into evidence on March 30, 2006.

Exhibit 5H Letter from Nancy Matthews, Sierra Research, to Tom Goff, SJVAPCD, seeking data to support a cumulative impacts analysis, dated May 18, 2005. Docketed May 18, 2005. Sponsored by Applicant, and received into evidence on March 30, 2006.

Exhibit 5I Letter from David Warner, SJVAPCD, to Andrew Whittome, PEF, confirming that the application has been accepted as complete by the SJVAPCD, dated May 19, 2005. (Docket No. 34414). Docketed May 19, 2005. Sponsored by Applicant, and received into evidence on March 30, 2006.

Exhibit 5J Letter from Nancy Matthews, Sierra Research, to Thomas Goff, SJVAPCD, revising the VOC BACT emission rate for the project, dated May 24, 2005. (Docket No. 34428). Docketed May 24, 2005. Sponsored by Applicant, and received into evidence on March 30, 2006.

Exhibit 5K Letter from Gerardo Rios, USEPA, to Andrew Whittome, Calpine, confirmed that the PSD application has been accepted as administratively complete, dated June 6, 2005. Docketed June 8, 2005. Sponsored by Applicant, and received into evidence on March 30, 2006.

Exhibit 5L Letter from David Warner, SJVAPCD to Nancy Matthews, Sierra Research, confirm that no sources for the cumulative impacts analysis have been identified, dated June 6, 2005. Docketed June 9, 2005. Sponsored by Applicant, and received into evidence on March 30, 2006.

Exhibit 5M Letter from Nancy Matthews, Sierra Research, to Dr. James Reede, CEC, transmitting EPA letter regarding administrative completeness, dated June 8, 2005. (Docket Nos. 34650, 34612). Docketed June 8, 2005. Sponsored by Applicant, and received into evidence on March 30, 2006.

Exhibit 5N Letter from Nancy Matthews, Sierra Research, to Dr. James Reede, CEC, transmitting SJVAPCD letter regarding cumulative impacts, dated June 9, 2005. (Docket Nos. 34667, 34609). Docketed June 9, 2005. Sponsored by Applicant, and received into evidence on March 30, 2006.

Exhibit 5O Letter from Nancy Matthews, Sierra Research, to Thomas Goff, SJVAPCD, transmitting corrected pages from the AFC and Application for Authority to Construct, dated June 14, 2005. (Docket Nos. 34668, 34608). Docketed June 14, 2005. Sponsored by Applicant, and received into evidence on March 30, 2006.

Exhibit 5P Letter from Nancy Matthews, Sierra Research, to Dr. James Reed, CEC, transmitting an SJVAPCD report referenced in the response to Data Request 26, dated July 25, 2005. (Docket No. 35064). Docketed July 25, 2005. Sponsored by Applicant, and received into evidence on March 30, 2006.

Exhibit 5Q Letter from Nancy Matthews, Sierra Research, to Trent Procter, US Forest Service, transmitting Class I Impacts Analysis, dated August 8, 2005. Docketed August 12, 2005. Sponsored by Applicant, and received into evidence on March 30, 2006.

Exhibit 5R Preliminary Determination of Compliance issued by the SVJAPCD for PEFE, dated August 31, 2005. (Docket No. 35444). Docketed August 31, 2005. Sponsored by Applicant, and received into evidence on March 30, 2006.

Exhibit 5S Letter from Paul Richins, CEC, to David Warner, SJVAPCD, providing the CEC Staff's comments on the PDOC, dated September 29, 2005. (Docket No. 35744). Docketed September 29, 2005. Sponsored by Applicant, and received into evidence on March 30, 2006.

Exhibit 5T Letter from Gary Rubenstein, Sierra Research, to David Warner, SJVAPCD, providing comments on the PDOC, dated October 5, 2005. (Docket No. 35596). Docketed October 5, 2005. Sponsored by Applicant, and received into evidence on March 30, 2006.

Exhibit 5U Letter from Gerardo Rios, US EPA, to Dave Warner, SJVAPCD, providing EPA's comments on the PDOC, dated October 5, 2005. (Docket No. 35607). Docketed October 5, 2005. Sponsored by Applicant, and received into evidence on March 30, 2006.

Exhibit 5V Letter from Gary Rubenstein, Sierra Research, to Dave Warner, SJVAPCD, responding to EPA and CEC Staff comments on the PDOC, dated October 25, 2005. (Docket No. 35813). Docketed October 25, 2005. Sponsored by Applicant, and received into evidence on March 30, 2006.

Exhibit 5W Letter from David Warner, SJVAPCD, to Mike Tollstrup, California Air Resources Board, providing notice of issuance of a final

Determination of Compliance for PEFE, dated November 9, 2005. Docketed November 9, 2005. Sponsored by Applicant, and received into evidence on March 30, 2006.

Exhibit 5X Final Determination of Compliance issued by the SJVAPCD for PEFE, dated November 9, 2005. (Docket No. 35894). Docketed November 9, 2005. Sponsored by Applicant, and received into evidence on March 30, 2006.

Exhibit 5Y Applicant's Supplemental Air Quality Testimony dated January 30, 2006. Docketed January 30, 2006. Sponsored by Applicant, and received into evidence on March 30, 2006.

Exhibit 5Z Applicant's Supplemental Air Quality Testimony – Revised Appendix A dated February 3, 2006. Docketed February 3, 2006. Sponsored by Applicant, and received into evidence on March 30, 2006.

Exhibit 6 Biological Resources – Applicant's Testimony. Docketed January 10, 2006. Sponsored by Applicant, and received into evidence on March 30, 2006.

Exhibit 6A Applicant's Supplement in Response to Data Adequacy Comments on the Biological Resources section of the AFC, dated June 9, 2005. Docketed June 10, 2005. Sponsored by Applicant, and received into evidence on March 30, 2006.

Exhibit 6B Applicant's Response to CEC Staff Data Requests Set 1, dated July 25, 2005, Request Nos. 34 and 35. Docketed July 25, 2005. Sponsored by Applicant, and received into evidence on March 30, 2006.

Exhibit 7 Cultural Resources – Applicant's Testimony. Docketed January 10, 2006. Sponsored by Applicant, and received into evidence on March 30, 2006.

Exhibit 7A Applicant's Supplement in Response to Data Adequacy Comments on the Cultural Resources section of the AFC, dated June 9, 2005. Docketed June 10, 2005. Sponsored by Applicant, and received into evidence on March 30, 2006.

Exhibit 7B Applicant's Response to CEC Staff Data Requests Set 1, dated July 25, 2005, Request No. 36. Docketed July 25, 2005. Sponsored by Applicant, and received into evidence on March 30, 2006.

Exhibit 8 Hazardous Materials Handling – Applicant's Testimony. Docketed January 10, 2006. Sponsored by Applicant, and received into evidence on March 30, 2006.

Exhibit 8A Applicant's Response to CEC Staff Data Requests Set 1, dated July 25, 2005, Request Nos. 38 and 39. Docketed July 25, 2005. Sponsored by Applicant, and received into evidence on March 30, 2006.

Exhibit 8B Applicant's Response to CEC Staff Data Requests Set 2, dated August 12, 2005, Request No. 39. Docketed August 12, 2005. Sponsored by Applicant, and received into evidence on March 30, 2006.

Exhibit 9 Land Use – Applicant's Testimony. Docketed January 10, 2006. Sponsored by Applicant, and received into evidence on March 30, 2006.

Exhibit 10 Noise – Applicant's Testimony. Docketed January 10, 2006. Sponsored by Applicant, and received into evidence on March 30, 2006.

Exhibit 11 Public Health – Applicant's Testimony. Docketed January 10, 2006. Sponsored by Applicant, and received into evidence on March 30, 2006.

Exhibit 11A Applicant's Response to CEC Staff Data Requests Set 1, dated July 25, 2005, Request No. 40. Docketed July 25, 2005. Sponsored by Applicant, and received into evidence on March 30, 2006.

Exhibit 11B Applicant's Response to CEC Staff Data Requests Set 2, dated August 12, 2005, Request No. 40. Docketed August 12, 2005. Sponsored by Applicant, and received into evidence on March 30, 2006.

Exhibit 12 Socioeconomics – Applicant's Testimony. Docketed January 10, 2006. Sponsored by Applicant, and received into evidence on March 30, 2006.

Exhibit 12A Applicant's Supplement in Response to Data Adequacy Comments on the Socioeconomics section of the AFC, dated June 9, 2005. Docketed June 10, 2005. Sponsored by Applicant, and received into evidence on March 30, 2006.

Exhibit 13 Soil and Water Resources – Applicant's Testimony. Docketed January 10, 2006. Sponsored by Applicant, and received into evidence on March 30, 2006.

Exhibit 13A Applicant's Supplement in Response to Data Adequacy Comments on the Soil and Water sections of the AFC, dated June 9, 2005. Docketed June 10, 2005. Sponsored by Applicant, and received into evidence on March 30, 2006.

Exhibit 13B Applicant's Response to CEC Staff Data Requests Set 1, dated July 25, 2005, Request Nos. 41-44. Docketed July 25, 2005. Sponsored by Applicant, and received into evidence on March 30, 2006.

Exhibit 13C Applicant's Response to CEC Staff Data Requests Set 2, dated August 12, 2005, Request Nos. 42 and 44. Docketed August 12, 2005. Sponsored by Applicant, and received into evidence on March 30, 2006.

Exhibit 13D Industrial Water Services Contract Between Wheeler Ridge-Maricopa Water Storage District and Pastoria Energy Facility, LLC, Recorded on February 19, 2002. Docketed on June 16, 2005. Sponsored by Applicant, and received into evidence on March 30, 2006.

Exhibit 14 Traffic and Transportation – Applicant's Testimony. Docketed January 10, 2006. Sponsored by Applicant, and received into evidence on March 30, 2006.

Exhibit 15 Transmission Line Safety and Nuisance – Applicant's Testimony. Docketed January 10, 2006. Sponsored by Applicant, and received into evidence on March 30, 2006.

Exhibit 16 Visual Resources – Applicant's Testimony. Docketed January 10, 2006. Sponsored by Applicant, and received into evidence on March 30, 2006.

Exhibit 17 Waste Management – Applicant's Testimony. Docketed January 10, 2006. Sponsored by Applicant, and received into evidence on March 30, 2006.

Exhibit 17A Phase I Environmental Site Assessment (ESA), prepared for Calpine by URS, dated February 2005. Docketed April 29, 2005. Sponsored by Applicant, and received into evidence on April 10, 2006.

Exhibit 18 Worker Safety – Applicant's Testimony. Docketed January 10, 2006. Sponsored by Applicant, and received into evidence on March 30, 2006.

Exhibit 19 Facility Design – Applicant's Testimony. Docketed January 10, 2006. Sponsored by Applicant, and received into evidence on March 30, 2006.

Exhibit 20 Geology and Paleontology – Applicant's Testimony. Docketed January 10, 2006. Sponsored by Applicant, and received into evidence on March 30, 2006.

Exhibit 21 Power Plant Efficiency – Applicant's Testimony. Docketed January 10, 2006. Sponsored by Applicant, and received into evidence on March 30, 2006.

Exhibit 21A Applicant's Response to CEC Staff Data Requests Set 1, dated July 25, 2005, Request No. 37. Docketed July 25, 2005. Sponsored by Applicant, and received into evidence on March 30, 2006.

Exhibit 22 Power Plant Reliability – Applicant's Testimony. Docketed January 10, 2006. Sponsored by Applicant, and received into evidence on March 30, 2006.

Exhibit 23 Reserved

Exhibit 24 Alternatives – Applicant's Testimony. Docketed January 10, 2005. Sponsored by Applicant, and received into evidence on March 30, 2006.

Exhibit 24A Applicant's Supplement in Response to Data Adequacy Comments on the Alternatives section of the AFC, dated June 9, 2005. Docketed June 10, 2005. Sponsored by Applicant, and received into evidence on March 30, 2006.

Exhibit 25 General Conditions – General Conditions. Docketed January 10, 2006. Sponsored by Applicant, and received into evidence on March 30, 2006.

Exhibit 26 Letter from Dariush Shirmohammadi of California ISO to Robert Lugo of Southern California Edison commenting on the Technical Assessment Study dated March 7, 2006. Docketed March 13, 2006. Sponsored by Applicant, and received into evidence on March 30, 2006.

Exhibits 27-99 Intentionally omitted.

Exhibit 100 Final Staff Assessment, Pastoria Energy Facility Expansion. Docketed November 28, 2005. Sponsored by Energy Commission Staff, and received into evidence on March 30, 2006.

Exhibit 101 Staff's Prehearing Conference Statement: Power Plant Efficiency, Supplemental Testimony of Steve Baker and William Walters. Docketed January 10, 2006. Sponsored by Energy Commission Staff, and received into evidence on March 30, 2006.

Exhibit 101A Staff's Prehearing Conference Statement: Air Quality, Supplemental Testimony of William Walters. Docketed January 10, 2006. Sponsored by Energy Commission Staff, and received into evidence on March 30, 2006.

Exhibit 102 Staff's Supplemental Testimony: Air Quality, Supplemental Testimony of William Walters. Docketed March 17, 2006. Sponsored by Energy Commission Staff, and received into evidence on March 30, 2006.

Exhibit 102A Staff's Supplemental Testimony: Hazardous Materials Management, Supplemental Testimony of Alvin Greenberg, Ph.D and Rick Tyler. Docketed March 17, 2006. Sponsored by Energy Commission Staff, and received into evidence on March 30, 2006.

Exhibit 102B Staff's Supplemental Testimony: Soil and Water Resources, Supplemental Testimony of Linda D. Bond, P.G. Docketed March 17, 2006. Sponsored by Energy Commission Staff, and received into evidence on March 30, 2006.

Exhibit 102C Staff's Supplemental Testimony: Transmission Systems Engineering, Supplemental Testimony of Sudath Arachchige and Mark Hesters. Docketed March 17, 2006. Sponsored by Energy Commission Staff, and received into evidence on March 30, 2006.

BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION OF THE STATE OF CALIFORNIA

IN THE MATTER OF: **APPLICATION FOR CERTIFICATION FOR THE PASTORIA ENERGY FACILITY (PEF) 160 MW EXPANSION BY CALPINE CORPORATION**	**DOCKET NO. 05-AFC-1** **PROOF OF SERVICE LIST**

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Instructions: *Send an original signed document plus 12 copies* ***or*** *an electronic copy plus one original paper copy to the address below:*

CALIFORNIA ENERGY COMMISSION
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1516 Ninth Street
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Also send a printed ***or*** *electronic copy of all documents to each of the following:*

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DECLARATION OF SERVICE

I, _____, declare that on _____, I deposited copies of the attached _____ in the United States mail at Sacramento, CA with first class postage thereon fully prepaid and addressed to those identified on the Proof of Service list above. Transmission via electronic mail was consistent with the requirements of California Code of Regulations, title 20, sections 1209, 1209.5, and 1210.

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

_____
[signature]

* * * *

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