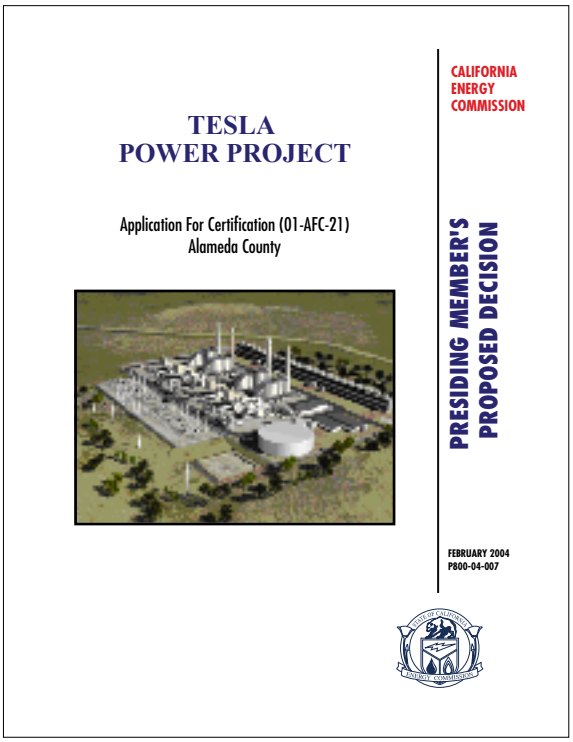
CALIFORNIA
ENERGY
COMMISSION

TESLA POWER PROJECT

Application For Certification (01-AFC-21)
Alameda County

PRESIDING MEMBER'S PROPOSED DECISION

FEBRUARY 2004
P800-04-007



CALIFORNIA ENERGY COMMISSION

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ARTHUR H. ROSENFELD
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BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION OF THE STATE OF CALIFORNIA

APPLICATION FOR CERTIFICATION FOR THE TESLA POWER PROJECT BY FLORIDA POWER AND LIGHT	**DOCKET NO. 01-AFC-21** DATA ADEQUATE JANUARY 9, 2002

The Committee hereby submits the Presiding Member's Proposed Decision (PMPD) for the Tesla Power Plant (TPP) sponsored by FPL Energy in eastern Alameda County. We have prepared this document pursuant to the requirements set forth in the Commission's regulations.
(Cal. Code of Regs., tit. 20, §§ 1749-1752.5.)

We cannot recommend approval of the Application for Certification for the TPP at this time because the evidentiary record is incomplete. We have scheduled an evidentiary hearing to reopen the record and to receive additional evidence as indicated in the text of the PMPD and in the Notice of Evidentiary Hearing issued concurrently with the PMPD.

Dated February 26, 2004, at Sacramento, California.

_____

JOHN L. GEESMAN
Commissioner and Presiding Committee Member
Tesla AFC Committee

_____

ARTHUR H. ROSENFELD
Commissioner and Associate Committee Member
Tesla AFC Committee

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INTRODUCTION

A. SUMMARY OF THE DECISION

This Decision contains our rationale for determining whether the Tesla Power Project (TPP) complies with all applicable laws, ordinances, regulations, and standards and whether it can, therefore, be licensed. 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 TPP is designed, constructed, and operated in a manner that will protect public health and safety, promote the general welfare, and preserve environmental quality.

On October 12, 2001, Midway Power LLC, a wholly owned subsidiary of Florida Power & Light Group/FPL Energy ("Applicant" or FPL) filed an Application for Certification seeking approval from the Energy Commission to construct and operate the TPP, a nominal 1,120 MW gas-fired combined cycle electrical generating power plant.

The TPP site is located on a 60-acre portion of a 160-acre parcel in eastern Alameda County near the border with San Joaquin County, approximately one-half mile north of the PG&E Tesla substation. The site can be accessed by Midway Road, which runs along the east side of the parcel. Commercial operation is anticipated to begin in the third quarter of 2006.

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[1] The Reporter's Transcript of the evidentiary hearings conducted on September 10, 11, 12, and 18, 2003, is cited as "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.

The TPP will consist of four combustion turbine generators (CTGs), four heat recovery steam generators (HRSGs) with associated 200 foot high stacks, two steam turbine generators (STGs), an evaporative cooling tower installation, a zero liquid discharge (ZLD) system, two new 0.8-mile double-circuit 230-kilovolt transmission lines connected to the nearby Tesla PG&E substation, a 24-inch 2.8-mile natural gas pipeline, and a proposed 1.7-mile water supply line from the California Aqueduct to be constructed along Midway Road or an 11-mile wastewater supply pipeline from the Tracy Waste Water Treatment Plant to the TPP site.

Associated equipment for the TPP will include emission control systems necessary to meet the required emission limits. NO_x emissions will be controlled using a combination of low NO_x combustors in the CTGs and selective catalytic reduction (SCR) systems in the HRSGs. A carbon monoxide catalyst will be installed in the HRSGs to limit CO emissions from the CTGs. Other major components of the Project will include water treatment, hazardous waste storage and containment areas, fire water supply tank, and a new electrical switchyard.

Capital expenditures are expected to range from $600-700 million. The construction phase will last about 23 months and will require a peak labor force of approximately 974 workers for 2 months, with an average of 485 workers over the course of the 23-month period. Approximately 36 permanent employees will be hired to operate the project.

Several local, state, and federal agencies cooperated with the Energy Commission in completing this review process. The Applicant and Commission staff worked with the City of Tracy, Alameda County, San Joaquin County, the California Independent System Operator (Cal-ISO), the Bay Area Air Quality Management District (BAAQMD), San Joaquin Valley Unified Air Pollution Control District, U.S. Environmental Protection Agency (U.S. EPA), California Air Resources Board (CARB), U. S. Fish and Wildlife Service (USFWS), California

Department of Fish and Game (CDF), Buena Vista and Rosedale/Rio Bravo Water Storage Districts, the Alameda County Flood Control and Water Conservation District (Zone 7), and the Central Valley Regional Water Quality Control Board (CVRWQCB).

The formal intervenors included California Unions for Reliable Energy (CURE), Californians for Renewable Energy (CARE), Mr. Robert Sarvey, and the San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD).

BAAQMD was responsible for coordinating input from U.S. EPA 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 BAAQMD as well as the mitigation measures recommended by Staff are incorporated into this Decision.

Project-related construction activities will occur in San Joaquin County and a percentage of Project emissions will be transported to the San Joaquin Valley. The SJVUAPCD intervened in this certification proceeding since its rules are applicable to construction activities in San Joaquin County and mitigation measures are necessary to reduce impacts from the transport of air pollutants emitted by the Project. In regard to these concerns, Applicant entered into an Air Quality Mitigation Agreement (AQMA) with SJVUAPCD. The AQMA provides that Applicant will pay $957,751 (AQMA fee) for air quality benefit programs administered by SJVUAPCD within or near the City of Tracy. However, the AQMA does not mitigate any specific pollutants in any quantity. We have therefore adopted Condition **AQ-C7**, which identifies the pollutants and specific residual quantities that must be reduced over the life of the Project and requires Applicant to pay sufficient funds to achieve the permanent reductions. The

AQMA fee may be used for this purpose. In addition to the AQMA fee, Applicant offered $600,000 to the City of Tracy to fund air quality enhancement programs. We have incorporated this proposal in Condition **AQ-C9,** which requires the payment of $600,000 to the City of Tracy for air quality improvements that can be accomplished via the clean school bus program.

We found the evidentiary record on air quality was incomplete in the following areas:

(1) Staff's analysis does not address Intervenor Sarvey's concerns about the contribution of ammonia slip to formation of secondary particulate matter. Therefore, we have directed the parties to provide an analysis of potential impacts due to ammonia slip and if impacts are significant, to recommend appropriate mitigation.

(2) The record indicates that TPP could contribute to cumulative impacts due to unmitigated cooling tower PM_{10} emissions. We have directed the parties to address potential significant cumulative PM_{10} impacts resulting from TPP operation and, if appropriate, draft a Condition to establish limits on cooling tower PM_{10} emissions.

(3) Given the record of evidence, we find the TPP could potentially result in $PM_{2.5}$ impacts if road paving ERCs are allowed to offset combustion sources. Therefore, we have directed the parties to provide an update on the status of CARB's proposed $PM_{2.5}$ standards and to indicate the procedure (including offset ratios) by which the TPP would obtain approval to use alternative offsets, such as those identified in the Antioch area, instead of the proposed road paving ERCs.

Regarding public health concerns about micro-organisms in cooling tower mist if the Project uses reclaimed water, we reviewed the risk of potential impacts from the growth of Legionella bacteria and other micro-organisms in cooling tower operations. California requires the use of mechanical drift eliminators and biocides to reduce the growth of micro-organisms in cooling systems using recycled water. Moreover, BAAQMD advises facilities using recycled water to follow the guidelines and recommendations endorsed by the Cooling Technology Institute (CTI). Condition **Public Health-1** specifically requires the Project Owner

to implement a biocide and anti-biofilm agent monitoring program consistent with CTI guidelines. Conditions **AQ-52 and AQ-53**, require the Project Owner to equip the cooling tower with high-efficiency drift eliminators with a guaranteed efficiency rating of 0.0005 percent.

In public comment, concerns were raised about plans by the City of Tracy to construct an athletic playing field near the existing Tracy Peaker Project. Staff's expert witness on Public Health explained that the playing field is a City project. Local issues regarding the playing field cannot be resolved in this proceeding. In response to other public comments about exposure to "prions" in cooling tower emissions, Staff's expert witness testified that prions are not found in wastewater but rather in certain animal products that create a risk only if ingested. The testimony indicates there is no scientific basis for concern about prions in any type of water source, including recycled water.

The Alameda County Fire Department (ACFD) has jurisdiction in the Project vicinity and will provide first responder service to the TPP. The Tracy Fire Department (TFD) would provide backup response under its automatic aid agreement with the ACFD. Members of the public expressed concern about the capability of the TFD to respond in the event of a TPP-related hazmat release. Several community members, therefore, asserted that the TFD needs a hazmat emergency response vehicle. The ACFD Chief Officer testified that hazmat response requires a high level of training consistent with applicable federal and state guidelines and that its hazmat team is better prepared to provide the necessary hazmat response. Since a water tenderer truck would be used on a regular basis by both ACFD and TFD, they believe a water tenderer truck would provide a more tangible benefit for both eastern Alameda and western San Joaquin Counties. Applicant offered $500,000 to the ACFD to be used for fire protection purposes in eastern Alameda County. The Committee directs the parties to draft a Condition incorporating the Applicant's $500,000 payment to the ACFD in response to public concerns.

The record indicates there will be no in-migration impacts on local school districts. By law, Applicant is required to pay a school impact fee to be collected by the local permitting jurisdiction, which in this case is Alameda County as the in-lieu permitting agency. However, the potentially affected school districts (Tracy Unified School District and Mountain House Elementary School District) are located in San Joaquin County. The record does not indicate the mechanism by which Applicant will ensure that the in-lieu fee paid to Alameda County will be provided to the San Joaquin County School Districts. The parties shall draft a Condition to ensure the in-lieu fee is directed to the appropriate school district(s).

Regarding public concern about truck deliveries of aqueous ammonia in the Tracy area, Condition **HAZ-12** restricts hazmat truck deliveries to the specific route identified in the evidentiary record and Condition **HAZ-13** establishes the protocol for hazmat deliveries in foggy weather.

Applicant proposes to use fresh water from the California Aqueduct for power plant cooling in exchange for groundwater banked by the Buena Vista/Rosedale-Rio Bravo Water Storage Districts' Water Banking and Recovery Program in Kern County. Staff asserted that use of fresh water for Project cooling contravenes state water policy and, therefore, proposed use of reclaimed water from the Tracy Waste Water Treatment Plant (TWWTP) via an 11-mile wastewater supply pipeline. The City of Tracy expects to complete upgrades to the TWWTP for tertiary treatment consistent with Title 22 standards by early 2006, prior to TPP start-up. The Tracy City Council adopted a Resolution authorizing its staff to negotiate with Applicant to supply wastewater to the TPP. The Committee directed Applicant to pursue the wastewater option. Presently, however, there is no water supply agreement between Applicant and the City of Tracy.

The Commission's 2003 Integrated Energy Policy Report (IEPR) states 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." If negotiations for the wastewater option cannot be resolved satisfactorily, we believe the dry cooling option, which is environmentally preferable, should be reconsidered before fresh water use is allowed. Notwithstanding the higher capital investment and potentially reduced efficiency, the record at this juncture does not provide evidence on whether installation of dry cooling would be an "economically unsound" investment over the life of the TPP.

We find the TPP would comply with all applicable LORS and would be considered eligible for certification with respect to the majority of engineering and environmental areas of review. However, the topics of Air Quality and Water Resources require additional evidence before we can recommend certification. Several topics also require clarification of the evidence as indicated by highlighted text throughout the Decision. To this end, we have scheduled Evidentiary Hearings to reopen the record and to receive testimony as delineated in the Notice of Evidentiary Hearings and PMPD Conference, which has been issued concurrently with this Decision.

B. SITE CERTIFICATION PROCESS

The Tesla Power Project 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, sections 25500 et seq. and Energy Commission 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 the present case are summarized below.

On October 12, 2001, FPL Energy filed an Application for Certification (AFC) for the Tesla Power Project. On January 9, 2002, 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, and Intervenors California Unions for Reliable Energy (CURE), Californians for Reliable Energy (CARE), the San Joaquin Valley Unified Air Pollution Control District, and Mr. Robert Sarvey.

On January 31, 2002, 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 TPP. The notice was also published in a local general circulation newspaper.

On February 19, 2002, the Committee conducted a Site Visit to tour the site where the TPP will be situated and then convened a public Informational Hearing in the City of Livermore. At that event, the Committee, the parties, and other participants discussed issues related to development of the proposed TPP,

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

In the course of the review process, Staff conducted public workshops on March 25 and 26, 2002, and June 13, 2002, to discuss issues with the Applicant, governmental agencies, and interested members of the public.

Staff issued its Preliminary Staff Assessment (PSA) on September 16, 2002, and its Final Staff Assessment (FSA) on April 8, 2003. A public workshop on the topic of water resources/cooling alternatives was conducted on September 24, 2003. Another public workshop on September 25, 2003, covered the topics of air quality, biological resources, hazardous materials, land use, public health, soil and water resources, traffic and transportation, worker safety, and visual resources. Staff also held a public workshop on November 14, 2002, to discuss issues related to biological resources, fire protection, land use, transmission system engineering, visual resources, water resources/cooling alternative supply, and the Project schedule.

The Committee issued a Scheduling Order on February 27, 2002. On June 18, 2003, the Committee issued a Notice of a Site Visit and Prehearing Conference, which was held in the City of Tracy on July 30, 2003.

On August 14, 2003, the Committee issued a Notice of Evidentiary Hearings, which were conducted September 10, 11, 12, and 18, 2003, in Tracy. On September 5, 2003, the Committee issued a Revised Notice of Evidentiary Hearings to accommodate witness availability.

On December 16, 2003, the Committee issued a Committee Order Directing Parties to Clarify Evidence submitted during the evidentiary hearings.

After reviewing the evidentiary record, including Intervenor testimony and voluminous exhibits, the Committee published the Presiding Member's Proposed Decision (PMPD) on February 26, 2004, and scheduled a Committee Conference and Evidentiary Hearing on April 8, 2004, to discuss comments on the PMPD. The 30-day comment period on the PMPD ends April 9, 2004.

D. PUBLIC COMMENT

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

The following list shows the names of those offering comments at the Evidentiary Hearings on September 10, 11, 12, and 18, 2003, the transcript references, and a brief summary of the comments. Most of the concerns raised in public comment have been addressed by the analyses contained in the Decision and the evidentiary record.

COMMENTOR	*RT Page(s)*	*COMMENTARY*
Ben Curra	RT 9/10/03 243:21	Concern that the 3-year air quality mitigation fee will be passed on to users, however, is in favor of the project.
Paul Sundberg	RT 9/10/03 244:6	General position is one of opposition to the project.
	RT 9/18/03 306:5	Addressed lack of water and prefers the use of dry cooling for power plants.
Carole Dominguez, Tracy Regional Alliance for a Quality Community (TRAQC)	RT 9/12/03 140:14	Concerned about the availability of potable water to the TPP and water quality in the community. Asks that the CEC consider the direct requests of Tracy residents and that the CEC form a Citizens Committee to work with the Applicant and Staff to create a viable mitigation plan.
	RT 9/18/03 272:10	Concerns with public health and safety issues associated with locating a youth sports park adjacent to the TPP.
Leroy Ornellas, San Joaquin County Board of Supervisors	RT 9/18/03 37:21 335:21	Expressed constituent concerns regarding recycled water and the possible transmission of mad cow disease. Gratified that the TPP is offering air quality mitigation but thinks mitigation needs to be greater. Concerned about cumulative impacts and public health. Also supports mitigation in the form of a hazmat truck and water tenderer.
Wes Hoffman, Tracy City Council	RT 9/18/03 263:13	Requests continuous complete mitigation for air quality impacts associated with the TPP and continuous monitoring. Also, first responder responsibilities and the need for a hazmat truck and water trailer to mitigate hazmat concerns.
Celeste Garamendi, TRAQC	RT 9/18/03 277:7	Concerned about the tertiary and potable water transfers proposed by the City of Tracy and the depletion of local water supplies. Aware that there are air quality, fire protection, and public health issues that all need mitigation and asked that the CEC recognize the cumulative impacts on the Tracy community; requests that the CEC form a citizens committee to establish a viable and adequate mitigation plan.

I. PROJECT PURPOSE AND DESCRIPTION

Midway Power LLC, a wholly owned subsidiary of FPL Group/FPL Energy ("Applicant" or FPL) filed an application for the Tesla Power Project (TPP or "project"), a nominally rated 1,120-megawatt (MW) natural gas-fired power plant to be located in eastern Alameda County. (Ex. 31; Ex. 2 § 2.1.)

Project Ownership

The Project Owner is Midway Power, LLC, a Delaware limited liability company, which is a wholly-owned subsidiary of FPL Energy, a subsidiary of FPL Group. (Ex. 1, p. 1-1; 9/10/03 RT, p 20 et seq.) For purposes of this Decision, all references to the Project Owner include FPL Group, FPL Energy, and its subsidiary Midway Power, LLC. According to the application, the TPP will serve the Greater Bay Area load center and improve grid reliability. (Ex. 1, pp. 1-2, 2-1; 9/10/03 RT, p. 24:11-22.)

Power Plant Site and Facilities

The TPP will be located on a 60-acre portion of a 160-acre parcel (Assessor's parcel No. 99B-7825 1-4 Section 30, Township 2S, Range 4E) in eastern Alameda County, about 0.5 mile north of PG&E's existing Tesla Substation. This location was previously identified by Energy Commission staff to address power load in the Greater Bay Area. (9/10/03 RT, p. 24.) The site is located between the Cities of Livermore in Alameda County and Tracy in San Joaquin County. *See* Project Description Figures 1 and 2, below.

The 60-acre site is presently undeveloped agricultural land used for cattle grazing. The site is bordered by an abandoned railroad right-of-way to the north and Midway Road to the east. The power generation facility and a storm water sedimentation/detention pond will occupy about 25 fenced acres within the 60-

acre site. Site access will be provided by a new 24-foot wide paved road extending from Midway Road. An adjacent 49-acre parcel (Assessor's parcel No. 99B-7885-1-2) will be used for temporary construction laydown. (Ex. 1, §§ 1.5, 3.2, 3.3.)

Development of the site required cancellation of an existing Williamson Act contract for the 160-acre parcel. The Alameda County Board of Supervisors approved the cancellation by Resolution Number R-2003-322, dated February 6, 2003. (Ex. 21.) FPL does not currently own the Project site, but has site control based on an option to purchase the site upon certification of the project. (Ex. 1, p. 3-1.)

The power generating facility consists of two power trains with two-on-one configurations. Each power train includes two General Electric 7FA combustion turbine-generators (CTGs) provided with evaporative inlet air coolers, two multi-pressure heat recovery steam generators (HRSGs) equipped with duct burners, two 200-foot tall HRSG exhaust stacks, and one reheat condensing steam turbine-generators (STG). The cooling system includes a surface condenser, circulating water system, and a plume-abated wet cooling tower. To control air emissions, the CTGs will be equipped with dry low NOx combustors, and the HRSGs will include selective catalytic reduction and oxidation catalysts. (Ex. 51, p. 3-1 et seq. and p. 5.3-4; Ex. 1, § 3.0 et seq.; Ex. 31.) *See* Project Description Figure 4 below.

At full load, each CTG will produce approximately 162 MW gross at 97ºF ambient temperature. Heat from CTG exhaust is used in the HRSGs to generate steam and to reheat steam. With the CTGs at full load but without the duct burners in operation, the HRSGs produce sufficient steam for the STG to operate at the base load output of 185 MW gross, yielding an overall gross output of approximately 509 MW for each power train. Under the same conditions but with the duct burners in service, the STG can reach its peaking output of 246 MW,

yielding an overall gross output of approximately 570 MW per power train. (Ex.1, § 3.4.2.)

Electricity will be generated at 18 kV by the four CTGs and two STGs, and then stepped up at the new Project switchyard to 230 kV for delivery to the Tesla Substation. Two new 0.8-mile single circuit 230 kV transmission outlet lines will connect the switchyard to the Tesla Substation. Interconnection of the project's outlet lines will require relocation of the existing Tesla-Ravenswood 230 kV line within the Substation and retermination of the existing Tesla-Newark 230 kV line. (Ex. 1, § 3.4.4.1; Ex. 51, pp. 3-1 and 3-2.)

The TPP will be fueled by natural gas supplied from a PG&E backbone pipeline south of the intersection of I-205 and Patterson Pass Road in San Joaquin County. Natural gas will be delivered to the site via a new 24-inch, 2.8-mile pipeline. (Ex. 1, § 3.4.5.) *See* Project Description Figure 3, below, which shows the route.

The Project requires a maximum of 5,900 (5,852) acre-feet of water per year ("AFY") for domestic and industrial purposes. (Ex. 1, Table 3.4-9.) The Project site is located within the Alameda County Flood Control and Water Conservation District ("Zone 7"). Applicant initially pursued an agreement with the Rosedale-Rio Bravo and the Buena Vista Water Storage Districts in Kern County to deliver water from Zone 7 using exchanged non-State Water Project (SWP) water from the nearby California Aqueduct. Applicant would install a pump station adjacent to the Aqueduct and construct a 1.7-mile pipeline from the pumping station to the power plant site. The Water Storage Districts would provide Zone 7 with 6,400 AFY via a turnout facility constructed on the Aqueduct along Midway Road. The plan assumes that no additional annual diversion from the Aqueduct would occur and no SWP entitlements would be transferred. (Ex. 31, p. 3.)

Energy Commission staff believes that using fresh water for power plant cooling is contrary to state water policy and recommended use of tertiary-treated recycled water supplied by the nearby City of Tracy. (Ex. 51, § 4.13.) The Committee agreed with Staff's analysis and directed Applicant to work with the City of Tracy to develop a viable plan for the delivery of tertiary-treated recycled water to the project. Use of recycled water from the City of Tracy requires construction of an 11-mile pipeline and pump stations. Staff conducted an environmental review of potential impacts along the 11-mile pipeline route and found that all impacts could be mitigated to insignificant levels. (Ex. 52.) *See* the section on Soil and Water Resources in this Decision.

The proposed 11-mile wastewater supply pipeline would begin at a new pump station located immediately west of existing effluent pumps at the Tracy Wastewater Treatment Plant and be installed along the following route. (Ex. 52, p. 2.13-1 et seq.)

> (1) West and then north along the road inside the WWTP facility. This road serves as a berm for the sludge drying beds to the intersection of Holly Drive and Arbor Avenue. Trenching and backfill would occur within the existing fill of the gravel-surfaced road.
>
> (2) Cross Holly Drive and west through a field within a public utility easement or dirt road to Tracy Blvd. This property, which is being acquired by City of Tracy, is currently in agricultural production growing alfalfa.
>
> (3) Cross Tracy Blvd and west through a field within a public utility easement or dirt road to Corral Hollow Road. This property, which is being acquired by City of Tracy, is currently in agricultural production growing winter wheat.
>
> (4a) Cross and south on Corral Hollow Road for approximately 300 feet. Trenching and backfill would occur either within the shoulder and/or within Corral Hollow Road; or
>
> (4b) Cross and south on Corral Hollow Road for approximately 1,300 feet.
>
> (5a) West through a field consisting of two parcels within a public utility easement or dirt road if possible, to Naglee Road in approximate alignment with Middle Road located due west. This segment includes crossing a small local aqueduct serving irrigation water supply. The field is currently used for grazing livestock; or

5b) West on Larch Road and North on Naglee Road to the intersection with Middle Road. Trenching and backfill would occur either within the shoulder and/or within the roadways.

(6) Cross Naglee Road and west on Middle Road to San Jose Road. Trenching and backfill would occur either within the shoulder and/or within Middle Road.

(7) South on San Jose Road to its terminus at the Southern Pacific Railway. Trenching and backfill would occur either within the shoulder and/or within San Jose Road. Two small irrigation ditches would also be crossed at the terminus of San Jose Road.

(8) Cross under the Southern Pacific Railway and cross Byron Road, and proceed west on Grant Line Road. The pipeline under the railway would likely be installed by jack and bore techniques.

(9) Cross under or over the Delta Mendota Canal and the California Aqueduct (requiring approvals from USBR and DWR). If under-crossings are constructed, they would be installed by either jack and bore or horizontal directional drilling techniques.

(10) South on Midway Road immediately west of the California Aqueduct. Trenching and backfill would occur either within the shoulder and/or within Midway Road.

(11) Continue south on Midway Road to the TPP site. Trenching and backfill would occur either within the shoulder and/or within Midway Road.

The reclaimed water pipeline would be constructed within appropriate rights-of-way. Along paved roads, the pipeline would be constructed preferably along the shoulder, so as to work within the existing road easement and areas already affected by the road. This would also avoid or minimize disturbance to vehicle travel. Through agricultural fields, the pipeline would be constructed within existing public utility easements or within or along the shoulder of agricultural access roads wherever possible. (Ex. 52, p. 2.13.2.)

The Project includes a water storage tank with a capacity of 8,365,000 gallons, of which 8,065,000 gallons will be dedicated to plant operation. This quantity is sufficient to cover a 24-hour interruption of water supply during summer peak conditions. The balance of 300,000 gallons will be dedicated to the plant's fire protection water system. (Ex. 1, § 3.4.6.2.)

As proposed, the Project has two separate wastewater collection systems. All industrial wastewater will be collected for processing in a zero liquid discharge (ZLD) system that uses reverse osmosis and a brine concentrator to remove dissolved minerals and transform liquid sludge into solid material ("saltcake") for disposal at an appropriate landfill. The ZLD system also returns any remaining distillate for reuse as makeup water in the cooling tower. Domestic wastewater will be discharged into an on-site septic system. (Ex. 31, p. 3; Ex. 51, p. 4.12-5.)

Project Schedule

Project construction is expected to take 23 months and will require an average and peak construction work force of about 485 and 974 individuals, respectively. The construction payroll is estimated at $70 million. During construction, an estimated $18-20 million will be spent on local purchases of equipment and supplies. (Ex. 31, p. 3; Ex. 1, § 5.8.2.1.) Approximately 36 permanent staff will be employed during Project operation. Annual operational payroll is estimated at $3.4 million. (Ex. 31, p. 3; Ex. 1, § 5.8.2.2.)

The capital cost of the Project is estimated at $600 to $700 million. (Ex. 31, p. 3.) Alameda County will receive property tax revenues of approximately $6 million per year based on current property tax rates. (Ex. 1, p. 5.8-11.) The planned operational life of the power plant is 30 years although it could be operated for a longer period if the facility remains economically viable. (*Id*. at § 3.9.2.)

FINDINGS AND CONCLUSIONS

Based upon the evidentiary record, we find as follows:

1. The Project Owner, FPL Group/FPL Energy and its subsidiary Midway Power, LLC, propose to construct and operate the Tesla Power Project (TPP), a nominally rated 1,120 MW combined cycle natural gas power plant in eastern Alameda County near the Cities of Livermore in Alameda

County and Tracy in San Joaquin County, about 0.5-mile from the existing PG&E Tesla Substation.

2. The TPP will be located on a 60-acre site within a 160-acre parcel, and includes a new 11-mile reclaimed water supply pipeline, a new 2.8-mile natural gas pipeline, and two new 0.8-mile 230 kV transmission lines.

3. The power plant facility consists of two power trains, which include two CTGs, two HRSGs with associated exhaust stacks, and one steam turbine in two-on-one configurations, other electrical generation and mechanical equipment, cooling tower, transformers, switchyard, emission control equipment, storage tanks, and administrative facilities.

4. The TPP will interconnect with PG&E's Tesla Substation.

5. FPL Group/FPL Energy does not own the site but has site control based on an option to purchase the site upon certification of the project.

We therefore conclude that FPL Group/FPL Energy has described the Tesla Power 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).

II. PROJECT ALTERNATIVES

The California Environmental Quality Act (CEQA) Guidelines and the Energy Commission's regulations require an evaluation of the comparative merits of a range of feasible site and facility alternatives including the "no project" alternative, which would attain the basic objectives of the proposed Project but would avoid or substantially lessen potentially significant environmental impacts.[1] (Cal. Code of Regs., tit. 14, §§ 15126.6(c) and (e); *see also*, tit. 20, § 1765.) The range of alternatives is governed by the "rule of reason" and need not include those alternatives whose effects cannot be reasonably ascertained and whose implementation is remote and speculative. (*Id.* at tit. 14, § 15126.6(f).)

SUMMARY AND DISCUSSION OF THE EVIDENCE

The Tesla Power Plant (TPP) is a nominal 1,120 MW natural-gas-fired combined cycle power plant with associated infrastructure. The site is located on a 60-acre portion of an undeveloped 160-acre agricultural parcel in eastern Alameda County near the San Joaquin County border.[2] The site is about 0.5 mile north of the Tesla Substation. (Ex. 51, p. 6-2.)

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[1] Based on the totality of the record and as reflected in our findings for each of the technical topics, the TPP as mitigated will not result in significant adverse effects on the environment. Intervenor Sarvey cross-examined Staff on its position that the Energy Commission does not have authority to approve an alternative or require Applicant to move the TPP to another site even if an identified alternative site meets Project objectives and avoids or substantially lessens one or more impacts. We do not embrace Staff's view because we have authority to deny certification if the evidence establishes the existence of such a site. We are perplexed by Staff's inclusion of this statement in its testimony, especially since Staff does not take this position in other siting proceedings concurrent with this one. We are also concerned by Staff's statement that there are no LORS directly applicable to the alternatives analysis (Ex. 51, p. 6-2.), since we require an analysis of project alternatives to ensure that our certification review conforms with CEQA Guidelines and Energy Commission regulations. (Cal. Code of Regs., tit. 14, § 15126.6 and tit. 20, § 1765.)

[2] *See* the Land Use section of this Decision regarding the Williamson Act contract cancellation proceeding pertinent to the 160-acre parcel.

The evidentiary record discusses the TPP site in comparison with alternative sites and technologies as well as the "no project alternative." (Ex. 1, § 3.10; Ex. 51, p. 6-1 et seq.)

Methodology

To prepare the alternatives analysis, Staff used the methodology summarized below: (Ex. 51, p. 6-4.)

- Identify the basic objectives of the proposed Project, provide an overview of the project, and describe its potentially significant adverse impacts.
- Determine whether there are any feasible *site alternatives* for analysis by evaluating the extent to which most of the Project objectives can be achieved and the degree to which any significant impacts of the Project would be substantially lessened at such alternative sites.
- Evaluate whether the alternative sites would create any inherent impacts specific to those sites.
- Identify and evaluate *technical alternatives* to the Project such as increased energy efficiency (or demand side management) and the construction of alternative technologies (e.g. wind, solar, or geothermal).
- Evaluate the feasibility and impacts of not constructing the Project (the *"no project*" alternative).

Project Objectives

Staff identified the Project's major objectives as follows:

- generation of approximately 1,120 MW of load-serving capability with access to the PG&E grid to serve the Greater Bay Area load area and other markets;
- location near an electrical substation and key infrastructure for natural gas and water supply; and
- commercial operation by approximately 2004. [We note the anticipated online date for Project operation has been changed to 2006 or 2007.]; and
- location where sufficient land is available to accommodate the Project components and construction laydown areas. (Ex. 51, pp. 6-2 and 6-3.)

Alternative Sites

Seven alternative sites were investigated by Applicant. (Ex. 1, § 3.10.2.2) Staff determined that those seven sites had environmental impacts equal to or greater than the proposed TPP site and eliminated those sites from the analysis. (Ex. 51, p. 6-4.) Staff subsequently identified four additional alternative sites that could potentially meet Project objectives.[3] Staff's alternative sites are discussed below and summarized in Staff's Alternatives Table 1 at the end of this section.

- **Alternative Site 1** (Mountain House Road Site): A 46-acre parcel located in a small valley at the base of the Coast Range foothills in Alameda County, zoned Agricultural, but not designated as Prime Farmland, and is currently used for grazing. The site is bounded by Mountain House road to the east and is approximately 1,000 feet southeast of the Bethany Reservoir. (Ex. 50, p. 6-5 et seq.)

  Site 1 Advantages

  - **Water Resources:** A portion of the water supply needed to support a power plant at the site would be recycled water supplied by the City of Tracy Wastewater Treatment Plant.
  - **Land Use:** The alternative site is not under Williamson Act contract and its zoning would allow for the construction of an electrical generation facility.
  - **Linear Features:** Both the new transmission line and natural gas pipeline would be shorter for the alternative site than the TPP site.
  - **Visual:** The site is surrounded by low rolling hills that would block most views of the Project site.

  - **Disadvantages**

[3] Staff used the following criteria to identify potential alternative sites:

- The site should avoid or substantially lessen one or more of the potential significant effects of the project;
- The site should meet most of the Project's objectives;
- The site should be vacant or have a reasonable potential to become vacant;
- The site should not be located adjacent to moderate or high density residential areas, sensitive receptors (such as schools and hospitals), or recreation areas. (Ex. 53, p. 19.)

- **Geologic Hazards and Resources:** The alternative site could be subject to seismically induced ground-shrinking, liquefaction, and has high shrink-swell potential.
    - **Sensitive Receptors:** Residential sensitive receptors are closer to the alternative site than the TPP site.

-

- **Alternative Site 2** (Bruns Road Site): A 207-acre parcel characterized by open grassland with slight undulating terrain, situated between the California Aqueduct and the Delta-Mendota Canal, immediately northwest of the Tracy Pumping Station and the Tracy Substation, about 1,500 feet east of the Byron Bethany Irrigation District. The southern border of the site is a small agricultural road that intersects Bruns Road.. (*Id.* at p. 6-10 et seq.)

  Site 2 Advantages

  - **Water Resources:** A portion of the water supply needed to support the TPP would be recycled water supplied by the City of Tracy Wastewater Treatment Plant.
  - **Linear Features:** Both the new transmission line and natural gas pipeline would be shorter for the alternative site than the TPP site.

  Disadvantages

  - **Geologic Hazards and Resources:** The alternative site could be subject to seismically induced ground-shrinking, liquefaction, and has high shrink-swell potential.
  - **Noise:** Residential sensitive receptors are closer to the alternative site than the proposed TPP site. Extensive noise mitigation measures would be required to ensure insignificant noise impacts at the mobile home and trailers located immediately south of the parcel.
  - **Visual:** Views of the Coast Range foothills to the west and south would be blocked leading to an adverse visual change. The resulting visual contrast of constructing a power plant in the existing landscape would cause an adverse and significant visual impact

- **Alternative Site 3** (Lodi Site): A 52-acre parcel, about 35 miles north of the proposed TPP site, located off North Thornton Road in the City of Lodi, west of Interstate 5 (I-5) and adjacent to the White Slough Water Pollution Control Facility and the Northern California Power Authority's 50 MW Combustion Turbine No. 2 Project. (*Id.* at p. 6-13 et seq.)

Site 3 Advantages

- **Biological Resources:** Although the Lodi Site would require a longer natural gas pipeline, the biological resource impacts related to the power plant site would be less than those of the TPP.
- **Water Resources:** The Project at this site would use recycled water from the City of Lodi's WSWPCF. Therefore, this site would eliminate the proposed use of potable water from the California Aqueduct at the TPP.
- **Land Use:** The alternative site is not under Williamson Act contract and its zoning would allow for the construction of an electrical generation facility.
- **Transmission:** While the Lodi Site would require the construction of a 230 kV switching station, existing transmission capacity could handle 1,120 MW, precluding the construction of new transmission lines.

Disadvantages

- **Natural Gas:** The Lodi Site would require a longer natural gas pipeline with either the PG&E or Lodi Gas Storage pipeline options than the proposed TPP site.
- **Construction Impacts:** The site has very shallow groundwater and a high flooding potential; therefore, construction would require a significant amount of dirt fill to raise the site above the 100-year floodplain.
- **Visual:** A power plant at this location would not likely be within the viewshed of residential sensitive receptors; however, it would be visible to all motorists traveling on I-5 and hunters, fishermen, and birdwatchers that frequent the WSWA and WSWPCF evaporation ponds. Since the TPP would be located in an area that is rural residential and would be in the viewshed of a minimal number of people, visual resources is considered a disadvantage at the Lodi Site in comparison to the TPP.

- **Alternative Site 4** (Colusa Site): A 200-acre leased site initially evaluated for the Colusa Power Plant proposed by Reliant Energy. This site is an undeveloped agricultural property located in the unincorporated portion of Colusa County, about 4 miles west of I-5 and 14 miles north of the City of Williams. (*Id*. at p. 6-17 et seq.)

Site 4 Advantages

- **Land Use:** While the site would need to be rezoned to allow for an electrical generation facility, the alternative site is not under Williamson Act contract.
- **Linear Features:** The natural gas pipeline would be shorter for this alternative site than the TPP site and while the transmission towers for the alternative site would require replacement and improvement, this would require less construction than the new transmission lines required by the TPP.

Disadvantages

- **Air Quality:** Difficulty securing air emissions offsets without which the power plant's air quality impacts could not be reduced to less than significant levels.
- **Biological Resources:** Formal Section 7 Consultation between the USEPA and the USFWS would be required due to potential impacts to listed special-status species and their habitats, including Swainson's hawk, bald eagle, giant garter snake, salmonids, branchiopods, vernal pools, and alkali grasslands.
- **Infrastructure:** The existing roads that would provide access to the alternative site would need to be significantly improved to accommodate heavy construction vehicle traffic to and from the site.
- **Water Resources:** No viable fresh water or recycled water sources are available to this site and, therefore, dry cooling technology would be necessary for power plant cooling.

Staff also reviewed five additional alternative sites: Cargill Salt Processing Complex site in the City of Newark, Fremont Site in the City of Fremont, Boyce Road Site also in Fremont, Deport Road Site in the City of Hayward, and West Winton Avenue Site also in Hayward. Each of those sites presented either significant adverse environmental impacts and/or logistical complexities that would have been more difficult to mitigate than those connected with the proposed TPP site. (Ex. 51, p. 6-22 et seq.)

Technology Alternatives[4]

Staff analyzed alternative technologies based on commercial availability, feasibility, environmental, health and safety impacts, and relative cost. (Ex. 51, p. 6-25 et seq.) According to Staff, technologies such as biomass generation, hydroelectric, geothermal, solar, and wind power cannot be implemented in the Greater Bay Area or do not meet Project objectives. (*Ibid*.) Technologies relying on coal or other solid fossil fuels were rejected because of their higher air pollutant emission rates. *(Ibid.)* The evidence indicates that none of the alternative technologies analyzed would be feasible alternatives to the project. (*Id*. at p. 6-27; Ex. 1, § 3.10.6.2.)

Applicant considered a number of different natural gas-fueled power generation technologies and determined that the proposed conventional combined-cycle technology offers the best combination of efficiency, environmental performance, and proven technology. Within the range of currently available, large combustion turbines, the conventional combined cycle F-class model was selected for the Project because it offers the best combination of commercially proven status, cost, emissions performance, efficiency, and operational flexibility. (Ex. 1, § 3.10.6; 9/10/03 RT, pp. 150 and 153.) Staff agreed with Applicant's assessment of viable technologies. (Ex. 51, pp. 5.3-5 and 6-27.)

Conservation and Demand Side Management

California has implemented several energy efficiency and demand side management programs in an effort to reduce electricity demand. However, these conservation programs are not considered in the alternatives analysis because

[4] The Project will use a plume-abated, wet cooling tower in combination with a surface condenser cooled by circulating water. Intervenors presented the testimony of Bill Powers regarding the alternative of dry cooling technology using an air cooled condenser in place of the project's wet cooling technology. Discussion of the dry cooling alternative compared with wet cooling is presented in the Soils and Water Resources section of this Decision.

their cumulative effect is not sufficient to provide the additional generation required by the state.[5] The Commission's 2002-2012 Electricity Outlook Report concludes that despite exceptional conservation efforts in 2001, voluntary demand reduction will likely decrease over time. (Ex. 51, p. 6-24.)

No Project Alternative

The CEQA Guidelines require an analysis of the "no project" alternative to compare the impacts of approving the Project with the impacts of not approving the project. (Cal. Code of Regs., tit. 14, § 15126.6(e).) In this context, the "no project" analysis considers "existing conditions" and "what would be reasonably expected to occur in the foreseeable future if the Project were not approved…." (*Id*. at §15126.6(e)(2).) The "no project" alternative assumes the TPP would not be built. If the TPP were not constructed, the proposed site would likely remain grazing land, the potential construction and operational impacts of the plant and linear facilities would not occur, and mitigation would not be required. (Ex. 51, p. 6-20.)

According to Applicant, however, if the TPP were not developed at the proposed site with interconnection at PG&E's hub at Tesla Substation, smaller power plants resulting in less efficient generation and requiring complicated interconnection facilities would likely be constructed in more populated areas to meet demand in the Greater Bay Area. Thus, environmental impacts would likely be shifted to other power plant locations where impacts could be greater than those that would result from construction and operation of the Project near the Tesla Substation. Moreover, since the TPP is expected to replace generation

[5] Public Resources Code, section 25305(c) states that conservation, load management, or other demand-reducing measures shall not be considered as alternatives to a proposed facility during the siting process.

from older, inefficient facilities due to market forces, this benefit would not occur in the absence of the plant's construction.[6] (Ex. 1, § 3.10.1.)

Based on the totality of the analysis described above, we conclude that the TPP is the preferable alternative. The four site alternatives analyzed by Staff offered a few advantages and several disadvantages. Energy efficiency measures, alternative technologies, and/or alternative sites would not achieve Project objectives. (*See* Ex. 43, p. 2; Ex. 51, p. 6-27.)

FINDINGS AND CONCLUSIONS

Based upon the weight of the evidence regarding the alternatives analysis, the Commission makes the following findings and conclusions:

1. All potential adverse environmental effects related to the Project will be mitigated to insignificant levels.

2. The evidentiary record contains an adequate review of alternative sites, fuels, technologies, and the "no project" alternative.

3. Renewable technology alternatives such as biomass, geothermal, solar, or wind resources are either unavailable in the Greater Bay Area or are not capable of meeting Project objectives.

4. The "no project" alternative would not avoid or substantially lessen potentially significant environmental impacts since no unmitigable impacts have been identified.

5. While the "no project" alternative would eliminate all impacts of the TPP, the benefits of increasing generation in the Greater Bay Area load pocket would not be achieved, and environmental impacts would likely

[6] Upon cross-examination by Intervenor Sarvey, Staff's witness testified it would be almost impossible to specify which particular, older power plants would be superseded by the TPP due to market competition. (9/10/03 RT, pp. 154-155.) Although Intervenors raised the issue, there was no evidence presented to indicate whether distributed generation (electric generation units connected to the grid at or near the intended place of use) would be more or less likely than the TPP to provide greater reliability or to result in significant environmental/public health impacts on a cumulative basis. (*Id*. at p. 155.) *See* the Energy Commission's Distributed Generation Strategic Plan (Publication No. P700-02-002, June 2002), which can be accessed on the web at: www.energy.ca.gov/distgen/strategic/strategic_plan.html

be shifted to other power plant locations where impacts could be greater than those that would result from construction and operation of the project.

6. If all Conditions of Certification contained in this Decision are implemented, construction and operation of the TPP will not create any significant, direct, indirect, or cumulative adverse environmental impacts.

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

ALTERNATIVES Table 1
Comparison of Alternative Sites

Alternative Site	Major Issues, Concerns, or Benefits	Potentially Significant Impacts of Proposed Project				Preliminary Comparison to Proposed TPP
		Air Quality	Biological Resources	Land Use	Soil and Water Resources	
Mountain House	Installation of 500kV switchyard less expensive than required Tracy-Tesla upgrade Longer water pipeline than TPP Potential impacts from geologic hazards	Similar to proposed site, though receptors are closer	Agricultural site; red legged frog "core" area and San Joaquin kit fox habitat	ECAP calls for preservation of the Mountain House area for intensive agricultural use	Recycled water available; requires 10-mile pipeline from source	Potentially worse
Bruns Road	Installation of 500kV switchyard less expensive than required Tracy-Hurley upgrade Greater visual impact, potentially significant Potentially significant noise impacts Potential impacts from geologic hazards	Similar to proposed site, though receptors are closer	Agricultural site; red legged frog "core" area and San Joaquin kit fox habitat	Zoned Agricultural and designated "Unique Farmland." Development pattern unclear under ECAP	Recycled water available; requires 11-mile pipeline from source	Potentially worse
Lodi	Natural gas transmission line increases potential for impacts to archaeological resources Fewer biological resource impacts than TPP Greater visual impact	Better than proposed site; no nearby receptors. Offsets may be more difficult to obtain	Agricultural site; potential giant garter snake and Swainson's hawk foraging habitat	Zoned Public. Better than proposed	Recycled water available; agricultural water supplies for summer months need identification	Similar Impacts
Colusa	Major road improvements required for construction equipment	Better than proposed site; no nearby receptors. Offsets may be more difficult to obtain	Agricultural site; transmission corridor would impact vernal pool habitat	Requires a General Plan Amendment and a Zoning Amendment	Water supply would be uncertain if Project did not include dry cooling	Similar Impacts

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 Tesla Power Plant 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 individual conditions contain the measures required to mitigate potentially adverse Project impacts associated with construction, operation and closure to an insignificant level. 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 Tesla Power Plant 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:

Site Mobilization

Moving trailers and related equipment onto the site, usually accompanied by minor ground disturbance, grading for the trailers and limited vehicle parking, trenching for construction utilities, installing utilities, grading for an access corridor, and other related activities. Ground disturbance, grading, etc. for site mobilization are limited to the portion of the site necessary for placing the trailers and providing access and parking for the occupants. Site mobilization is for temporary facilities and is, therefore, not considered construction.

Ground Disturbance

On-site activity that results in the removal of soil or vegetation, boring, trenching or alteration of the site surface. This does not include driving or parking a passenger vehicle, pickup truck, or other light vehicle, or walking on the site.

Grading

On-site activity conducted with earth-moving equipment that results in alteration of the topographical features of the site such as leveling, removal of hills or high spots, or moving of soil from one area to another.

Construction

[From section 25105 of the Warren-Alquist Act.] On-site work to install permanent equipment or structures for any facility. Construction does **not** include the following:

- the installation of environmental monitoring equipment;
- a soil or geological investigation;
- a topographical survey;
- any other study or investigation to determine the environmental acceptability or feasibility of the use of the site for any particular facility; or
- any work to provide access to the site for any of the purposes specified in a., b., c., or d.

Start of Commercial Operation

For compliance monitoring purposes, "commercial operation" is that phase of Project development which begins after the completion of start-up and commissioning, where the power plant has reached steady-state production of electricity with reliability 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 RESPONSIBILITIES

A Compliance Project Manager (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 staff and management.

The public may contact the Energy Commission about power plant construction or operation-related questions, complaints, or concerns at **1-800-858-0784**. Information is also available on the Energy Commission's web page at:

[www.energy.ca.gov/sitingcases/power_plants_contacts.html]

Pre-Construction and Pre-Operation Compliance Meeting

The CPM will schedule pre-construction and pre-operation compliance meetings prior to the Project ed start-dates of construction, plant operation, or both. The purpose of these meetings is 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 shall 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):

- all documents demonstrating compliance with any legal requirements relating to the construction and operation of the facility;
- all monthly and annual compliance reports filed by the Project Owner;
- all complaints of noncompliance filed with the Energy Commission; and
- all petitions for Project or condition changes and the resulting staff or Energy Commission action.

PROJECT OWNER RESPONSIBILITIES

It is the responsibility of the Project Owner to ensure that the general compliance conditions and the conditions of certification 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, compliance conditions, or ownership. Failure to comply with any of the conditions of certification or the general compliance conditions may result in reopening of the case and revocation of Energy Commission certification, an administrative fine, or other action as appropriate. A summary of the 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 (**COM-1, COM-2,** etc.) refers to the specific General Compliance Condition contained in **Compliance Table 1.**

Access, Compliance Condition of Certification-1 (COM-1)

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, COM-2

The Project Owner shall maintain Project files on-site, or at an alternative site approved by the CPM, for the life of the Project unless a lesser period of time is specified by the conditions of certification. The files shall contain copies of all "as-built" drawings, 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, COM-3

Each condition of certification is followed by a means of verification. The verification describes the Energy Commission's procedure(s) to ensure post-certification compliance with adopted conditions.

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.

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: Tesla, Docket No. 01-AFC-21(C)
California Energy Commission
1516 Ninth Street (MS-2000)
Sacramento, CA 95814

If the Project Owner desires Energy Commission staff action by a specific date, they shall so state in its submittal 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 COM-4

Prior to commencing construction a compliance matrix addressing *only* 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 , and shall be submitted prior to the first pre-construction meeting, if one is held. 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.

Project owners frequently anticipate starting Project construction as soon as the Project is certified. In those cases, it may be necessary for the Project Owner to file compliance submittals prior to Project certification 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 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, COM-5

A compliance matrix shall be submitted by the Project Owner to the CPM along with each monthly and annual compliance report. The compliance matrix is intended to provide the CPM with the current status of all 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;
7. the compliance status of each condition (e.g., “not started,” “in progress” or “completed” (include the date); and
8. the Project ’s preconstruction and construction milestones, including dates and status (if milestones are required).

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, COM-6

The first Monthly Compliance Report is due one month following the Energy Commission business meeting date on 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 which shows the status of all conditions of certification (fully satisfied conditions do not need to be included in the matrix after they have been reported as closed);
4. a list of conditions that have been satisfied during the reporting period, and a description or reference to the actions which 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 with, or permits issued by, other governmental agencies during the month;
8. a Project ion of Project compliance activities scheduled during the next two months. The Project Owner shall notify the CPM as soon as any changes are made to the Project construction schedule that would affect compliance with conditions of certification;
9. a listing of the month's additions to the on-site compliance file;
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 resolutions of any results complaints, and the status of any unresolved complaints.

Annual Compliance Report, COM-7

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

1. an updated compliance matrix which shows 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 made to, or permits issued by, other governmental agencies during the year;
7. a Project ion 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.

Construction and Operation Security Plan, COM-8

At least 14 days prior to commencing construction, a site-specific Security Plan for the construction phase shall be submitted to the CPM for review and approval. At least 30 days prior to the initial receipt of hazardous materials on-site, a site-specific Security Plan for the operational phase shall be submitted to the CPM for review and approval.

Construction Security Plan

The Construction Security Plan shall include the following:

1. site fencing enclosing the construction area;
2. use of security guards;
3. check-in procedure or tag system for construction personnel and visitors;
4. protocol for contacting law enforcement and the CPM in the event of conduct endangering the facility, its employees, its contractors, or public, conduct

which is a pre-incident indicator of endangering the facility, its employees, its contractors, or public, or an emergency; and

5. evacuation procedures.

Operations Security Plan

The Operations Security Plan shall include the following:

1. permanent site fencing and security gate;
2. evacuation procedures;
3. protocol for contacting law enforcement and the CPM in the event of conduct endangering the facility, its employees, its contractors, or public, conduct which is a pre-incident indicator of endangering the facility, its employees, its contractors, or public, or emergency;
4. fire alarm monitoring system;
5. site personnel background checks, including employee and routine on-site contractors [Site personnel background checks are limited to ascertaining that the employee's claims of identity and employment history are accurate]. All site personnel background checks shall be consistent with state and federal law regarding security and privacy;
6. site access for vendors; and
7. requirements for Hazardous Materials vendors to prepare and implement security plans as per 49 CFR 172.800 and to ensure that all hazardous materials drivers are in compliance with personnel background security checks as per 49 CFR Part 1572, Subparts A and B.
8. In addition, the Operations Security Plan shall include one or more of the following in order to ensure adequate perimeter security:

    a) security guards;
    b) security alarm for critical structures;
    c) perimeter breach detectors and on-site motion detectors; and
    d) video or still camera monitoring system.

Verification: The Project Owner shall fully implement the security plans and obtain CPM approval of any substantive modifications to the Security Plan. The CPM may authorize modifications to these measures, or may recommend additional measures depending on circumstances unique to the facility, and in response to industry-related security concerns.

Confidential Information, COM-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.

Department Of Fish And Game Filing Fee, COM-10

Pursuant to the provisions of Fish and Game Code Section 711.4, the Project Owner shall pay a filing fee in the amount of $850. The payment instrument shall be provided to the Energy Commission's Project Manager (PM), not the CPM, at the time of Project certification and shall be made payable to the California Department of Fish and Game. The PM will submit the payment to the Office of Planning and Research at the time of filing of the notice of decision pursuant to Public Resources Code Section 21080.5.

Reporting of Complaints, Notices, and Citations, COM-11

Prior to the start of construction, the Project Owner shall 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 inquiries 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:

[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 of all complaint forms, notices of violation, notices of fines, official warnings, and citations, within 10 days of receipt, to the CPM. 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, COM-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 twelve 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, local/regional plans in existence at the time of facility closure, and applicable conditions of certification.

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.

In addition, 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.

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, COM-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 twelve 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, COM-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 , Commission staff acts as, and has the authority of, the Chief Building Official (CBO). Commission staff may delegate CBO responsibility to either an independent third party contractor or the local building official. 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.

Commission staff may also seek the cooperation of state, regional and local agencies that have an interest in environmental control 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.

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 that the Energy Commission 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 of the results of the investigation, including corrective measures proposed or undertaken, to the CPM. 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 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 which 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 Chairman, 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 ENERGY COMMISSION DECISION

Amendments, Insignificant Project Changes and Verification Changes, COM-15

The Project Owner must petition the Energy Commission, pursuant to Title 20, California Code of Regulations, section 1769, to 1) delete or change a condition of certification; 2) modify the Project design or operational requirements; and 3) transfer ownership or operational control of the facility.

A petition is required for **amendments** and for **insignificant Project changes**. 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 Energy Commission's Docket in accordance with Title 20, California Code of Regulations, section 1209.

The criteria that determine which type of change process applies are explained below.

Amendment

A proposed change will be processed as an amendment if it involves a change to the requirement or protocol, or in some cases the verification portion of a condition of certification, an ownership or operator change, or a potential significant environmental impact.

Insignificant Project Change

The proposed change will be processed as an insignificant Project change if it does <u>not</u> require changing the language in a condition of certification, have a potential for significant environmental impact, and cause the Project to violate laws, ordinances, regulations or standards.

Verification Change

As provided in Title 20, California Code of Regulations, section 1770 (d), a verification may be modified by staff without requesting an amendment to the decision if the change does not conflict with the conditions of certification.

KEY EVENTS LIST

PROJECT: **Tesla Power Plant Project**

DOCKET #: **01-AFC-21(C)**

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	

TABLE 1
COMPLIANCE SECTION
SUMMARY of GENERAL CONDITIONS OF CERTIFICATION

CONDITION NUMBER	PAGE #	SUBJECT	DESCRIPTION
COM-1	4	Unrestricted Access	The Project Owner shall grant Energy Commission staff and delegate agencies or consultants unrestricted access to the power plant site.
COM-2	4	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.
COM-3	4	Compliance Verification Submittals	The Project Owner is responsible for the delivery and content of all verification submittals to the CPM, whether the condition was satisfied by work performed by the Project Owner or his agent.
COM-4	5	Pre-construction Matrix and Tasks Prior to Start of Construction	Construction shall not commence until 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; and • the CPM has issued a letter to the Project Owner authorizing construction.
COM-5	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.
COM-6	6	Monthly Compliance Report including a Key Events List	During construction, the Project Owner shall submit Monthly Compliance Reports (MCRs) which include specific information. The first MCR is due the month following the Commission business meeting date on

CONDITION NUMBER	PAGE #	SUBJECT	DESCRIPTION
			which the Project was approved and shall include an initial list of dates for each of the events identified on the Key Events List.
COM-7	7	Annual Compliance Reports	After construction ends and throughout the life of the Project , the Project Owner shall submit Annual Compliance Reports instead of Monthly Compliance Reports.
COM-8	8	Security Plans	Prior to commencing construction, the Project Owner shall submit a Construction Security Plan. Prior to commencing operation, the Project Owner shall submit an Operation Security Plan.
COM-9	9	Confidential Information	Any information the Project Owner deems confidential shall be submitted to the Dockets Unit with an application for confidentiality.
COM-10	9	Dept of Fish and Game Filing Fee	The Project Owner shall pay a filing fee of $850 at the time of Project certification.
COM-11	9	Reporting of Complaints, Notices and Citations	Within 10 days of receipt, the Project Owner shall report to the CPM, all notices, complaints, and citations.
COM-12	11	Planned Facility Closure	The Project Owner shall submit a closure plan to the CPM at least twelve months prior to commencement of a planned closure.
COM-13	12	Unplanned Temporary Facility Closure	To ensure that public health and safety and the environment are protected in the event of an unplanned temporary closure, the Project Owner shall submit an on-site contingency plan no less than 60 days prior to commencement of commercial operation.
COM-14	13	Unplanned Permanent Facility Closure	To ensure that public health and safety and the environment are protected in the event of an unplanned permanent closure, the Project Owner shall submit an on-site contingency plan no less than 60 days prior to commencement of commercial operation.

CONDITION NUMBER	PAGE #	SUBJECT	DESCRIPTION
COM-15	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: **TESLA POWER PLANT PROJECT** AFC Number: **01-AFC-21(C)**
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 Energy Commission 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 Tesla Power Project 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 lines, natural gas pipeline, and recycled 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 Application for Certification (AFC) describes the preliminary facility design for the project.[1] In considering the adequacy of the design plans, the Commission reviews whether the power plant and linear facilities are described with sufficient detail to assure the project can be designed and constructed in accordance with applicable engineering laws, ordinances, regulations, and standards (LORS). The review also includes the identification of special design features that are necessary to deal with unique site conditions, which could impact public health and safety, the environment, or the operational reliability of the project. (Ex. 51, p. 5.1-1.)

Staff proposed several Conditions of Certification, which we have adopted, that establish a design review and construction inspection process to verify compliance with applicable design standards and special design requirements.[2] (Ex. 51, p. 5.1-4.) The project will be designed and constructed in conformance

[1] Ex. 1, §§ 3.1-3.5, 3.7-3.12, 4.1-4.5, and 6.0, Appendices A–G; Exs. 3 and 4.

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

with the latest edition of the California Building Code (currently the 2001 CBC)[3] 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.

Staff considered potential geological hazards and reviewed the preliminary project design with respect to site preparation and development; major project structures, systems and equipment; mechanical systems; electrical systems; and related facilities such as the natural gas pipeline, recycled water pipeline, and the transmission interconnection facilities. (Ex. 51, p. 5.1-2 et seq. Ex. 1, §§ 3.0 and 4.0, Appendices A-G; Exs. 3 and 4.)

The project will 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, and site access. (Ex. 1, § 3.5.7 et seq. and Appendix A, § 3.0; Ex. 51, 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, § 3.5 and Appendix B.) Condition **GEN-2** lists the major structures and equipment included in the initial engineering design for the project.

The power plant site is located in Seismic Zone 4, the highest level of potential ground shaking in California. (Ex. 1, Appendix B, §§ 3.6 and 5.1; Ex. 51, p. 5.1-3.) The 2001 CBC requires specific "lateral force" procedures for different types of structures to determine their seismic design. (*Ibid.*) To ensure that project

[3] The 1998 CBC was in effect when the AFC (Ex. 1) and Final Staff Assessment (Ex. 51) were filed, but the 2001 edition was adopted prior to evidentiary hearings. Therefore, we have construed all references to the CBC in the record to reflect this update.

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 Chief Building Official (CBO)[4] for review and approval prior to the start of construction. (Ex. 51, p. 5.1-3.)

According to Staff, the mechanical systems for the project are designed to the specifications of applicable LORS. (Ex. 51, p. 5.2-3; Ex. 1, Appendices C and F.) 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, Appendix E.) Condition **ELEC-1** ensures that design and construction of these electrical features will comply with applicable LORS.

The transmission facilities include a new 230 kV switchyard at the project site and two new 0.8-mile single circuit 230 kV transmission outlet lines to the PG&E Tesla Substation south of the site. (Ex. 1, § 3.6.) The design and construction of these 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. 51, p. 5.1-4.) To ensure that decommissioning of the facility 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

[4] The Energy Commission is the 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**. (Ex. 51, p. 5.1-4.)

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. These Conditions require approval of the CBO after appropriate inspections by qualified engineers. No element of construction may proceed without approval of the CBO. (Ex. 51, p. 5.1-4.)

FINDINGS AND CONCLUSIONS

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

1. The Tesla Power Project is currently in the preliminary design stage.
2. The evidence of record contains sufficient information to establish that the proposed facility can be designed and constructed in conformity with the 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 Conditions of Certification below and the **General Conditions,** included in a separate section of this Decision, establish requirements to be followed in the event of facility closure.

We therefore conclude that implementation of the Conditions of Certification listed below ensure that the Tesla Power Project 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 Code (CBC) or the CBC

edition currently in effect and all other applicable engineering LORS in effect at the time initial design plans are submitted to the Chief Building Official (CBO) appointed by the Energy Commission for review and approval. (The CBC in effect is that edition that has been adopted by the California Building Standards Commission and published at least 180 days previously.)

Natural gas pipelines shall be designed and constructed in accordance with U.S. Department of Transportation (DOT), Title 49, Code of Federal Regulations (CFR) Chapter 1, Part 192 "Transportation of Natural and other Gas by Pipeline: Minimum Federal Safety Standards," and the California Public Utilities Commission, General Order 112-E (CPUC GO 112-E).

All transmission facilities (lines, switchyards, switching stations and substations) shall comply with the Conditions of Certification in the **Transmission System Engineering** section of this Decision.

In the event that the initial engineering designs are submitted to the CBO when a successor to the 2001 CBC is in effect, the 2001 CBC 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.

Verification: Within 30 days after receipt of the Certificate of Occupancy, the project owner shall submit to the 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].

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 information required above (**GEN-2**).

These documents shall be the pertinent design documents for the major structures and equipment listed in **Table 1** below. Major structures and equipment shall not be added to or deleted from the Table without CPM approval. The project owner shall provide schedule updates in the Monthly Compliance Report.

Table 1
Major Structures and Equipment List

Equipment/System	**Quantity (Plant)**
Combustion Turbine (CT) Foundation and Connections	4
CT Mechanical Accessories (e.g. lube oil cooler, static motor starter, NO_x control system, compressor wash system, fire detection system, fuel heating system, etc.) Foundation(s) and Connections	4
CT Structure Shell and Façade Foundation and Connections	4
CT Inlet Air Plenum and Filter Structure, Foundation and Connections	4
CT Inlet Air Fogger Foundation and Connections	4
Combustion Turbine Generator (CTG) Foundation and Connections	4
Heat Recovery Steam Generator (HRSG) Structure, Foundation and Connections	4
HRSG Exhaust Stack, Foundation and Connections	4
HRSG Transition Duct Burner and Forced Draft Structure, Foundations and Connections	4
Selective Catalytic Reduction (SCR) Unit Foundation and Connections	4
Steam Turbine (ST) Foundation and Connections	2
ST Structure Shell and Façade Foundation and Connections	2
Steam Turbine Generator (STG) Foundation and Connections	2
STG Lube Oil Skid Foundation and Connections	2
STG Hydraulic Control System Foundation and Connections	2
Pipe and Cable Way Structures, Foundations and Connections	1 Lot
Electrical MCC, Foundation and Connections	1 Lot
18 kV to 4,160 V Auxiliary Step-Down Transformer Foundation and Connections	4
2300 kV Step-Up Transformer Foundation and Connections	6
Transformer (4,160 to 480 Volt) Foundation(s) and Connections	1 Lot
Electrical Power Supply System	1 Lot
Electrical Control Centers, Switchgear and Switchyard Equipment Foundations and Connections	1 Lot
Power Distribution Center Foundation and Connections	1 Lot
Generator – 600kW Diesel Emergency Foundation and Connections	1
Natural Gas Filter/Scrubber/Separator/Pressure Regulator Foundation and Connections	1 Lot
Natural Gas Separator/Heater Foundation and Connections	1 Lot
Natural Gas Metering and Regulating Station Foundations and Connections	1 Lot
All Building Structures, Foundations and Connections (e.g. Administrative, Control Room, Water Treatment, Maintenance, Electrical, Warehouse, MCC, etc.)	1 Lot
Skid – Ammonia Blower Injection Foundation and Connections	1 Lot

Equipment/System	Quantity (Plant)
Tank – 50,000 gallon Aqueous Ammonia Storage, Foundation and Connections	1 Lot
Tank – 8,365,000 gallon Raw/Fire Water, Foundation and Connections	1
Tank – 440,000 gallon Demineralized Water, Foundation and Connections	1
Tank – Oily Water Separator, Foundation and Connections	1 Lot
Tank – Condensate, Foundation and Connections	1 Lot
Tank – Water Treatment Facilities Foundation and Connections (as required by CBC)	1 Lot
Pump – Fire Water Pump Skid Foundation and Connections	1 Lot
Pump – HSRG Feedwater Foundation and Connections	1 Lot
Pump – HP/IP Boiler Water Feed Pump Foundation and Connections	8
Pump – Demineralized Water Transfer Pump Foundation and Connections	1 Lot
Pump – Raw Water Pump Station, Foundations and Connections	1 Lot
Pump – Condensate Pump Foundation and Connections	1 Lot
Pump – Auxiliary Cooling Water	1 Lot
Pump – Circulating Cooling Water Foundation and Connections	4
Pump – Closed Loop Cooling Water	4
Pumps – Water Treatment and Cooling Systems Foundation and Connections (as required by CBC)	1 Lot
Pump – Water Supply Pump Station, Foundations and Connections	1 Lot
Cooling – Surface Condenser Foundations and Connections	2
Cooling Tower – Structure, Foundation and Connections	2
Ammonia Injection Skid Foundation and Connections	1 Lot
Compressors – Air Foundation(s) and Connections	1 Lot
Pipeline – 2.8 mile, 24” Natural Gas	1
Pipeline – 1.7 mile, 20” Water	1
Potable Water Systems	1 Lot
Chemical Containment Systems	1 Lot
Fire Suppression Systems	1 Lot
Drainage Systems (including sanitary, storm drain, and waste)	1 Lot
Roadways and Retaining Walls	1 Lot
Storm Water Retention Basin	1 Lot
Building Energy Conservation Systems	1 Lot
Temperature Control and Ventilation Systems (including water and sewer connections)	1 Lot
High Pressure Piping	1 Lot
HVAC and Refrigeration Systems	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 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 construction, 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 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; D) a mechanical engineer; and E) an electrical engineer. [California Business and Professions Code section 6704 et seq., and sections 6730 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. 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
2. 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 geotechnical engineer or civil engineer, experienced and knowledgeable in the practice of soils engineering, shall:

1. Review all the engineering geology reports and prepare final soils grading report;
2. Prepare the soils engineering reports required by the 2001 CBC, Appendix Chapter 33, Section 3309.5, Soils Engineering Report; and Section 3309.6, Engineering Geology Report;
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;
4. Recommend field changes to the civil engineer and RE;
5. Review the geotechnical report, field exploration report, laboratory tests and engineering analyses detailing the nature and extent of the site soils that may be susceptible to liquefaction, rapid settlement or collapse when saturated under load; and
6. Prepare reports on foundation investigation to comply with the 2001 CBC, Chapter 18 section 1804, Foundation Investigations.

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 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.

D: 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.

E: 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 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 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. When the work and the "as-built" and "as graded" plans conform to the approved final plans, the project owner shall notify the CPM regarding the CBO's final approval. The marked up "as-built" drawings for the construction of structural and architectural work shall be submitted to the CBO. Changes approved by the CBO shall be identified on the "as-built" drawings [2001 CBC, Section 108, Inspections]. The project owner shall retain one set of approved engineering plans, specifications and calculations 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].

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.

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 as required by the 2001 CBC [Appendix Chapter 33, Section 3309.5, Soils Engineering Report; and Section 3309.6, Engineering Geology Report].

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 geotechnical engineer or 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 detailing all discrepancies and non-compliance items, and the proposed corrective action, and send copies to the CBO and the CPM.

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. 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 facilities, the project owner shall obtain the CBO's approval of the final "as-graded" grading plans and final "as-built" plans

for the erosion and sedimentation control facilities [2001 CBC, Section 109, Certificate of Occupancy].

Verification: Within 30 days of the completion of the erosion and sediment control mitigation and drainage facilities, the project owner shall submit to the CBO 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. The project owner shall submit a copy of this report 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 **Table 1** 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 1**, above):

1. Major project structures;
2. Major foundations, equipment supports and anchorage;
3. Large field fabricated tanks;
4. Turbine/generator pedestal; and
5. Switchyard structures.

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 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 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]; and

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].

Verification: At least 30 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 Table 1 of Condition of Certification GEN-2 above, the project owner shall submit to the CBO, with a copy to the CPM, the responsible design engineer's signed statement that the final design plans, specifications and calculations conform with all of the requirements set forth in the Energy Commission's Decision.

If the CBO discovers non-conformance with the stated requirements, the project owner shall resubmit the corrected plans to the CBO within 20 days of receipt of the non-conforming submittal with a copy of the transmittal letter to the CPM.

The project owner shall submit to the CPM a copy of a statement from the CBO that the proposed structural plans, specifications and calculations have been approved and are in conformance 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 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 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 Occupancy Category 2 of the 2001 CBC.

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 Table 1, 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:

1. American National Standards Institute (ANSI) B31.1 (Power Piping Code);
2. ANSI B31.2 (Fuel Gas Piping Code);
3. ANSI B31.3 (Chemical Plant and Petroleum Refinery Piping Code);
4. ANSI B31.8 (Gas Transmission and Distribution Piping Code);
5. Title 24, California Code of Regulations, Part 5 (California Plumbing Code);
6. Title 24, California Code of Regulations, Part 6 (California Energy Code, for building energy conservation systems and temperature control and ventilation systems);
7. Title 24, California Code of Regulations, Part 2 (California Building Code); and
8. 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 Table 1, 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 TPP'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), Appendix F.) Our 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; or (4) the wasteful, inefficient, and unnecessary consumption of fuel or energy. (Ex. 51, p. 5.3-2; Tit. 14, Cal. Code of Regs., § 15000 et seq., Appendix F.)

1. Potential Effects on Energy Supplies and Resources

Natural gas-fired power plants, such as the TPP, consume large amounts of non-renewable fuel. Under normal operating conditions, the TPP will burn natural gas at a nominal rate of 174 million Btu per day lower heating value (LHV), which is based on average ambient conditions with maximum HRSG duct firing. (Ex. 51, p. 5.3-2; Ex. 1, § 3.4.5.) According to Staff, this is a substantial rate of energy consumption that could impact energy supplies or resources. (Ex. 51, p. 5.3-2.)

Under expected project conditions, electricity would be generated at full load efficiency of approximately 54 percent LHV. This can be compared to the average fuel efficiency of a typical 1960s-era utility company baseload power plant at approximately 35 percent LHV. Also, in relation to simple cycle peaking

power plants with fuel efficiency of about 38 percent LHV, the fuel efficiency of the combined-cycle TPP compares favorably.[1] (Ex. 51, p. 5.3.3.) The Energy Commission's 2003 *Electricity and Natural Gas Assessment Report*[2] (ENGAR) found that "the average system [heat rate] has begun to drop from 8,800 Btu/kWh in 2001 towards a forecasted 8,200 Btu/kWh in 2004." (ENGAR, p. 106.) According to Staff, these figures represent total system average efficiency increasing from 43 percent LHV in 2001 to 46 LHV in 2004. Comparing these figures to the project's estimated 54 percent LHV shows the TPP, as proposed, is still significantly more efficient than the state's existing system. (Ex. 120, p. 1.)

2. Need for Additional Energy Supplies or Capacity

Natural gas for the TPP will be supplied from a PG&E backbone pipeline (Line 107) south of the intersection of I-205 and Patterson Pass Road in San Joaquin County and conveyed to the site via a new 24-inch, 2.8-mile supply pipeline. (Ex. 1, §§1.1, 1.5.2, 1.5.5, 3.4.5, 4.3.3, Figure 3.2-2.) Staff found that Line 107 is capable of delivering the required quantity of gas to the TPP. (Ex. 51, p. 5.3-3.) The existing PG&E pipeline infrastructure delivers gas to California from intrastate pipelines. (*Ibid*.) According to the ENGAR, natural gas availability in California is affected more by pipeline system capacity than by shortfalls in production.[3] The PG&E gas supply infrastructure is extensive, offering access to vast reserves of gas from Canada and the Southwest United States. This source

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[1] According to Staff, the 1960's era utility-built steam boiler power plants make up the bulk of California's existing power system, and largely define the efficiency of the state's power grid. Eventually, as more efficient facilities such as the TPP enter the grid, the older plants will be retired. (Ex. 53, p. 15.)

[2] CEC Publication No. P100-03-014D, October 2003. ENGAR may be viewed on our Website at: http://www.energy.ca.gov/energypolicy/documents/2003-10-10_100-03-014D.PDF

[3] Over the past three years, pipeline expansions and additions have made pipeline capacity sufficient to serve California's need through 2006. Beyond this date, annual average capacity is adequate, but peak day conditions could warrant further expansion. The natural gas pipeline market is working and the market design is highly likely to deliver additional cost-effective pipelines once electricity generation contracts for natural gas are established. (Ex. 102, p. 2, citing ENGAR, pp. 14-15.)

represents far more natural gas than required for the TPP combined with existing natural gas-fired plants in the state. It is therefore highly unlikely that the project could pose a substantial increase in demand for natural gas in California.[4] (*Ibid*.; Ex. 120, p. 2.)

3. Compliance with Energy Standards

No standards apply to the efficiency of the TPP or other non-cogeneration projects. (Ex. 50, p. 5.3-3.) *See* Public Resources Code section 25134.

4. Alternatives to Wasteful or Inefficient Energy Consumption

Evaluation of alternative technologies to reduce wasteful, inefficient or unnecessary energy consumption requires examination of the project's fuel consumption. Fuel efficiency, which indicates the rate of energy consumption, is determined by the configuration of the power producing system and by the selection of equipment used to generate power. (Ex. 1, p. 5.3-3.) Applicant provided information on alternative generating technologies, which were reviewed by Staff. (Ex. 1, § 3.4.2 et seq.; Ex. 51, p. 5.3-3 et seq.; *See* the **Alternatives** section of this Decision.) Given the project objectives, location, and air pollution control requirements, Staff concluded that only natural gas-burning technologies are feasible. (*Ibid*.)

The TPP is a combined cycle power plant with two power trains, each consisting of two gas turbines and one steam turbine in a two-on-one configuration. Electricity is generated by the four gas turbines and two steam turbines, which

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[4] *See* "Natural Gas Infrastructure Issues," California Energy Commission Final Report, October 2001 (Publication No. P200-01-001) and on our Website at: http://www.energy.ca.gov/reports/2001-10-16_200-01-001.PDF

See also "Natural Gas Supply and Infrastructure Assessment," Energy Commission Staff Report, December 2002 (Publication No. P700-02-006F) and on our Website at: http://www.energy.ca.gov/reports/2002-12-12_700-02-006F.PDF

operate on heat energy recuperated from the gas turbines' exhaust. By recovering this heat, which would otherwise be lost up the exhaust stacks, the efficiency of any combined cycle power plant is increased considerably from that of either gas turbines or steam turbines operating alone. Staff concluded that the configuration is well suited to the large, steady loads met by a baseload plant intended to supply energy efficiently for long periods of time. (Ex. 1, §§ 3.4.2, 3.4.3.)

Project efficiency is also enhanced by use of inlet air foggers, HRSG duct burners, multi-pressure HRSGs, and circulating water systems. The HRSG duct burners partially replace heat to the steam turbine cycle during high ambient temperatures when combustion turbine capacity drops, and provide added power. Duct firing also provides a number of operational benefits, such as load following and balancing, and optimizing the operation of the steam turbine cycle. (Ex. 1, §§ 3.4.2, 3.4.3.) Staff believes these features contribute to meaningful efficiency enhancement of the TPP. (Ex. 51, p. 5.3-3.)

The dual two-train gas turbine/HRSG configuration also allows for high efficiency during unit turndown because one gas turbine generator can be shut down, while the other can continue to run at full load, efficiently operating one gas turbine rather than operating both units at an inefficient 50 percent load. (Ex. 1, p. 5.3-4.)

According to Staff, modern gas turbines embody the most fuel-efficient electric generating technology available today. Emission levels are also proven, and guaranteed emission levels have been reduced based on operational experience and design optimization by the manufacturers. The TPP will employ four General Electric frame 7FA (GE 7FA) gas turbine generators in dual two-on-one combined cycle power trains. This configuration is nominally rated at approximately 1,060 MW and 54 percent efficiency LHV at baseload and 56.5

percent at ISO[5] conditions. (Ex. 51, p. 5.3-4.) Other F-class turbines, such as the Alstom Power ABB KA24 and Siemens-Westinghouse 501F, may have slightly higher efficiency ratings but the difference in actual operating efficiency is insignificant.[6] Alternative gas turbine designs are available, such as the G-class and H-class machines, which claim higher fuel efficiency; however, the lack of a proven performance record for these relatively new machines led Staff to conclude that Applicant's selection of the well-known F-class machine is the more reasonable choice. (*Ibid*.; Ex. 53, p. 15.)

Applicant considered alternative generating technologies for the TPP, including a conventional boiler and steam turbine, simple cycle combustion turbine, conventional combined cycle, Kalina combined cycle, advanced combustion turbines, natural gas, coal, oil, solar, wind, hydroelectric, biomass, geothermal, nuclear and municipal solid waste technologies. (Ex. 1, § 3.10.6.) Given the project objectives, location, and air pollution control requirements, Staff agreed that only natural gas-burning technologies are feasible. (Ex. 51, p. 5.3-5.)

A further choice of alternatives involves the selection of gas turbine inlet air cooling methods. The two commonly used techniques are the mechanical chiller and the evaporative cooler or fogger; both devices increase power output by cooling the gas turbine inlet air. A mechanical chiller produces more power than the evaporative cooler on hot, humid days, but consumes electric power to operate its refrigeration process, which slightly reduces overall net power output and efficiency. An evaporative cooler or a fogger boosts power output best on dry days and uses less electric power than a mechanical chiller, yielding slightly

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[5] International Standards Organization standard conditions are 59°F (15°C), 60 percent relative humidity, and sea level pressure (29.92 in. Hg). (Ex. 51, p. 5.3-4, fn. 1.)

[6] Any differences among the GE 7FA, ABB KA24 and W501FD in actual operating efficiency would be insignificant. Selection among these machines is based on other factors, such as generating capacity, cost, commercial availability, and ability to meet air pollution limitations. The ABB machine, for instance, is available only in one-on-one power trains, with one gas turbine and one steam turbine paired on a single shaft, generating a nominal 260 MW. The GE and

higher operating efficiency. Since the difference in efficiency is relatively insignificant, Applicant proposes to employ inlet air fogging. Given the climate at the project site and the relative lack of clear superiority of one system over the other, Staff agrees that the Applicant's approach will not result in significant adverse energy impacts. (Ex. 1, p. 5.3-6; Ex. 1, §§ 3.4.3.1, 3.10.6.5.)

Staff also analyzed whether TPP would result in cumulative energy consumption impacts. Inclusion of TPP in the PG&E system along with the existing Tracy Peaker Plant and the recently certified East Altamont Energy Project nearby could potentially increase fuel consumption. The addition of the TPP as a natural gas customer, however, would not impact the robust natural gas supply infrastructure in California or more specifically, in the PG&E service area. The TPP as well as the two power projects nearby are configured as highly efficient generators that use less fuel for higher output and would therefore be more competitive on the spot market, ultimately replacing older, less efficient plants. Thus, according to Staff, TPP will not result in cumulative or indirect impacts on fuel consumption. (Ex. 51, p. 5.3-6.)

In conclusion, the project configuration (combined cycle) and generating equipment (F-class gas turbines) chosen represent the most efficient feasible combination to satisfy the project objectives. There are no alternatives that could significantly reduce energy consumption.

Siemens-Westinghouse machines, which can be configured more flexibly, offer an advantage. (Ex. 51, p. 5.3-4.)

FINDINGS AND CONCLUSIONS

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

1. TPP will not require the development of new fuel supply resources since natural gas resources exceed the fuel requirements of the project.

2. TPP will not consume natural gas in a wasteful, inefficient, or unnecessary manner.

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

4. The project design, incorporating two power trains each with a two-on-one configuration and employing highly efficient F-class turbines will allow the power plant to generate electricity at full load with optimal efficiency.

5. The anticipated operational efficiency of the project is consistent with that of comparable power plants and significantly more efficient than older power plants presently operating in California.

The Commission therefore concludes that TPP 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. No Conditions of Certification are required for this topic.

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 (Cal-ISO).[1] (Ex. 51, 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 power plant Project is acceptable if it does not degrade the reliability of the utility system to which it is connected. This is likely if the Project exhibits reliability at least equal to that of other power plants on that system. (Ex. 51, p. 5.4-1.)

Staff examined the project's design criteria to determine whether the TPP will 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. 51, p. 5.4-3.) According to Staff, Project safety and reliability are

[1] Cal-ISO's *Maintenance Performance Standards and Criteria* identify the maintenance standards expected of generators and provide a benchmark against which Generating Asset Owners and Cal-ISO can judge the adequacy of maintenance programs used at each generating facility. (Ex. 51, p. 5.4-2.) Specifically, Cal-ISO 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 Cal-ISO. (*Ibid.*)

achieved by ensuring equipment availability, plant maintainability, fuel and water availability, and adequate resistance to natural hazards. *(Ibid.*)

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, Appendix D; Appendix F; Ex. 32.) 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, § 4.3.5; Ex. 51, p. 5.4-3.)

2. Plant Maintainability

The evidentiary record indicates that Project design includes sufficient redundancy of equipment to ensure continued operation in the event of equipment failure. (Ex. 51, p. 5.4-3; Ex. 1, §§ 3.4.11.3, 4.3.2, Appendix D.) The project's four power trains (i.e, four CTGs/HRSGs plus two STGs) provide inherent reliability allowing the facility to operate at reduced output in the event that a non-redundant component in one train should fail. (*Ibid*; Ex. 1, Appendix F.) 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. 51, p. 5.4-4; Ex. 1, § 4.4.1.2.)

3. Fuel and Water Availability

Reasonable long-term availability of fuel and water is necessary to ensure Project reliability. As discussed in the section on **Power Plant Efficiency**, PG&E

will supply natural gas to the TPP through a new 0.8-mile connection to PG&E's existing Line 107. The record indicates that PG&E's natural gas distribution system can provide adequate supply and pipeline capacity to meet Project needs. (Ex. 51, p. 5.4-4; Ex. 53, p. 15; Ex. 121, pp. 1-2; *see* also, Ex. 1, § 4.3.3.)

We have not concluded whether the Project will obtain fresh water from the California Aqueduct or reclaimed water from the California City of Tracy for industrial uses (e.g., circulating water for cooling and stored firewater). Further, the record does not indicate how TPP will obtain potable water for domestic uses. In either case, Applicant must establish that these sources represent an available water supply to meet the project's operating needs. (Ex. 51, p. 4.13-29 et seq. and p. 5.4-5; Ex. 52; *See* the **Soil and Water Resources** section of this Decision.)

4. Natural Hazards

The site is located in Seismic Zone 4 where several active earthquake faults create the potential for seismic shaking to threaten reliable operation. (Ex. 51, p. 5.4-5; *See* **Geologic/Paleontologic Resources**.) The TPP will be designed and constructed to comply with current applicable LORS for seismic design (specifically, California Building Code requirements) that improve seismic stability compared with older power plants.[2] The Conditions of Certification in the **Facility Design** section of this Decision ensure that the Project will conform with seismic design LORS. There are no special concerns about flooding events that would affect reliability. Site grading contours will ensure control of stormwater drainage and channeling of runoff flows. (Ex. 51, p. 4.13-21 et seq.; *See* **Soil and Water Resources**.)

[2] Staff expects the project, 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. 51, p. 5.4-5.)

5. Availability Factors

FPL predicts the Project will have an annual availability factor of 92 to 96 percent. (Ex. 1, § 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 91.49 percent for combined cycle units of all sizes. (Ex. 51, p. 5.4-5.) According to Staff, the project's predicted 92 to 96 percent availability factor is reasonable since the GE 7 FA turbine chosen by FPL has been on the market for several years and exhibits typically high availability and reliability compared with the other generators included in NERC statistics. (Ex. 51, p. 5.4-6.) Staff also notes that the project's distributed control and monitoring systems include redundant computer-based safeguards that ensure reliable operation consistent with industry norms. (*Ibid.*; Ex. 1, § 4.3.1; Appendix D.)

FINDINGS AND CONCLUSIONS

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

1. The Tesla Power Project (TPP) 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. TPP's Project design incorporates distributed control and monitoring systems to provide inherent reliability.

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

4. Upon our determination regarding whether TPP will use fresh water from the California Aqueduct or reclaimed water from the City of Tracy, Applicant shall establish that there is adequate water availability for Project operations.

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 Code.

6. The project's estimated 92 to 96 percent availability factor is consistent with industry norms for power plant reliability.
7. The PG&E natural gas distribution system has access to adequate natural gas supply and pipeline capacity to meet the project's needs.

We therefore conclude that the Project will be constructed and operated in accordance with typical power industry norms for reliable electricity generation. No Conditions of Certification are required for this topic. 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 proposed Project to ensure compliance with applicable law. The record indicates that the Applicant in this case accurately identified all interconnection facilities for Commission review. 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 TPP site is located 0.5 mile northwest of the PG&E Tesla 500/230/115 kV Substation in Alameda County. (Ex. 1, § 1.5.1). The TPP's generating facilities include four combustion turbine generators (CTGs), each with an output of approximately 162 MW and two steam turbine generators (STGs), each with a nominal output of 246 MW, for a total plant maximum nominal output of 1,140 MW. (Ex. 1, § 3.4.2.) Each of the generating units will be connected to a dedicated 18/230 kV step-up transformer, and the high voltage terminals of each transformer will be connected to the new on-site 230 kV switchyard by overhead conductors. (Ex. 51, p. 5.5-4.)

The evidence shows the new 230 kV switchyard configuration in two separate 4,000-ampere single bus arrangements with a 2,000-ampere bus tie breaker. Each bus has four switch bays, each with a 63 kiloampere (kA) interrupting capacity single circuit breaker (CB). (Ex. 1, Figures 3.4.7 and 3.6.3.) High voltage transformer terminals for each set of two CTG units and one STG unit will

be connected by overhead conductors to three switch bays of each bus, and each bay will have a 2,000-ampere continuous rated CB. The fourth bay of each bus with a 4,000-ampere continuous rated CB will be connected to a 230 kV interconnecting line to the PG&E Tesla Substation. The Project Owner will build, own, and operate the on-site switchyard (Ex. 7.) Staff found the switchyard configuration would comply with industry standards.[1] (Ex. 51, p. 5.5-5.)

The new switchyard will interconnect to the Tesla Substation 230 kV Bus E via two new 0.8-mile double circuit 230 kV transmission lines, each circuit with a 2x954 KCM steel-supported aluminum conductor (SSAC), which will carry the full generation output of the TPP. (Ex. 1, § 3.6.2.2). To accommodate termination of one of the two interconnecting lines at the Tesla Substation 230 kV Bus E without an extension of the Tesla Substation fenced area, a spare switch bay with a new breaker will be used at the end of the Tesla 230 kV Bus E. In addition, the Tesla-Ravenswood 230 kV line currently connected to CB 242 at the Tesla 230 kV Bus E will be relocated to the Tesla 230 kV Bus C, and the Tesla-Newark 230 kV line will be relocated from CB 232 to CB 242 at the Tesla 230 kV Bus E. The spare CB 232 at the Tesla Bus E will then be used for termination of the second interconnecting line from the TPP switchyard. (*Id*., § 3.6.3.) Staff concluded this configuration would be acceptable. (Ex. 51, p. 5.5-5.) The new transmission outlet lines will be routed along a utility right-of-way. All modifications to the Substation will be confined within the fenced yard of the Substation. (*Id*., at p. 5.5-15.) PG&E will build, own, and maintain the interconnection lines. (Ex. 7.)

PG&E issued a combined System Impact/Facilities Study (SI/FS) on December 20, 2001, several Supplemental System Impact Studies (SSIS) in May, June, August, and October, 2002, and an Addendum Supplemental System Impact

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[1] Conditions of Certification **TSE-1** through **TSE-8** describe the design, construction, and operation of the new facilities and ensure that the Project will conform with applicable laws, ordinances, regulations, and standards (LORS).

Study (ASSIS) on December 6, 2002.[2] (Exs. 7-12.). These documents include Power Flow Studies, Short Circuit Studies, Post Transient Governor Power Flow Analyses, and Dynamic Stability Analyses. (*Ibid*.) Under Cal-ISO's direction, the SI/FS was updated in the ASSIS to reflect the project's revised online date (from 2004 to 2005) and to include PG&E's Path 15 upgrade plan (target date October, 2004). (Ex. 13, p. 2.) The ASSIS identifies TPP-related overloads, which violate reliability criteria, and mitigation measures designed to alleviate the overloads. (Ex. 51, p. 5.5-6.) Cal-ISO issued its Final Interconnection Approval for the TPP in a letter to PG&E, dated February 18, 2003.[3] (Ex. 13.) Cal-ISO also provided the testimony of Donna Jordan, Grid Planning Engineer, who reviewed the TPP's potential impacts on grid reliability in May, 2003. (Ex. 125.)

1. Potential Impacts and Mitigation Methods

The ASSIS shows overload violations under 2004 summer peak and spring peak conditions, and 2005 winter off-peak conditions.[4] (Ex. 51, p. 5.5-6 et seq.; Ex. 7,

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[2] When a new interconnection facility is proposed, the utility (in this case, PG&E) 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 Cal-ISO 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. 51, p. 5.5-5.)

[3] Cal-ISO's authorized representative in this AFC proceeding submitted a declaration, dated September 8, 2003, confirming the findings and conclusions contained in the February 2003, Final Interconnection Approval letter. (Ex. 69.)

[4] The Committee questioned whether the studies, based on 2004 and 2005 operating conditions, should be updated to reflect the TPP's newly revised online date (now projected in 2006). Staff responded that the SI/FS and SSIS included a specific list of generation units in the generation queue as required by PG&E's tariffs. While some generating units entered the queue subsequent to the TPP SI/FS and SSIS reviews, the TPP is not required to mitigate impacts caused by the new units. All impacts caused by subsequent generating units entering the queue are assessed based on their position in the queue and their specific System Impact Studies. (Ex. 53, p. 16.) In the declaration by Cal-ISO's witness, dated September 8, 2003, Cal-ISO concluded that the requirements for TPP's interconnection to the grid remain accurate and the mitigation measures remain feasible upon review of the evaluated system changes related to system reliability (i.e., other generation projects and new transmission projects) that occurred subsequent to the SI/FS and SSIS. (Ex. 69.)

§§ 6.2.1, 62.2, Tables 2, 3, 4, and 5; Ex. 9, § 4.3, Tables 1 and 2; Ex. 12, § 4.1, Tables 1 and 2.) The following summarizes violations identified in the ASSIS as described in the Cal-ISO's Final Interconnection Approval letter. (Ex. 13.)

Normal (N-0) Conditions. There are no overload violations identified during normal conditions (Category A); however, several overload violations under contingency conditions (Category B and Category C) were identified. (Ex. 13, p. 5 et seq.)

Category B (N-1) and Category C (N-2) Contingency Conditions. The overloads under Category B and Category C contingencies are described in the text below. Cal-ISO accepted the following methods proposed by PG&E and the Applicant to mitigate the overloads:

- The implementation of PG&E designed, and ISO-approved, Special Protection Systems (SPS) to automatically trip TPP generation;
- PG&E reliability projects that have already been identified (T-772, T-787, T-656, and T-846);
- Possible PG&E transmission line re-rates; and
- Congestion management.

The Category B and C contingency outages, which result in overloading the Contra Costa-La Positas 230 kV line are shown here:

Overloaded Transmission Facility	**Limited Outage**	**Max. % Emergency Overload**
Contra Costa-Las Positas 230-kV Line	Tesla-Newark #1 230-kV Line	104%
	Tesla-Newark #1 & #2 230-kV Line	106%
	Tesla-Newark #1 230-kV Line and Pittsburg Unit 7	102%
	Contra Costa-Newark #2 230-kV Line	100.5%

Currently planned PG&E reliability projects (i.e., T-772, T-787, T-656, and T-846)[5] will mitigate the following overloads:

Overloaded Transmission Facility	Rating (Amps)	Maximum% Emergency Overload	PG&E Project
Contra Costa-Las Positas 230-kV Line	1,024	104%	T-772
San Mateo-Ravenswood #1 or #2 Line	1,600	Pre-existing + 3%	T-787
Newark-Ames #1 or #2 115-kV Line	522	105%	T-656
Ames Distribution-Ames 115-kV Line	472	104%	T-656
Ravenswood-Ames #1 or #2 115-kV Line	618	Pre-existing + 16%	T-656
Newark-Ames #3 115-kV Line	472	Pre-existing + 10%	T-656
Newark-Distribution 115-kV Line	472	Pre-existing + 10%	T-656
Newark-Dumbarton 115-kV Line	949	Pre-existing + 1%	T-846

The category B contingencies associated with overloading the Tesla-Delta Switching Yard-Contra Costa 230 kV Line sections are shown here:

Contingency	Overloaded Facility	Rating (Amps)	% Overload
500/230 kV Transformer Bank at Vaca Dixon Substation	Tesla-Delta Switching Yard 230-kV Line	974	120%
	Delta Switching Yard-Contra Costa 230-kV Line	974	108.5%
Tesla-Newark #1 230-kV Line	Tesla-Delta Switching Yard 230-kV Line	974	101%
Tesla-Newark #1 230-kV Line and Pittsburg Unit 7	Tesla-Delta Switching Yard 230-kV Line	974	104%
Tesla-Vaca Dixon 500-kV Line	Tesla-Delta Switching Yard 230-kV Line	974	102%

According to Cal-ISO, re-rating the Tesla-Contra Costa 230 KV line would eliminate or postpone most of the overloads shown in the table above and

[5] Project T-772 will reconductor the 22-mile Contra Costa 230 kV Line and will mitigate two Category B contingencies during summer peak conditions. If completion of Project 772 is delayed beyond the TPP online date, TPP would then be required to implement a SPS. Project 787 consists of upgrading existing 230 kV switches at each end of the San Mateo-Ravenswood #1 or #2 230 kV line with 3,000 amperes switches to mitigate Category B overloads. (Ex. 51, p. 5.5-11.) Project 656 will install a second 230/115 kV transformer bank at the Ravenswood Substation. (Ex. 13, p. 6.) Project 846 will mitigate the overload on the Newark-Dumberton 115 kV line by installing a SPS at Dumberton Substation. (Ex. 51, p. 5.5-12.)

reduce the severity of the overload along the Tesla-Delta Switching Yard Line. (Ex. 13, p. 7.) The SSIS and ASSIS indicated that two proposed PG&E upgrade projects to reconductor 7-mile and 12-mile sections of the Tesla-Delta Switching Yard-Contra Costa 230 kV Line would enable maximum generator output from the TPP and eliminate some of the congestion issues. Due to cost constraints, however, Applicant indicated a preference for implementing a SPS that would automatically trip a portion of the TPP in lieu of paying for the system upgrade projects. Cal-ISO agreed that implementing a SPS is an acceptable mitigation method in accordance with Cal-ISO Planning Standards and SPS Guides but was concerned that SPS installations add to the complexity of operating the system, particularly in the Bay Area, including SPS coordination, the planning and scheduling of transmission facility clearances, and potential mis-operation of a SPS (i.e., tripping more plant output than intended, or unintentional tripping due to relay miss-operation. (*Id*. at p. 8.)

Congestion management and ISO intervention will mitigate the less frequently occurring Category C contingency overloads. Operator intervention in response to (N-2) system emergencies may include the implementation of ISO Operating Procedures, generation run backs, re-dispatching, real-time switching, and load shedding. TPP generation dropping via an installed SPS may also be implemented.

Category C contingency overloads due to the addition of the TPP are shown in the following table:

Limiting Outage	Overloaded Transmission Facility	Rating (Amps)	Emergency Overload %
Contra Costa-Las Positas and Contra Costa-Moraga #2 230-kV Lines	Contra Costa-Moraga #1 230-kV Line (Contra Costa-Ross Tap #1)	954	110%
Contra Costa-Las Positas & Contra Costa-Moraga #2 230-kV Lines	Rossmoor Tap #1-Moraga 230-kV Line	954	105%
Tesla-ADCC and Tesla-Newark #1 230-kV Line	Trimble-San Jose B 115-kV Line	924	102%
Metcalf-Newark #1 230-kV Line and Pittsburg Unit 7	Newark-Scott Switching Yard 230-kV Line	949	101%
Tesla-Newark #1 230-kV Line and any 230-kV or 115-kV Line	Tesla-Delta Switching Yard 230-kV Line	974	102%
Tesla-Vaca Dixon and Tesla-Table Mountain 500-kV Lines	Tesla-Delta Switching Yard 230-kV Line	974	Pre-Existing +4%

The Cal-ISO's February 2003, Final Interconnection Approval letter does not require TPP to mitigate overloads caused by Category C outages by installing or upgrading physical facilities. However, Cal-ISO states that it may require TPP to participate in the future implementation of operating procedures or SPS, or both, to mitigate overloads caused by the less frequently occurring Category C outages. (Ex. 13, p. 9.)

The Cal-ISO final interconnection approval for the TPP does not guarantee full generation output from the TPP under all system conditions. (Ex. 13, pp. 10-11.) This approval was conditioned on the following:

- The TPP will participate in the installation of a SPS, if necessary, to trip a portion of the TPP generation to avoid contingency overloading on the Tesla-Delta Switching Yard-Contra Costa 230-kV Line sections. The need for a SPS may be eliminated if PG&E is able to re-rate these lines and eliminate the overloading, of if the lines are reconductored.

- TPP generation curtailment may be required as a temporary mitigation measure should the completion of the planned Contra Costa-Las Positas 230-kV Line reconductoring Project (T-772) be delayed beyond the commercial operation date of the TPP.

- TPP generation may be required to be included in SPSs developed in the future that are required to mitigate transmission system limitations on the 500-kV system, or on the local transmission system, as determined to be necessary by the California ISO.

- TPP is responsible for installing an 8-ohm reactor between the 230 kV buses C & D at the Substation prior to Project operation to mitigate the increase in fault current due to addition of the TPP, which will overstress breakers at the Tesla Substation,. (Ex. 13, p. 10.)

2. Cumulative Impacts

Both Commission staff and the Cal-ISO agree there are several unknowns regarding the expected impacts of several large generation projects in the vicinity of TPP and in the Greater Bay Area. (Ex. 13, p. 9; Ex. 51, p. 5.5-14.) Completion dates for the following projects are pending and their combined effects on the grid with the inclusion of the TPP cannot, therefore, be assessed with certainty:

- Mirant's 590 MW Contra Costa Unit 8 Expansion Project interconnecting to the Contra Costa Power Plant 230 kV bus;
- A proposed 664 MW Project interconnecting to the Contra Costa Power Plant 230 kV bus
- Calpine's 600 MW Metcalf Energy Center interconnecting to the Metcalf 230 kV bus;
- Calpine's 600 MW Russell City Energy Center interconnecting to the Eastshore 230 kV Substation; and
- Calpine's 1070 East Altamont Energy Center interconnecting to WAPA's Tracy 230 kV Substation.

According to Staff and Cal-ISO, the new projects are integrally connected to the Tesla Substation, which is an important junction in the Northern California grid. Staff believes the TPP will result in cumulative impacts on the system but these impacts cannot be quantified since they are ultimately related to the development of the other new generation projects in the Greater Bay Area. (Ex. 51, p. 5.5-14.) Implementation of the selected mitigation measures proposed by the TPP and approved by Cal-ISO appear to be adequate at this time and will be reviewed

again when the TPP submits the final Detailed Facility Study, Executed Generator Interconnection Agreement and Generator Special Facilities Agreement with PG&E, and the Executed Participating Generator Agreement and Meter Service Agreement with the Cal-ISO as required by Condition of Certification **TSE-5**.

FINDINGS AND CONCLUSIONS

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

1. The Tesla Power Plant (TPP) will interconnect with the PG&E grid via two new, 0.8-mile double circuit 230 kV lines from the new on-site switchyard to PG&E's existing Tesla Substation.

2. PG&E will build, own, and maintain the new interconnection lines.

3. A System Impact/Facilities Study (SI/FS), several Supplemental System Impact Studies (SSIS), and an Addendum Supplemental System Impact Study (ASSIS) prepared by PG&E indicate that TPP will cause overload violations under Contingency Category B and C conditions.

4. The ASSIS proposed several methods to mitigate the downstream overload violations, including implementation of SPS, completion of PG&E's reliability projects (T-772, T-787, T-656, and T-846), transmission line re-rates, and congestion management.

5. The Cal-ISO accepted the proposed mitigation measures and issued a Final Interconnection Approval for the TPP in a letter to PG&E dated February 18, 2003, and confirmed the findings by declaration dated September 8, 2003.

6. The Cal-ISO Final Interconnection Approval for TPP does not guarantee full generation output under all circumstances.

7. Cal-ISO believes two upgrade projects proposed by PG&E to reconductor sections of the Tesla-Delta Switching Yard-Contra Costa 230 kV line would enable maximum output from the TPP and eliminate congestion issues but Applicant prefers implementing SPS due to cost considerations.

8. To mitigate the increase in fault current that will overstress breakers at the Tesla Substation, the Project Owner is responsible to install an 8-ohm

reactor between the 230 kV buses C & D at the Substation prior to operation of the TPP.

9. The Cal-ISO's Final Interconnection Approval letter assures conformance with NERC/WECC, NERC and Cal-ISO planning standards and reliability criteria.

10. The Project Owner will submit a Final Detailed Facility Study and Executed Generator Interconnection Agreement and Generator Special Facilities Agreement PG&E incorporating the mitigation measures approved by Cal-ISO prior to construction of the transmission facilities.

11. 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.)

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

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

The electrical engineer shall:

1. Be responsible for the electrical design of the power plant switchyard, outlet and termination facilities; and
2. Sign and stamp electrical design drawings, plans, specifications, and calculations.

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

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

TSE-3 If any discrepancy in design and/or construction is discovered in any engineering work that has undergone CBO design review and approval, the Project Owner shall document the discrepancy and recommend corrective action. (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 become a controlled document and shall be submitted to the CBO for review and approval and shall reference this condition of certification.

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

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

a) receipt or delay of major electrical equipment;

b) testing or energization of major electrical equipment; and

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

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

TSE-5 The Project Owner shall ensure that the design, construction and operation of the proposed transmission facilities will conform to all applicable LORS, 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", Cal-ISO Standards, National Electric Code (NEC) and related industry standards.

b) Breakers and busses in the power plan 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 PG&E interconnection standards.

f) The Project Owner shall provide:

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

   ii. Executed Generator Interconnection Agreement and Generator Special Facilities Agreement with PG&E.

iii. Executed Participating Generator Agreement and Meter Service Agreement with the Cal-ISO.

iv. A copy of the Final Interconnection Approval letter from PG&E.

v. A letter stating that the mitigation measures or projects selected by PG&E and/or CAL-ISO for each criteria violation are acceptable.

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

a) Design drawings, specifications and calculations conforming with CPUC General Order 95 or 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"[6] 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 e) above.

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

e) Executed Generator Interconnection Agreement and Generator Special Facilities Agreement with PG&E, executed Participating Generator Agreement and Meter Service Agreement with the Cal-ISO and a copy of the Final Interconnection Approval letter from PG&E shall be provided concurrently to the CPM.

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

f) A letter stating that the mitigation measures or projects selected by PG&E and/or Cal-ISO for each criteria violation are acceptable 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 **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 (Cal-ISO) prior to synchronizing the facility with the California Transmission system:

1. At least one week prior to synchronizing the facility with the grid for testing, provide the Cal-ISO a letter stating the proposed date of synchronization; and
2. At least one business day prior to synchronizing the facility with the grid for testing, provide telephone notification to the ISO Outage Coordination Department.

Verification: The Project Owner shall provide copies of the Cal-ISO letter to the CPM when it is sent to the Cal-ISO one week prior to initial synchronization with the grid. The Project Owner shall contact the Cal-ISO Outage Coordination Department, Monday through Friday, between the hours of 0700 and 1530 at (916) 351-2300 at least one business day prior to synchronizing the facility with the grid for testing. A report of conversation with the Cal-ISO 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 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".

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.

DEFINITION OF TERMS

AAC — All Aluminum conductor.

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 current flowing in a conductor.

Bundled — Two wires, 18 inches apart.

Bus — Conductors that serve as a common connection for two or more circuits.

Conductor — The part of the transmission line (the wire) which carries the current.

Congestion Management
Congestion management is a scheduling protocol, which provides that dispatched generation and transmission loading (imports) will not violate criteria.

Emergency Overload
See Single Contingency. This is also called an L-1.

Kcmil or kcm
Thousand circular mil. A unit of the conductor's cross sectional area, when divided by 1,273, the area in square inches is obtained.

Kilovolt (kV) — A unit of potential difference, or voltage, between two conductors of a circuit, or between a conductor and the ground.

Loop — An electrical cul de sac. A transmission configuration which interrupts an existing circuit, diverts it to another connection and returns it back to the interrupted circuit, thus forming a loop or cul de sac.

Megavar — One megavolt ampere reactive.

Megavars — Mega-volt-Ampere-Reactive. One million Volt-Ampere-Reactive. Reactive power is generally

associated with the reactive nature of motor loads that must be fed by generation units in the system.

Megavolt ampere (MVA)
: A unit of apparent power, equals the product of the line voltage in kilovolts, current in amperes, the square root of 3, and divided by 1000.

Megawatt (MW)
: A unit of power equivalent to 1,341 horsepower.

Multiple Contingencies
: A condition that occurs when more than one major transmission element (circuit, transformer, circuit breaker, etc.) or more than one generator is out of service

Normal Operation/ Normal Overload
: 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.

N-1 Condition
: See Single Contingency.

Outlet
: Transmission facilities (circuit, transformer, circuit breaker, etc.) linking generation facilities to the main grid.

Power Flow Analysis
: A power flow analysis is a forward looking computer simulation of essentially all generation and transmission system facilities that identifies overloaded circuits, transformers and other equipment and system voltage levels.

Reactive Power
: Reactive power is generally associated with the reactive nature of motor loads that must be fed by generation units in the system. An adequate supply of reactive power is required to maintain voltage levels in the system.

Remedial Action Scheme (RAS)
A remedial action scheme is an automatic control provision, which, for instance, will trip a selected generating unit upon a circuit overload.

SF6 Sulfur hexafluoride is an insulating medium.

Single Contingency
Also known as emergency or N-1 condition, occurs when one major transmission element (circuit, transformer, circuit breaker, etc.) or one generator is out of service.

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.

Switchyard A power plant switchyard (switchyard) is an integral part of a power plant and is used as an outlet for one or more electric generators.

Thermal rating
See ampacity.

TSE Transmission System Engineering.

Undercrossing
A transmission configuration where a transmission line crosses below the conductors of another transmission line, generally at 90 degrees.

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.

E. TRANSMISSION LINE SAFETY AND NUISANCE

The Project's transmission lines must be constructed and operated in a manner that protects environmental quality, assures public health and safety, and complies with applicable law. This section reviews potential impacts of the Project -related transmission lines on aviation safety, radio-frequency interference, audible noise, fire hazards, hazardous and nuisance shocks, and electric and magnetic field exposure.

Summary and Discussion of the Evidence

1. Description of Transmission Lines

The TPP will interconnect via two new 230 kV outlet lines to the PG&E grid at the existing PG&E Tesla Substation south of the site. The Tesla Substation, situated on about 50 acres, is the largest electrical substation in California and serves as a distribution hub for power from four 500 kV lines, thirteen 230 KV lines, and six 115 kV lines whose routes cross the general vicinity of the Project site. Several of the lines also cross the site itself. (Ex. 51, p. 4.10-7; Ex. 1, p. 3-55; Figure 3.6-1.) The route for the Project 's new lines runs parallel to and across some of the existing lines. (Ex. 1, Figure 3.6-2.) The only residences near the site are a few isolated rural houses south-southeast of the Tesla Substation. The nearest residence is one mile from the site, and none are within one-quarter mile of the Project 's new transmission lines. (Ex. 51, p. 4.10-7.)

The Applicant will design, build, and maintain TPP and the new on-site 230 kV switchyard, but PG&E will design, erect, own, and maintain the new interconnection lines. (Ex. 51, p. 4.10-1.) The new lines will be carried on 20 support structures (either lattice-type or steel poles) up to 90 feet tall depending on topography. (Ex. 1, Figure 3.6-4.) According to Staff, the new lines and support structures will be designed and operated according to standard PG&E practices. (*Id*. at p. 4.10-7.) Implementation of Conditions **TLSN 1** through **4** will ensure compliance with applicable health and safety LORS.

2. Potential Impacts

a. Electric and Magnetic Field Exposure

The possibility of deleterious health effects from exposure to electric and magnetic fields (EMF) has raised public health concerns about living near high-voltage lines.[1] (Ex. 51, p. 4.10-4 et seq.) Both fields occur together whenever electricity flows. Due to the present scientific uncertainty regarding potential health effects from EMF exposure, CPUC policy requires reduction of such fields, if feasible, without affecting safety, efficiency, reliability, and maintainability of the transmission grid. (*Ibid.*)

Since the CPUC requires each new line in California to be designed according to the EMF-reducing guidelines of the electric utility in the service area involved, EMF fields produced by new lines must be similar to the fields of comparable lines in that service area. According to Staff, designing the TPP lines according to existing PG&E field strength-reducing guidelines constitutes compliance with CPUC requirements for line field management. (Ex. 51, p. 4.10-6.) Condition of Certification **TLSN-1** ensures implementation of the necessary design requirements.

The field reduction measures to be incorporated into the line design include the following:

- Increasing the distance between the conductors and the ground;
- Reducing the spacing between the conductors;
- Minimizing the current in the line; and
- Arranging current flow to maximize the cancellation effects from interacting fields from nearby conductors.

[1] While scientific research has not established a 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 PG&E, 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. 51, p. 4.10-5 et seq.)

These field reducing measures are included in PG&E's guidelines for EMF-reduction measures and do not cause impacts to line safety, efficiency, reliability, and maintainability of the grid. To validate reduction efficiency, Condition of Certification **TLSN-4** requires the Project Owner to provide data necessary to compare the resulting EMF intensity measurements within the Project 's transmission corridor with fields from PG&E lines of the same voltage and current-carrying capacity. Staff asserts that it is the similarity in magnitude that constitutes compliance with CPUC policy on EMF management. The need for further mitigation can be determined from the efficiency assessment after energization. (Ex. 51, pp. 4.10-9 and 4.10-10.)

Under CPUC policy, field intensity estimates are specified for a height of one meter above the ground, in units of kilovolts per meter (kV/m), for the electric field, and milligauss (mG) for the magnetic field. Their magnitude depends on line voltage (in the case of electric fields), the geometry of the support structures, degree of cancellation from nearby conductors, distance between conductors and, in the case of magnetic fields, amount of current in the line. (Ex. 51, p. 4.10-5.)

The Applicant estimated the maximum field strengths expected within and at the edge of a 60-foot right-of way for the TPP lines. These field strength estimates reflect the potential contribution of the Project lines to the area's EMF levels as typical of the design and Project ed current levels. Staff agreed with Applicant's assumptions with regard to design-related parameters bearing on field strength dissipation and exposure assessment. (Ex. 51, p. 4.10-9.)

The Applicant's maximum magnetic field estimates within the right-of-way was presented as 73 milligauss (mG) at the centerline, diminishing to 44 mG at the east edge of the right-of-way, 30 feet from the centerline. These field strength values are typical for PG&E lines of the same voltage and current-carrying capacity and would be compared with the operational phase measurements

required by Condition **TLSN-4**. The estimated field strengths are lower than the 150 to 250 mG established (depending on voltage level) for the edges of the rights-of-way by the few states with regulatory limits on these line magnetic fields. The maximum field electric field strength directly underneath the line was Project ed as 1.7 kV/m and would be within the range associated with PG&E lines of the same voltage. (Ex. 51, pp. 4.10-9 and 4.10-10; Ex. 1 § 4.2.3.)

Since there are no residences along the new transmission line, potential long-term residential exposure is not an issue in this case. The only EMF exposure of potential significance would be short-term on-site exposure to plant workers or visitors at the site. (*Id.* at p. 4.10-7.) According to Staff, such short-term exposure has not been established as posing a significant health risk. (*Ibid.*)

b. *Aviation Safety*

The Federal Aviation Administration (FAA) requires Project proponents to submit notice of construction that could potentially pose an aviation hazard. The nearest airports to the Project site include the Tracy Airport, about 7.1 miles east-southeast, and the Meadowlark Landing Strip, 7.7 miles to the southwest. Given the airports' distance from the new lines and the orientation of their respective runways, the TPP lines are unlikely to pose significant obstruction-related aviation hazards. Moreover, the maximum height of the lines (90 feet) would be too low to cause a collision hazard. Thus, no FAA "Notice of Construction or Alteration" would be required. However, standard PG&E practice includes notification to the FAA when new lines are proposed and Applicant will ensure that notification occurs in this case. (Ex. 51, p. 4.10-8; Ex. 1 § 4.2.1.)

c. *Interference with Radio-Frequency Communication*

Transmission lines produce radio-frequency energy, which can affect radio and television reception. Federal Communications Commission (FCC) regulations prohibit transmission line operation from interfering with radio/tv communications.

Such interference is due to noise produced by action of the electric fields on the surface of the energized conductor. This process, known as corona discharge or spark gap electric discharge, occurs within gaps between the conductor and insulators or metal fittings. (Ex. 51, p. 4.10-2.)

Corona-related interference is most commonly caused by irregularities (such as nicks and scrapes on the conductor surface), sharp edges on suspension hardware, and other discontinuities around the conductor surface. The TPP lines will be built and maintained according to standard PG&E practices minimizing such surface irregularities and discontinuities. (Ex. 51, p. 4.10-8; Ex. 1, § 4.2.2.) Further, the potential for corona-related interference is usually of concern for lines rated at 345 kV and above, and not the proposed 230 kV lines, except in rainy weather (when the presence of raindrops increases the strengths of the offending surface electric fields). The low-corona design for the TPP lines will be the same as the existing 230 kV PG&E lines of similar design. Since the existing lines do not currently produce the corona effects of specific concern, it is unlikely that any corona-related interference will occur on the TPP lines. (*Ibid.)* Condition of Certification **TLSN-3** ensures the implementation of an appropriate complaint and mitigation process to address interference with radio/tv signals due to operation of the TPP lines.

d. *Audible Noise*

The low-corona design used for the TPP lines will also minimize the potential for corona-related audible noise. Thus, line operation is unlikely to add significantly to current background noise levels in the Project area. (Ex. 51, p. 4.10-9.) *See* the section on Noise in this Decision.

e. *Fire Hazards*

Fire hazards related to transmission line operation are typically caused by sparks from overhead line conductors or from direct contact between the line and nearby trees or other combustible objects. The TPP lines will be constructed on terrain characterized by rolling grassland with no trees that could pose a fire hazard from line contact. (Ex. 51, p. 4.10-4.) Design and construction of the new lines will conform with standard PG&E procedures for fire hazard prevention. (Ex. 1, § 4.2.5.) Condition **TLSN-1** ensures compliance with appropriate LORS related to fire hazard prevention.

f. *Hazardous Shocks*

Hazardous shocks occur from direct or indirect contact with an energized line. The TPP lines will be designed and constructed to minimize the risk of hazardous shocks. (Ex. 1, § 4.2.4.) Implementation of Condition **TLSN-1** ensures the lines will meet the requirements of all applicable health and safety LORS.

g. *Nuisance Shocks*

Nuisance shocks are caused by direct contact with metal objects electrically charged by fields from the energized line. The potential for nuisance shocks around the new lines will be minimized by standard industry grounding practices. (Ex. 1, §4.2.4.) Condition **TLSN-2** ensures that all metallic objects along the route of the overhead lines are grounded according to PG&E requirements.

3. Cumulative Impacts

Since the new lines will be designed, maintained, and operated according to current PG&E standards on safety and EMF management, the actual contribution of the lines to the area's EMF exposure and any other health and safety

considerations would be insignificant given the present configuration of numerous transmission lines in the area. (Ex. 51, p. 4.10-10.)

FINDINGS AND CONCLUSIONS

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

1. The TPP will interconnect to the existing PG&E Tesla substation via two new 0.8-mile 230-kV outlet lines from the Project 's new switchyard.

2. PG&E will design, erect, own, and maintain the new interconnection lines.

3. The transmission lines will comply with existing LORS for public health and safety.

4. The transmission lines will incorporate standard EMF-reducing measures established by PG&E.

5. The Project Owner will coordinate with PG&E to provide field intensity measurements before and after energization to assess EMF contributions from the Project -related current flow.

6. The TPP transmission lines will not result in significant adverse environmental impacts to public health and safety or 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 Conditions 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 provide specific evidence that the TPP's interconnection transmission lines will be designed and constructed by PG&E according to the requirements of CPUC's GO-95, GO-52, Title 8, Section 2700 et seq. of the California Code of Regulations and PG&E's EMF reduction guidelines arising from CPUC Decision 93-11-013.

Verification: At least 30 days before starting construction of the TPP's transmission lines and/or related structures and facilities, the Project Owner shall submit to the Commission's Compliance Project Manager (CPM) a letter from PG&E affirming that the overhead section will be constructed according to the requirements of CPUC GO-95, GO 52, Title 8, Section 2700 et seq. of the California Code of Regulations, and PG&E's EMF-reduction guidelines arising from CPUC Decision 93-11-013.

TLSN-2 The Project Owner shall provide specific evidence that all metallic objects along the route of the overhead section will be grounded according to PG&E practices reflecting standard industry practices.

Verification: At least 30 days before the lines are energized, the Project Owner shall transmit to the CPM a letter from PG&E confirming compliance with the specified grounding requirements established in standard PG&E practice.

TLSN-3 The Project Owner shall provide specific evidence that reasonable steps will be taken to resolve any complaints of interference with radio or television signals from operation of the TPP lines.

Verification: The Project Owner shall provide the CPM a copy of an agreement with PG&E to provide a summary of line-related complaints along with related mitigation measures for each year of operation. The Project Owner shall provide such summary reports to the CPM in the Annual Compliance Report.

TLSN-4 The Project Owner shall provide a copy of an agreement with PG&E for PG&E to measure the strengths of the electric and magnetic fields from the TPP lines (according to IEEE measurement protocols) before and after they are energized. Measurements shall be made at representative points (on-site and along the line route) as necessary to identify the maximum field exposures possible during TPP operations.

Verification: At least 90 days prior to energizing the new TPP lines, the Project Owner shall provide a copy of an agreement with PG&E to measure EMF as described above in **TLSN-4**. EMF measurements after energization shall be completed no later than 12 months after Project operation begins. The Project Owner shall obtain copies of PG&E's measurement results and submit them to the CPM within 30 days of completion. Corrective action, if necessary, shall be based upon the results of these measurements, and approved by the CPM.

VI. PUBLIC HEALTH AND SAFETY ASSESSMENT

Operation of the TPP 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 likely conform with applicable laws, ordinances, regulations and standards (LORS), whether it will likely result in significant air quality impacts, including violations of ambient air quality standards, and whether the project's proposed mitigation measures will likely reduce potential impacts to insignificant levels. (Ex. 51, p. 4.1-1.)

National ambient air quality standards (NAAQS) have been established for seven air contaminants identified as "criteria air pollutants." These include sulfur dioxide (SO_2), carbon monoxide (CO), ozone (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 ($PM_{2.5}$). The review of potential impacts also includes the precursor pollutants for ozone, which are nitrogen oxides (NO_x) and volatile organic compounds (VOC), and the precursors for PM_{10} and $PM_{2.5}$, which are primarily NO_x, sulfur oxides (SO_x), and ammonia (NH_3). (Ex. 1, § 5.2.1.1.)

The federal Clean Air Act[1] requires new major stationary sources of air pollution to comply with federal requirements in order to obtain Authority to Construct (ATC) permits. The U.S. Environmental Protection Agency (U.S. EPA), 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, §§ 5.2.1.1 and 5.2.1.8.)

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 and PSD rules is typically delegated to local air districts that are established by federal and state law although the U.S. EPA withdrew PSD authority from local districts in December 2002. (Ex. 51, pp. 4.1-1 and 4.1-2.) The parties shall indicate whether this affects their analyses.

The TPP is located in Alameda County near the border with San Joaquin County. The Bay Area Air Quality Management District (Air District or BAAQMD) has jurisdiction in Alameda County and, therefore, its rules apply to the project. However, project-related construction activities will occur in San Joaquin County and a percentage of Project emissions will be transported to the San Joaquin Valley. The San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD) intervened in this certification proceeding since its rules are applicable to construction activities in San Joaquin County and mitigation measures are necessary to reduce impacts from the transport of air pollutants emitted by the project. (Ex. 51, p. 4.1-1.)

The Project is also subject to the federal New Source Performance Standards (NSPS), which are generally delegated to the local air district; however, local

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

emissions limitation rules are typically more restrictive than NSPS requirements. (Ex. 51, p. 4.1-2.)

Both the U.S. EPA and the California Air Resources Board (CARB) have established allowable maximum ambient concentrations for the criteria pollutants identified above. The California Ambient Air Quality Standards (CAAQS) are more stringent than federal standards. Federal and state ambient air quality standards are shown below in Staff's Air Quality Table 1.

Air Quality Table 1
Federal and State Ambient Air Quality Standards

Pollutant	**Averaging Time**	**Federal Standard**	**California Standard**
Ozone (O_3)	1 Hour	0.12 ppm (235 μg/m^3)	0.09 ppm (180 μg/m^3)
	8 Hour	0.08 ppm (160 μg/m^3)	—
Respirable Particulate Matter (PM_{10})	Annual Geometric Mean	—	30 μg/m^3
	24 Hour	150 μg/m^3	50 μg/m^3
	Annual Arithmetic Mean	50 μg/m^3	— *(*20 μg/m^3)*
Fine Particulate Matter ($PM_{2.5}$)	24 Hour	65 μg/m^3	—
	Annual Arithmetic Mean	15 μg/m^3	— *(*12 μg/m^3)*
Nitrogen Dioxide (NO_2)	Annual Average	0.053 ppm (100 μg/m^3)	—
	1 Hour	—	0.25 ppm (470 μg/m^3)
Carbon Monoxide (CO)	8 Hour	9 ppm (10 mg/m^3)	9 ppm (10 mg/m^3)
	1 Hour	35 ppm (40 mg/m^3)	20 ppm (23 mg/m^3)
Sulfur Dioxide (SO_2)	Annual Average	0.03 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)
Sulfates (SO4(2-))	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	—	0.010 ppm (26 μg/m^3)

Visibility Reducing Particulates	1 Observation	—	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.

*Note: In June 2002, the CARB approved new standards for PM_{10} and $PM_{2.5}$. The revisions will take effect upon final approval by the Office of Administrative Law.
Source: Ex. 51, p. 4.1-10.

Summary of the Evidence

Air quality in the Bay Area Air District is in attainment with federal and state standards for SO_2, NO_2 and CO, unclassified for the federal PM_{10} standard, and nonattainment for the state and federal ozone standards and the state PM_{10} standard. (Ex. 1, pp. 5.2-4 et seq.) BAAQMD's attainment status for each criteria pollutant is shown below in Staff's Air Quality Table 2a.

Air Quality Table 2a
Federal and State Area Designations for
the Bay Area Air Quality Management District

Pollutants	Federal Classification	State Classification
Ozone	Nonattainment (Moderate)	Serious Nonattainment
PM_{10}	Unclassified	Nonattainment
NO_2	Attainment	Attainment
CO	Attainment	Attainment
SO_2	Attainment	Attainment

Note: The federal ozone designation for the Bay Area has goals for attainment that are equivalent to a "moderate" designation.

The designation status for the San Joaquin Valley Air Basin is shown below in Staff's Air Quality Table 2b. The ozone and PM_{10} designations for the San Joaquin Valley are more severe than those for the Bay Area since emissions from the Bay Area and Sacramento directly affect peak ozone concentrations in the northern portion of the San Joaquin Valley (including San Joaquin, Stanislaus, and Merced Counties). While ozone violations of the state standard

are predicted to occur without the transported emissions, the addition of upwind emissions exacerbates those ozone peak levels. (Ex. 51, p. 4.1-9.)

Air Quality Table 2b
Federal and State Area Designations for the San Joaquin Valley Air Basin

Pollutants	Federal Classification	State Classification
Ozone	Severe Nonattainment	Severe Nonattainment
PM_{10}	Serious Nonattainment	Nonattainment
NO_2	Attainment	Attainment
CO	Attainment	Attainment
SO_2	Attainment	Attainment

Note: The federal ozone designation for the San Joaquin Valley was degraded from "serious" to "severe" in October 2001, and in June 2002 the SJVAPCD Staff proposed to recommend further voluntary degradation from "severe" to "extreme." The SJVAPCD Governing Board is presently deliberating whether to request this designation from U.S. EPA.

1. BAAQMD's Final Determination of Compliance

BAAQMD released its Final Determination of Compliance (FDOC) on February 7, 2003. The FDOC contains the permit conditions specified by BAAQMD to ensure compliance with applicable federal, state, and local air quality requirements. (Ex. 23, p. 42.) The conditions include emissions limitations, operating limitations, offset requirements, and testing, monitoring, record keeping and reporting requirements that ensure compliance with air quality LORS. (Ex. 23.) In May 2003, the Air District issued a list of Errata to the FDOC. (Ex. 24). The conditions contained in the FDOC and those modified in the Errata 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. 23, p. 1, BAAQMD Regulation 2-3-405.)

2. California Environmental Quality Act (CEQA) Requirements

In addition to reviewing the Air District's requirements, the Commission also evaluates potential air quality impacts according to CEQA 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 air quality conditions in the Bay Area and San Joaquin Air Basins and describes the issues addressed by the parties in consultation with BAAQMD and SJVUAPCD.

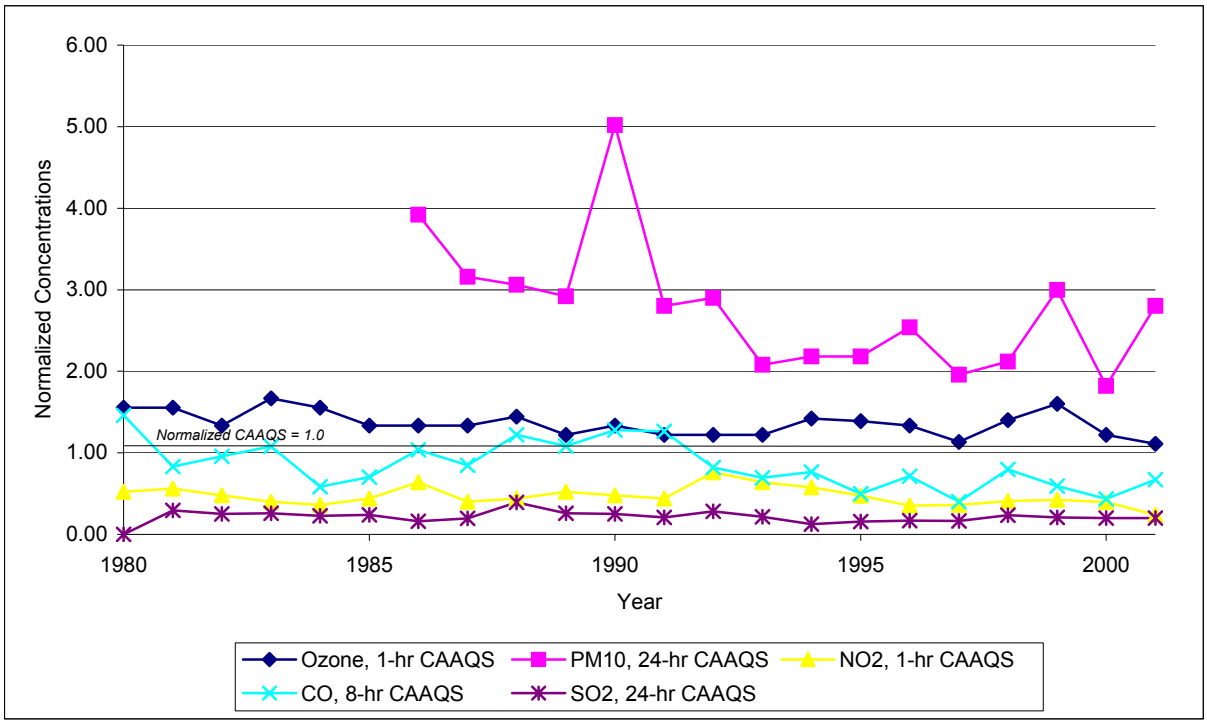
3. Ambient Air Quality

Staff's Air Quality Figure 1 summarizes the historical air quality trends for the Project area. Ozone and NO_2 data were recorded at the Tracy air monitoring station on Patterson Pass Road, and PM_{10} and CO data were recorded at the Hazelton Street Station in Stockton. Other monitoring stations in the region include the Bethel Island station in Contra Costa County about 20 miles north of the site and the Modesto station about 30 miles southeast of the site. (Ex. 51, p. 4.1-11.)

In Figure 1 the normalized maximum short term concentrations are provided from 1980 to 2001 for ozone, PM_{10}, NO_2, and CO at the Stockton station and SO_2 at the Bethel Island station. The Stockton Hazelton Street station is used for this historical graph because data from the Tracy station was not available until 1993. Data for $PM_{2.5}$ concentrations were not available until 1999. Normalized concentrations represent the ratio of the highest measured concentrations for a

given averaging period in a given year to the most-stringent applicable national or state ambient air quality standard. Therefore, normalized concentrations lower than 1.00 indicate that the measured concentrations were lower than the most stringent ambient air quality standard. (Ex. 51, p. 4.1-11.)

AIR QUALITY Figure 1
Normalized Maximum Short-Term Historical Air Pollutant Concentrations



Note: A Normalized Concentration is the ratio of the highest measured concentration to the applicable most stringent air quality standard. For example, in 1998 the highest 1-hour average ozone concentration measured in Stockton was 0.126 ppm. Since the most stringent ambient air quality standard is the state standard of 0.09 ppm, the 1998 normalized concentration is 0.126/0.09 = 1.4.
Source: (CARB 2000, 2002a).

Staff provided a detailed analysis of ambient air quality conditions in the site vicinity for ozone, PM_{10}, $PM_{2.5}$, NO_2, CO, and SO_2. (Ex. 51, p. 4.1-12 et seq.)

- Ozone formation is highest in the summer and fall when sunshine and high temperatures are available to trigger necessary photochemical reactions, and lowest in the winter.

- 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 winter with the contribution of wood-burning smoke particles adding to ground level releases.

- 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 CAAQS.

- 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.

- Sulfur dioxide is emitted by combustion of fuel containing sulfur. Since natural gas contains little sulfur and has low SO_2 emissions, TPP 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 over the past three years. Applicant identified maximum concentrations for the period of 1998-2000 and Staff added data from 2001. (Ex. 1, § 5.2.2.2; Ex. 51, p. 4.1-20.) Ozone and NO_2 data came from Tracy; PM_{10} and CO data from Stockton; and SO_2.data from Bethel Island, which is more representative of SO_2 in the Project area than current San Joaquin Valley data from Bakersfield. (*Ibid.*) Staff's Air Quality Table 9 below summarizes Staff's assumptions for ambient air concentrations.

Air Quality Table 9[2]
Staff's Recommended Background Concentrations for TPP

Pollutant	Averaging Time	Maximum Monitored Background (ppm)	Staff-Recommended Background ($\mu g/m^3$)	Limiting Standard (ppm)	Type of Standard
Ozone	1 hour	0.13	---	0.09	CAAQS
	8 hour	0.113	---	0.08	NAAQS
PM_{10}	24 hour	150 $\mu g/m^3$	150	50 $\mu g/m^3$	CAAQS
	Annual Geometric Mean	30.2 $\mu g/m^3$	30.2	30 $\mu g/m^3$	CAAQS
	Annual Arithmetic Mean	36.4 $\mu g/m^3$	36.4	50 $\mu g/m^3$	NAAQS
NO_2	1 hour	0.079	149	0.25	CAAQS
	Annual	0.0149	28	0.053	NAAQS
CO	1 hour	8.9	13,054	20	CAAQS
	8 hour	7.2	8,405	9	NAAQS
SO_2	1 hour (1)	0.029	76	0.25	CAAQS
	3 hour	---	---	0.5	NAAQS
	24 hour (1)	0.0094	24.6	0.04	CAAQS
	Annual (1)	0.002	5.2	0.03	NAAQS

Note: Staff's recommended background data ($\mu g/m^3$) matches that presented in Applicant's Ex. 1 pp. 5.2-21 through 5.2-23, except for SO_2 (all averaging periods). Staff used data from the Bethel Island location to illustrate maximum ambient SO_2 because recent data for San Joaquin Valley came from Bakersfield, too far from the site.

Sources: Ex. 51, p. 4.1-21; CARB Air Quality Data CD, 2000;
CARB website: http://www.arb.ca.gov/adam/

4. Potential Impacts

Methodology. Applicant performed an air dispersion modeling analysis using BAAQMD and U.S. EPA-approved models and procedures to evaluate the project's potential impacts on existing ambient air quality during both construction and operation.[3] The analysis is a refined approach that uses hour-by-hour

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[2] This Table reflects the NAAQS and CAAQS in effect in 2002. If these standards have been modified since that time, the parties shall update Table 9 and correct the calculations of potential violations consistent with the updated standards, specifically regarding particulate matter as indicated in Table 1.

[3] Applicant used U.S. EPA-approved Industrial Source Complex (ISC) Mode, Version 00101, to model dispersion impacts for both simple and complex terrain. The short-term model version, ISCST3, was used to model pollutant concentrations with short-term ambient standards and the PERIOD option was used to predict impacts on annual standards. (Ex. 51, § 5.2.4.4.) Inversion breakup fumigation was evaluated using the SCREEN3 model. (Ex. 23, Appendix E, p. E-4.)

meteorological data collected near the site vicinity. (Ex. 1, § 5.24.4, Appendices K-1 and K-2.). BAAQMD confirmed the modeling was conducted in accordance with Air District rules. (Ex. 23, Appendix 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 and along the linear routes (gas and water supply pipelines, and transmission line). Staff's Air Quality Table 10, below, summarizes the estimated levels of criteria pollutant emissions during construction. (Ex. 51, p. 4.1-22; Ex. 1, § 5.2.4.1, Appendix K-3).

Air Quality Table 10
Estimated Construction Emissions
(Maximum Hourly Emissions and Annual Tons)

	NOx		PM_{10}		CO		SOx		VOC	
Equipment	**lb/hr**	**tpy**	**lb/hr**	**tpy**	**Lb/hr**	**tpy**	**Lb/hr**	**tpy**	**lb/hr**	**tpy**
On-site Equipment	48	53.4	6	6.7	22	26.4	5	5.3	6	7.0
Offsite Equipment (a) (NG/Water Supply Line)	109	29.0	11	2.7	47	11.8	11	2.9	12	3.2
On-site Fugitive Dust (b)	---	---	4.5	6.4	---	---	---	---	---	---

Source: Ex. 51, p. 4.1-22; Ex. 1, Appendix K-3 and Table 5.2-18b.
Notes:

(a) Staff believes the emission factors used by Applicant were overly conservative and that the actual emission rates for these activities will be substantially lower than shown in this table.
(b) Fugitive dust emissions are based on Staff's assessment of 0.11 ton PM_{10}/month/acre (Midwest Research Institute, 1996), 22 11-hour workdays per month (Ex. 1, Appendix K-3), and 75% control efficiency or a maximum of 0.548 ton PM_{10}/month. (Ex. 51, p. 4.1-23.)

Applicant modeled on-site construction emissions using three surrogate point source stacks for equipment emissions and a site-wide area source for fugitive dust. The sources were modeled on the assumption that peak hourly emissions could occur any time during a 24-hour day. According to Staff, Applicant's calculations overestimate diesel emissions (the construction schedule anticipates a single shift 11-hour/day) but underestimate dispersal of fugitive dust from unpaved surfaces. (Ex. 51, pp. 4.1-23 and 4.1-29; Ex. 1, p. 3-62, Appendix K-3.) The emissions data reflected in Table 10 incorporate Staff's corrections and were used for modeling construction-related impacts.

Staff's Air Quality Table 14, below, summarizes the modeling analysis for construction activities. 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 marked with an asterisk represent values that equal or exceed the relevant ambient air quality standard. (Ex. 51, p. 4.1-29.)

Air Quality Table 14
Ambient Air Quality Impacts from Construction ($\mu g/m^3$)

Pollutant	Averaging Period	Project Impact	Back-ground	Total Impact	Limiting Standard	Type of Standard	Percent of Standard
PM_{10} (a)	24-hour	78.4*	150*	228*	50	CAAQS	457*
	Annual	12.9	36.4*	49*	30	CAAQS	164*
NO_2 (b)	1-hour	284.1	149	433	470	CAAQS	92
	Annual	15.9	28	44	100	NAAQS	44
CO	1-hour	571	13,054	13,625	23,000	CAAQS	59
	8-hour	307.8	8,405	8,713	10,000	NAAQS	87
SO_2 I	1-hour	117.9	76	194	655	CAAQS	30
	3-hour	81.0	76	157	1,300	NAAQS	12
	24-hour	33.0	24.6	58	105	CAAQS	55
	Annual	2.1	5.2	7	80	NAAQS	9

Source: Ex. 51, p. 4.1-29; Updated Modeling with independent Staff assessment as noted.

(a) Fugitive dust emissions based on Staff estimates.

(b) NO_2 impacts based on ISC3-OLM analysis of Data Response #208 (FWEC 2002h).

(c) SO_2 impacts based on overprediction of sulfur emissions from equipment. Equipment must use California-specific low-sulfur fuel (i.e. sulfur dioxide impacts here are substantially overestimated).

Table 14 shows that construction PM_{10} (24-hour and annual) impacts exceed ambient air quality standards and are therefore significant. (Ex. 51, p. 4.1-29.) The maximum modeled construction impacts are predicted to occur at the site fence line and will decrease exponentially with distance.[4] No receptors exist at the fence line. According to Staff, the maximum modeled PM_{10} concentration at

[4] The maximum daily PM_{10} impacts caused by project-related construction would be approximately 2.5 $\mu g/m^3$ at the nearest residence, located approximately 1 mile southeast of the site. The maximum modeled Project NO_2 1-hour construction impacts are predicted to occur at the fence line along Midway Road, over 100 meters due east of the southeastern corner of the site or approximately 500 meters southeast of the center of the site. These concentrations would decrease rapidly with additional distance. (Ex. 51, pp. 4.1-29 and 4.1-30.)

the nearest residential receptor will be substantially lower than that shown in Table 14.

Direct impacts of NO_2, CO, and SO_2 would not be significant because construction of the Project would not cause or contribute to a violation of these standards. Significant secondary impacts, however, would occur for PM_{10} and ozone because construction emissions of PM_{10} precursors and ozone precursors would contribute to existing violations of these standards. Mitigation for construction emissions of PM_{10}, NO_x, SO_2, and VOC is therefore necessary to reduce impacts to existing PM_{10} and ozone levels. (Ex. 51, p. 4.1-30.)

Applicant agreed to implement several mitigation measures that would reduce diesel emissions, including low-sulfur diesel fuel, certified diesel engines (Tier 1 ARB/U.S. EPA 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-C2** and **AQ-C3** incorporates these measures. We also added a requirement that the Project Owner must pave new access roads to and from the site prior to the initiation of construction and must also pave all internal access roads as soon as possible. Since calculations of construction-related emissions did not include the measures identified in the CMP, actual emissions will be lower than those estimated in Table 10 and impacts should be reduced to insignificant levels. (Ex. 51, 4.1-22.) Condition **AQ-C1** requires the Project Owner to designate an Air Quality Construction Mitigation Manager to ensure compliance with the CMP.

Operation. Criteria pollutants resulting from combustion of natural gas in the CTGs and HRSGs are emitted through the HRSG exhaust stacks. The CTGs include dry low NO_x combustors to reduce NO_x emissions and the HRSGs

include supplemental duct burners, integral SCR systems, and oxidation catalysts to control NOx, CO, and VOC emissions from the CTGs. The SCR systems use aqueous ammonia to further reduce NO_x but ammonia slip may contribute to air quality degradation. Cooling tower emissions of PM_{10} will be controlled by high efficiency drift eliminators. (*Ibid*.)

Maximum hourly emissions for the CTG and cooling tower were modeled for each pollutant to determine the short-term (one-hour, three-hour, eight-hour, and 24-hour) and long-term (annual) impacts for load following startup (cold and warm), shutdown, and normal operations with duct firing and without duct firing. The maximum hourly, daily, and annual emissions for baseload operation were also modeled to determine the daily and annual impacts. Assumptions used in calculating emissions include:

- anticipated regulatory limits for NO_x, CO, and ammonia slip
- manufacturer specified emission factors for PM_{10} and VOC
- the facility operating in a baseload scenario with an availability of approximately 94 percent or 8,200 hours per year with 5,260 hours of duct firing per year (Ex. 1, Appendix K-4; and Updated Analysis docketed 12/5/01 Parties should file as Exhibit)
- a range of load conditions (50% to 100%, with or without duct firing) and ambient temperatures (17°F to 112°F)
- operating scenarios generating maximum annual emissions, based on the following assumptions (Ex. 1, Table 5.2-19, p. 5.2-40; and Updated Analysis docketed 12/5/01 Parties should file as Exhibit):
    - annually: 12 cold startups, 6 warm startups, and 27 hot startups and 45 shutdowns, would occur for each combustion turbine, amounting to approximately 141 annual hours in startup/shutdown mode for each CTG, with the remaining annual hours divided at 5,260 hours of full load operation with duct burners on and 2,800 hours with duct burners off.
    - concurrent operation of the cooling tower.
    - occasional operation of the diesel fire water pump engine for 26 hours annually.

Staff's Air Quality Table 15, replicated below, indicates that Project operation will not cause new violations of attainment pollutants but has the potential to exacerbate existing violations of the state 24-hour and annual PM_{10} standards.

Air Quality Table 15
Ambient Air Quality Impacts from Routine Operation ($\mu g/m^3$)

Pollutant	Averaging Period	Project Impact	Back-ground	Total Impact	Limiting Standard	Type of Standard	Percent of Standard
PM_{10}	24-hour (a)	5.1	150*	155*	50	CAAQS	310*
	Annual	0.5	36.4*	37*	30	CAAQS	123*
NO_2	1-hour (b)	120.1	149	269	470	CAAQS	57
	Annual	0.23	28	28	100	NAAQS	28
CO	1-hour (b,c)	1,346	13,054	14,400	23,000	CAAQS	63
	8-hour	241.3	8,405	8,646	10,000	NAAQS	86
SO_2	1-hour (b)	4.6	76	81	655	CAAQS	12
	3-hour (b)	2.4	76	78	1,300	NAAQS	6
	24-hour	0.72	24.6	25	105	CAAQS	24
	Annual	0.04	5.2	5	80	NAAQS	7

Source: Ex. 51, p. 4.1-31; Updated Modeling (12/5/01).

(a) 24-hour PM_{10} impacts based on Staff review including a full day of wintertime operation at 50% load.

(b) Hourly and 3-hour impacts do not include fire water pump engine testing. With fire water pump testing, hourly Project impacts would be NO_2: 179 $\mu g/m^3$, CO: 1,348 $\mu g/m^3$, SO_2: 68 $\mu g/m^3$. All results include gas turbine startups as part of routine operation. NO_2 impacts based on ISC3-OLM analysis with CTGs achieving 2.0 ppm on a 1-hour basis.

(d) 1-hour CO impacts based on Staff review of Applicant's CD-R (Updated Modeling 12/5/01).

Emissions of PM_{10} would contribute to background concentrations that exceed air quality standards. Air dispersion modeling indicates that maximum 24-hour PM_{10} impacts (4.7 $\mu g/m^3$) from combustion turbine emissions occur during stable, wintertime conditions on the hills approximately 2.2 miles west of the site. Maximum impacts from cooling tower emissions occur near the site fence line. Daily and annual PM_{10} impacts at lower elevations beyond the fence line tend to be substantially lower.[5] (Ex. 51, p. 4.1-31.)

[5] According to Staff, the maximum daily and annual average PM_{10} impacts at the nearest residential receptor would be approximately 0.38 and 0.03 $\mu g/m^3$, respectively. (Ex. 51, p. 4.1.-31.)

The evidence indicates that maximum daily PM_{10} impacts in San Joaquin County would be approximately 50% of the overall maximum concentrations. The Project would cause 24-hour PM_{10} concentrations to increase by approximately 2.6 $\mu g/m^3$ at elevated terrain in San Joaquin County approximately 3.5 miles southeast of the site. Maximum annual PM_{10} Project impacts in San Joaquin County would be less than 0.2 $\mu g/m^3$. (Ex. 51, p. 4.1-31.) However, the evidence does not reconcile the finding of maximum impacts west of the site in Alameda County with the finding of impacts at 50% of overall maximum impact east of the site in San Joaquin County. The parties shall explain how the pollutants are dispersed in opposite directions and whether this is based on a seasonal analysis.

According to Staff, direct impacts of PM_{10} would be significant because they contribute to violations of the standards, including violations of the federal PM_{10} standard in San Joaquin Valley. Direct impacts of NO_2, CO, and SO_2 would not be significant because the Project would not cause or contribute to a violation of these standards. Mitigation is necessary to reduce significant, direct impacts of PM_{10}. (Ex. 51, p. 4.1-31.)

Staff indicates that close to 100% of the particulate matter formed during combustion of natural gas falls within the $PM_{2.5}$ subset of PM_{10} but no established methodology exists for quantifying these emissions for all sources. (Ex. 51, p. 4.1-25; 9/18/03 RT, p. 257.) Staff believes that direct impacts caused by $PM_{2.5}$ must be mitigated because ambient conditions in the area already exceed the new federal $PM_{2.5}$ standards. (Ex. 51, p. 4.1-32.) Since PM_{10} emissions from the CTGs would primarily consist of $PM_{2.5}$, mitigation of combustion-related PM_{10} would serve to mitigate $PM_{2.5}$ impacts as well. (*Ibid.*)

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. 51, p. 4.1-32.)

Fumigation. There is the potential for higher concentrations to occur during fumigation conditions, which are generally short-term in nature and are only compared with 1-hour standards. Applicant analyzed air quality impacts for worst-case plant startup emissions occurring under fumigation conditions using the SCREEN3 model (Version 96043). (Ex. 1, Table 5.2-30 and Appendix K-8.) Under fumigation conditions, short-term Project impacts would not exceed the impacts for routine operation shown in Table 15 above. (Ex. 51, p. 4.1-32.)

Commissioning. Prior to commercial operation, the commissioning period involves the initial firing of fuel to test equipment and emission control systems. Applicant performed the requisite modeling to identify potential commissioning impacts. Staff's review of the modeling results indicates that start-up emissions would be similar to those during routine operations. (Ex. 51, pp. 4.1-32 and 4.1-33.) Conditions **AQ-1** through **AQ-14**, incorporated from the FDOC, define the emission limits allowed during commissioning. The FDOC restricts the commissioning period to a maximum of 180 days. (Ex. 23, p. 27.)

5. Mitigation

BACT. BAAQMD set the emission limits for Project operation based on best available control technology (BACT) determinations specific to the power plant components identified by Applicant. (Ex. 23, pp. 8-15.) Each of the four CTGs will be equipped with dry low-NOx combustors, followed by SCR and oxidation

catalysts in the HRSGs. (Ex. 51, pp. 4.1-24.) Condition **AQ-24(b)** requires the TPP to control NO_x to 2.0 ppmvd @15% O_2 (based on a one-hour average). As a reagent, the SCR system relies on use of ammonia vapor injected to the exhaust stream. Condition **AQ-24(e)** limits ammonia slip to 5 ppmvd on a dry basis corrected to 15% O_2 (based on a 3-hour average). Condition **AQ-34** requires the Project Owner to conduct source testing and continuous monitoring of ammonia emissions. The catalyst systems integral to the HRSG include oxidation catalysts to reduce CO and VOC emissions. Under Condition **AQ-24(d)**, the oxidation catalyst would limit CO concentrations to 4.0 ppmvd @15% O_2 (based on a 3-hour average). Condition **AQ-24(f)** limits precursor organic compound (POC) emissions to 4.42 lbs/hr. (POC is another term for VOC.) Condition **AQ-24(g)** limits SO_2 emissions to 2.0 lb/hr.[6] Under Condition **AQ-24(h)**, PM_{10} emissions shall not exceed 9 lbs/hr without duct burners and 12.75 lbs/hr with duct burners in operation. (Ex. 23, pp. 32-33.)

BAAQMD's top-down BACT analysis determined there are no other commercially feasible control systems that in practice would further reduce Project emissions.[7] (Ex. 23, pp. 9-12.) The impacts that would occur after implementing BACT are those identified above in Table 15. According to BAAQMD, limiting NO_x emissions to 2.0 ppmvd @ 15% O_2 (one hour average), which has been achieved in practice, is the cost of compliance. (*Id.* at p. 12.)

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[6] The exclusive use of pipeline-quality natural gas, a relatively clean-burning fuel, reduces the formation of PM_{10} and SO_2 emissions. Natural gas contains very little noncombustible gas or solid residues and a small amount of reduced sulfur compounds including mercaptan, thus resulting in relatively low emissions of PM_{10} and SO_2. Applicant anticipates that the natural gas delivered to the TPP would contain no more than 0.33 grains of sulfur per 100 scf. (Ex. 1, Appendix K-4; Ex. 51, p. 4.1-24.)

[7] The alternative SCONOx technology, which does not use ammonia as a reagent, was compared with SCR but SCONOx has not been proven on a large-scale Project such as TPP. According to BAAQMD, use of SCR can achieve the same low NO_x emission levels as those claimed by SCONOx. (Ex. 23, p. 10.)

Continuous emission monitors (CEMs) installed on the CTG/HRSG exhaust stacks will monitor adherence to required emission limits for NO_x, CO, and oxygen concentrations. The CEM system will generate reports of emissions data and send alarm signals to the plant control room when the level of emissions approaches or exceeds permitted limits. (Ex. 51, p. 4.1-24.) Condition **AQ-31** establishes operating protocol for the CEMs.

The cooling tower will be equipped with a high efficiency drift eliminator to control PM_{10} emissions. Under Condition **AQ-52,** the drift eliminator must control the drift fraction to 0.0005% of circulating water flow.[8] (Ex. 51, p. 4.1-25.) Condition **AQ-C8** requires the Project Owner to monitor daily circulating water flow to the cooling towers.

Emission Offsets. Since the Air District is nonattainment for state and federal ozone standards and the state PM_{10} standard, BAAQMD Regulations 2-2-302 and 2-2-303 require the Project Owner to provide emission reduction credits (ERCs) for new emissions of NO_x, VOC, 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 Staff's Air Quality Table 17.[9] (Ex. 51, p. 4.1-36.)

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[8] Applicant quantified drift emissions on the assumption that only 31.3 percent of total dissolved solids (TDS) in cooling water eventually become airborne PM_{10}. (Ex. 1, p. 5.2-43.) Staff assumed that 100 percent of the TDS would be emitted as PM_{10} to establish worst-case offset requirements. BAAQMD analyzed the Project using the 100 percent estimate and reduced the amount of allowable TDS in cooling tower operations. (Ex. 51, pp. 4.1-24 and 4.1-25.).

[9] The District requires offsets for VOC and NO_x emissions exceeding 50 tpy. Since the project's VOC and NO_x emissions will be greater than 50 tpy, VOC and NO_x emissions must be offset at a ratio of 1.15 to 1.0 pursuant to District Regulation 2-2-302. The Applicant possesses surplus VOC offsets, which can be used to offset NO_x emission increases at a ratio of 1:1 per District Regulation 2-203-2.2. No emission offsets were provided to mitigate SO_2 emissions, which contribute to secondary PM_{10} (sulfate) formation, since TPP's SO_2 emissions do not exceed the threshold 100 tpy for SO_2 set by BAAQMD Regulation 2-2-203. (Ex. 23, pp. 16-17.)

Air Quality Table 17
Offset Liability and BAAQMD ERC Acquisitions

BAAQMD ERC Number, Original Applicant, and Location	NOx (tpy)	PM_{10} (tpy)	SOx (tpy)	VOC (tpy)
#710, Western Spray Painting, Santa Clara				5.14
#718, National Semiconductor, Santa Clara				45.00
#719, Fairchild Advanced Lab, Palo Alto				4.99
#720, C&H Sugar, Crockett	48.96			
#721, C & H Sugar, Crockett		0.09		2.35
#778, Crown, Cork, & Seal, Union City	1.56	0.12		0.09
#798, Crown, Cork, & Seal, Fremont	2.69			0.15
#767, Pacific Lithograph, San Francisco	1.30			5.68
#762, Rexam Beverage Can, San Leandro				38.99
#773, Hunt-Wesson Foods, Hayward	21.00			
#780, Maxxim Medical, Los Gatos	4.96	0.39		2.88
#800, Phoenix Iron Works, Oakland		1.20		
#830, Gaylord Container, Antioch	171.00			
#831, Crown Zellerbach, Antioch		91.00		
Proposed at Altamont Landfill (App. 3421)		98.01 (3)		
Total BAAQMD ERCs Acquired	251.5	190.8	0	105.5
BAAQMD ERCs Required	287.3	190.0(1)	None	69.5
Sufficient for BAAQMD Requirements?	Yes (2)	Yes	Yes	Yes (2)

Source: Ex. 51, p. 4.1-36; Ex. 23, FDOC, Table 8
Notes:
1. BAAQMD does not require the offsetting of emissions from the cooling tower.
2. BAAQMD allows interpollutant trading of VOC ERCs to satisfy NOx requirements. The TPP will rely on trading surplus VOC ERCs to satisfy the BAAQMD NOx ERC requirements.
3. See discussion below regarding status of road paving ERC for the Altamont Landfill. This ERC will be issued by the BAAQMD after road paving is complete.

Applicant proposed to use PM_{10} credits from road paving at the Altamont Landfill and Resource Recovery Facility near Livermore (about six miles northwest of the Project site).[10] On February 10, 2003, BAAQMD tentatively approved a banking

[10] Staff contested Applicant's proposal to use road paving to mitigate Project impacts from combustion-related particulate matter. (Ex. 51, p. 4.1-42.) In a memo to all Air Pollution Control Officers dated June 16, 2000, CARB indicated disapproval of road paving to offset combustion sources since combustion sources emit $PM_{2.5}$ while dust control from road paving reduces PM_{10} particles but only reduces 13-15% of $PM_{2.5}$ emissions. (*Id*. at, § 4.1, Appendix B.) CARB indicated that ERCs generated from road paving should be used only to mitigate like sources. Staff agrees with that view. (*Id*. at p. 4.1-42.) Moreover, Staff believes the seasonal nature of road paving emission reductions at the Landfill would not correlate well with TPP's seasonal impacts. (*Ibid*.) According to BAAQMD, however, road paving is part of the Landfill's new application to upgrade its facilities, which are permitted as a single source. In addition, the

certificate at the Landfill in the amount of 98 tpy of PM_{10}. (Ex. 25.) The ERC has not been banked since the roads have not yet been paved, however, Applicant has committed to pave the roads and create the ERC. (Ex. 51, p. 4.1-36.)

BAAQMD certified that TPP has secured a sufficient number of valid ERCs to offset Project emissions under BAAQMD rules and therefore complies with Public Resources Code section 25523(d)(2). (Ex. 159.) Staff believes that some of the ERC acquisitions may also be used to provide a fraction of Applicant's strategy for CEQA mitigation as described below. (Ex. 51, p. 4.1-37.)

6. CEQA Mitigation

According to Staff, pollutants transported to the San Joaquin Valley indicate that Bay Area and Sacramento regional emissions contribute to 27 percent of peak ozone levels in the northern San Joaquin Valley.[11] Staff asserts that reducing one ton of emissions in the greater Bay Area could provide the benefit of reducing 0.27 ton in the northern San Joaquin Valley. Emission reductions occurring east of the Altamont Pass will be fully effective. (Ex. 51, p. 4.1-39.) The equivalent effectiveness of Applicant's ERCs is shown below in Staff's Air Quality Table 19.

District's offset requirements do not distinguish between PM_{10} and $PM_{2.5}$. Thus, any valid PM_{10} reduction can be used to offset PM_{10} emission increases without considering the particle size emitted. (Ex. 25A; 9/18 RT, pp. 206-209.) We accept BAAQMD's tentative approval of the Landfill ERC with reservations due to the pending $PM_{2.5}$ standard. It is likely the Air District will establish new rules concerning $PM_{2.5}$ emissions after CARB's new $PM_{2.5}$ standard is adopted and attainment status for the Bay Area Air Basin is determined. We direct the parties to provide information on the timeline for implementing the new standard and whether it will ultimately affect use of the Landfill ERC to mitigate TPP emissions. The parties shall also address the option of using the Crown Zellerbach ERC instead of the Landfill ERC as indicated in Condition **AQ-C6**.

[11] Staff relied on analyses prepared by CARB, SJVUAPCD, and Staff's previous review of the East Altamont Energy Center (01-AFC-4). In the East Altamont case, Staff estimated that 70 percent of emissions in the Pittsburg/Antioch area (east of the Carquinez Strait) contribute to ozone and PM_{10} levels in the northern San Joaquin Valley. (Ex. 51, p. 4.1-39.)

Air Quality Table 19
Effectiveness of BAAQMD ERC Acquisitions

BAAQMD ERC Number, Original Applicant, and Location	SJVAPCD-Equivalent Ratio (1)	NOx (tpy)	$PM_{10/2.5}$ (tpy)	SOx (tpy)	VOC (tpy)
#710, Western Spray Painting, Santa Clara	0.27				1.39
#718, National Semiconductor, Santa Clara	0.27				12.15
#719, Fairchild Advanced Lab, Palo Alto	0.27				1.32
#720, C&H Sugar, Crockett	0.70	34.27			
#721, C & H Sugar, Crockett	0.70		0.07		1.65
#778, Crown, Cork, & Seal, Union City	0.27	0.42	0.03		0.02
#798, Crown, Cork, & Seal, Fremont	0.27	0.73			0.04
#767, Pacific Lithograph, San Francisco	0.27	0.35			1.53
#762, Rexam Beverage Can, San Leandro	0.27				10.53
#773, Hunt-Wesson Foods, Hayward	0.27	5.67			
#780, Maxxim Medical, Los Gatos	0.27	1.34	0.11		0.78
#800, Phoenix Iron Works, Oakland	0.27		0.32		
#830, Gaylord Container, Antioch	0.70	119.70			
#831, Crown Zellerbach, Antioch	0.70		63.7		
Proposed at Altamont Landfill	1.00		14.7(2)		
Total Effectiveness of ERCs Acquired		162.5	78.9	0	29.4
CEQA Offset Liability (3)		249.9	190.0	29.5	60.4
Residual Liability		**87.4**	**111.1**	**29.5**	**31.0**
Sufficient for CEQA Requirements?		**No**	**No**	**No**	**No**

Source: Independent staff assessment of Acquired BAAQMD ERCs.
Notes:
1. The equivalent effectiveness of each BAAQMD ERC is reduced depending on it's proximity to the TPP site in the San Joaquin Valley.
2. See discussion regarding status of road paving ERC for the Altamont Landfill. This ERC would provide PM_{10} reductions but only a small fraction would qualify as $PM_{2.5}$. $PM_{2.5}$ fraction of 98.01 tpy ERC is 14.7 tpy.
3. Ex. 51, p. 4.1-27, Air Quality Table 13, except $PM_{2.5}$ fraction of plant emissions is approximately 190 tpy.

The FDOC did not address either the location of the ERCs relative to the Project or the potential impacts of Project emissions transported into the San Joaquin Valley because BAAQMD rules do not require those findings. (Ex. 51, pp. 4.1-39 and 4.1-40; 9/18/03 RT, pp. 213-216.) BAAQMD's representative testified that compliance with the District's offset regulations pertains to the no-net-increase program for NSR and is not based on CEQA requirements. (9/18/03 RT, p. 210.)

Staff believes CEQA requires additional mitigation to address residual impacts that the ERCs will not effectively mitigate. (Ex. 51, p. 4.1-40; 9/18/03 RT, p.

237.) We agree. Applicant's Air Quality Mitigation Agreement (AQMA) with SJVUAPCD proposes a mitigation plan for TPP-related impacts in the San Joaquin Valley. The AQMA provides that Applicant will pay $957,751 (AQMA fee) for air quality benefit programs administered by SJVUAPCD in the northern San Joaquin Valley within or near the City of Tracy. (Ex. 22.) The District will use the AQMA fee for bus retrofitting and/or replacement, lawnmower replacement, or replacement of unspecified internal combustion engines. (*Ibid*.) However, the quantity, schedule, and permanence of emission reductions are not specified. (Ex. 51, pp. 4.1-37 and 4.1-41.)

The amount of the AQMA fee was based on SJVUAPCD's estimates of residual emissions not effectively reduced by BAAQMD offsets and transported to San Joaquin Valley by seasonal wind patterns. SJVUAPCD developed a methodology to determine the value of BAAQMD offsets in the San Joaquin Valley as follows. (Ex. 22, pp. 6-7.)

- ERCs on the BAAQMD side of Altamont Pass are given a value of 27%. *See* Table 19 above.
- ERCs on the San Joaquin side of Altamont Pass are considered according to wind rose factors during the nonattainment quarters of the year, i.e., November through April (Q1/Q4). *See* Table 19 above.

The mitigation balance was calculated by estimating the project's emissions migration into San Joaquin Valley during nonattainment periods and subtracting the calculated BAAQMD ERC benefit to the San Joaquin Valley. After determining a net mitigation balance of 63.9 (63.85007) tpy for VOCs and NO_x, SJVUAPCD assigned a monetary value of $15,000 per ton resulting in the AQMA fee of $957,751 (63.9 tpy @ $15,000 per ton). (Ex. 47, p. 8; Ex. 22, p. 6.)

Determination of Net Mitigation Balance

Pollutant	Emissions into SJV during nonattainment quarters, tpy	SJV Benefit from BAAQMD ERCs, tpy	SJV Mitigation Balance, tpy
NO_x	129.01	67.9	61.1
VOC	31.21	28.5	2.7
PM_{10}	64.9	129.8	0.0
TOTAL			63.9

Source: Ex. 22, p. 7, Table 3.

Applicant provided examples of potential air quality benefits associated with payment of the AQMA fee such as electrification of diesel-fired agricultural pump engines, wood stove replacements, or participation in SJVAPCD's established "Heavy-Duty Engine Incentive Program" but the actual benefits have not been quantified. Since engine replacement is specified in the AQMA, Staff believes this is a viable strategy for use of the fee but the reductions must apply for the life of the project, i.e., the reductions must be permanent. (Ex. 51, p. 4.1-37 and 4.1-38; 9/18/03 RT, p. 253:23-24.) SJVUAPCD's witness testified that replacement of heavy-duty engines covers a broad range of devices, including stationary pumps with a life of 20-30 years as well as trucks or tractors that have a shorter useful lifespan. These options will be evaluated by the Air District to ensure the reductions are permanent since existing older engines will be replaced by new, cleaner engines resulting in real-time emission reductions. (9/18/03 RT, p. 222-223.).

Since SJVUAPCD's allocation of the fee will be discretionary, Staff is concerned that the environmental consequences of the programs funded by the fee cannot be determined. Staff argues that the Commission should not rely on a plan of unknown efficacy in concluding that significant impacts will be mitigated. (Ex. 51, pp. 4.1-37 and 4.1-41.) According to Staff, mitigation measures should include realistic performance standards to ensure the proposed mitigation addresses the project's effects, including:

- a clear explanation of the plan's objectives (e.g., an accounting of emission reductions provided);

- a description of specific steps designed to provide necessary reductions;
- how implementation will occur;
- who is responsible for implementation;
- where implementation will occur; and
- the timetable for implementation.

Staff agreed the AQMA could be the basis of a mitigation plan for transport impacts but recommended that more specific mitigation measures be required to quantify effective air quality benefits. Additionally, Staff argued, the AQMA assumes that the benefit from BAAQMD ERCs occurs year-round in the San Joaquin Valley but only considers TPP impacts during nonattainment periods. Staff therefore contends the ERC benefits are over-represented. (Ex. 54, p. 3.)

Staff believes seasonal targets are necessary because air quality impacts in San Joaquin Valley are seasonal by nature: nonattainment for ozone is more prevalent in the summer months and more prevalent for PM_{10} (and $PM_{2.5}$) during winter months. According to Staff, seasonal targets guarantee that the impacts are mitigated when they occur. (Ex. 54, pp. 6-7; Ex. 51, pp. 4.1-12, 4.1-15, 4.1-17.) Staff provided an updated analysis based on seasonal impacts:

Residual Impact to SJV, Updated by Staff

Pollutant	Seasonal impact to SJV, tpy	SJV Benefit from BAAQMD ERCs, tpy	SJV Mitigation Balance, tpy
NO_x	129.1	45.3	83.8
VOC	31.2	19.0	12.3
PM_{10}	64.9	45.0	19.9
SO_x	--	--	--
TOTAL			116.0
Mitigation Fee	15,000/ton x 116 =	$1,740,602	

Source: Ex. 54, AQ Attachment, p. 3.

Staff also provided an alternative method for calculating residual impacts during nonattainment months.

Residual Impact to SJV During Nonattainment Months

	Fraction of Seasonal Impact	Q1 Residual Impact	Q2 Residual Impact	Q3 Residual Impact	Q4 Residual Impact
	nonattainment	tpy	Tpy	Tpy	tpy
NO_x	0.583	14.6	7.3	21.9	7.3
VOC	0.333	0.0	2.6	7.8	2.5
$PM_{10/2.5}$	0.417	18.5	0.0	0.0	27
SO_x	0.250	4.9	0.0	0.0	8
			Air Pollutants	(tpy)	115.0

Source: Ex. 54, AQ Attachment, p. 4.

Since in Staff's view, the AQMA includes no goal to mitigate any specific pollutant in any quantity, the amount of the AQMA fee was calculated on the assumption that no further reductions of PM_{10} are required and only NO_x and VOC emissions are included in the mitigation balance. (Ex. 54, pp. 4, 6-7.) Staff therefore proposed Condition **AQ-C7**, which identifies the pollutants and specific residual quantities that must be reduced over the life of the project. Staff's calculations, based on seasonal targets during nonattainment months, estimated residual impacts at 115 tpy. (9/18/03 RT, pp. 251-252.)

Staff initially calculated pollution reduction levels on a seasonal basis with quarterly targets; however, after consultation with Applicant, the proposed Condition **AQ-C7** was simplified to semiannual targets, which will satisfy the basic goal of providing reductions during the times of the year when they are most valuable. As proposed, **AQ-C7** requires PM_{10} and SO_x reductions in the winter and a majority of NO_x and VOC reductions in the summer. (Ex. 124, p. 5.)

Additional flexibility is also incorporated into **AQ-C7**. SJVUAPCD's use of the mitigation funding to implement a program for engine replacement or other emission reduction programs will not occur simultaneously with the TPP's online schedule. Since the timing for the reductions remains speculative, Applicant agreed to curtail operations within the prescribed limits of **AQ-C7** until emission

reductions are realized and mitigation can be achieved under full-load operating conditions.[12] (Ex. 124, p. 5.)

Based on Applicant's request, Staff recommended limited inter-seasonal trading to satisfy NO_x mitigation targets in the winter. Surplus emission reductions obtained during ozone nonattainment quarters (Q2 and Q3) may be exchanged to satisfy the target in winter quarters (Q1 and Q4). This exchange is consistent with SJVAPCD Rule 2201 Section 4.13.8 and SJVUAPCD planning strategy for achieving ozone attainment. Under this option, emission reductions obtained for NO_x or SO_x may be traded to satisfy the PM_{10} target, and surplus reductions of NO_x may be traded to satisfy the VOC or SO_x targets. In the context of **AQ-C7**, interpollutant reductions shall be confined to one season and not counted twice. (Ex. 124, p. 6.)

Interpollutant trading ratios are highly site-specific, depending on ambient chemistry and the local source inventory. Based on SJVUAPCD analyses for previous power plant projects and consistent with SJVUAPCD Rules, Staff included specific interpollutant ratios in **AQ-C7** and a reporting mechanism to demonstrate that sufficient reductions are achieved.

Applicant argued that Staff's discounting the value of the Altamont Landfill ERC road paving was too conservative since it was based on a generic standard established in U. S. EPA AP-42 (Compilation of Air Pollutant Emission Factors), which credits only 15% of the expected PM_{10} reductions as $PM_{2.5}$. Applicant's

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[12] Applicant requested that the proposal to curtail operations be delayed for five years. (Applicant's Opening Brief, Nov. 3, 2003, p. 11; Applicant's Repy Brief, Dec. 1, 2003, p. 4.) Applicant asserted that TPP emissions would not result in long-term air quality impacts to the San Joaquin Valley during the first five years of operation due to BAAQMD ERCs. We reject this argument as specious because it disregards TPP's CEQA liability. Delaying implementation of the curtailment plan would allow TPP to operate without full mitigation for five years in violation of CEQA.

witness conducted a soil sampling at the Landfill and his analysis demonstrated that a factor of 57.8% consists of $PM_{2.5}$. He asserted that the smaller $PM_{2.5}$ particulate would have a greater tendency to become entrained in the atmosphere than PM_{10} and a corresponding ambient air sample would have a larger component of $PM_{2.5}$ than a soil sample and a higher $PM_{2.5}/PM_{10}$ fraction. Thus, the effectiveness of ERCs for PM_{10} shown in Table 19, above, should be adjusted accordingly and a reduced PM_{10} mitigation target should be included in **AQ-C7**. (Ex. 163; Ex. 47, pp. 11-14.)

Staff contended that Applicant's use of soil data was inconsistent with established standards. EPA protocol does not include site-specific $PM_{2.5}/PM_{10}$ ratios. The 15% factor is a constant factor based on emission tests at many sites throughout the county, which include the variables of seasonal silt content and moisture levels. Staff further noted that BAAQMD followed EPA Guidelines in determining the PM_{10} value of the road paving offset. (9/18/03 RT, pp. 256-257, 337-339; Staff's Reply Brief, Dec. 1, 2003, pp. 5-6; *see also* Ex. 127.) We find Staff's argument is supported by the record and provides a reasonable approach. Staff's $PM_{2.5}$ estimate reflects both EPA Guidelines and BAAQMD's ERC review and it shall be included in **AQ-C7**.

We believe that Staff's analysis of the project's residual impacts represents the appropriate CEQA analysis and that Staff's proposed Condition **AQ-C7** would adequately mitigate the residual impacts. We therefore adopt and amend the version of Staff's proposed Condition **AQ-C7** submitted on January 12, 2004.[13] (Ex. 126.) Under **AQ-C7**, Applicant has the option to provide additional offsets upfront to mitigate pollution transport impacts or to emit lower levels of pollutants until emission target reductions are achieved.

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[13] Since the AQMA is an agreement between the Applicant and the SJVUAPCD, implementation of the terms of that agreement remains with the signatories.

In addition to the AQMA fee provided to SJVUAPCD, Applicant offered $600,000 to the City of Tracy to fund air quality enhancement programs.[14] (Ex. 162.) Applicant indicated it would accept a Condition of Certification incorporating the payment of $600,000 for air quality improvements in Tracy. (9/18/03 RT, p. 170.) In public comment, Mrs. Susan Sarvey proposed a Condition to dedicate the funds to a clean school bus program for the Tracy Unified School District. (*Id*. at pp. 321-322.) Both SJVUAPCD and Staff support this proposal. (*Id*. at pp. 224 and 341.) We have added Condition **AQ-C9,** based on Applicant's consent, to require the payment of $600,000 to the City of Tracy for air quality improvements in Tracy via a clean school bus program.

7. Intervenors

Intervenor Robert Sarvey objects to Staff's seasonal approach to mitigating the project's residual impacts. Mr. Sarvey argues that Staff's strategy relies on an incorrect evaluation of the effectiveness of the BAAQMD ERCs and an incomplete understanding of the number of months that air quality violations in the San Joaquin Valley are occurring. Mr. Sarvey challenges Table 19 in which Staff allocated a 27% effectiveness ratio to ERC's are located east of the Altamont Pass and a 70% effectiveness to ERC's in Antioch and Crockett. (Ex. 108, pp. 2-4.)

According to Mr. Sarvey, there is no technical justification for the 70% ERC effectiveness factor for Antioch and Crockett. Since Mr. Sarvey believes the 70% transport factor overstates the effectiveness of the BAAQMD ERC's, he argues

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[14] Using Staff's calculation for residual emissions (115 tpy) multiplied by the value of emissions offsets ($15,000) established by SJVUAPCD, the total amount would be $1,725,000, which is

that the Project will not provide sufficient NO_x and PM_{10} offsets. Mr. Sarvey asserts that a 27% factor should apply and, therefore, TPP's residual liability should be increased by 94.61 tpy of NO_x, 29.15 tpy of PM_{10}, and 1.01 tpy of VOCs. This would in turn increase the TPP's residual liability. In addition, Mr. Sarvey argues that Staff underestimated the severity of ozone and PM_{10} violations in the San Joaquin Valley and failed to provide seasonal mitigation for ozone precursors in the month of October.[15] Mr. Sarvey submitted data from CARB to show that violations of the state PM_{10} standard occur every month of the year, not just the first and fourth quarters. (Ex. 108, pp.4-8.)

Mr. Sarvey also claims that no mitigation is provided for SO_2 emissions even though SO_2 is a precursor pollutant for secondary PM_{10}. In addition, he argues that since ammonia slip will result in formation of secondary PM_{10} and $PM_{2.5}$, the project's emission limit of 186 tpy of ammonia is not sufficient since the San Joaquin Valley is in serious nonattainment for PM_{10} and is an ammonia rich area. Mr. Sarvey noted that the ammonia emissions of the other two power plants (EAEC and Tracy Peaker) in the area were also not mitigated. According to Mr. Sarvey, the combined ammonia emissions from these plants will increase ammonia concentration in the Project area and TPP will contribute to a cumulative impact for secondary PM_{10} and $PM_{2.5}$. (Ex. 108, pp. 111-112.)

Staff developed its own estimate of residual impacts and did not rely on those used in the AQMA; however, the 27% factor used by SJVUAPCD was the same factor used by Staff based on CARB analyses. (9/18/03 RT, pp. 243, 261.) Staff attempted to capture an equitable value of the ERCs for nonattainment seasons and compare the ERC value to the project's impact during nonattainment

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about $200,000 more than the sum of the AQMA fee ($957,951) plus TPP's $600,000 payment to the City of Tracy.

[15] Condition AQ-C7 includes October for PM_{10} emission reduction limits. (*See also* 9/18/03 RT, pp. 361-364.)

seasons. Staff assigned a 70% value to the PM_{10} credits from Antioch and Crockett using the analysis from the EAEC case.[16] (Ex. 51, p. 4.1-39.) We accept Staff's analysis as a reasonable and independent basis for Staff's recommendation. Mr. Sarvey's challenge to that analysis was previously rejected by the Commission in the EAEC proceeding.

Staff adjusted the 100% value for PM_{10} given by the SJVUAPCD to the adjacent Landfill road paving ERC to account for potentially transported $PM_{2.5}$ emissions. (9/18/03 RT, pp. 244-249.) Thus, the PM_{10} emission reduction requirements identified in Condition **AQ-C7** represent additional PM_{10} liability for the TPP beyond that described in the AQMA, which does not include mitigation for PM_{10}. (*Id*. at pp. 361-364.) In addition, the version of **AQ-C7** adopted by the Commission includes the option of interpollutant emission reductions of SO_2 for PM_{10}, which addresses the concern raised by Mr. Sarvey regarding SO emissions.

The record does not directly address Mr. Sarvey's concerns regarding the contribution of ammonia slip to formation of secondary particulate matter. **AQ-C7** requires mitigation for residual PM_{10} emissions, which were calculated on a seasonal basis and, we presume, included the contribution of ammonia to formation of secondary particulates. In the absence of specific evidence on this issue, however, the parties are directed to respond to Mr. Sarvey's issues concerning ammonia slip.

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[16] In the EAEC case, Staff observed that the average ozone concentration in the Tracy area is 15% higher than that in Livermore and 30% higher than that in the Pittsburg/Antioch area. Staff determined that the ambient air experiences a net increase in emissions as it moves from Pittsburg/Antioch to Tracy. Thus the emissions generated between Pittsburg/Antioch and Tracy contribute approximately 30% to the area's ozone levels, and the emissions from Pittsburg/Antioch contribute about 70% of the area's ozone levels. Staff's 70% effectiveness value reflects this analysis. (*See,* Commission Decision, East Altamont Energy Center, pp. 105-106; Publication No. P800-03-012, Aug. 2003, 01-AFC-4.)

8. 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. Foreseeable projects include those currently under construction or in the process of being approved by a local air district or municipality.[17]

Applicant and staff identified potential new sources within a six-mile radius of the Project in consultation with BAAQMD, SJVUAPCD, the City of Tracy, and San Joaquin County. The analysis includes the EAEC, the Tracy Peaker Project, and three large land use developments (Tracy Hills, South Schulte, and Mountain House) that involve numerous future area sources (e.g., natural gas combustion for residential hot water heaters). Applicant also included emissions from the Tracy Biomass and Owens Brockway facilities although these sources presently exist and would be represented by existing background conditions. (Ex. 51, p. 4.1-49.)

The maximum modeled cumulative impacts are presented below in Staff's Air Quality Table 23. The total impact is conservatively estimated by the maximum modeled impact plus the maximum existing background pollutant levels. Mobile source emissions, which are pervasive in the new housing developments near Tracy, are included as current background conditions. The impacts caused by the TPP were modeled in conjunction with the cumulative impacts connected with the EAEC, the Tracy Peaker Project, the three large developments (Tracy Hills, South Schulte, and Mountain House), and the existing Tracy Biomass and Owens Brockway facilities. The impacts for Tesla shown in this analysis differ

[17] Projects that have not yet entered the approval process are not considered foreseeable because detailed information needed to conduct this analysis would not be available. Sources that are presently operational are included in the background concentrations.

slightly from those in Table 15 because emergency (non-routine) sources were not included in the cumulative model runs.

Air Quality Table 23
Ambient Air Quality Impacts from Cumulative Sources

Pollutant	Averaging Period	Cumulative Impact	Back-ground	Total Cumulative Impact	Limiting Standard	Type of Standard	Percent of Standard
PM_{10}	24-hour	6.1	**150**	**156**	50	CAAQS	**312**
	Annual	0.7	**36.4**	**37**	30	CAAQS	**124**
NO_2	1-hour	140.2	149	289	470	CAAQS	62
	Annual	10.4	28	39	100	NAAQS	39
CO	1-hour	1,348	13,054	14,402	23,000	CAAQS	63
	8-hour	241.3	8,405	8,646	10,000	NAAQS	86
SO_2	1-hour	68.3	76	144	655	CAAQS	22
	3-hour	13.1	76	89	1,300	NAAQS	7
	24-hour	0.64	24.6	25	105	CAAQS	24
	Annual	0.04	5.2	5	80	NAAQS	7

Source: Ex. 51, p. 4.1-50; Ex. 1, § 5.2.4.8; Updated Modeling (URS 2001a).

Staff reviewed the cumulative concentrations of PM_{10} caused by these sources at residences close to the facilities. Peak impacts (6.1 µg/m^3) are primarily caused by the TPP cooling tower. At the nearest residence along Midway Road, south of the TPP site, the maximum cumulative 24-hour PM_{10} concentration would be 1.9 µg/m^3. At the residence 0.5 miles southeast of the EAEC, the cumulative daily PM_{10} concentration would be 1.9 µg/m^3. At homes approximately 0.5 to 0.7 miles west and east of the Tracy Peaker Project (and near the existing Tracy Biomass and Owens Brockway facilities), the cumulative daily PM_{10} concentrations would be 1.6 and 2.5 µg/m^3, respectively. (Ex. 51, p. 4.1-50.)

According to Staff, the maximum daily PM_{10} impacts in San Joaquin County would be approximately 4.3 µg/m^3. These impacts would occur in the elevated terrain approximately 3.5 miles (5.5 kilometers) southeast of the site. (Ex. 51, p. 4.1-50.) We find that PM_{10} cumulative impacts in San Joaquin Valley exceed those identified in the analysis of TPP's direct impacts (i.e., 2.6 µg/m^3 at the

same location). We also note that Staff did not provide a recommendation on cumulative impacts.[18] Consequently, we conclude the record is incomplete and we direct the parties to submit additional evidence on cumulative impacts. The parties shall specifically address the effects of cooling tower PM_{10} emissions since Staff has not proposed a Condition to limit cooling tower PM_{10} emissions (**AQ-52** limits the amount of TDS in cooling water). If the cumulative impacts are significant, the parties shall identify mitigation measures that would reduce those impacts to insignificant levels.

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 TPP, there is no evidence of *disproportionate* air quality impacts on minority and/or low income populations. (Ex. 51, p. 4.1-50.) BAAQMD-required offsets and BACT measures ensure the Project will be fully mitigated in the Bay Area Air Basin. Implementation of local real-time measures required by Condition **AQ-C7** ensures that residual ozone and PM_{10} impacts in the northern San Joaquin Valley will be fully mitigated. We therefore find there are no environmental justice issues that would trigger additional analysis.

FINDINGS AND CONCLUSIONS

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

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[18] *See* Ex. 54, p. 1 (Staff's Rebuttal Testimony filed September 5, 2003) re: Staff's view on the appropriate significance threshold for PM_{10} violations in the context of a CEQA analysis. The Committee cannot determine whether Staff intended to apply this approach to its cumulative impacts analysis.

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 Tesla Power Project (TPP) will result in emissions of criteria pollutants and their precursors.

3. The TPP is located in eastern Alameda County within the jurisdiction of the Bay Area Air Quality Management District (BAAQMD).

4. BAAQMD is a nonattainment area for state and federal 1-hour ozone standards, and the state PM_{10} standard; unclassified for the federal PM_{10} standard; and attainment for state and federal NO_2, CO, and SO_2 standards. The District's attainment status for state and federal $PM_{2.5}$ standards has not yet been designated.

5. The TPP site is near the border with San Joaquin County where project-related construction activities will occur and a percentage of Project emissions will be transported.

6. The San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD) intervened in this certification proceeding since its rules apply to construction activities in San Joaquin County and mitigation measures are necessary to reduce transport impacts from air pollutants emitted by the TPP.

7. SJVUAPCD is a severe nonattainment area for state and federal 1-hour ozone standards; serious nonattainmant for the federal PM_{10} standard; nonattainment for the state PM_{10} standard; and attainment for state and federal NO_2, CO, and SO_2 standards. The SJVUAPCD's attainment status for state and federal $PM_{2.5}$ standards has not yet been designated.

8. Potential impacts from power plant 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.

9. The TPP has the potential to exacerbate existing violations of the state 24-hour and annual PM_{10} standards resulting in significant direct impacts to air quality in the Project vicinity.

10. 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, $PM_{2.5}$).

11. The Project Owner will employ the best available control technology (BACT) to limit pollutant emissions by installing dry low NO_x combustors, SCR technology, oxidation catalysts, and a cooling tower drift eliminator.

12. Project NO_x emissions are limited to 2.0 parts per million volume dry (ppmvd) corrected to 15% O_2 over a one-hour average, or a three-hour average when duct firing and during transient hours.

13. Project CO emissions are limited to 4.0 ppmvd corrected to 15% O_2 over a three-hour rolling average.

14. Project VOC emissions are limited to 4.2 lbs/hr.

15. Project combustion turbine/duct burner PM_{10} emissions are limited to 12.75 lbs/hr with duct firing and 9.0 lbs/hr without duct firing.

16. Project ammonia slip emissions resulting from use of the SCR are limited to 5 ppmvd corrected to 15% O_2.

17. Project equipment shall be fired only by natural gas with a sulfur content limited to 0.33 grains per 100 dry standard cubic feet.

18. Emissions of SO_2 shall not exceed 2.0 lbs/hr.

19. The cooling tower shall be equipped with a high-efficiency drift eliminator with a maximum guaranteed drift rate of 0.0005% and the maximum total dissolved solids (TDS) in cooling tower water shall not exceed 1,878 ppmw (mg/l).

20. BAAQMD issued a Final Determination of Compliance that finds the TPP will comply with all applicable District rules for Project operation.

21. The Project Owner will obtain sufficient Emission Reduction Credits (ERCs or offsets) to offset pollutant emissions and reduce the project's air quality impacts to insignificant levels.

22. BAAQMD certified that the project's offset package complies with Public Resources Code, Section 25523(d)(2).

23. Staff disputes the use of road paving at the Altamont Landfill as an ERC to mitigate particulate emissions from TPP combustion sources. The parties shall provide additional information on the status of the $PM_{2.5}$ standard and the implications of using road paving offsets to mitigate combustion emissions.

24. In addition to compliance with applicable BAAQMD rules, the Project is subject to CEQA review, which indicates that residual Project emissions of

NO_x, VOC, SO_x, and particulate matter will be transported to the northern San Joaquin Valley.

25. Applicant and SJVUAPCD entered into an Air Quality Mitigation Agreement (AQMA) to address Project impacts in the northern San Joaquin Valley, specifically near the City of Tracy.

26. The AQMA obligates the Project Owner to pay $957,751 to the SJVUAPCD for air quality benefit programs such as bus retrofitting and/or replacement and/or replacement of internal combustion engines.

27. While the AQMA was based on estimated residual emissions not effectively reduced by BAAQMD offsets, it does not specify the quantity, schedule, or permanence of emission reductions targeted by the agreement.

28. Staff's CEQA analysis indicates that residual emissions exceed those identified in the AQMA.

29. Applicant agrees that Condition of Certification **AQ-C7**, which incorporates Staff's CEQA analysis for residual emissions, represents the appropriate method for calculating emission reduction targets.

30. The Project Owner may provide additional offsets upfront to mitigate transport impacts due to residual emissions or emit lower levels of pollutants by curtailing operations until emission reduction targets are achieved.

31. The AQMA may be used to partially mitigate residual emissions described in Condition **AQ-C7**.

32. The Project Owner will pay $600,000 to the City of Tracy for the Tracy Unified School District's clean school bus program, which can be included in the air quality improvement program described in Condition **AQ-C7**.

33. The record does not address Mr. Sarvey's concerns regarding the contribution of ammonia slip to formation of secondary particulate matter. The parties shall provide an analysis of potential impacts due to ammonia slip and if impacts are significant, recommend appropriate mitigation.

34. The record indicates the Project could contribute to cumulative impacts due to unmitigated cooling tower PM_{10} emissions. The parties shall address potential significant cumulative PM_{10} impacts resulting from TPP operation and, if appropriate, draft a Condition to establish limits on cooling tower PM_{10} emissions.

35. Given the record of evidence, we find the TPP could potentially result in $PM_{2.5}$ impacts if road paving ERCs are allowed to offset combustion

sources; that ammonia slip could potentially contribute to secondary formation of PM_{10}, which has not been mitigated; and that unmitigated cooling tower PM_{10} emissions could result in cumulative significant adverse impacts to air quality.

Therefore, the Committee cannot conclude at this time that the Tesla Power Project will conform with all applicable LORS relating to air quality because the record is incomplete.

CONDITIONS OF CERTIFICATION

AQ-C1 The Project Owner shall designate and retain an on-site air quality construction mitigation manager (AQCMM) who shall be responsible for maintaining compliance with conditions **AQ-C2** through **AQ-C3** for the entire Project site and linear facility construction. The on-site AQCMM may delegate responsibilities identified in Conditions **AQ-C1** through **AQ-C3** to one or more air quality construction mitigation monitors. The on-site AQCMM shall have full access to areas of construction of the Project site and linear facilities, and shall have the authority to appeal to the CPM to have the CPM stop any or all construction activities as warranted by applicable construction mitigation conditions. The AQCMM may have other responsibilities in addition to those described in this condition. The on-site 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, contact information and qualifications for the on-site AQCMM and air quality construction mitigation monitors. The AQCMM and all delegated monitors must be approved by the CPM before the start of ground disturbance.

AQ-C2 The Project Owner shall provide a construction mitigation plan, for approval, which shows the steps that will be taken, and reporting requirements, to ensure compliance with condition **AQ-C3**.

Verification: At least 60 days prior to start any ground disturbance, the Project Owner shall submit to the CPM, for approval, the construction mitigation plan. The CPM will notify the Project Owner of any necessary modifications to the plan within 30 days from the date of receipt.

AQ-C3 The on-site 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 preventing fugitive dust plumes from leaving the Project site and controlling other construction-related emissions:

a) All unpaved roads and disturbed areas in the Project and linear construction sites shall be watered every four hours during construction activities, or as necessary to prevent fugitive dust plumes from leaving the Project site. 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 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) The main access and egress routes for construction employees and delivery trucks to and from the main TPP construction site shall be paved prior to the initiation of construction. All internal power plant roads shall be paved as early as possible. Construction employees and delivery drivers shall use paved roads to access and leave the main construction site. Until paved, all unpaved exits from the construction site shall be graveled or treated with dust soil stabilization compounds to prevent track-out to public roadways.

g) All construction vehicles shall enter the construction site through the paved 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, to prevent run-off to the roadways.

i) All paved roads within the construction site shall be swept as necessary to prevent the accumulation of dirt and debris.

j) At least the first 500 feet of any public roadway exiting from the construction site shall be swept as necessary to prevent the accumulation of dirt and debris.

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 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. Bedliners shall be used in bottom-dumping haul vehicles.

m) Wind erosion control techniques, such as windbreaks, water, chemical dust suppressants and 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.

n) 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.

o) All large construction diesel engines that have a rating of 50 hp or more, shall meet, at a minimum, the Tier 1 ARB/ U.S. EPA certified standards for off-road equipment, unless certified by the on-site AQCMM that a certified engine is not available for a particular item of equipment.

p) In the event a Tier 1 ARB/U.S. EPA certified engine is not available for an off-road construction diesel engine larger than 50 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 or that the equipment is on-site for ten (10) days or less.

q) All diesel-fueled engines used in the construction of the facility shall have clearly visible tags issued by the on-site AQCMM that shows the engine meets the conditions **AQ-C3(o)** and **AQ-C3(p)** above.

r) All heavy earthmoving equipment and heavy duty construction related trucks shall be properly maintained and the engines tuned to the engine manufacturer's specifications.

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

The on-site AQCMM shall monitor the construction activities for visible dust plumes. Observations of visible dust plumes, especially those beyond the Project fence line, indicate that mitigation measures are not resulting in effective mitigation. The AQCMM shall implement the following procedures for additional mitigation measures in the event that visible dust plumes are observed:

t) The AQCMM shall direct more aggressive application of the existing mitigation methods within 15 minutes of making such a determination.

u) The AQCMM shall direct implementation of additional methods of dust suppression if step (t) specified above, fails to result in adequate mitigation within 30 minutes of the original determination.

v) The AQCMM shall direct a temporary shutdown of the activity causing the emissions if step (u) specified above fails to result in adequate mitigation within one hour of the original determination. The activity shall not restart until one full hour after the shutdown. The owner/operator may appeal to the CPM any directive from the AQCMM to shutdown 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: In the MCR, the Project Owner shall provide the CPM a copy of the construction mitigation report and copies of diesel fuel purchase records, which clearly demonstrate compliance with condition **AQ-C3**.

AQ-C4 Deleted

AQ-C5 The Project Owner shall submit to the CPM for review and approval any modification proposed by either the Project Owner or issuing agency to any Project air permit.

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 five days of receipt and obtain CPM approval prior to implementation. Section 1769 of the Commission's regulations shall apply.

AQ-C6 The Project Owner shall demonstrate that the following listed emission reduction credits will be surrendered to meet the requirements of **AQ-46** and **AQ-47**. If additional or alternative ERCs are submitted, the Project Owner shall submit an updated list including the additional or alternative ERCs to the CPM. The Project Owner shall obtain CPM approval for any substitutions, modifications, or additions to credits listed. 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) 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. The CPM may also consult the U.S. EPA to determine compliance of credits.

BAAQMD ERC Number, Original Applicant, and Location	**NOx (tpy)**	**PM_{10} (tpy)**	**VOC (tpy)**
#710, Western Spray Painting, Santa Clara			5.14
#718, National Semiconductor, Santa Clara			45.00
#719, Fairchild Advanced Lab, Palo Alto			4.99
#720, C&H Sugar, Crockett	48.96		
#721, C & H Sugar, Crockett		0.09	2.35
#778, Crown, Cork, & Seal, Union City	1.56	0.12	0.09
#798, Crown, Cork, & Seal, Fremont	2.69		0.15
#767, Pacific Lithograph, San Francisco	1.30		5.86
#762, Rexam Beverage Can, San Leandro			38.99
#773, Hunt-Wesson Foods, Hayward	21.00		
#780, Maxxim Medical, Los Gatos	4.96	0.39	2.88
#800, Phoenix Iron Works, Oakland		1.20	
#830, Gaylord Container, Antioch	171.00		
#831, Crown Zellerbach, Antioch and/or proposed at Altamont Landfill		189.00	

Verification: Within 10 days of the demonstration required by Condition **AQ-46**, the Project Owner/operator shall submit to the CPM records showing that the project's emission reduction credit requirements have been met. If the CPM approves a substitution or modification to the list of ERCs, the CPM shall provide a written statement of approval to the Project Owner and file it with the Commission docket. Section 1769 of the Commission's regulations shall apply. The CPM shall maintain an updated list of approved ERCs for the project.

AQ-C7 The Project Owner shall achieve permanent emission reduction targets according to the following: The Project Owner shall limit facility emissions equivalent to the amounts shown in Table AQ-C7A. The seasonal emission limits in Table AQ-C7A shall be increased, subject to CPM approval, to reflect all emission reductions obtained under this Condition by the owner/operator on a ton for ton basis, up to a maximum increase in the amount of the targets shown in Table AQ-C7B. Seasonal emission limits shall be updated to reflect the Project Owner/operator's progress in securing emission reductions. Notwithstanding the above, the Project Owner/operator shall also comply with all emission rate limits set forth in Conditions **AQ-1** to **AQ-62**.

TABLE AQ-C7A
SEASONAL EMISSION LIMITS[1]

Seasonal Period	*Quarter*	*NO_x (ton)*	*PM10 (ton)*	*SO_x (ton)*	*VOC (ton)*
October through March	Q1&Q4	103.1	48.7	7.4	--
April through September	Q2&Q3	95.8	--	--	19.9

[1]The seasonal emission limits shown above are base amounts assuming no emission reductions are obtained by the owner/operator. Seasonal emission limits shall be increased by the value of the emission reductions actually achieved for each seasonal period. (For example, if 10 ton of NO_x reduction is obtained in Q1/Q4, the October through March seasonal emission limit would be increased as follows: 103.1 ton +10 ton = 113.1 ton).
[2]-- denotes no seasonal limit for the period

TABLE AQ-C7B
EMISSION REDUCTION TARGETS

Seasonal Period	*Quarter*	*NO_x (ton)*	*PM10 (ton)*	*SO_x (ton)*	*VOC (ton)*
October through March	*Q1&Q4*	*21.9*	*46.3*	*7.4*	*--*
April through September	*Q2&Q3*	*29.1*	*--*	*--*	*10.3*

The emissions reductions to be used by the Project Owner/operator to increase the Seasonal Emission Limits set forth in Table AQ-C7A and satisfy the targets in Table AQ-C7B shall be obtained through an emission reduction program administered by the San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD) and/or an air quality improvement program administered by the City of Tracy, as follows.

a) The Project Owner/operator may use the Air Quality Mitigation Agreement with the SJVUAPCD and/or an air quality improvement program between the Project Owner/operator and the City of Tracy, administered by the City of Tracy, as a means to achieve some or all of the emission reductions. The Project Owner/operator shall provide to the CPM for review and approval a copy of an initial plan for allocating the funds or identification of the method for obtaining the emission reduction targets. The Project Owner/operator shall also submit reports for CPM review and approval identifying the emission reductions achieved as of the date each report is filed.

The plan shall include the following information:

- a clear explanation of the plan's objectives (e.g., an accounting of emission reductions provided);
- a description of specific steps designed to provide necessary reductions;
- how implementation will occur;
- who is responsible for implementation;
- where implementation will occur; and
- the timetable for implementation.

b) The Project Owner/operator may acquire and surrender to the SJVUAPCD emission reduction credits to achieve some or all of the emission reductions to increase seasonal emission limits.

c) The Project Owner/operator shall use its best efforts to obtain emission reductions in the northern region of the San Joaquin Valley. If, despite demonstrated best efforts, it is not feasible to obtain the requisite emission reductions within the northern region of the San Joaquin Valley, emission reductions from outside the northern region of the San Joaquin Valley will be permitted, subject to CPM review and approval.

d) NO_x emission reductions obtained from the period April through September (Quarters 2 & 3) may be used to increase NO_x seasonal emission limits during either seasonal period.

e) Interpollutant emission reductions shall be permitted under this Condition at the ratios specified below:

- NO_x reductions for PM10 emissions: 2.2:1
- SO_2 reductions for PM10 emissions: 1.2:1
- NO_x reductions for VOC emissions: 1:1
- NO_x reductions for SO_2 emissions: 2:1

f) No double or multiple counting of interpollutant reductions shall be allowed.

The seasonal emission limits set forth in Table AQ-C7A shall be applicable commencing upon the start of first combustion turbine fire. Once the Project Owner/operator has obtained the full amounts of the emission reduction targets identified in Table AQ-C7B to the satisfaction of the CPM the seasonal emission limits specified above will no longer apply.

Emission reduction credits from years prior to 1990 (pre-1990 credits) shall only be allowed with concurrence from U.S. EPA. The northern

region of the San Joaquin Valley is defined as San Joaquin, Stanislaus, and Merced Counties.

Verification: At least 60 days after the delivery of the first Combustion Turbine Generator (CTG) to the Project site, the Project Owner/operator shall provide evidence to the CPM of having provided ~~the funds identified in the Air Quality Mitigation Agreement to the San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD)~~ sufficient funds to the San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD) to achieve the emission reduction targets along with the initial plan for allocating the funds or identifying alternate emission reductions. After first combustion turbine firing, the Project Owner/operator shall provide the CPM with seasonal semi-annual reports (January 30 and July 30 of each year of operation) documenting compliance with the emission limits of this condition. The semi-annual report shall list the tons of emission reductions obtained in the San Joaquin Valley, the date the reduction occurred, the method used to secure these reductions, the location of emission reductions, and the running total emission reduction credits secured and surrendered, if any. The report shall account for any interseasonal or interpollutant credit applied under **AQ-C7(d)** or **(e)**. Emissions data to verify compliance with each seasonal cap shall be derived from data submitted as required by Condition **AQ-13** or Condition **AQ-40**. Each semi-annual seasonal report shall include an updated determination of applicable facility seasonal emission limits by revising Table AQ-C7A.

AQ-C8 The Project Owner/operator shall determine the daily circulating water flow to the cooling towers using pump data.

Verification: The Project Owner shall submit to the CPM the daily cooling tower recirculating water flow data as part of the Quarterly Air Quality Report required by the verification of condition **AQ-40**.

AQ-C9 The Project Owner/operator shall pay the amount of $600,000 to the City of Tracy to fund air quality enhancement programs, including a clean school bus program or other similar benefit related to vehicles used by the Tracy Unified School District in coordination with the San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD) and in compliance with Condition **AQ-C6**.

Verification: At least 60 days after delivery of the first CTG to the Project site, the Project Owner shall provide evidence to the CPM that the funds have been delivered and that a program has been established in coordination with the SJVUAPCD to ensure the funds are dedicated to a clean school bus program or other similar benefit related to vehicles used by the Tracy Unified School District.

BAAQMD Conditions of Certification

All definitions presented in the Bay Area Air Quality Management District's Final Determination of Compliance for the TPP apply to the following Conditions of Certification.

DEFINITIONS

Clock Hour: Any continuous 60-minute period beginning on the hour

Calendar Day: Any continuous 24-hour period beginning at 12:00 AM or 0000 hours

Year: Any consecutive twelve-month period of time

Heat Input: All heat inputs refer to the heat input at the higher heating value (HHV) of the fuel, in BTU/scf

Rolling 3-hour period: Any consecutive three-hour period, not including start-up or shutdown periods

Firing Hours: Period of time during which fuel is flowing to a unit, measured in minutes

MM BTU: million British thermal units

Gas Turbine Start-up Mode: The lesser of the first 300 minutes of continuous fuel flow to the Gas Turbine after fuel flow is initiated or the period of time from Gas Turbine fuel flow initiation until the Gas Turbine achieves two consecutive CEM data points in compliance with the emission concentration limits of condition **AQ-24(b)** and **AQ-24(d)**

Gas Turbine Shutdown Mode: The lesser of the 30 minute period immediately prior to the termination of fuel flow to the Gas Turbine or the period of time from non-compliance with any requirement listed in condition **AQ-24(b)** through **24(d)** until termination of fuel flow to the Gas Turbine

Gas Turbine Cold Start-up: A gas turbine start-up that occurs more than 48 hours after a gas turbine shutdown

Gas Turbine Hot Start-up: A gas turbine start-up that occurs within 8 hours of a gas turbine shutdown

Gas Turbine Warm Start-up: A gas turbine start-up that occurs between 8 hours and 48 hours of a gas turbine shutdown

Specified PAHs: The polycyclic aromatic hydrocarbons listed below shall be considered to be Specified PAHs for these permit conditions. Any emission limits for Specified PAHs refer to the sum of the emissions for all six of the following compounds:

Benzo[a]anthracene

Benzo[b]fluoranthene

Benzo[k]fluoranthene

	Benzo[a]pyrene
	Dibenzo[a,h]anthracene
	Indeno[1,2,3-cd]pyrene
Corrected Concentration:	The concentration of any pollutant (generally NOx, CO, or NH_3) corrected to a standard stack gas oxygen concentration. For emission points P-1 (combined exhaust of S-1 Gas Turbine and S-2 HRSG duct burners), P-2 (combined exhaust of S-3 Gas Turbine and S-4 HRSG duct burners), P-3 (combined exhaust of S-5 Gas Turbine and S-6 HRSG duct burners), P-4 (combined exhaust of S-7 Gas Turbine and S-8 HRSG duct burners) the standard stack gas oxygen concentration is 15% O_2 by volume on a dry basis
Commissioning Activities:	All testing, adjustment, tuning, and calibration activities recommended by the equipment manufacturers and the TPP construction contractor to insure safe and reliable steady state operation of the gas turbines, heat recovery steam generators, steam turbine, and associated electrical delivery systems
Commissioning Period:	The Period shall commence when all mechanical, electrical, and control systems are installed and individual system start-up has been completed, or when a gas turbine is first fired, whichever occurs first. The period shall terminate when the plant has completed performance testing, is available for commercial operation, and has initiated sales to the power exchange. The commissioning period shall not exceed 180 days under any circumstances. The period shall be determined separately for each power train representing a unique combination of one combustion turbine and one steam generator.
Precursor Organic Compounds (POCs):	Any compound of carbon, excluding methane, ethane, carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate
CEC CPM:	California Energy Commission Compliance Program Manager
TPP:	Tesla Power Project

Process Equipment

S-1 Combustion Gas Turbine #1, General Electric PG 7241 (7FA); 1875.5 MM BTU per hour, equipped with dry low-NO_x Combustors, abated by A-1 Oxidation Catalyst and A-2 Selective Catalytic Reduction System

S-2 Heat Recovery Steam Generator #1, equipped with dry low-NO_x Duct Burners, 272.2 MM BTU per hour, abated by A-1 Oxidation Catalyst and A-2 Selective Catalytic Reduction System

S-3 Combustion Gas Turbine #2, General Electric PG 7241 (7FA); 1875.5 MM BTU per hour, equipped with dry low-NO_x Combustors, abated by A-3 Oxidation Catalyst and A-4 Selective Catalytic Reduction System

S-4 Heat Recovery Steam Generator #2, equipped with dry low-NO_x Duct Burners, 272.2 MM BTU per hour, abated by A-3 Oxidation Catalyst and A-4 Selective Catalytic Reduction System

S-5 Combustion Gas Turbine #3, General Electric PG 7241 (7FA); 1875.5 MM BTU per hour, equipped with dry low-NO_x Combustors, abated by A-5 Oxidation Catalyst and A-6 Selective Catalytic Reduction System

S-6 Heat Recovery Steam Generator #3, equipped with dry low-NO_x Duct Burners, 272.2 MM BTU per hour, abated by A-5 Oxidation Catalyst and A-6 Selective Catalytic Reduction System

S-7 Combustion Gas Turbine #4, General Electric PG 7241 (7FA); 1875.5 MM BTU per hour, equipped with dry low-NO_x Combustors, abated by A-7 Oxidation Catalyst and A-8 Selective Catalytic Reduction System

S-8 Heat Recovery Steam Generator #4, equipped with dry low-NO_x Duct Burners, 272.2 MM BTU per hour, abated by A-7 Oxidation Catalyst and A-8 Selective Catalytic Reduction System

S-9 Fire Pump Diesel Engine, Make and Model to be determined, 368 bhp, 19 gallons per hour

Commissioning Conditions **AQ-1** through **AQ-14** shall only apply during the commissioning period. Unless otherwise indicated, conditions **AQ-15** through **AQ-62** shall apply after the commissioning period has ended.

AQ-1 The owner/operator of the Tesla Power Project (TPP) shall minimize emissions of carbon monoxide and nitrogen oxides from S-1, S-3, S-5, and S-7 Gas Turbines and S-2, S-4, S-6, and S-8 Heat Recovery Steam Generators (HRSGs) to the maximum extent possible during the commissioning period.

Verification: The Project Owner/operator shall propose a schedule of compliance with this Condition of Certification in the Commissioning Plan required by condition **AQ-5** and document continuing compliance with this Condition of Certification in each Monthly Emission Report required by condition **AQ-13**.

AQ-2 At the earliest feasible opportunity in accordance with the recommendations of the equipment manufacturers and the construction contractor, the owner/operator shall tune the S-1, S-3, S-5, & S-7 Gas Turbine combustors and S-2, S-4, S-6, & S-8 Heat Recovery Steam Generator duct burners to minimize the emissions of carbon monoxide and nitrogen oxides.

Verification: The Project Owner/operator shall propose a schedule of compliance with this Condition of Certification in the Commissioning Plan required by condition **AQ-5** and document continuing compliance with this Condition of Certification in each Monthly Emission Report required by condition **AQ-13**.

AQ-3 At the earliest feasible opportunity in accordance with the recommendations of the equipment manufacturers and the construction contractor, owner/operator shall install, adjust, and operate the A-1, A-3, A-5, & A-7 Oxidation Catalysts and A-2, A-4, A-6, & A-8 SCR Systems to minimize the emissions of carbon monoxide and nitrogen oxides from S-1, S-3, S-5, & S-7 Gas Turbines and S-2, S-4, S-6, & S-8 Heat Recovery Steam Generators.

Verification: The Project Owner/operator shall propose a schedule of compliance with this Condition of Certification in the Commissioning Plan required by condition **AQ-5** and document continuing compliance with this Condition of Certification in each Monthly Emission Report required by condition **AQ-13**.

AQ-4 Coincident with the steady-state operation of A-2, A-4, A-6, & A-8 SCR Systems and A-1, A-3, A-5, & A-7 Oxidation Catalysts pursuant to conditions **AQ-3**, **AQ-9**, **AQ-10**, and **AQ-11**, the owner/operator shall operate the Gas Turbines (S-1, S-3, S-5, & S-7) and the HRSGs (S-2, S-4, S-6, & S-8) in such a manner as to comply with the NO_x and CO emission limitations specified in conditions **AQ-24(a)** through **AQ-24(d)**.

Verification: The Project Owner/operator shall propose a schedule of compliance with this Condition of Certification in the Commissioning Plan required by condition **AQ-5** and document continuing compliance with this Condition of Certification in each Monthly Emission Report required by condition **AQ-13**.

AQ-5 The owner/operator of the TPP shall submit a plan to the District Permit Services Division and the CEC CPM at least four weeks prior to first firing of S-1, S-3, S-5, or S-7 Gas Turbines describing the procedures to be followed during the commissioning of the gas turbines, HRSGs, and steam turbines. The plan shall include a description of each commissioning activity, the anticipated duration of each activity in hours, and the purpose of the activity. The activities described shall include, but not be limited to, the tuning of the Dry-Low-NO_x combustors, the installation and operation of the required emission control systems, the installation, calibration, and testing of the CO and NO_x continuous emission monitors, and any activities requiring the firing of the Gas Turbines (S-1, S-3, S-5, & S-7) and HRSGs (S-2, S-4, S-6, & S-8) without abatement by their respective oxidation catalysts and/or SCR Systems. The

owner/operator shall not fire any of the Gas Turbines (S-1, S-3, S-5, or S-7) sooner than 28 days after the District receives the commissioning plan.

Verification: The Project Owner/operator shall submit a Commissioning Plan to the District Permit Services Division and the CPM for approval at least four (4) weeks prior to first fire of S-1, S-2, S-3, S-4, S-5, S-6, S-7, and S-8.

AQ-6 During the commissioning period, the owner/operator of the TPP shall demonstrate compliance with conditions **AQ-13**, **AQ-14**, and **AQ-15** (excluding fuel sulfur content limit) through the use of properly operated and maintained continuous emission monitors and data recorders for the following parameters:

a. firing hours

b. fuel flow rates

c. stack gas nitrogen oxide emission concentrations

d. stack gas carbon monoxide emission concentrations

e. stack gas oxygen concentrations.

The monitored parameters shall be recorded at least once every 15 minutes (excluding normal calibration periods or when the monitored source is not in operation) for the Gas Turbines (S-1, S-3, S-5, & S-7), HRSGs (S-2, S-4, S-6, & S-8). The owner/operator shall use District-approved methods to calculate heat input rates, nitrogen dioxide mass emission rates, carbon monoxide mass emission rates, and NO_x and CO emission concentrations, summarized for each clock hour and each calendar day. The owner/operator shall retain records on site for at least 5 years from the date of entry and make such records available to District personnel upon request.

Verification: The Project Owner/operator shall propose a schedule of compliance with this Condition of Certification in the Commissioning Plan required by condition **AQ-5** and document continuing compliance with this Condition of Certification in each Monthly Emission Report required by condition **AQ-13**.

AQ-7 The owner/operator shall install, calibrate, and operate the District-approved continuous monitors specified in condition **AQ-6** prior to first firing of the Gas Turbines (S-1, S-3, S-5, & S-7) and Heat Recovery Steam Generators (S-2, S-4, S-6, & S-8). After first firing of the turbines, the owner/operator shall adjust the detection range of these continuous emission monitors as necessary to accurately measure the resulting range of CO and NO_x emission concentrations. The type, specifications, and location of these monitors shall be subject to District review and approval.

Verification: The Project Owner/operator shall notify the District and CPM of the date of expected first fire at least 30 days prior to first fire and shall make the Project site available for inspection if desired by either the District or CPM. The Project Owner/operator shall propose a schedule of compliance with this Condition of Certification in the Commissioning Plan required by condition **AQ-5** and document

continuing compliance with this Condition of Certification in each Monthly Emission Report required by condition **AQ-13**

AQ-8 The owner/operator shall not fire the S-1 Gas Turbine and S-2 Heat Recovery Steam Generator without abatement of nitrogen oxide emissions by A-2 SCR System and/or abatement of carbon monoxide emissions by A-1 Oxidation Catalyst for more than 300 hours during the commissioning period. Such operation of S-1 Gas Turbine and S-2 HRSG without abatement shall be limited to discrete commissioning activities that can only be properly executed without the SCR system and/or oxidation catalyst in place. Upon completion of these activities, the owner/operator shall provide written notice to the District Permit Services and Enforcement Divisions and the unused balance of the 300 firing hours without abatement shall expire.

Verification: The Project Owner/operator shall submit documentation of compliance with the Condition of Certification in the Monthly Emission Report required by condition **AQ-13**.

AQ-9 The owner/operator shall not fire the S-3 Gas Turbine and S-4 Heat Recovery Steam Generator without abatement of nitrogen oxide emissions by A-4 SCR System and/or abatement of carbon monoxide emissions by A-3 Oxidation Catalyst for more than 300 hours during the commissioning period. Such operation of S-3 Gas Turbine and S-4 HRSG without abatement shall be limited to discrete commissioning activities that can only be properly executed without the SCR system and/or oxidation catalyst in place. Upon completion of these activities, the owner/operator shall provide written notice to the District Permit Services and Enforcement Divisions and the unused balance of the 300 firing hours without abatement shall expire.

Verification: The Project Owner/operator shall submit documentation of compliance with the Condition of Certification in the Monthly Emission Report required by condition **AQ-13**.

AQ-10 The owner/operator shall not fire the S-5 Gas Turbine and S-6 Heat Recovery Steam Generator without abatement of nitrogen oxide emissions by A-6 SCR System and/or abatement of carbon monoxide emissions by A-5 Oxidation Catalyst for more than 300 hours during the commissioning period. Such operation of S-5 Gas Turbine and S-6 HRSG without abatement shall be limited to discrete commissioning activities that can only be properly executed without the SCR system and/or oxidation catalyst in place. Upon completion of these activities, the owner/operator shall provide written notice to the District Permit Services and Enforcement Divisions and the unused balance of the 300 firing hours without abatement shall expire.

Verification: The Project Owner/operator shall submit documentation of compliance with the Condition of Certification in the Monthly Emission Report required by condition **AQ-13**.

AQ-11 The owner/operator shall not fire the S-7 Gas Turbine and S-8 Heat Recovery Steam Generator without abatement of nitrogen oxide emissions by A-8 SCR System and/or abatement of carbon monoxide emissions by A-7 Oxidation Catalyst for more than 300 hours during the commissioning period. Such operation of S-5 Gas Turbine and S-6 HRSG without abatement shall be limited to discrete commissioning activities that can only be properly executed without the SCR system and/or oxidation catalyst in place. Upon completion of these activities, the owner/operator shall provide written notice to the District Permit Services and Enforcement Divisions and the unused balance of the 300 firing hours without abatement shall expire.

Verification: The Project Owner/operator shall submit documentation of compliance with the Condition of Certification in the Monthly Emission Report required by condition **AQ-13**.

AQ-12 The total mass emissions of nitrogen oxides, carbon monoxide, precursor organic compounds, PM_{10}, and sulfur dioxide that are emitted by the Gas Turbines (S-1, S-3, S-5, & S-7), Heat Recovery Steam Generators (S-2, S-4, S-6, & S-8) and S-9 Fire Pump Diesel Engine during the commissioning period shall accrue towards the consecutive twelve-month emission limitations specified in condition **AQ-29**.

Verification: The Project Owner/operator shall submit documentation of compliance with the Condition of Certification in the Monthly Emission Report required by condition **AQ-13**.

AQ-13 The owner/operator shall not operate the Gas Turbines (S-1, S-3, S-5, & S-7) and Heat Recovery Steam Generators (S-2, S-4, S-6, & S-8) in a manner such that the combined pollutant emissions from these sources will exceed the following limits during the commissioning period. These emission limits shall include emissions resulting from the start-up and shutdown of the Gas Turbines (S-1, S-3, S-5, & S-7).

NO_x (as NO_2)	3,732 pounds per calendar day	622 pounds per hour
CO	2,289 pounds per calendar day	381.6 pounds per hour
POC (as CH4)	1,080 pounds per calendar day	
PM10	306 pounds per calendar day	
SO2	48 pounds per calendar day	

Verification: During the Commissioning Period, as defined in the District FDOC, the Project Owner/operator shall submit to the CPM for approval, a Monthly Emission Report that includes, but is not limited to, fuel use, turbine operation, post combustion control operation, ammonia use and CEM readings on an hourly and daily basis. The Monthly Emissions Report for each month must be submitted by the 15th (or the following Monday if the 15th is a Saturday or Sunday) of the following month.

AQ-14 No less than 45 days prior to the end of the Commissioning Period, the Owner/Operator shall conduct District and Energy Commission approved

source tests using external continuous emission monitors to determine compliance with the emission limitations specified in condition **AQ-25**. The source tests shall determine NO_x, CO, and POC emissions during start-up and shutdown of the gas turbines. The POC emissions shall be analyzed for methane and ethane to account for the presence of unburned natural gas. The source test shall include a minimum of three start-up and three shutdown periods and shall include at least one cold start, one warm start, and one hot start. Twenty working days before the execution of the source tests, the Owner/Operator shall submit to the District and the CEC Compliance Program Manager (CPM) a detailed source test plan designed to satisfy the requirements of this condition. The District and the CEC CPM will notify the Owner/Operator of any necessary modifications to the plan within 20 working days of receipt of the plan; otherwise, the plan shall be deemed approved. The Owner/Operator shall incorporate the District and CEC CPM comments into the test plan. The Owner/Operator shall notify the District and the CEC CPM within seven (7) working days prior to the planned source testing date. The owner/operator shall submit the source test results to the District and the CEC CPM within 60 days of the source testing date.

Verification: No later than 20 working days before the execution of the source tests, the owner/operator shall submit to the District and the CPM a detailed source test plan designed to satisfy the requirements of this condition. The District and the CPM will notify the owner/operator of any necessary modifications to the plan within 20 working days of receipt of the plan; otherwise, the plan shall be deemed approved. The owner/operator shall incorporate the District and the CPM comments into the test plan. The owner/operator shall notify the District and the CPM within seven working days prior to the planned source testing date. Source test results shall be submitted to the District and the CPM within 60 days of the source testing date.

Permit Conditions for the Gas Turbines (S-1, S-3, S-5, & S-7) and the Heat Recovery Steam Generators (HRSGs; S-2, S-4, S-6, & S-8)

AQ-15 The owner/operator shall fire the Gas Turbines (S-1, S-3, S-5, and S-7) and HRSG Duct Burners (S-2, S-4, S-6, and S-8) exclusively on natural gas with a maximum sulfur content of 0.33 grain per 100 standard cubic feet. To demonstrate compliance with this limit, the operator of S-1 through S-8 shall sample and analyze the gas from each supply source at least once every 30 consecutive days to determine the sulfur content of the gas. (BACT for SO_2 and PM_{10})

Verification: The Project Owner/operator shall make the Project site available for inspection at any time by representatives of the District, CARB, U.S. EPA and the Energy Commission. The Project Owner/operator shall submit documentation of compliance with this Condition of Certification as part of the Quarterly Air Quality Report required by the verification of condition **AQ-40**.

AQ-16 The owner/operator shall not operate the units such that the combined heat input rate to each power train consisting of a Gas Turbine and its associated HRSG (S-1 & S-2, S-3 & S-4, S-5 & S-6, and S-7 & S-8) exceeds 2,147.7 MM

BTU (HHV) per hour, averaged over any rolling three hour period. (PSD for NO_x)

Verification: A detailed report of fuel use and equipment operation shall be included in the Quarterly Air Quality Report required by the verification of condition **AQ-40**.

AQ-17 The owner/operator shall not operate the units such that the combined heat input rate to each power train consisting of a Gas Turbine and its associated HRSG (S-1 & S-2, S-3 & S-4, S-5 & S-6, and S-7 & S-8) exceeds 51,544.8 MM BTU (HHV) per calendar day. (PSD for PM_{10})

Verification: A detailed report of fuel use and equipment operation shall be included in the Quarterly Air Quality Report required by the verification of condition **AQ-40**.

AQ-18 The owner/operator shall not operate the units such that the combined cumulative heat input rate for the Gas Turbines (S-1, S-3, S-5, & S-7) and the HRSGs (S-2, S-4, S-6, & S-8) exceeds 62,985,372 MM BTU (HHV) per year. (Offsets)

Verification: A detailed report of fuel use and equipment operation shall be included in each January Quarterly Air Quality Report required by the verification of condition **AQ-40**.

AQ-19 The owner/operator shall not fire the HRSG duct burners (S-2, S-4, S-6, and S-8) unless its associated Gas Turbine (S-1, S-3, S-5, and S-7, respectively) is in operation. (BACT for NO_x)

Verification: The Project Owner/operator shall submit documentation of compliance with this Condition of Certification as part of the Quarterly Air Quality Report required by the verification of condition **AQ-40**.

AQ-20 The owner/operator shall ensure that the S-1 Gas Turbine and S-2 HRSG are abated by the properly operated and properly maintained A-2 Selective Catalytic Reduction (SCR) System whenever fuel is combusted at those sources and the A-2 SCR catalyst bed has reached minimum operating temperature. (BACT for NO_x)

Verification: The Project Owner/operator shall make the Project site available for inspection at any time by representatives of the District, CARB, U.S. EPA and the Energy Commission.

AQ-21 The owner/operator shall ensure that the S-3 Gas Turbine and S-4 HRSG are abated by the properly operated and properly maintained A-4 Selective Catalytic Reduction (SCR) System whenever fuel is combusted at those sources and the A-4 SCR catalyst bed has reached minimum operating temperature. (BACT for NO_x)

Verification: The Project Owner/operator shall make the Project site available for inspection at any time by representatives of the District, CARB, U.S. EPA and the Energy Commission.

AQ-22 The owner/operator shall ensure that the S-5 Gas Turbine and S-6 HRSG are abated by the properly operated and properly maintained A-6 Selective Catalytic Reduction (SCR) System whenever fuel is combusted at those sources and the A-6 SCR catalyst bed has reached minimum operating temperature. (BACT for NO_x)

Verification: The Project Owner/operator shall make the Project site available for inspection at any time by representatives of the District, CARB, U.S. EPA and the Energy Commission.

AQ-23 The owner/operator shall ensure that the S-7 Gas Turbine and S-8 HRSG are abated by the properly operated and properly maintained A-8 Selective Catalytic Reduction (SCR) System whenever fuel is combusted at those sources and the A-8 SCR catalyst bed has reached minimum operating temperature. (BACT for NO_x)

Verification: The Project Owner/operator shall make the Project site available for inspection at any time by representatives of the District, CARB, U.S. EPA and the Energy Commission.

AQ-24 The owner/operator shall ensure that the Gas Turbines (S-1, S-3, S-5, & S-7) and HRSGs (S-2, S-4, S-6, & S-8) comply with requirements (a) through (h) under all operating scenarios, including duct burner firing mode. Requirements (a) through (h) do not apply during a gas turbine start-up or shutdown. (BACT, PSD, and Toxic Risk Management Policy)

(a) Nitrogen oxide mass emissions (calculated as NO_2) at P-1 (the combined exhaust point for S-1 Gas Turbine and S-2 HRSG after abatement by A-2 SCR System) shall not exceed 15.67 pounds per hour or 0.00731 lb/MM BTU (HHV) of natural gas fired. Nitrogen oxide mass emissions (calculated as NO_2) at P-2 (the combined exhaust point for S-3 Gas Turbine and S-4 HRSG after abatement by A-4 SCR System) shall not exceed 15.67 pounds per hour or 0.00731 lb/MM BTU (HHV) of natural gas fired. Nitrogen oxide mass emissions (calculated as NO_2) at P-3 (the combined exhaust point for S-5 Gas Turbine and S-6 HRSG after abatement by A-6 SCR System) shall not exceed 15.67 pounds per hour or 0.00731 lb/MM BTU (HHV) of natural gas fired. Nitrogen oxide mass emissions (calculated as NO_2) at P-4 (the combined exhaust point for S-7 Gas Turbine and S-8 HRSG after abatement by A-8 SCR System) shall not exceed 15.67 pounds per hour or 0.00731 lb/MM BTU (HHV) of natural gas fired. (PSD for NOx)

(b) The nitrogen oxide emission concentration at emission points P-1, P-2, P-3, and P-4 each shall not exceed 2.0 ppmv, on a dry basis, corrected to 15% O_2, averaged over any 1-hour period. (BACT for NO_x)

(c) Carbon monoxide mass emissions at P-1, P-2, P-3, and P-4 each shall not exceed 19.08 pounds per hour or 0.0088 lb/MM BTU of natural gas fired, averaged over any rolling 3-hour period. (PSD for CO)

(d) The carbon monoxide emission concentration at P-1, P-2, P-3, and P-4 each shall not exceed 4.0 ppmv, on a dry basis, corrected to 15% O2, averaged over any rolling 3-hour period. (BACT for CO)

(e) Ammonia (NH_3) emission concentrations at P-1, P-2, P-3, and P-4 each shall not exceed 5 ppmv, on a dry basis, corrected to 15% O_2, averaged over any rolling 3-hour period. This ammonia emission concentration shall be verified by the continuous recording of the ammonia injection rate to A-2, A-4, A-6, and A-8 SCR Systems. The correlation between the gas turbine and HRSG heat input rates, A-2, A-4, A-6, and A-8 SCR System ammonia injection rates, and corresponding ammonia emission concentration at emission points P-1, P-2, P-3, and P-4 shall be determined in accordance with permit condition **AQ-34**. (TRMP for NH3)

(f) Precursor organic compound (POC) mass emissions (as CH4) at P-1, P-2, P-3, and P-4 each shall not exceed 4.42 pounds per hour or 0.00594 lb/MM BTU of natural gas fired. (BACT)

(g) Sulfur dioxide (SO_2) mass emissions at P-1, P-2, P-3, and P-4 each shall not exceed 2.0 pounds per hour or 0.00092 lb/MM BTU of natural gas fired. (BACT)

(h) Particulate matter (PM_{10}) mass emissions at P-1, P-2, P-3, and P-4 each shall not exceed 9.84 pounds per hour or 0.00525 lb PM_{10}/MM BTU of natural gas fired when the HRSG duct burners are not in operation. Particulate matter (PM_{10}) mass emissions at P-1, P-2, P-3, and P-4 each shall not exceed 12.75 pounds per hour or 0.00594 lb PM_{10}/MM BTU of natural gas fired when the HRSG duct burners are in operation. (BACT)

Verification: The Project Owner/operator shall submit documentation of compliance with this Condition of Certification as part of the Quarterly Air Quality Report required by the verification of condition **AQ-40**.

AQ-25 The owner/operator shall ensure that the regulated air pollutant mass emission rates from each of the Gas Turbines (S-1, S-3, S-5, and S-7) during a start-up does not exceed the limits established below. (PSD)

Pollutant	Gas Turbine Start-Up Emission Rate Limits	
	lb/hr	lb/start-up
NO_x (as NO_2)	150	415.5
CO	662.5	1,180.5
POC (as CH_4)	45	82

Verification: The Project Owner/operator shall submit documentation of compliance with the emission limits in this Condition of Certification as part of the Quarterly Air Quality Report required by the verification of condition **AQ-40**.

AQ-26 The owner/operator shall not allow more than two Gas Turbines (S-1, S-3, S-5, or S-7) to be in start-up mode at any point in time. The owner/operator shall start-up additional gas turbines (S-1, S-3, S-5, or S-7) only if both of the following requirements are met:

(a) 60 minutes has elapsed since the initiation of the start-up of the first pair of turbines

(b) the first pair of turbines are operating in compliance with the NOx and CO emission limitations of condition **AQ-24**. (PSD)

Verification: The Project Owner/operator shall submit documentation of all start-up events as part of the Quarterly Air Quality Report required by the verification of condition **AQ-40**.

AQ-27 The owner/operator shall not allow total combined emissions from the Gas Turbines and HRSGs (S-1, S-2, S-3, S-4, S-5, S-6, S-7, and S-8), including emissions generated during Gas Turbine start-ups and shutdowns to exceed the following limits during any one hour:

(a) 331.3 pounds of NO_x (as NO_2) per hour

(b) 1,362.8 pounds of CO per hour (PSD)

Verification: The Project Owner/operator shall submit documentation of compliance with all emission limits specified in this Condition of Certification as part of the Quarterly Air Quality Report required by the verification of condition **AQ-40**.

AQ-28 The owner/operator shall not allow total combined emissions from the Gas Turbines and HRSGs (S-1, S-2, S-3, S-4, S-5, S-6, S-7, and S-8) and S-9 Fire Pump Diesel Engine, including emissions generated during Gas Turbine start-ups and shutdowns to exceed the following limits during any calendar day:

(a) 2,824.4 pounds of NO_x (as NO_2) per day (CEQA)

(b) 6,284 pounds of CO per day (PSD)

(c) 678.4 pounds of POC (as CH_4) per day (CEQA)

(d) 1,224 pounds of PM_{10} per day (February 1 through October 31) (PSD)

(e) 1,080 pounds of PM_{10} per day (November 1 through January 31) (PSD)

(f) 192 pounds of SO_2 per day (BACT)

Verification: The Project Owner/operator shall submit documentation of compliance with all emission limits specified in this Condition of Certification as part of the Quarterly Air Quality Report required by the verification of condition **AQ-40**.

AQ-29 The owner/operator shall not allow cumulative combined emissions from the Gas Turbines and HRSGs (S-1, S-2, S-3, S-4, S-5, S-6, S-7, and S-8) and S-9 Fire Pump Diesel Engine, including emissions generated during gas turbine start-ups and shutdowns to exceed the following limits during any consecutive twelve-month period:

(a) 249.85 tons of NO_x (as NO_2) per year (Offsets)

(b) 335.66 tons of CO per year (Cumulative Increase, PSD)

(c) 60.44 tons of POC (as CH_4) per year (Offsets)

(d) 189.95 tons of PM_{10} per year (Offsets)

(e) 29.55 tons of SO_2 per year (Cumulative Increase)

Verification: The Project Owner/operator shall submit documentation of compliance with all emission limits specified in this Condition of Certification as part of the Quarterly Air Quality Report required by the verification of condition **AQ-40**.

AQ-30 The owner/operator shall not allow the maximum projected annual toxic air contaminant emissions (per condition **AQ-33**) from the Gas Turbines and HRSGs (S-1, S-2, S-3, S-4, S-5, S-6, S-7, and S-8) combined to exceed the following limits:

Formaldehyde 17,657 pounds per year
Benzene 732 pounds per year
Specified polycyclic aromatic hydrocarbons (PAHs) 6 pounds per year unless the following requirement is satisfied:

The owner/operator shall perform a health risk assessment to determine the total facility risk using the emission rates determined by source testing and the most current Bay Area Air Quality Management District approved procedures and unit risk factors in effect at the time of the analysis. The owner/operator shall submit the risk analysis to the District and the CEC CPM within 60 days of the source test date. The owner/operator may request that the District and the CEC CPM revise the carcinogenic compound emission limits specified above. If the owner/operator demonstrates to the satisfaction of the APCO that these revised emission limits will not result in a significant cancer risk, the District and the CEC CPM may, at their discretion, adjust the carcinogenic compound emission limits listed above. (TRMP)

Verification: If prepared, the health risk analysis shall be submitted to the District and the CPM within 60 days of the source test date. Otherwise, the Project Owner/operator shall submit documentation of compliance with all emission limits specified in this Condition of Certification as part of the January 30 Quarterly Air Quality Report each year required by the verification of condition **AQ-40**.

AQ-31 The owner/operator shall demonstrate compliance with conditions **AQ-16** through **AQ-19**, **AQ-24(a)** through **AQ-24(d)**, and **AQ-25** through **AQ-29** by using properly operated and maintained continuous monitors (during all hours of operation including gas turbine start-up and shutdown periods) for all of the following parameters:

(a) Firing Hours and Fuel Flow Rates for each of the following sources: S-1 & S-2 combined, S-3 & S-4 combined, S-5 & S-6 combined, and S-7 & S-8 combined.

(b) Oxygen (O_2) Concentration, Nitrogen Oxides (NO_x) Concentration, and Carbon Monoxide (CO) Concentration at exhaust points P-1, P-2, P-3, and P-4.

(c) Ammonia injection rate at A-2, A-4, A-6, and A-8 SCR Systems

(d) Deleted by District.

The owner/operator shall record all of the above parameters every 15 minutes (excluding normal calibration periods) and shall summarize all of the above parameters for each clock hour. For each calendar day, the owner/operator shall calculate and record the total firing hours, the average hourly fuel flow rates, and pollutant emission concentrations.

The owner/operator shall use the parameters measured above and District approved calculation methods to calculate the following parameters:

(e) Heat Input Rate for each of the following sources: S-1 & S-2 combined, S-3 & S-4 combined, S-5 & S-6 combined, and S-7 & S-8.

(f) Corrected NO_x concentration, NO_x mass emission rate (as NO_2), corrected CO concentration, and CO mass emission rate at each of the following exhaust points: P-1, P-2, P-3, and P-4.

For each source, source grouping, or exhaust point, the owner/operator shall record the parameters specified in conditions **AQ-31(e)** and **AQ-31(f)** at least once every 15 minutes (excluding normal calibration periods). As specified below, the owner/operator shall calculate and record the following data:

(g) total Heat Input Rate for every clock hour and the average hourly Heat Input Rate for every rolling 3-hour period.

(h) on an hourly basis, the cumulative total Heat Input Rate for each calendar day for the following: each Gas Turbine and associated HRSG combined and all eight sources (S-1, S-2, S-3, S-4, S-5, S-6, S-7, & S-8) combined.

(i) the average NO_x mass emission rate (as NO_2), CO mass emission rate, and corrected NO_x and CO emission concentrations for every clock hour and for every rolling 3-hour period.

(j) on an hourly basis, the cumulative total NO_x mass emissions (as NO_2) and the cumulative total CO mass emissions, for each calendar day for the following: each Gas Turbine and associated HRSG combined and all eight sources (S-1, S-2, S-3, S-4, S-5, S-6, S-7, & S-8) combined.

(k) For each calendar day, the average hourly Heat Input Rates, Corrected NO_x emission concentration, NO_x mass emission rate (as NO_2), corrected CO emission concentration, and CO mass emission rate for each Gas Turbine and associated HRSG combined.

(l) on a daily basis, the cumulative total NO_x mass emissions (as NO_2) and cumulative total CO mass emissions, for the previous consecutive twelve month period for all eight sources (S-1, S-2, S-3, S-4, S-5, S-6, S-7, & S-8) combined.

(1-520.1, 9-9-501, BACT, Offsets, NSPS, PSD, Cumulative Increase)

Verification: The Project Owner/operator shall submit documentation of each of the parameters specified in this Condition of Certification as part of the Quarterly Air Quality Report required by the verification of condition **AQ-40**.

AQ-32 To demonstrate compliance with conditions **AQ-24(f)**, **AQ-24(g)**, **AQ-24(h)**, **AQ-25**, **AQ-28(c)** through **AQ-28(f)**, and **AQ-29(c)** through **AQ-29(e)**, the owner/operator shall calculate and record on a daily basis, the Precursor Organic Compound (POC) mass emissions, Fine Particulate Matter (PM_{10}) mass emissions (including condensable particulate matter), and Sulfur Dioxide (SO_2) mass emissions from each power train. The owner/operator shall use the actual heat input rates measured pursuant to condition **AQ-31**, actual Gas Turbine start-up times, actual Gas Turbine shutdown times, and Energy Commission- and District-approved emission factors developed pursuant to source testing under condition **AQ-35** to calculate these emissions. The owner/operator shall present the calculated emissions in the following format:

(a) For each calendar day, POC, PM_{10}, and SO_2 emissions, summarized for each power train (Gas Turbine and its respective HRSG combined) and all eight sources (S-1, S-2, S-3, S-4, S-5, S-6, S-7, & S-8) combined

(b) on a daily basis, the cumulative total POC, PM_{10}, and SO_2 mass emissions, for each year for all eight sources (S-1, S-2, S-3, S-4, S-5, S-6, S-7, & S-8) combined

(Offsets, PSD, Cumulative Increase)

Verification: The Project Owner/operator shall submit documentation of each of the parameters specified in this Condition of Certification as part of the Quarterly Air Quality Report required by the verification of condition **AQ-40**.

AQ-33 To demonstrate compliance with condition **AQ-30**, the owner/operator shall calculate and record on an annual basis the maximum projected annual emissions of: Formaldehyde, Benzene, and Specified PAH's. The owner/operator shall calculate the maximum projected annual emissions using the maximum annual heat input rate of 62,152,696 MM BTU/year and the highest emission factor (pounds of pollutant per MM BTU of heat input) determined by any source test of the S-1, S-3, S-5, and S-7 Gas Turbines and/or S-2, S-4, S-6, and S-8 Heat Recovery Steam Generators. If the highest emission factor for a given pollutant occurs during minimum-load turbine operation, a reduced annual heat input rate may be utilized to calculate the maximum projected annual emissions to reflect the reduced heat input rates during gas turbine start-up and minimum-load operation. The reduced annual heat input rate shall be subject to District review and approval. (TRMP)

Verification: The Project Owner/operator shall submit documentation of each of the parameters specified in this Condition of Certification as part of the Quarterly Air Quality Report required by the verification of condition **AQ-40**.

AQ-34 Prior to the end of the commissioning period for the TPP, the owner/operator shall conduct a District-approved source test on exhaust point P-1, P-2, P-3, or P-4 to determine the corrected ammonia (NH_3) emission concentration to determine compliance with condition **AQ-24(e)**. The source test shall determine the correlation between the heat input rates of the gas turbine and associated HRSG, A-2, A-4, A-6, or A-8 SCR System ammonia injection rate,

and the corresponding NH_3 emission concentration at emission point P-1, P-2, P-3, or P-4. The source test shall be conducted over the expected operating range of the turbine and HRSG (including, but not limited to, minimum and full load) to establish the range of ammonia injection rates necessary to achieve NO_x emission reductions while maintaining ammonia slip levels. The owner/operator shall repeat the source testing on an annual basis thereafter. Ongoing compliance with condition **AQ-24(e)** shall be demonstrated through calculations of corrected ammonia concentrations based upon the source test correlation and continuous records of ammonia injection rate. (TRMP)

Verification: Initial source testing shall be completed prior to the end of the commissioning period. No later than 20 working days before the execution of the source tests, the owner/operator shall submit to the District and the CPM a detailed source test plan designed to satisfy the requirements of this condition. The District and the CPM will notify the owner/operator of any necessary modifications to the plan within 20 working days of receipt of the plan; otherwise, the plan shall be deemed approved. The owner/operator shall incorporate the District and CPM comments into the test plan. The owner/operator shall notify the District and the CPM within seven working days prior to the planned source testing date. Source test results shall be submitted to the District and the CPM within 60 days of the source testing date.

AQ-35 Prior to the end of the commissioning period for the TPP and on an annual basis thereafter, the owner/operator shall conduct a District-approved source test on exhaust points P-1, P-2, P-3, and P-4 while each Gas Turbine and associated Heat Recovery Steam Generator are operating at maximum load to determine compliance with Conditions **AQ-24(a)**, **AQ-24(b)**, **AQ-24(c)**, **AQ-24(d)**, **AQ-24(f)**, **AQ-24(g)**, and **AQ-24(h)** and while each Gas Turbine and associated Heat Recovery Steam Generator are operating at minimum load to determine compliance with Conditions **AQ-24(c)** and **AQ-24(d)**, and to verify the accuracy of the continuous emission monitors required in condition **AQ-31**. The owner/operator shall test for (as a minimum): water content, stack gas flow rate, oxygen concentration, precursor organic compound concentration and mass emissions, nitrogen oxide concentration and mass emissions (as NO_2), carbon monoxide concentration and mass emissions, sulfur dioxide concentration and mass emissions, methane, ethane, and particulate matter (PM_{10}) emissions including condensable particulate matter. The owner/operator shall conduct the particulate matter (PM_{10}) source tests during the period of November 1 through January 31 of each year to verify compliance with condition **AQ-28(e)**. (BACT, offsets)

Verification: Initial source testing shall be completed prior to the end of the commissioning period. No later than 20 working days before the execution of the source tests, the owner/operator shall submit to the District and the CPM a detailed source test plan designed to satisfy the requirements of this condition. The District and the CPM will notify the owner/operator of any necessary modifications to the plan within 20 working days of receipt of the plan; otherwise, the plan shall be deemed approved. The owner/operator shall incorporate the District and CPM comments into the test plan. The owner/operator shall notify the District and the CPM within seven working days prior to

the planned source testing date. Source test results shall be submitted to the District and the CPM within 60 days of the source testing date.

AQ-36 The owner/operator shall obtain approval for all source test procedures from the District's Source Test Section and the CEC CPM prior to conducting any tests. The owner/operator shall comply with all applicable testing requirements for continuous emission monitors as specified in Volume V of the District's Manual of Procedures. The owner/operator shall notify the District's Source Test Section and the CEC CPM in writing of the source test protocols and projected test dates at least 7 days prior to the testing date(s). As indicated above, the Owner/Operator shall measure the contribution of condensable PM (back half) to the total PM_{10} emissions. However, the Owner/Operator may propose alternative measuring techniques to measure condensable PM such as the use of a dilution tunnel or other appropriate method used to capture semi-volatile organic compounds. The owner/operator shall submit the source test results to the District and the CEC CPM within 60 days of conducting the tests. (BACT)

Verification: The Project Owner/operator shall submit documentation of the procedures and results of each source test conducted as part of the Quarterly Air Quality Report required by the verification of condition **AQ-40**.

AQ-37 Prior to the end of the commissioning period for the TPP and on a biennial basis (once every two years) thereafter, the owner/operator shall conduct a District-approved source test on exhaust point P-1, P-2, P-3, or P-4 while the Gas Turbine and associated Heat Recovery Steam Generator are operating at maximum allowable operating rates to demonstrate compliance with condition **AQ-30**. The owner/operator shall also test the gas turbine while it is operating at minimum load. If three consecutive biennial source tests demonstrate that the annual emission rates calculated pursuant to condition **AQ-30** for any of the compounds listed below are less than the BAAQMD Toxic Risk Management Policy trigger levels shown, then the owner/operator may discontinue future testing for that pollutant:

Benzene	≤	6.7 pounds/year
Formaldehyde	≤	33 pounds/year
Specified PAHs (TRMP)	≤	0.044 pounds/year

Verification: Initial source testing shall be completed prior to the end of the commissioning period. No later than 20 working days before the execution of the source tests, the owner/operator shall submit to the District and the CPM a detailed source test plan designed to satisfy the requirements of this condition. The District and the CPM will notify the owner/operator of any necessary modifications to the plan within 20 working days of receipt of the plan; otherwise, the plan shall be deemed approved. The owner/operator shall incorporate the District and CPM comments into the test plan. The owner/operator shall notify the District and the CPM within seven working days prior to the planned source testing date. Source test results shall be submitted to the District and the CPM within 60 days of the source testing date.

AQ-38 The owner/operator shall not allow the total combined sulfuric acid mist (SAM) emissions from S-1 through S-8 to exceed 7 tons totaled over any consecutive twelve month period. The owner/operator shall calculate the SAM emission rate using the total heat input for the sources and the highest results of any source testing conducted pursuant to condition **AQ-39**. If this SAM mass emission limit is exceeded, the owner/operator must utilize air dispersion modeling to determine the impact (in $\mu g/m^3$) of the sulfuric acid mist emissions pursuant to Regulation 2-2-306. (PSD)

Verification: The Project Owner/operator shall submit documentation of compliance with all emission limits specified in this Condition of Certification as part of the Quarterly Air Quality Report required by the verification of condition **AQ-40**.

AQ-39 Prior to the end of the commissioning period for the TPP and on a semi-annual basis (twice per year) thereafter, the owner/operator shall conduct a District-approved source test on exhaust points P-1 through P-4 while each gas turbine and HRSG duct burner is operating at maximum heat input rates to demonstrate compliance with the SAM emission rates specified in condition **AQ-38**. The owner/operator shall test for (as a minimum) SO_2, SO_3, and H_2SO_4. After acquiring one year of source test data on these sources, the owner/operator may petition the District to reduce the test frequency to an annual basis if test result variability is sufficiently low as determined by the District. (PSD)

Verification: Initial source testing shall be completed prior to the end of the commissioning period. No later than 20 working days before the execution of the source tests, the owner/operator shall submit to the District and the CPM a detailed source test plan designed to satisfy the requirements of this condition. The District and the CPM will notify the owner/operator of any necessary modifications to the plan within 20 working days of receipt of the plan; otherwise, the plan shall be deemed approved. The owner/operator shall incorporate the District and CPM comments into the test plan. The owner/operator shall notify the District and the CPM within seven working days prior to the planned source testing date. Source test results shall be submitted to the District and the CPM within 60 days of the source testing date.

AQ-40 The owner/operator of the TPP shall submit all reports (including, but not limited to monthly CEM reports, monitor breakdown reports, emission excess reports, equipment breakdown reports, etc.) as required by District Rules or Regulations and in accordance with all procedures and time limits specified in the Rule, Regulation, Manual of Procedures, or Enforcement Division Policies & Procedures Manual. (Regulation 2-6-502)

Verification: The Project Owner/operator shall submit a Quarterly Air Quality Report (QAQR) for the preceding calendar quarter by January 30, April 30, July 30 and October 30 of each year. Each QAQR shall include, but not be limited to, a compliance matrix, a summary of operations activities, and a summary of all reports covered by this condition. The January 30 report for each year shall include an annual summary of the

four Quarterly Air Quality Reports covering the preceding calendar year. The reports shall be submitted to the California Energy Commission Compliance Project Manager (CPM).

AQ-41 The owner/operator of the TPP shall maintain all records and reports on site for a minimum of 5 years. These records shall include but are not limited to: continuous monitoring records (firing hours, fuel flows, emission rates, monitor excesses, breakdowns, etc.), source test and analytical records, natural gas sulfur content analysis results, emission calculation records, records of plant upsets and related incidents. The owner/operator shall make all records and reports available to District and the CEC CPM staff upon request. (Regulation 2-6-501)

Verification: The Project Owner/operator shall maintain a copy of each Quarterly Air Quality Report on site for a minimum of five years.

AQ-42 The owner/operator of the TPP shall notify the District and the CEC CPM of any violations of these permit conditions. Notification shall be submitted in a timely manner, in accordance with all applicable District Rules, Regulations, and the Manual of Procedures. Notwithstanding the notification and reporting requirements given in any District Rule, Regulation, or the Manual of Procedures, the owner/operator shall submit written notification (facsimile is acceptable) to the Enforcement Division within 96 hours of the violation of any permit condition. (Regulation 2-1-403)

Verification: The Project Owner/operator shall include a compliance matrix in the Quarterly Air Quality Report required by the verification condition **AQ-40**. The Compliance Matrix shall summarize the project's compliance status for each condition during the reporting period.

AQ-43 The owner/operator shall ensure that the stack height of emission points P-1, P-2, P-3, and P-4 is each at least 200 feet above grade level at the stack base. (PSD, TRMP)

Verification: Prior to the first firing of natural gas in the turbines, the owner/operator shall provide as built drawings of the stack or other suitable proof of the minimum stack height to the District and the CPM.

AQ-44 The Owner/Operator of TPP shall provide adequate stack sampling ports and platforms to enable the performance of source testing. The location and configuration of the stack sampling ports shall comply with the District Manual of Procedures, Volume IV, Source Test Policy and Procedures, and shall be subject to BAAQMD review and approval. (Regulation 1-501)

Verification: Prior to the first firing of natural gas in the turbines, the owner/operator shall provide as built drawings or other suitable proof of compliance with this Condition of Certification to the District and the CPM.

AQ-45 Within 180 days of the issuance of the Authority to Construct for the TPP, the Owner/Operator shall contact the BAAQMD Technical Services Division regarding requirements for the continuous emission monitors, sampling ports, platforms, and source tests required by conditions **AQ-31, 34, 35, 37**, and **51**. The owner/operator shall conduct all source testing and monitoring in accordance with the BAAQMD Manual of Procedures. (Regulation 1-501)

Verification: The Project Owner/operator shall submit documentation of compliance with this Condition of Certification as part of the Quarterly Air Quality Report required by the verification of condition **AQ-40**.

AQ-46 Prior to the issuance of the BAAQMD Authority to Construct for the Tesla Power Project, the Owner/Operator shall demonstrate that valid emission reduction credits in the amount of 287.328 tons/year of Nitrogen Oxides, 69.5 tons/year of Precursor Organic Compounds, and 189.95 tons/year of PM_{10} or equivalent (as defined by District Regulations 2-2-302.1 and 2-2-302.2) are under their control through enforceable contracts, option to purchase agreements, or equivalent binding legal documents. (Offsets)

Verification: The Project Owner/operator must submit all ERC documentation to the District and the CPM prior to the issuance of the BAAQMD Authority to Construct.

AQ-47 Prior to the start of construction of the Tesla Power Project, the Owner/Operator shall provide to the District valid emission reduction credit banking certificates in the amount of 287.328 tons/year of Nitrogen Oxides, 69.5 tons/year of Precursor Organic Compounds, and 189.95 tons/year of PM_{10} or equivalent as defined by District Regulations 2-2-302.1 and 2-2-302.2. (Offsets, CEC)

Verification: The Project Owner/operator must submit all ERC documentation to the District and the CPM prior to the start of construction.

AQ-48 Pursuant to BAAQMD Regulation 2, Rule 6, section 404.1, the owner/operator of the TPP shall submit an application to the BAAQMD for a major facility review permit within 12 months of completing construction as demonstrated by the first firing of any gas turbine or HRSG duct burner. (Regulation 2-6-404.1)

Verification: The Project Owner/operator shall notify the CPM within ten working days of any application for, issuance of, and/or modification to any permit pertaining to air quality.

AQ-49 Pursuant to 40 CFR Part 72.30(b)(2)(ii) of the Federal Acid Rain Program, the owner/operator of the Tesla Power Project shall submit an application for a Title IV operating permit to the BAAQMD at least 24 months before operation of any of the gas turbines (S-1, S-3, S-5, or S-7) or HRSGs (S-2, S-4, S-6, or S-8). (Regulation 2, Rule 7)

Verification: The Project Owner/operator shall notify the CPM within ten working days of any application for, issuance of, and/or modification to any permit pertaining to air quality.

AQ-50 The owner/operator shall ensure that the Tesla Power Project complies with the continuous emission monitoring requirements of 40 CFR Part 75. (Regulation 2, Rule 7)

Verification: The Project Owner/operator shall submit documentation of compliance with this Condition of Certification as part of the Quarterly Air Quality Report required by the verification of condition **AQ-40**.

AQ-51 The owner/operator shall take monthly samples of the natural gas combusted at the TPP. The samples shall be analyzed for sulfur content using District-approved laboratory methods. The sulfur content test results shall be retained on site for a minimum of five years from the test date and shall be utilized to satisfy the requirements of 40 CFR Part 60, subpart GG. (cumulative increase)

Verification: The Project Owner/operator shall submit documentation of compliance with this Condition of Certification as part of the Quarterly Air Quality Report required by the verification of condition **AQ-40**.

Permit Conditions for Cooling Towers

AQ-52 The owner/operator shall properly install and maintain the cooling towers to minimize drift losses. The owner/operator shall equip the cooling towers with high-efficiency mist eliminators with a maximum guaranteed drift rate of 0.0005%. The maximum total dissolved solids (TDS) measured at the base of the cooling towers or at the point of return to the wastewater facility shall not be higher than 1,878 ppmw (mg/l). The owner/operator shall sample and test the cooling tower water at least once per day to verify compliance with this TDS limit. (PSD)

Verification: The Project Owner/operator shall submit documentation of compliance with this Condition of Certification, including a summary of all data collected in relation to this condition, as part of the Quarterly Air Quality Report required by the verification of condition **AQ-40**.

AQ-53 The owner/operator shall perform a visual inspection of the cooling tower drift eliminators at least once per calendar year, and repair or replace any drift eliminator components which are broken or missing. Prior to the initial operation of the Tesla Power Project, the owner/operator shall have the cooling tower vendor's field representative inspect the cooling tower drift eliminators and certify that the installation was performed in a satisfactory manner. For reasonable cause, the CPM may require the owner/operator to perform an initial performance source test to verify compliance with the vendor-guaranteed drift rate specified in condition **AQ-52**. The CPM may, in years 5 and 15 of cooling tower operation, require the owner/operator to perform source tests to

verify continued compliance with the vendor-guaranteed drift rate specified in condition **AQ-52**. (PSD)

Verification: The Project Owner/operator shall submit documentation of compliance with this Condition of Certification, including color photographs, as part of the January Quarterly Air Quality Report required by the verification of condition **AQ-40**.

Permit Conditions for S-9 Fire Pump Diesel Engine

AQ-54 S-9 Fire Pump Diesel Engine is subject to the requirements of Regulation 9, Rule 1 ("Sulfur Dioxide"), and the requirements of Regulation 6 ("Particulate and Visible Emissions"). The engine may be subject to other District regulations, including Regulation 9, Rule 8 ("NOx and CO from Stationary Internal Combustion Engines") in the future. (Regulation 9, Rule 1; Regulation 6)

Verification: The Project Owner/operator shall submit documentation of compliance with this Condition of Certification as part of the Quarterly Air Quality Report required by the verification of condition **AQ-40**.

AQ-55 The owner/operator shall ensure that S-9 is operated for no more than a total of 26 hours in any consecutive 12-month period for the purpose of reliability-related activities as defined by Regulation 9-8-232. (Offsets, BACT)

Verification: The Project Owner/operator shall submit documentation of S-9 Fire Pump Diesel Engine hours of operation for reliability-related activities as part of the Quarterly Air Quality Report required by the verification of condition **AQ-40**.

AQ-56 The owner/operator may cause S-9 to operate for an unlimited amount of time for the purpose of providing power for the emergency pumping of water. (Regulation 9-8-330.1)

Verification: The Project Owner/operator shall submit documentation of S-9 Fire Pump Diesel Engine hours of operation for providing power for the emergency pumping of water as part of the Quarterly Air Quality Report required by the verification of condition **AQ-40**.

AQ-57 The owner/operator shall equip S-9 with a non-resettable totalizing counter which records hours of operation. (cumulative increase)

Verification: The Project Owner/operator shall make the Project site available for inspection at any time by representatives of the District, CARB, U.S. EPA and the Energy Commission.

AQ-58 The owner/operator shall ensure that the sulfur content of all diesel fuel combusted at S-9 does not exceed 0.05% by weight. (TRMP, TBACT)

Verification: The Project Owner/operator shall submit documentation of S-9 Fire Pump Diesel Engine diesel fuel use and sulfur content certification as part of the Quarterly Air Quality Report required by the verification of condition **AQ-40**.

AQ-59 The owner/operator shall ensure that S-9 Fire Pump Diesel Engine shall achieve the following emission rates:

NO_x (as NO_2)	6.9 g/bhp-hr
CO	1.75 g/bhp-hr
POC	1.5 g/bhp-hr
PM_{10}	0.15 g/bhp-hr

(BACT, cumulative increase)

Verification: The Project Owner/operator shall submit documentation of compliance with the emission limits in this Condition of Certification as part of the Quarterly Air Quality Report required by the verification of condition **AQ-40**.

AQ-60 Within 60 days of the initial start-up of S-9, the owner/operator shall test the engine to determine the NOx, CO, PM_{10}, and POC emission rates to verify compliance with condition **AQ-59**. The owner/operator shall utilize the following test methods for each pollutant as indicated below.

(a) NOx source testing shall be in accordance with the District's Manual of Procedures, Volume IV, ST-13A or B

(b) CO source testing shall be in accordance with the District's Manual of Procedures, Volume IV, ST-6

(c) POC source testing shall be in accordance with the District's Manual of Procedures, Volume IV, ST-7

(d) PM_{10} testing shall be in accordance with California Air Resources Board (CARB) test method 17.

(BACT, TRMP)

Verification: Initial source testing shall be completed within 60 days of start-up. No later than 20 working days before the execution of the source tests, the owner/operator shall submit to the District and the CPM a detailed source test plan designed to satisfy the requirements of this condition. The District and the CPM will notify the owner/operator of any necessary modifications to the plan within 20 working days of receipt of the plan; otherwise, the plan shall be deemed approved. The owner/operator shall incorporate the District and CPM comments into the test plan. The owner/operator shall notify the District and the CPM within seven working days prior to the planned source testing date. Source test results shall be submitted to the District and the CPM within 60 days of the source testing date.

AQ-61 If the Merged Stack Parameter (M) of the final specified fire pump diesel engine is less than 2.13E+07, then the owner/operator must perform a revised health risk assessment for the S-9 diesel engine particulate emissions. The health

risk assessment will be subject to District review and approval. The Merged Stack Parameter (M) is defined as follows:

$$M = hVT/Q$$

where, h = stack height (in meters)
V = stack gas volumetric flow rate (m^3/s) at full load
T = stack gas temperature (degrees Kelvin) at full load
Q = diesel particulate emission rate (g/s) at full load
(TRMP)

Verification: If prepared, the health risk analysis shall be submitted to the District and the CPM within 60 days of the source test date of condition **AQ-60**. Otherwise, the Project Owner/operator shall submit documentation of compliance with all conditions specified in this Condition of Certification as part of the Quarterly Air Quality Report required by the verification of condition **AQ-40**.

AQ-62 The owner/operator shall maintain the following monthly records in a District-approved log for at least 5 years and make such records and logs available to the District upon request:

a) total hours of operation for the purpose of reliability-related activities for S-9 and a description of the reliability-related activity

b) total hours of operation for the purpose of the emergency pumping of water for S-9 and a description of the emergency condition

c) fuel sulfur content (cumulative increase)

Verification: The Project Owner/operator shall submit documentation of S-9 Fire Pump Diesel Engine hours of operation, purpose, and fuel use as part of the Quarterly Air Quality Report required by the verification of condition **AQ-40**.

B. PUBLIC HEALTH

The public health analysis supplements the previous discussion on air quality and considers the potential public health effects from Project emissions of toxic air contaminants. In this analysis, the Commission determines whether such emissions would exceed limits established for health protection and result in significant adverse public health impacts.[1]

Summary and Discussion of the Evidence

Project construction and operation will result in routine emissions of toxic air contaminants (TACs), which are identified as non-criteria pollutants because there are no ambient air quality standards established to regulate their emission levels.[2] (Ex. 51, p. 4.7-1.) 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.[3] 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 requirement is administered by the air district where the facility is located, in this

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[1] This Decision discusses other public health concerns in pertinent sections as follows: 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 hazardous and non-hazardous wastes are described in Waste Management.

[2] Criteria pollutants, discussed in the Air Quality section, are pollutants for which ambient air quality standards have been established by state and federal regulatory agencies. The emission control technologies employed by TPP to mitigate criteria pollutant emissions are considered effective for controlling non-criteria pollutant emissions from the same source. (Ex. 1, § 5.15.2; BAAQMD Regulation 2-2-301; Ex. 23 p. 8 et seq.)

[3] 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

case BAAQMD, which requires facilities that exceed specified TAC emission limits to conduct a health risk assessment to determine potential health effects. (*See* Health & Safety Code, § 44360; BAAQMD Regulation 2-1-316.)

1. Health Risk Assessment

Applicant performed a health risk assessment that was reviewed by Staff and approved by BAAQMD in its Final Determination of Compliance (FDOC). (Ex. 51, p. 4.7-1 et seq.; Ex. 23, pp. 20-21, Appendix D.) Applicant's risk assessment employed a scientifically accepted methodology consistent with CAPCOA Guidelines and with methods developed by the California Office of Environmental Health Hazard Assessment (OEHHA). (Ex. 1, § 5.15.3 et seq., Appendices K-12 and K-13; Ex. 51, p. 4.7-1 et seq.) This approach emphasizes a worst-case "screening" analysis to evaluate the highest level of potential impact. (Ex. 51, p. 4.7-2.) 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

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(CAPCOA) pursuant to the Air Toxics "Hot Spots" Information and Assessment Act (Health and Safety Code, § 44300 et seq.). (Ex. 1, § 5.15.2.)

- Assuming an individual's exposure to cancer-causing agents occurs for 70 years. (Ex. 51, p. 4.2-7.)

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, § 5.15.3.3; Ex. 51, p. 4.7-2.)

The health risk assessment addresses three categories of health impacts: acute (short-term), chronic (long-term), and carcinogenic health effects. (Ex. 1, § 5.15.3.5; Ex. 51, p. 4.7-4.) Since there was extensive public comment on potential project-related health effects in this case, we include a discussion of the scientific methodology underlying the risk assessment.

Regulatory agencies use the hazard index method to assess the likelihood of acute or chronic non-cancer effects. The analysis for non-cancer health effects compares the maximum Project contaminant levels to safe levels called "reference exposure levels" or RELs. These exposure levels are designed to protect the most sensitive individuals in the population, such as infants, the aged, and people suffering from illness or disease, which makes them more sensitive to the effects of toxic substance exposure. The RELs are based on the most sensitive adverse health effects reported in the medical and toxicological literature and include margins of safety. The margins of safety address uncertainties associated with inconclusive scientific and technical information available and are intended to provide a reasonable degree of protection against hazards that research has not yet identified. 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. 51, pp. 4.7-2 and 4.7-3.)

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. In cases where the interactions may be synergistic (the effects are greater than the sum), this approach may underestimate the health impact. (Ex. 51, p. 4.7-3; Ex. 1, § 5.15.3.9.) [Note: while the risk assessment is designed to overestimate individual and additive impacts, research on synergistic impacts of exposure to several substances is not well established so there is potential to underestimate synergistic effects. Staff shall provide an explanation for this phenomenon.]

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.[4] Under these conditions, health protection is likely to be achieved even for sensitive members of the population. (Ex. 51, p. 4.7-4.)

For inhalation cancer risk, the estimated airborne concentration level for each carcinogen released 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 unit risk factors and cancer potency factors are established by OEHHA. Once all the individual

[4] The hazard index ratio is calculated separately for acute and chronic effects. (Ex. 51, p. 4.7-4.)

inhalation and non-inhalation cancer risks are determined, the total cancer risk is computed by summing the cancer risks for each carcinogen.[5] (*See* 9/18/03 RT, p. 404: 4-12.) The chief exposure assumption is one of continuous exposure to a maximally exposed individual over a 70-year period at each identified receptor location. The calculated risk is not meant to Project 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, § 5.15.3.5; Ex. 51, p. 4.7-3.)

According to Staff, the threshold of significance for cancer risk is an incremental risk of ten in one million. (Ex. 51, p. 4.7-4.) This significance level is consistent with the standard used by BAAQMD 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.[6] (*Ibid*.)

2. Potential Impacts

The TPP's four HRSG stacks, the tallest Project components, will exhaust combustion gases at 200 feet above grade. Within a 10-mile radius of the site, elevations of topographical features exceed exhaust stack heights to the south

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[5] The following non-criteria pollutants were considered with regard to possible cancer risk: acetaldehyde, arsenic, benzene, 1,3 butadiene, cadmium, chromium VI, diesel exhaust, formaldehyde, nickel, polynuclear aromatic hydrocarbons (PAHs), and propylene oxide. (Ex. 1, § 5.15, Table 5.15-2; Ex. 4.7-11, Public Health Table 1.)

[6] 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. 51, p. 4.7-4.) The Air District allows an incremental risk of ten in a million for a source such as TPP where the best available control technology for air toxics (T-BACT) is used. (BAAQMD Air Toxic Risk Evaluation Procedure and Risk Management Policy, February 2000; BAAQMD Regulation 2-2-317; Ex. 1, § 5.15.3.6.)

and west (Altamont Hills) while elevations decrease below the stack heights to the north and east. Applicant used two USEPA-approved dispersion models, the ISCST3 model and the ACE2588 model, which are designed to estimate pollutant impacts in complex terrain configurations.[7] (Ex. 1, Appendices K-8 and K-13.) Project emission factors were derived from the California Air Toxics Emission Factors (CATEF II) database established by CARB and from data compiled by the Ventura County Air Pollution Control District.[8] (*See* Ex. 23, Appendix A "Emission Factor Derivations.") The CATEF factors were compared with the project's maximum daily TAC emissions to determine which substances would be included in the screening risk analysis. (Ex. 23, p. 6, Table 3; Ex. 1, § 5.15, Tables 5.15-3 and 5.15-4.) The toxicity values applied to each toxic substance included the RELs to calculate short-term and long-term non-cancer health effects. (Ex. 1, p. 5.15-3; Ex. 51, p. 4.7-10.)

Applicant used a three-mile radius of the site to locate sensitive receptors (schools, day care centers, hospitals).[9] (Ex. 1, § 5.15.1, Table 5.15-1, Figures 5.15-1a, 5.15-1b, and 5.15-2.) Although there are no known sensitive receptors

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[7] Maximum hourly (acute non-cancer effects) and annual (chronic non-cancer and carcinogenic effect) air toxic emission estimates for the gas-fired turbine and cooling tower were input to the models. Dispersion modeling using the ISCST3 model estimated ground-level concentrations near the TPP site and identified the locations of the highest health impacts from exposures through the inhalation pathway. A multipathway risk analysis was then performed using the ACE2588 model, which incorporates CAPCOA equations and algorithms to calculate health risks based on input parameters, such as air toxic emissions for each source, unit ground-level concentrations, and toxicological data. (Ex. 1, pp. 5.15-10 and 5.15-11.)

[8] According to Staff, the Ventura County APCD maintains a current list of emission factors recommended for different source categories based on the U.S. EPA AP-42 handbook and the CATEF database. Many air districts, including BAAQMD, use the Ventura list because it is typically the most updated compilation of emission factors. Neither BAAQMD nor the San Joaquin APCD has developed a list of emission factors specific to its own district. (Ex. 53, p. 12.)

[9] The location of maximum impact was determined by computer modeling, which includes meteorological and elevated terrain considerations. (9/18/03 RT, pp. 401-402.) Applicant described the point of maximum cancer impact as the northeast side of the facility boundary. The maximum chronic health hazard is located near the northeast boundary as well. The maximum acute hazard was located 3 miles west/southwest of the facility boundary where no residences presently exist. (Ex. 1 §§ 5.15.3.7 and 5.15.3.8, Figure 5.15-3.)

within the three-mile radius, the health risk assessment treats all receptors as sensitive receptors. (*Ibid*.)

a. Construction Phase

The construction phase is expected to take approximately 23 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. 51, 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. Staff performed a Phase I ESA and an interim Phase II ESA for the proposed reclaimed water route due to use of pesticides where the route traverses agricultural land. The sampled soils did not contain significant concentrations of hazardous substances. Condition **WASTE-7** requires that parcels along the route that were not sampled during the ESA surveys shall be analyzed prior to excavation activities. (Ex. 52, pp. 2.7-1 and 2.7-2, Attachments 1 and 2.)

Particulate emissions from diesel-fueled engines are listed in the CARB inventory of toxic air contaminants. Exposure to diesel exhaust can result in both short and long-term adverse health effects, including lung cancer. (Ex. 51, p. 4.7-9.) To protect worker health and safety during construction, safe work practices will be implemented as described in the Worker Safety section of this Decision. *See also* the Air Quality section. According to Applicant, no significant public health effects are expected during construction since construction-related emissions are

temporary (risk estimates are based on assumed exposures of 70 years) and potential exposure at the site is localized at the property line.[10] (Ex. 1, p. 5.15-6.) Condition of Certification **AQ-C3** in the Air Quality section 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. Condition **AQ-C3** also requires 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

Emission sources during Project operation include the four CTGs, two steam turbine generators, four HRSGs and associated exhaust stacks, the emergency diesel-fueled fire pump, and the cooling tower.[11] Staff's Public Health Table 1, replicated below, lists the TPP's anticipated toxic emissions and shows how each contributes to the health risk analysis.

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[10] Applicant found that the estimated cancer risk due to diesel exhaust is 1.7 in one million and the estimated chronic hazard index is 0.18, both below levels of significance. (Ex. 1, § 5.15.3.1.)

[11] Potential TAC emissions from the cooling tower were based on constituents found in California Aqueduct water, which would be used for cooling under Applicant's water diversion proposal. (Ex. 1, p. 5.15-9.) Condition **AQ-52** establishes a limit for total dissolved solids (TDS) measured at the base of the cooling towers not to exceed 1,878 ppmw (mg/l). Note: No evidence was presented regarding other constituents in reclaimed water. Staff shall provide testimony on whether the results of its analysis of cooling tower emissions using wastewater is comparable to the analysis based on Aqueduct water.

Public Health Table 1
Health Impacts and Exposure Routes Attributed to Toxic Emissions

Substance	Oral Cancer	Oral Noncancer	Inhalation Cancer	Noncancer (Chronic)	Noncancer (Acute)
Acetaldehyde			✔	✔	
Ammonia				✔	✔
Arsenic	✔	✔	✔	✔	✔
Benzene			✔	✔	✔
1,3-Butadiene			✔	✔	
Cadmium		✔	✔	✔	
Chromium VI			✔	✔	
Copper				✔	✔
Diesel Exhaust			✔	✔	
Ethylbenzene				✔	
Formaldehyde			✔	✔	✔
Hexane				✔	
Manganese				✔	
Mercury		✔		✔	✔
Napthalene		✔		✔	
Nickel			✔	✔	✔
Polynuclear Aromatic Hydrocarbons (PAHs)	✔	✔	✔	✔	
Propylene				✔	
Propylene oxide			✔	✔	✔
Toluene				✔	✔
Xylene				✔	✔
Zinc				✔	

Source: Ex. 51, p. 4.7-11; This Table is a compilation of Ex. 1, Table 5.15-3, which lists non-criteria pollutants; Table 5.15-4, which estimates cooling tower emissions; and Table 5.15-2, which lists the toxicity values used to characterize cancer and non-cancer health impacts from Project pollutants. (Ex. 1, p. 5.15-7 et seq.) Table 5.15-2 incorporates RELs and cancer unit risks from CAPCOA Air Toxics "Hot Spots" Program Revised 1992 Risk Assessment Guidelines, October 1993 and SRP 1998.

Staff's Public Health Table 2, below, summarizes the results of Applicant's risk assessment.[12]

Public Health Table 2
Operation Hazard/Risk

Type of Hazard/Risk	Hazard Index/Risk	Significance Level	Significant?
ACUTE NONCANCER	0.0739	1.0	No
CHRONIC NONCANCER	0.0211	1.0	No
INDIVIDUAL CANCER	6.85×10^{-6}	10.0×10^{-6}	No

Source: Ex. 51, p. 4.7-13; Ex. 1, § 5.15.3, Table 5.15-5.

The maximum incremental lifetime cancer risk during Project operation was calculated at 6.85 in one million at the point of maximum impact predicted to occur at the northeast facility boundary. This incremental cancer risk is below the ten in one million significance threshold. Thus, operation of the Project represents an insignificant incremental cancer risk to the public. (Ex. 1, § 5.15.3.7; Ex. 23, Appendix D.)

The total chronic hazard index was calculated at 0.0211 at the northeast boundary of the site and falls below the 1.0 REL significance level. The maximum acute non-cancer hazard index of 0.0739, calculated about 3 miles west/southwest of the site, 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, § 5.15.3.8.)

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[12] In anticipation of amendments to BAAQMD Regulation 2, Rules 1 and 2, BAAQMD required a separate calculation for TPP's emergency fire pump diesel engine to assess the impact of diesel emissions during operation. Because the location of maximum impact for the diesel engine did not coincide with the locations of maximum impact for other sources, the total combined carcinogenic risk for the TPP under BAAQMD's approach did not exceed *one in one million*. (Ex. 23, p. 21 and Appendix D, pp. D-1 and D-2.) BAAQMD also calculated cooling tower emissions separately since cooling towers are exempt from BAAQMD permit requirements but emission calculations are relevant to the overall health risk assessment for the TPP certification proceeding. (*Id*. at pp. 3 and 26, Appendix B, p. B-4, Appendix D, p. D-2.) For purposes of the Commission's review, however, we considered the calculations by category to determine compliance with the applicable hazard indices.

Conditions **AQ-30**, **AQ-33**, and **AQ-37** establish the limits and testing protocols for project-emitted TACs to ensure compliance with BAAQMD's Toxic Risk Management Policy.

3. Cooling Tower

In response to public concern about micro-organisms in cooling tower mist if the Project uses reclaimed water for cooling, 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. 51, p. 4.7-13 et seq.) California requires the use of mechanical drift eliminators and biocides to reduce the growth of micro-organisms in cooling systems using recycled water. (Cal. Code of Regs., tit. 22, § 60306) Although Legionella is not regulated by BAAQMD, the Air District advises facilities using recycled water to follow the guidelines and recommendations endorsed by the Cooling Technology Institute (CTI).[13] (Ex. 51, p. 4.7-15.)

To minimize exposure to Legionella, the Project Owner must comply with Condition **PUBLIC HEALTH-1,** which requires a Cooling Water Management Plan consistent with the CTI's recommendations. (Ex. 51, p. 4.7-16.). The CTI recommends the following strategies to minimize bacterial growth in cooling towers:

- Avoid piping that is capped and has no flow (dead ends).

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[13] *See* CTI's February 2000 report entitled "Legionellosis, Guideline: Best Practices for Control of Legionella." 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. (Ex. 51, p. 4.7-14.)

- Control input water temperature to avoid temperature ranges where Legionella grow. Keep cold water below 25° C (77° F) and hot water above 55° C (131° F).

- Apply biocides in accordance with label dosages to control growth of other bacteria, algae, and protozoa that may contribute to nutritional needs of Legionella. Rotating biocides and using different control methods is recommended. These include thermal shock, oxidizing biocides, chlorine-based oxidants and ozone treatment.

- Conduct routine periodic "back-flushes" to remove bio-film buildup on the inside walls of the pipes.

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. [Note: Staff included these requirements in the original draft but deleted them in subsequent iterations. The Committee has retained these items to clarify parameters of the microbial management plan.] Staff's expert witness indicated that implementation of an aggressive antibacterial program coupled with consistent monitoring and biofilm removal would reduce the potential of Legionella growth and dispersal to insignificance.

In conjunction with the biocide monitoring program, Conditions **AQ-52 and AQ-53**, require the Project Owner to equip the cooling tower with high-efficiency drift eliminators with a guaranteed efficiency rating of 0.0005 percent and to periodically inspect and maintain the equipment at the required efficiency level.

In public comment, Intervenor's witness Bill Powers indicated concern about sufficient denitrification (reducing ammonia) in reclaimed water used in the cooling tower to ensure the effectiveness of sodium hypochlorite as a biocide to reduce emissions of micro-organisms. (9/18/03 RT, p. 318-320.) We believe Condition **Public Health-1** is a reasonable safeguard to ensure the TPP will

implement an appropriate biocide treatment protocol that reduces emissions of micro-organisms to insignificant levels. *See* discussion in the Soil and Water Resources section of this Decision.

In response to other public comments about exposure to micro-organisms identified as "prions" in cooling tower emissions, Staff's expert witness testified that prions are not found in wastewater or sludge but rather in certain animal products that create a risk only if ingested. The testimony indicates there is no scientific basis for concern about prions in any type of water source, including recycled water. (9/18/03 RT, p. 399.)

4. Cumulative Impacts

When toxic pollutants are emitted from multiple sources within a given area, the cumulative or additive impacts of such emissions could lead to significant health impacts, even when such pollutants are emitted at insignificant levels from the individual sources involved. Analyses of such emissions have shown, however, that the peak impacts of such toxic pollutants are normally localized within relatively short distances from the source. Those toxic pollutant levels beyond the point of maximum impact normally fall within ambient background levels. (Ex. 51, p. 4.7-17.)

Staff believes that examining average toxic concentration levels from representative air monitoring sites with cancer risk factors specific to each contaminant, lifetime cancer risk can be calculated to provide a background risk level of inhalation of ambient air. For comparison purposes, Staff noted that the overall lifetime cancer risk for the average individual in California is about 250,000 in one million. (Ex. 51, p. 4.7-7.)

BAAQMD maintains a toxic air monitoring station in Livermore and CARB has monitoring stations in Stockton and Modesto. Based on data at all three

locations, the background cancer risk for the Bay Area as calculated by BAAQMD in the year 2000 was 167 in one million. (Ex. 51, p. 4.7-7.) The pollutants 1,3-butadiene and benzene, emitted primarily from mobile sources, were the two highest contributors to risk and represented over half the total. The risk from 1,3-butadiene was about 55 in one million, while the risk from benzene was about 44 in one million. Formaldehyde accounts for about 8.5 percent of the calculated cancer risk for the Bay Area, with a risk of about 14 in one million. Formaldehyde is emitted directly from vehicles and other combustion sources, such as the TPP. (*Ibid*.)

According to Staff, the use of reformulated gasoline beginning in the second quarter of 1996, as well as other toxics reduction measures, has decreased ambient levels of toxics and associated cancer risk during the past few years. For example, in the Bay Area, cancer risk was 342 in one million based on 1992 data, 315 in one million based on 1994 data, and 303 in one million based on 1995 data. (Ex. 51, p. 4.7-7.)

By contrast, the maximum cancer risk calculated for the TPP is 6.85 in one million at the maximum impact location at the northeast facility boundary. The evidentiary record indicates that the modeled TPP-related health risks were lower at all other locations and actual risks are expected to be even lower since worst-case estimates are based on conservative assumptions. (Ex. 51, p. 4.7-16.) Staff believes that the incremental impact of the health risk potential posed by the TPP would not be significant nor represent a cumulative contribution to the average lifetime cancer risk of 250,000 in one million. (*Id*. at p. 4.7-17.)

The TPP is within a 6-mile radius of the Tracy Peaker Project and the East Altamont Energy Center with the potential for cumulative impacts as a result of all three power plants operating at the same time. Since criteria and non-criteria emissions from each of the power plant projects will be mitigated to insignificant levels, the evidentiary record indicates that the potential incremental impact of

additional risk posed by the TPP would not be cumulatively considerable. (Ex. 51, p. 4.7-17.) [Note: This finding is dependent on whether issues related to the Air Quality and Water Resources analyses can be resolved.]

FINDINGS AND CONCLUSIONS

Based on the weight of the evidence, 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 TPP 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 TPP within a three-mile radius of the Project site.

6. There are no sensitive receptors within a three-mile radius of the site; however the health risk assessment assumed any receptor within the area was a sensitive receptor.

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 health risk assessment determined the point of maximum impact for toxic contaminant dispersion is the northeast site boundary for potential chronic non-cancer and cancer causing health risks and about three miles west/southwest of the site for acute non-cancer health risks.

9. The TPP will comply with BAAQMD's Toxic Risk Management Policy and implement the required T-BACT mitigation measures for air toxics.

10. The maximum incremental lifetime cancer risk during Project operation was calculated at 6.85 in one million, which is below the ten in one million significance threshold.

11. The total chronic hazard index was calculated at 0.0211, which is below the 1.0 REL significance level.

12. The maximum acute non-cancer hazard index of 0.0739 is below the 1.0 REL significance threshold.

13. 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.

14. Results of the health risk assessment indicate that potential public health risks from construction-related emissions will be insignificant.

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

16. 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.

17. 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.

18. 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 below the minimum recommended by the Cooling Technology Institute (CTI). The Plan shall be consistent with either Commission staff guidelines for the control of microbial growth in cooling water or the most current CTI Guidelines on control of Legionella and other micro-organisms. The Plan shall provide that: (1) proper levels of biocide and other agents are maintained in cooling tower water at all times; (2) periodic measurements of Legionella and other micro-organism levels are conducted; and (3) periodic cleaning is performed to remove bio-film buildup.

Verification: At least 60 days prior to the start of commercial operations, the Cooling Water Management Plan shall be provided to the CPM for review and approval.

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. 51, 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.[1] (*Ibid.*)

2. Mitigation Measures

The Project Owner will develop and implement a "Construction Safety and Health Program" and an "Operation Safety and Health Program," both of which must be reviewed by the appropriate agencies prior to Project construction and operation. (Ex. 1, § 5.14.1.2; Ex. 51, 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 will be prepared for both the

[1] 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. 51, p. 4.14-1 et seq.)

construction and operation phases of the project. (*Ibid*.) These comprehensive programs will contain more 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 Alameda County Fire Department to ensure that these programs comply with applicable LORS.

3. Fire Protection and Prevention Plans

The Project will include comprehensive on-site fire protection and suppression systems as first line defense in the event of fire. The Project will also rely on local fire protection services. (Ex. 1, § 3.4.10; Ex. 51, p. 4.14-10.) 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 Alameda County Fire Department and any other fire protection agencies serving the TPP at least 30 days before the start of construction activities. 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 TPP prior to the start of Project operation.

The on-site fire protection system provides the first line of defense for small fires. During construction, an interim fire protection system will be in place. The permanent facility fire protection system will be 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 will comply with applicable LORS.[2] (Ex. 51, p. 4.14-10; Ex. 1 § 3.4.10.)

The fire protection water supply will consist of a dedicated 300,000-gallon portion of the 8,365,000-gallon water storage tank located on-site. Two electric motor-driven fire pumps, each with a capacity of 2,500 gallons/minute, will deliver water to the fire protection water piping network. A third small capacity electric motor jockey pump maintains pressure in the piping network. According to Staff, this system will provide more than an adequate quantity of fire-fighting water to yard hydrants, hose stations, and water spray and sprinkler systems. (Ex. 51, p. 4.14-10; Ex. 1, § 3.4.10.)

In addition, a carbon dioxide fire protection system will be provided for the CTGs and accessory equipment, fire detection sensors will be installed, fire hydrants and hose stations will supplement the plant fire protection system, and smoke detectors, combustible gas detectors, and an appropriate class of service portable extinguishers will be located throughout the facility at code-approved intervals. (Ex. 51, p. 4.14-10; Ex. 1, § 3.4.10.)

In the event of a major fire, support services including trained firefighters and equipment for a sustained response would be provided by the Alameda County Fire Department. The Alameda County Fire Station closest to the site is Station No. 8 located at 1617 College Avenue in Livermore, which is 14-15 miles from the Project depending on the route taken, with an average response time of about 20 minutes. (Ex. 51, p. 4.4-14; Ex. 53, p. 17.) According to Staff, if the East Altamont Energy Center is built, Station 8 will be relocated to Greenville Road near I-580, which is about 10-14 miles from the site with an expected response time of 14-17 minutes. (Ex. 51, p. 4.14-5; (9/10/03 RT, pp. 235-236.) Automatic mutual aid agreements with the City of Tracy, the California Department of Forestry (CDF), and the Lawrence Livermore Lab would provide

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[2] *See* Ex. 1, § 6.4.2 et seq. and Ex. 51, p. 4.14-3.

backup support. The Tracy Fire Department can respond to the TPP site within 5 minutes. Staff indicated that the response time of the Alameda County Fire Department even without the assistance of mutual aid would be adequate and consistent with the Uniform Fire Code (UFC) and the National Fire Protection Association (NFPA). (*Ibid*.)

Alameda County Fire Station No. 8 is considered first responder for hazardous materials (hazmat) incidents with backup service provided by the Alameda County Hazmat Response Team. (Ex. 51. p. 4.4-14; Ex. 53, pp. 16-17.) Alameda County Fire Station No. 4, located at 20336 San Miguel Avenue in Castro Valley, is the hazmat first responder. Station 4 response time to the TPP is estimated at 35 minutes. Firefighters from Station 8 would secure the site until the trained hazmat responders could arrive. (*Ibid*.)

Staff provided the testimony of Alameda County Fire Chief Bill McCammon; Richard Brown, Alameda County Fire Department Chief Officer and Hazmat Specialist; Lawrence Livermore Laboratory Fire Chief Randy Bradley; and City of Tracy Fire Chief Larry Fragosa. (RT 9/10/03 p. 189 et seq.). Chief McCammon and Chief Fragosa testified that Alameda County (ACFD) and the City of Tracy Fire Departments (TFD) have entered into an automatic aid agreement under which the ACFD may request assistance from the TFD.[3] (*Id* at p. 194 et seq.) In conjunction with the automatic aid agreement, Applicant offered $500,000 to the ACFD to be used for fire protection purposes in eastern Alameda County. The Committee directs the parties to draft a Condition incorporating the Applicant's $500,000 payment to the ACFD in response to public concerns. (*Id.* at p. 169.)

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[3] According to Chief McCammon, a mutual aid agreement is between jurisdictions that are signatories to a statewide master agreement and are available to assist a district with equipment and personnel when the requesting district's resources are depleted. An automatic aid agreement such as the one between ACFD and TFD would trigger assistance even when the ACFD may have resources available but since TFD is capable of responding more quickly, both districts would respond jointly to an incident. (9/10/03 RT, pp. 198-199.) Chief Fragosa indicated that the automatic aid agreement is programmed into the computer so that an emergency call is simultaneously dispatched to both ACFD and TFD to ensure there is no delay in response time. (*Id*. at p. 200.)

According to Chief McCammon, the ACFD will allocate some of those funds to purchase equipment for the TFD to augment its response to the TPP. (*Id*. at p. 196.) The TFD has requested either a water tenderer truck[4] or a hazmat response truck.[5] (*Id.* at p. 228-229.)

Fire Chief Fragosa testified that construction of a new fire station (TFD Station No. 98) will commence in early 2004 to serve the planned new Mountain House community. Station No. 98 will be located at 911 Mascot Road, about 6 miles from the TPP site with an expected response time of 8-10 minutes. (*Id.* at pp. 233-234, 237.) In January 2004, two additional firefighters and an additional engine will be housed in TFD's existing Station No. 94 on Schulte Road and will respond to the Mountain House area until Station No. 98 is completed. Chief Fragosa indicated that both stations would be able to respond to the Tesla site. (*Ibid*.)

Staff summarized the location of fire department responders and associated response times in the Table shown below. (Ex. 124, p. 25.)

Station	**Distance to Tesla**	**Response Time**	**EMT**
Alameda County Fire Dept. Station No. 8 Livermore	via back road – 14.7 mile via I-580 – 15.5 miles	20 minutes 20 minutes	EMT - 3 paramedics
Alameda County Fire Dept. Station No. 8 (new location on Greenville Road if EAEC is built)	via back road – 10.3 mile via I-580 – 14.3 miles	14 minutes 17 minutes	

[4] Chief McCammon testified that a water tenderer truck holds 3,000 gallons of water and is particularly valuable for firefighting in remote areas where there are no built-in water systems. (9/10/03 RT, p. 197.)

[5] Members of the public expressed concern about the capability of TFD to respond in the event of a TPP-related hazmat release. (9/10/03 RT, p. 221 et seq. and p. 238 et seq.) Mrs. Sarvey asserted that the TFD needs a hazmat emergency response vehicle. ACFD Chief Officer Brown testified that hazmat response requires a high level of training and staffing consistent with applicable federal and state guidelines. The ACFD believes its hazmat team is better prepared to provide the necessary hazmat response and that the TFD could provide appropriate support. Since a water tenderer truck would be used on a regular basis by both ACFD and TFD, it would, therefore, provide a tangible benefit for both eastern Alameda County and western San Joaquin County. (*Id* at pp. 229-230.)

Alameda County Fire Dept. Station No. 4 Castro Valley Hazmat Response	via I-580 – 31.8 miles	30 minutes	EMT – 3 paramedics
Tracy Fire Department Station No. 94 Schulte Road City of Tracy	3.8 miles	5 minutes	EMT - 1
Tracy Fire Department Station No. 98 911 Mascot Road City of Tracy (planned construction)	6 miles	10 minutes	1 paramedic 2 EMTs

Staff's expert witness testified that the ACFD is adequately equipped and trained to respond to any potential TPP-related fire emergencies, medical emergencies, and hazmat emergencies within reasonable response times. (9/10/03 RT, p. 184.) Moreover, according to Staff's witness, while it is necessary to have adequate emergency response capability, such response is rarely required due to the automatic on-site fire suppression systems that must be incorporated into Project design by law. In the few events where emergency response was necessary at other power plant locations, they were clean-up operations because the automatic suppression systems extinguished the fires. (*Id*., at p. 185 et seq.) The Project Owner will also maintain an automatic defibrillator on-site to provide immediate response in the event of a medical emergency.[6] (*Id*. at p. 187.)

Staff reviewed the potential for TPP-related activities to result in cumulative impacts on the fire and emergency response capabilities of the ACFD in conjunction with the TFD and determined that it is adequately staffed and equipped to deal with any incident at the TPP facility and the EAEC. Given the rural area where the Project will be built and the lack of unique fire hazards

[6] Condition **WORKER SAFETY-3** requires the Project Owner to ensure that a portable automatic cardiac defibrillator is located on-site during construction and operation and that appropriate personnel are trained to use it. (*See*, Ex. 124, p. 24: Staff drafted the Condition requiring a defibrillator upon the Committee's direction.)

associated with a modern gas-fired power plant, Staff concluded the potential cumulative impacts of this Project on fire and emergency services provided by the ACFD and the TFD would be insignificant. (Ex. 51, p. 4.14-11.)

FINDINGS AND CONCLUSIONS

Based on the weight of 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 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.

3. The Tesla Power Project will include on-site fire protection and suppression systems for first line defense in the event of fire.

4. The Alameda County Fire Department will provide fire protection and emergency response services to the project.

5. Alameda County Fire Station No. 8 in Livermore about 15 miles from the Project is the assigned first responder to the TPP with a response time of about 20 minutes. Fire Station No. 4 will provide backup response to the TPP site with a response time of about 30 minutes.

6. Automatic mutual aid agreements with Tracy Fire Department, the California Department of Forestry, and the Lawrence Livermore Lab would provide backup support. The Tracy Fire Department can respond to the TPP site within 5 minutes.

7. Applicant has offered to pay $500,000 to the Alameda County Fire Department to provide fire protection service in eastern Alameda County. A portion of this payment would be allocated to purchase a water tenderer truck for use by the Tracy Fire Department.

8. Alameda County Fire Station No. 8 is the assigned hazmat first responder. Back-up hazmat support will be provided by the Alameda County Hazmat Response Team at Fire Station No. 4.

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

10. The TPP will not result in cumulative impacts to the Alameda County Fire Department's emergency response capabilities.

11. 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 CPM a copy of the Project Construction Safety and Health Program, containing the following:

1. A Construction Injury and Illness Prevention Program

2. A Construction Fire Protection and Prevention Plan

3. A Personal Protective Equipment Program

The Construction Injury and Illness Prevention Program and the Personal Protective Equipment Program shall be submitted to the California Department of Industrial Relations, Division of Occupational Safety and Health (Cal/OSHA) Consultation Service, if appropriate, for review and comment concerning compliance of the program with all applicable Safety Orders.

The Construction Fire Protection and Prevention Plan shall be submitted to the CPM for review and approval and to the Alameda County Fire Department and other fire protection agencies serving the Project for review and comment.

Verification: At least 30 days prior to the start of construction, the Project Owner shall submit to the CPM a copy of the Project Construction Safety and Health Program, the Personal Protective Equipment Program and the Construction Fire Protection and Prevention Plan, including a copy of the cover letter transmitting the Programs to Cal/OSHA's Consultation Service, if appropriate.

WORKER SAFETY-2 The Project Owner shall submit to the CPM a copy of the Project Operation Safety and Health Program containing the following:

1. Operation Injury and Illness Prevention Program
2. Emergency Action Plan
3. Operation Fire Protection Program
4. Personal Protective Equipment Program

The Operation Injury and Illness Prevention Program, Emergency Action Plan, and Personal Protective Equipment Program shall be submitted to the California Department of Industrial Relations, Division of Occupational Safety and Health (Cal/OSHA) Consultation Service, as appropriate, for review and comment concerning compliance of the program with all applicable Safety Orders.

The Operation Fire Protection Program and the Emergency Action Plan shall be submitted to the Alameda County Fire Department and other fire protection agencies serving the Project for review and comment.

Verification: At least 30 days prior to the start of operation, the Project Owner shall submit to the CPM a copy of the final version of the Project Operation Safety & Health Program. The document shall incorporate Cal/OSHA's Consultation Service comments, if any, regarding its review and acceptance of the specified elements of the proposed Operation Safety and Health Plan

The Project Owner shall notify the CPM that the Project Operation Safety and Health Program, including all records and files on accidents and incidents, is located on-site.

WORKER SAFETY-3 The Project Owner shall ensure that a portable automatic cardiac defibrillator is located on-site during construction and operation and that the appropriate staff has been

trained, as per the manufacturer's recommendations in its use.

Verification: At least 30 days prior to the start of site mobilization, the Project Owner shall submit to the CPM proof that a portable automatic cardiac defibrillator exists on-site and the appropriate training for its use has been completed.

D. HAZARDOUS MATERIALS MANAGEMENT

This analysis considers whether the construction and operation of the TPP will create significant impacts to public health and safety resulting from the use, handling, or storage of hazardous materials at the facility. Related issues are addressed in the Waste Management, Public Health, Worker Safety, and Traffic and Transportation portions of this Decision.

SUMMARY AND DISCUSSION OF THE EVIDENCE

Several locational factors affect the potential for project-related hazardous materials to cause adverse impacts, including local meteorological conditions, terrain characteristics, any special site factors, and the proximity of population centers and sensitive receptors. The evidence of record incorporates these factors in the analysis of potential impacts. (Ex. 1, § 5.12; Ex. 51, p. 4.4-4.)

1. Potential Impacts

Hazardous Materials (hazmat) Figure 1 (Ex. 1, Table 3.4-17; Ex. 53, p. 5 et seq.) appended to Condition of Certification **HAZ-1** at the end of this section, lists the hazardous materials that will be used and stored on-site including aqueous ammonia, sulfuric acid, hydrogen gas, and sodium hypochlorite, which are deemed *acutely hazardous*. None of these materials, however, will be used or stored in excess of regulated threshold quantities under the California Accidental

Release Release Prevention (CalARP) Program[1] except for aqueous ammonia.[2] The other substance of concern is natural gas, which will be used in large quantities, but not stored on-site. (Ex. 1, Table 3.4-17, p. 5.12-3; Ex. 51, p. 4.4-1.) Condition of Certification **HAZ-1** prohibits the Project Owner from using any hazardous materials not listed in HazMat Figure 1 or in greater quantities than those identified in HazMat Figure 1 without prior approval of the Energy Commission's Compliance Project Manager.

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 of spills or other releases of these materials would be limited to the site due to the small quantities involved. (Ex. 51, p. 4.4-6.) The use of hazardous materials during construction of the 11-mile wastewater pipeline and related pumping stations is also limited and would not result in a significant risk to the public. (Ex. 52, p. 2.4-1.)

a. Hydrogen

Hydrogen, which is a flammable gas that poses a risk of explosion, will be used as a generator coolant during Project operation. (Ex. 1, p. 5.12-3.) However, the small quantity intended for on-site storage would limit any blast effect to the site and is not expected to cause significant off-site impacts. As a precaution, the Project Owner will maintain hydrogen storage cylinders in an area isolated from

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[1] 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 would require the filing of a Risk Management Plan under the CalARP program. (Ex. 1, § 5.15.2.3.2.).

[2] Aqueous ammonia (19.5 percent ammonia in aqueous solution) is the only acutely hazardous material proposed to be stored at the TPP in quantities exceeding the reportable amounts defined in California Health and Safety Code, section 25532 (j).

combustion sources. (Ex. 3, Response 93.) Tanks and piping near potential traffic hazards will be protected from vehicle impact by traffic barriers. Other incompatible gases will be stored separately in appropriate storage containers that will be maintained in accordance with applicable law. (Ex. 1, p. 5.12-3.) Condition of Certification **HAZ-11** ensures that hydrogen gas will be stored at least 50 feet away from combustible or flammable materials.

b. Sodium Hypochlorite

Sodium hypochlorite is used in the cooling tower to control biological growth and fouling. Applicant anticipates that 5,000 gallons of sodium hypochlorite will be stored at the site. (Ex. 1, Table 5.12-1.) According to Staff, this amount is below the TPQ defined in the CalARP program and since sodium hypochlorite is in aqueous solution, it represents minimal risk to the off-site public because its vapor pressure is low. (Ex. 51, p. 4.4-7.) The use of sodium hypochlorite is safer than the alternative chlorine gas, which is much more toxic and likely to migrate off-site because it is stored under pressure. (*Ibid*.) Condition **HAZ-3** requires the TPP's Safety Management Plan to include measures to prevent accidental spills during transfer of sodium hypochlorite from delivery vehicles to the on-site storage tanks.

c. Sulfuric Acid

Sulfuric acid is used for water pH control in the cooling tower and other processes. The evidence indicates that sulfuric acid will be stored on-site but does not pose a risk of off-site impacts due to its relative low vapor pressure and low volatility as an aqueous solution. Since sulfuric acid is highly corrosive, it will be stored in a lined carbon steel tank to minimize the potential of catastrophic tank failure. A lined spill containment structure surrounding the tank will also be added to contain spills and leaks. (Ex. 1, p. 5.12-6.) To protect against risk of fire, Condition **HAZ-8** requires the Project Owner to ensure that no combustible or flammable material is stored within 50 feet of the sulfuric acid tank.

d. Aqueous Ammonia

Aqueous ammonia is used in the Selective Catalytic Reduction (SCR) process to control NOx emissions from combustion of natural gas in the facility. The aqueous ammonia will be stored in a single, above-ground 50,000-gallon tank. (Ex. 1, p. 5.12-5.) The accidental release of aqueous ammonia without proper mitigation can result in hazardous downwind concentrations of ammonia gas.[3] (Ex. 51, p. 4.4-10.)

Applicant performed an Off-Site Consequences Analysis (OCA) to evaluate potential public health impacts in a "worst case scenario," which would result from an accidental release during truck unloading. (Ex. 1, p 5.12-5, Appendix K-14.) Staff considers the threshold significance level to be a one-time exposure to 75 parts per million (ppm) of ammonia gas.[4] (Ex. 51, p. 4.4-10.) The OCA found exposure to 75 ppm would remain within the site fence line for all directional scenarios except releases that would be transported to the WNW through NNW. In these instances off-site impacts would occur beyond the outer property fence line. However, this area is uninhabited and according to Applicant, it is unlikely that any developer would locate a sensitive receptor on the NW side of the project. No impacts were identified at any existing sensitive receptor location. (Ex. 1, Appendix K-14.)

Applicant's engineering controls for the storage and transfer of aqueous ammonia include carbon steel tanks equipped with continuous tank level, pressure, and temperature monitors and alarms; and a carbon steel-reinforced concrete containment structure surrounding each tank and piping, with sufficient

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[3] The choice of aqueous ammonia significantly reduces the risk that is associated with the more hazardous anhydrous form, which is stored as a liquid gas. (Ex. 51, p. 4.4-10.)

berming to provide secondary containment in the event of a spill. The containment dike will be designed to contain the tank volume plus rainfall from a 25 year, 24-hour storm. A concrete-lined sump will be incorporated within the containment area to allow easy removal of collected rainwater and spilled chemicals. (Ex. 1, p. 5.12-9; Ex. 51, p. 4.4-13 et seq.)

The Project Owner will prepare a Risk Management Plan (RMP) to incorporate the engineering controls proposed for handling aqueous ammonia as well as a Hazardous Materials Business Plan that includes worker training, protective equipment, and safe operation procedures for approval by the Alameda County Environmental Health Department. (Ex. 1, p. 5.12-9; Ex. 51, p. 4.4-13 et seq.)

We have adopted several Conditions of Certification to ensure that the Project Owner implements the proposed engineering and administrative controls. Condition **HAZ-2** requires that the RMP be approved prior to first delivery of aqueous ammonia. Condition **HAZ-3** requires development of a Safety Management Plan for delivery of aqueous ammonia to the site. Condition **HAZ-4** requires that the aqueous ammonia storage tank be designed to certain specifications in compliance with applicable law. 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 CBC standards for seismic design.

Staff believes that transportation of aqueous ammonia poses the predominant risk associated with the transport of hazardous materials. (Ex. 51, p. 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

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[4] Staff's Appendix A, Table 1, replicated at the end of this section, shows the acute ammonia exposure guidelines for different sectors of the population.

handling in general transportation.[5] To address the issue of tank truck safety, aqueous ammonia will be 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 such as ammonia with a capacity of 6,100 gallons. (*Ibid.*) Condition **HAZ-5** ensures that regardless of which vendor supplies the aqueous ammonia, delivery will be made in a tanker, which meets or exceeds the specifications described in the applicable regulations.

Applicant initially identified two alternative routes for transportation of hazardous materials to the TPP. After review, Staff and Applicant agreed to one specific route for hazardous materials road deliveries: Interstate 205 (I-205) to Mountain House Parkway to Patterson Pass Road to Midway Road to/from the north, or Interstate 580 (I-580) to Patterson Pass Road to/from the west or south, to Midway and then into the facility, a total of just under five miles.[6]

The prescribed route allows the use of different off-ramps from the two Interstates (I-205 and I-580) depending upon the direction the delivery truck is coming or going. This keeps the trucks on the Interstate for the longest time possible and enables them to take the most direct route with the fewest intersections and turns. Moreover, it avoids unnecessary trips past the nine homes along the 4.3 mile section of Mountain House Parkway between I-205 and Patterson Pass Road, which was initially proposed by Applicant as an alternative

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[5] *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. Staff's witness noted that in the event of a transportation release of hazardous material on a roadway, the jurisdiction where the accident occurs would be first responder whether it is the local fire department, the California Highway Patrol, or CalTrans. Thus, the City of Tracy is not required to attend any hazmat release of materials traveling to the TPP unless the accident occurs in an area where the City of Tracy has jurisdiction. (Ex. 53, pp. 4-5; 9/10/03 RT, pp. 75-77.)

[6] According to Staff, this is a truck-route used by many large trucks delivering to warehouses in the Mountain House Parkway-Schulte Road area.

route. (Ex. 124, p. 14.) Since the area along the prescribed route is sparsely populated (currently three residences), Staff believes the risk over this short distance is insignificant. (Ex. 51, p. 4.4-12.) Condition **HAZ-12** requires the Project Owner to direct all vendors delivering hazardous materials to use only this route.

Intervenor Sarvey was concerned about hazmat deliveries on local roadways during fog conditions. (9/10/03 RT, p. 84 et seq.) Staff's expert witness testified that the route indicated in Condition **HAZ-12** is not directly adjacent to a sensitive receptor such as a school or hospital and thus, it is not necessary to include a specific Condition that establishes procedures for deliveries in fog conditions. (*Ibid*.) Public comment from Mrs. Sarvey raised an issue about the cumulative impacts of ammonia deliveries to the TPP in addition to deliveries to the Tracy Peaker and East Altamont projects in the Tracy area. (*Id*. at p. 88 et seq.) The Committee directed Staff to analyze the potential risk of hazardous materials releases during deliveries in fog conditions.[7]

In Staff's view, none of the circumstances that require a Condition of Certification restricting delivery of hazardous materials for other projects in fog conditions exist for the TPP.[8] Based upon the shortness of the hazmat transportation route, which is a truck route, the low incidence of dense fog in the area, the lack of a narrow roadway, the lack of schools or other sensitive receptors along the route,

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[7] According to Staff, fog occurs in the Project area during November through April but no records of dense fog (defined as visibility of less than 1/8 mile) exist for the Tracy or Stockton area. Dense fog has the potential to adversely affect driving where visibility drops to less than 500 feet. "Normal" fog, however, poses no substantially increased risk of a roadway vehicle accident when visibility is 0.25 mile or greater (2 long city blocks). (Ex. 124, p. 13.)

[8] In the East Altamont Energy Center case, anhydrous ammonia was proposed for use and thus special precautions were warranted. In the SMUD Consumnes case, the road was narrow with no shoulder, a school was located on the road, and thus vehicles transporting more than 1,000 gallons of hazardous materials must be escorted if fog exists. In the Inland Empire Energy Center case, no fog restrictions were imposed but time-of-day restrictions were necessary to avoid hazmat deliveries during periods when children were walking to and from school. (Ex. 124, p. 13.)

and the fact that the nearest planned residential neighborhood would be located no closer than 2.12 miles from the route, Staff does not believe a Condition addressing fog along the hazmat transportation route is required. (Ex. 124, p. 13.)

We note, however, that Staff's analysis did not consider the potential cumulative impacts of ammonia deliveries on Tracy area roadways due to the Tracy Peaker Project, the East Altamont Energy Center, and the TPP. Therefore, in the spirit of caution and in response to public concerns raised by Mrs. Susan Sarvey, we have added Condition **HAZ-13** (drafted by Staff at the Committee's direction and in consultation with the Applicant) to address hazmat deliveries in foggy weather.

e. Natural Gas

The Project requires large amounts of natural gas, which creates a risk of both fire and explosion. (Ex. 51, p. 4.4-7.) However, the probability of such an event can be reduced to insignificant levels through adherence to applicable codes and implementation of effective safety management practices. (Ex. 51, p. 4.4-7 et seq.) In particular, 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 will significantly reduce the likelihood of an explosion in gas-fired equipment. Additionally, start-up procedures will require air purging of the gas turbines prior to start-up, thus precluding the presence of an explosive mixture. The Safety Management Plan will address the handling and use of natural gas and significantly reduce the potential for equipment failure due to improper maintenance or human error. (*Ibid*.)

Natural gas will not be stored on-site; rather, it will be continuously delivered via the project's gas pipeline facilities (described in the Facility Design section of this Decision.) Since the facility will require the installation of a new gas pipeline,[9] potential off-site impacts were evaluated. (Ex. 51, p. 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 primarily creates a safety hazard to construction workers. As required by law, the Project Owner will mark the pipeline route to identify the pipeline location. (See discussion, *infra*.) Condition **HAZ-9** requires the Project Owner to ensure the pipeline route is listed with the USA "One-Call" system. This program enables any individual or agency (such as Caltrans) to obtain the precise route of the gas pipeline and avoid excavations in the area that could result in accidental rupture. (*Id*. at p. 4.4-9)

Design and inspection of the pipeline must comply with CPUC General Orders 112-E and 58-A and Federal Pipeline Safety Regulations, 49 CFR 192 requirements, as well as the NFPA. The following safety features will be incorporated into the design and operation of the gas pipeline in accordance with federal and state standards: (1) while the pipeline will be designed, constructed, and tested to carry natural gas at a certain pressure, the working pressure will be less than the design pressure; (2) butt welds will be x-rayed and the pipeline will be tested with water prior to the introduction of natural gas into the line; (3) the pipeline will be surveyed for leakage annually (4) the pipeline will be marked to prevent rupture by heavy equipment excavating in the area; and (5) valves at the meter will be installed to isolate the line if a leak occurs. (Ex. 51, p. 4.4-9 et seq.)

Condition **HAZ-10** requires the Project Owner to ensure that construction and operation of the gas pipeline complies with federal and state requirements.

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[9] At the time of this Decision it was undecided whether the new 2.8 mile, 24-inch gas pipeline would be constructed, owned, and operated by the TPP Project Owner or PG&E. To ensure compliance with applicable law, the Conditions of Certification require the TPP Project Owner to provide proof of compliance whether or not TPP is the ultimate pipeline owner.

Condition **MECH-1** in the Facility Design section of this Decision ensures the pipeline will comply with American National Standards Institute (ANSI) Code B31.2 on gas pipeline construction. These requirements also address seismic design to prevent pipeline failure during earthquakes. (Ex. 51, p. 4.4-8.) We conclude that implementation of these regulatory requirements will reduce the risk of natural gas release to levels of insignificance.

2. Site Security

The TPP will use hazardous materials that have been identified by the U.S. EPA as materials where special site security measures should be developed and implemented to ensure that unauthorized access is prevented. (Ex. 51 p. 4.4-16.) 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*.) General Condition of Certification on Construction and Operations Security Plan **COM-8** requires the preparation of a Vulnerability Assessment and the implementation of Site Security measures consistent with the above-referenced features.

3. Closure

The requirements for handling hazardous materials remain in effect until such materials are removed from the site regardless of closure. In the event that the Project Owner abandons the facility in a manner that poses a risk to surrounding populations, emergency action will be coordinated by federal, state, and local agencies to ensure that any unacceptable risk to the public is eliminated. (Ex. 51, p. 4.4-15.)

FINDINGS AND CONCLUSIONS

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

1. The TPP will use hazardous materials during construction and operation, including the *acutely hazardous* aqueous 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 aqueous ammonia and fire and explosion from natural gas.

3. The Off-Site Consequences Analysis indicated that no significant off-site public health consequences would result from an accidental ammonia release during the delivery process.

4. Compliance with appropriate engineering 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 approved Safety Management Plan for handling aqueous ammonia, an approved Hazardous Materials Business Plan, and an approved Risk Management Plan prior to delivery of any hazardous materials to the site.

8. The Project Owner will ensure that truck deliveries of aqueous ammonia are restricted to the hazmat truck delivery route identified in the evidentiary record or otherwise approved by the Commission's Compliance Project Manager and that appropriate precautions for hazmat deliveries are followed in foggy weather.

9. 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.

10. With implementation of the Conditions of Certification, below, the TPP 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 concludes, therefore, that the use of hazardous materials by the Tesla Power Plant 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 material not listed in Hazardous Materials (Hazmat) Figure 1 (AFC Table 3.4-17) appended to the end of these Conditions, or in greater quantities than those identified by chemical name in Hazmat Figure 1, unless approved in advance by Alameda County and the CPM.

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

HAZ-2 The Project Owner shall concurrently provide a Business Plan and a Risk Management Plan (RMP) to the Certified Unified Program Authority (CUPA) (Alameda County Environmental Health Department) for review and to the CPM for review at the time the RMP is first submitted to the U.S. Environmental Protection Agency (EPA). After receiving comments from the CUPA, the EPA, and the CPM, the Project Owner shall reflect all recommendations in the final documents. Copies of the final Business Plan and RMP shall then be provided to the CUPA and EPA for information and to the CPM for approval.

Verification: At least 60 days prior to receiving any hazardous material on the site, the Project Owner shall provide a copy of a final Business Plan to the CPM for approval. At least 60 days prior to delivery of aqueous ammonia to the site, the Project Owner shall provide the final RMP to the CUPA for information and to the CPM for approval.

HAZ-3 The Project Owner shall develop and implement a Safety Management Plan for delivery of aqueous ammonia and sodium hypochlorite and shall submit this plan to the CPM for approval. The plan shall include procedures, protective equipment requirements, training, and a

checklist. It shall also include a section describing all measures to be implemented to prevent mixing of aqueous ammonia with incompatible hazardous materials.

Verification: At least 60 days prior to the first delivery of aqueous ammonia or sodium hypochlorite to the facility, the Project Owner shall provide the Safety Management Plan to the CPM for review and approval.

HAZ-4 The aqueous ammonia storage facility shall be designed either to the ASME Pressure Vessel Code and ANSI K61.6, or to API 620. In either case, the storage tank shall be protected by a secondary containment basin capable of holding 125% of the storage volume or the storage volume plus the volume associated with 24 hours of rain assuming the 25-year storm. The final design drawings and specifications for the ammonia storage tank and secondary containment basins shall be submitted to the CPM.

Verification: At least 60 days prior to the first delivery of aqueous ammonia to the facility, the Project Owner shall submit final design drawings and specifications for the ammonia storage tank and secondary containment basin to the CPM for review and approval.

HAZ-5 The Project Owner shall direct all vendors delivering aqueous ammonia to the site to use only transport vehicles that meet or exceed the specifications of DOT Code MC-307.

Verification: At least 60 days prior to the first receipt of aqueous ammonia on site, the Project Owner shall submit copies of the notification letter to supply vendors indicating the transport vehicle specifications to the CPM for review and approval.

HAZ-6 The Project Owner shall require that the gas pipeline undergo a complete design review and detailed inspection 30 days after initial startup and every 5 years thereafter.

Verification: At least 30 days prior to the initial flow of gas in the pipeline, the Project Owner shall provide an outline of the plan to accomplish a full and comprehensive pipeline design review to the CMP for review and approval. The full and complete plan shall be amended, as appropriate, and submitted to the CPM for review and approval, not later than one year before the plan is implemented by the Project Owner.

HAZ-7 After any significant seismic event in the area where surface rupture occurs within one mile of the pipeline, the entire TPP-related gas pipeline shall be inspected by the Project Owner.

Verification: At least 30 days prior to the initial flow of gas in the pipeline, the Project Owner shall provide a detailed plan to accomplish a full and comprehensive pipeline inspection in the event of an earthquake to the CMP for review and approval. This plan shall be amended, as appropriate, and submitted to the CPM for review and approval, at least every five years.

HAZ-8 The Project Owner shall ensure that no combustible or flammable material is stored within 50 feet of the sulfuric acid tank.

Verification: At least 60 days prior to first receipt of sulfuric acid on-site, the Project Owner shall provide copies of the facility design drawings showing the location of the sulfuric acid storage tank and the location of any tanks, drums, or piping containing any combustible or flammable materials.

HAZ-9 The Project Owner shall ensure that the precise route and depth of the natural gas pipeline is listed with the USA "One-Call" system.

Verification: At least 30 days prior to the initial flow of gas in the pipeline, the Project Owner shall provide proof to the CMP that the pipeline route is part of the USA "One-Call" system.

HAZ-10 The Project Owner shall ensure that the construction, operation and maintenance of the natural gas pipeline is done in compliance with Public Utilities Commission General Order 112-E and 58-A standards, and Federal Department of Transportation (DOT) regulations, Title 49, Code of Federal Regulations (CFR), Parts 190, 191, and 192.

Verification: At least 30 days prior to the construction of the gas pipeline, the Project Owner shall provide proof that the above regulations will be complied with to the CPM.

HAZ-11 The Project Owner shall ensure that the hydrogen gas storage cylinders are stored in an area out of the plane of the turbines and that no combustible or flammable material is stored within 50 feet of the hydrogen cylinders.

Verification: At least 60 days prior to the first receipt of hydrogen gas on-site, the Project Owner shall provide copies of the facility design drawings showing the location of the hydrogen gas cylinders and the location of any tanks,

drums, or piping containing any combustible or flammable material and the route by which such materials will be transported through the facility.

HAZ-12 The Project Owner shall direct each and every vendor delivering any hazardous materials to, or hazardous wastes away from, the site to use only the route approved by the CPM (Interstate 205 to Mountain House Parkway to Patterson Pass Road to Midway Road to/from the north, or Interstate 580 to Patterson Pass Road to/from the west or south to Midway Road and then into the facility). An alternate route may be used only upon approval by the CPM.

Verification: At least 60 days prior to receipt of any hazardous materials on site, the Project Owner shall submit to the CPM for review and approval, a copy of the letter that will be mailed to all vendors who deliver hazmat materials to the TPP, identifying the approved hazmat delivery route and stating that the delivery route is required.

HAZ-13 The Project Owner shall direct all vendors delivering any hazardous material solution in an amount equal to or greater than 1,000 gallons to the site during the months of November through April to verify that dense fog conditions do not exist along state or county roads used for the delivery by calling the CALTRANS Highway Information Network (800-427-7623) prior to commencing delivery. If dense fog conditions exist, then delivery to the site shall be postponed until such time that dense fog conditions have abated. Alternatively, if dense fog conditions exist, the Project Owner shall ensure that deliveries subject to this condition are escorted from Interstate 205 to the facility by a lead vehicle equipped with fog lights, that both vehicles are equipped with radios to provide communication between the lead vehicle and the tanker truck, and that both vehicles have their headlights on at all times when traversing the route from Interstate 205 to the facility.

Verification: At least 30 days prior to the initial delivery of any hazardous material solution in an amount equal to or greater than 1,000 gallons, the Project Owner shall certify in writing to the CPM that the required hazardous material transportation dense fog restriction program is implemented and provide copies of notices sent to the vendors, which describe the requirements of the program.

APPENDIX A

BASIS FOR STAFF'S USE OF 75 PPM AMMONIA EXPOSURE CRITERIA

Staff uses a health-based airborne concentration of 75 PPM to evaluate the significance of impacts associated with potential accidental releases of ammonia. While this level is not consistent with the 200-ppm level used by EPA and Cal/EPA in evaluating such releases pursuant the Federal Risk Management Program and State Accidental Release Program, it is appropriate for use in Staff's CEQA analysis. The Federal Risk Management Program and the State Accidental Release Program are administrative programs designed to address emergency planning and ensure that appropriate safety management practices and actions are implemented in response to accidental releases. However, the regulations implementing these programs do not provide clear authority to require design changes or other major changes to a proposed facility. The preface to the Emergency Response Planning Guidelines (ERPGs) states that "these values have been derived as planning and emergency response guidelines, not exposure guidelines, they do not contain the safety factors normally incorporated into exposure guidelines. Instead they are estimates, by the committee, of the thresholds above which there would be an unacceptable likelihood of observing the defined effects." It is staff's contention that these values apply to healthy adult individuals and are levels that should not be used to evaluate the acceptability of avoidable exposures for the entire population. While these guidelines are useful in decision making in the event that a release has already occurred (for example, prioritizing evacuations), they are not appropriate for and are not binding on discretionary decisions involving proposed facilities where many options for mitigation are feasible. CEQA requires permitting agencies making discretionary decisions to identify and mitigate potentially significant impacts through changes to the proposed project.

Staff has chosen to use the National Research Council's 30 minute Short Term Public Emergency Limit (STPEL) for ammonia to determine the potential for significant impact. This limit is designed to apply to accidental unanticipated

releases and subsequent public exposure. Exposure at this level should not result in serious effects but would result in "strong odor, lacrimation, and irritation of the upper respiratory tract (nose and throat), but no incapacitation or prevention of self-rescue." It is staff's opinion that exposures to concentrations above these levels pose significant risk of adverse health impacts on sensitive members of the general public. It is also staff's position that these exposure limits are the best available criteria to use in gauging the significance of public exposures associated with potential accidental releases. It is, further, staff's opinion that these limits constitute an appropriate balance between public protection and mitigation of unlikely events, and are useful in focusing mitigation efforts on those release scenarios that pose real potential for serious impacts on the public.

Table 1 provides a comparison of the intended use and limitations associated with each of the various criteria that staff considered in arriving at the decision to use the 75-ppm STPEL. Appendix B provides a summary of adverse effects, which might be expected to occur at various airborne concentrations of ammonia.

APPENDIX A TABLE 1
Acute Ammonia Exposure Guidelines

Guideline	Responsible Authority	Applicable Exposed Group	Allowable Exposure Level	Allowable* Duration of Exposures	Potential Toxicity at Guideline Level/Intended Purpose of Guideline
IDLH[2]	NIOSH	Workplace standard used to identify appropriate respiratory protection.	300 ppm	30 min.	Exposure above this level requires the use of "highly reliable" respiratory protection and poses the risk of death, serious irreversible injury or impairment of the ability to escape.
IDLH/10[1]	EPA, NIOSH	Work place standard adjusted for general population factor of 10 for variation in sensitivity	30 ppm	30 min.	Protects nearly all segments of general population from irreversible effects
STEL[2]	NIOSH	Adult healthy male workers	35 ppm	15 min. 4 times per 8 hr day	No toxicity, including avoidance of irritation
EEGL[3]	NRC	Adult healthy workers, military personnel	100 ppm	Generally less than 60 min.	Significant irritation but no impact on personnel in performance of emergency work; no irreversible health effects in healthy adults. Emergency conditions one time exposure
STPEL[4]	NRC	Most members of general population	50 ppm 75 ppm 100 ppm	60 min. 30 min. 10 min.	Significant irritation but protects nearly all segments of general population from irreversible acute or late effects. One time accidental exposure
TWA[2]	NIOSH	Adult healthy male workers	25 ppm	8 hr.	No toxicity or irritation on continuous exposure for repeated 8 hr. Work shifts
ERPG-2[5]	AIHA	Applicable only to emergency response planning for the general population (evacuation) (not intended as exposure criteria) (see preface attached)	200 ppm	60 min.	Exposures above this level entail** unacceptable risk of irreversible effects in healthy adult members of the general population (no safety margin)

1) (EPA 1987) 2) (NIOSH 1994) 3) (NRC 1985) 4) (NRC 1972) 5) (AIHA 1989)
* The (NRC 1979), (WHO 1986), and (Henderson and Haggard 1943) all conclude that available data confirm the direct relationship to increases in effect with both increased exposure and increased exposure duration.
** The (NRC 1979) describes a study involving young animals, which suggests greater sensitivity to acute exposure in young animals. The (WHO 1986) warns that the young, elderly, asthmatics, those with bronchitis and those that exercise should also be considered at increased risk based on their demonstrated greater susceptibility to other non-specific irritants.

References for Appendix A, Table 1

AIHA. 1989. American Industrial Hygienists Association, Emergency Response Planning Guideline, Ammonia, (and Preface) AIHA, Akron, OH.

EPA. 1987. U.S. Environmental Protection Agency, Technical Guidance for Hazards Analysis, EPA, Washington, D.C.

NRC. 1985. National Research Council, Criteria and Methods for Preparing Emergency Exposure Guidance Levels (EEGL), short-term Public Emergency Guidance Level (SPEGL), and Continuous Exposure Guidance Level (CEGL) Documents, NRC, Washington, D.C.

NRC. 1972. Guideline for short-term Exposure of The Public To Air Pollutants. IV. Guide for Ammonia, NRC, Washington, D.C.

NIOSH. 1994. National Institute of Occupational Safety and Health, Pocket Guide to Chemical Hazards, U.S. Department of Health and Human Services, Washington D.C., Publication numbers 94-116.

WHO. 1986. World health Organization, Environmental Health Criteria 54, Ammonia, WHO, Geneva, Switzerland.

Abbreviations for Appendix A, Table 1

ACGIH, American Conference of Governmental and Industrial Hygienists
AIHA, American Industrial Hygienists Association
EEGL, Emergency Exposure Guidance Level
EPA, Environmental Protection Agency
ERPG, Emergency Response Planning Guidelines
IDLH, Immediately Dangerous to Life and Health Level
NIOSH, National Institute of Occupational Safety and Health
NRC, National Research Council
STEL, Short Term Exposure Limit
STPEL, Short Term Public Emergency Limit
TLV, Threshold Limit Value
WHO, World Health Organization

APPENDIX B

SUMMARY OF ADVERSE HEALTH EFFECTS OF AMMONIA

638 PPM

WITHIN SECONDS:

- Significant adverse health effects;
- Might interfere with capability to self rescue;
- Reversible effects such as severe eye, nose and throat irritation.

AFTER 30 MINUTES:

- Persistent nose and throat irritation even after exposure stopped;
- Irreversible or long-lasting effects possible: lung injury;
- Sensitive people such as the elderly, infants, and those with breathing problems (asthma) experience difficulty in breathing;
- Asthmatics will experience a worsening of their condition and a decrease in breathing ability, which might impair their ability to move out of area.

266 PPM

WITHIN SECONDS:

- Adverse health effects;
- Very strong odor of ammonia;
- Reversible moderate eye, nose and throat irritation.

AFTER 30 MINUTES:

- Some decrease in breathing ability but doubtful that any effect would persist after exposure stopped;
- Sensitive persons: experience difficulty in breathing;
- Asthmatics: may have a worsening condition and decreased breathing ability, which might impair their ability to move out of the area.

64 PPM

WITHIN SECONDS:

- Most people would notice a strong odor;
- Tearing of the eyes would occur;
- Odor would be very noticeable and uncomfortable.
- Sensitive people could experience more irritation but it would be unlikely that breathing would be impaired to the point of interfering with capability of self rescue
- Mild eye, nose, or throat irritation
- Eye, ear, & throat irritation in sensitive people
- Asthmatics might have breathing difficulties but would not impair capability of self rescue

22 or 27 PPM

WITHIN SECONDS:

- Most people would notice an odor;
- No tearing of the eyes would occur;
- Odor might be uncomfortable for some;
- Sensitive people may experience some irritation but ability to leave area would not be impaired;
- Slight irritation after 10 minutes in some people.

4.0, 2.2, or 1.6 PPM

- No adverse effects would be expected to occur;
- Doubtful that anyone would notice any ammonia (odor threshold 5 - 20 PPM);
- Some people might experience irritation after 1 hr.

Hazardous Materials Figure 1
Anticipated Hazardous Materials Use at the Tesla Power Plant

Material	CAS No. or Chemical Makeup)	Location/ Application	Hazardous Characteristics[47]	Maximum Quantity On Site	Regulatory Thresholds (lb.)			
					CalARP	Federal RQ[48]	Fed. TPQ[49]	Federal TQ[50]
Alkaline Phosphate Solution (KOH)	1310-58-3	Cooling tower scale control	*Health: chronic Physical: fire*	400 gallons (30 days storage)	-	-	-	-
Alkaline Phosphate Solution (NaOH)	1310-73-2	Boiler feedwater scale control	*Health: acute, chronic Physical: none*	2 x 400 gallons (60 days storage)	-	-	-	-
Ammonium Bifluoride	1341-49-7	HRSG chemical cleaning	*Health: acute, chronic Physical: reactive*	Temporary (by contractor)	-	100	-	-
Aqueous Ammonia 19.0 wt%	7664-41-7	NO_X Emissions Control	*Health:* acute, chronic *Physical:* fire, pressure	50,000 gallons (21 days storage)	500	100	500	10,000
Carbohydrazide (oxygen scavenger - Eliminox)	497-18-7	Boiler feedwater dissolved oxygen control	Health: acute, chronic Physical: none	2 x 400 gallons (60 days storage)	-	5,000	-	-
Carbon Dioxide (gas)	124-38-9	Generator purging	*Health: acute, chronic Physical: pressure*	50,400 scf	-	-	-	-

Hazardous Materials Figure 1
Anticipated Hazardous Materials Use at the Tesla Power Plant

Material	CAS No. or Chemical Makeup)	Location/ Application	Hazardous Characteristics[47]	Maximum Quantity On Site	Regulatory Thresholds (lb.)			
					CalARP	Federal RQ[48]	Fed. TPQ[49]	Federal TQ[50]
Carbon Dioxide (liquid)	124-38-9	Fire suppression	*Health: acute, chronic Physical: pressure*	48,000 lb	-	-	-	-
Citric Acid	77-92-9	HRSG chemical cleaning	*Health: acute, chronic Physical: none*	Temporary (by contractor)	-	-	-	-
Diesel Fuel Oil	68476-34-6	Diesel firewater pump motor, Emergency diesel generator	*Health: acute, chronic Physical: fire*	280 gallons	-	-	-	-
EDTA Chelant	60-00-4	HRSG chemical cleaning	*Health: acute, chronic Physical: reactive*	Temporary (by contractor)	-	100	-	-
Hydrochloric Acid	7647-01-0	HRSG chemical cleaning	*Health: acute, chronic Physical: none*	Temporary (by contractor)	-	5,000	-	15,000
Hydrogen	1333-74-0	Generator cooling	*Health: acute Physical: fire, pressure, reactive*	24,000 scf	-	-	-	10,000
Lubricating Oil	None	Mechanical Equipment	*Health: acute, chronic Physical: fire*	24,800 gall in the equipment and pipelines	-	-	-	-
Mineral Insulating Oil	None	Electrical Transformers	*Health: acute, chronic Physical: fire*	110,000 gall in the equipment and pipelines	-	-	-	-

Hazardous Materials Figure 1
Anticipated Hazardous Materials Use at the Tesla Power Plant

Material	CAS No. or Chemical Makeup)	Location/ Application	Hazardous Characteristics[47]	Maximum Quantity On Site	Regulatory Thresholds (lb.)			
					CalARP	Federal RQ[48]	Fed. TPQ[49]	Federal TQ[50]
Aqueous Ammonia 19 wt.%	7664-41-7	Condensate corrosion control	*Health: acute, chronic Physical: fire*	2 x 250 gallons (30 days storage)	500	100	500	10,000
Natural Gas	None	Gas turbine generator and duct burner fuel	*Health: acute Physical: fire, pressure*	2,600 lb in the equipment and pipelines	-	-	-	-
Nitrogen	7727-37-9	Blanketing	*Health: none Physical: pressure*	400 lb	-	-	-	-
Propylene Glycol	57-55-6	Antifreeze for closed cooling water system	*Health: acute, chronic Physical: fire*	50 gallons in the equipment and pipelines	-	-	-	-
Sodium Hydroxide 50 wt%	1310-73-2	Crystallizer alkalinity adjustment	*Health: acute, chronic Physical: reactive*	400 gallons (180 days storage)	-	-	1,000	-
Sodium Hypochlorite Solution 12.5 wt%	7681-52-9	Cooling tower oxidizer for bio fouling control	*Health:* acute, chronic *Physical:* none	5,000 gall (30 days storage)	-	-	100	-
Sodium Nitrite	7632-00-0	HRSG chemical cleaning	*Health: acute Physical: none*	Temporary (by contractor)	-	-	100	-
Sulfuric Acid 29.5 wt%	7664-93-9	Station and gas turbine batteries	*Health: acute, chronic Physical: reactive*	3,000 gallons	1,000	1,000	1,000	-

Hazardous Materials Figure 1
Anticipated Hazardous Materials Use at the Tesla Power Plant

Material	CAS No. or Chemical Makeup)	Location/ Application	Hazardous Characteristics[47]	Maximum Quantity On Site	Regulatory Thresholds (lb.)			
					CalARP	Federal RQ[48]	Fed. TPQ[49]	Federal TQ[50]
Sulfuric Acid 93.0 wt%	7664-93-9	Cooling tower pH control, RO feed water pH control, Evaporator feed water pH adjustment	*Health:* acute, chronic *Physical:* reactive	10,000 gallons (30 days storage)	1,000	1,000	1,000	-

Source: Ex. 1, Table 3.4-17
[1] Hazard categories are defined by 40 CFR 370.2. Health hazards include acute (immediate) and chronic (delayed). Physical categories include fires, sudden release of pressure, and reactive.
[2] RQ = Reportable Quantity CERCLA
[3] TPQ = Threshold Planning Quantity
[4] TQ = Threshold Quantity

E. WASTE MANAGEMENT

The Project will generate hazardous and nonhazardous wastes during construction and operation. This section reviews the Applicant's waste management plans for reducing the risks and environmental impacts associated with the handling, storage, and disposal of project-related hazardous and nonhazardous 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 as established by the Department of Toxic Substances Control (DTSC). (Cal. Code of Regs., tit. 22, 66261 et seq.) Hazardous waste generators must obtain EPA identification numbers and use permitted treatment, storage, and disposal facilities. Registered hazardous waste transporters must 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 at the Project site by Applicant's consultant, Foster Wheeler Environmental Corporation, in accordance with methods prescribed by the American Society for Testing and Materials. (Ex. 1, Appendix H.) Foster Wheeler found no evidence to indicate the presence of contaminated soils at the site caused by the use, storage, or disposal of hazardous materials or wastes. (*Ibid*.) The property has been used

for cattle grazing by the current property owner since 1951, and the previous owner also utilized the property for cattle grazing. The current owner confirmed that no hazardous materials have been used, stored, or buried on the site. (Ex. 5, Responses 320 and 321.)

We have incorporated specific mitigation measures in the Conditions of Certification to ensure that any unknown contaminated materials at the site and 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.

Commission staff prepared a Phase I ESA for the proposed 11-mile wastewater pipeline route. (Ex. 52, p. 2.12-1 et seq., Attachment 1.) More than 80 percent of the pipeline route traverses rural county road right-of-way while less than 20 percent of the route traverses agricultural lands, and about 5 percent is adjacent to lands zoned light industrial. Walking surveys revealed no observable signs of contamination; however, due to the use of pesticides on agricultural lands, Staff conducted an Interim Phase II ESA to take soil samples along the route.[1] (*Id*., Attachment 2.) The Interim Phase II ESA concluded that trenching and excavation work within the assessed segments would not likely encounter significant concentrations of either pesticides or arsenic to be considered hazardous waste or to pose significant risk to workers or the public. (*Ibid*.) Condition **WASTE-7** requires the Project Owner to test the remaining segments of the pipeline that were inaccessible during the Phase II ESA soil sampling exercise.

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[1] It is an "interim" Phase II ESA since a portion of the proposed pipeline route was inaccessible to Staff due to the landowner's refusal to allow soil testing on the property. (Ex. 52, p. 2.12-2.)

2. Construction

Site preparation and construction of the TPP and linear facilities will generate both nonhazardous and hazardous wastes in solid and liquid forms.

a. Nonhazardous wastes

Construction activities will generate up to 1,200 tons of nonhazardous solid waste products comprised of excess concrete, lumber, scrap metal, insulation, packaging materials, empty non-hazardous chemical containers, paper, glass, plastics, some amount of vegetation debris from grading activities, and excess bentonite drilling mud. (Ex. 1, § 5.13.2.1.) The waste metal will be segregated and recycled where practical. Non-recyclable wastes will be collected 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*.)

Nonhazardous liquid wastes generated during construction are discussed in the **Soils and Water Resources** section of this Decision. Storm water runoff will be managed through the application of National Pollutant Discharge Elimination System (NPDES) construction permit requirements and applicable Best Management Practices. Equipment wash water will be accumulated and transported offsite to a wastewater treatment facility for disposal. (Ex. 51, p. 4.12-4.)

b. Hazardous Wastes

Hazardous wastes generated during construction may include waste oil, spent welding materials, spent batteries, waste paint, and spent solvents. The quantities of these wastes are listed in Table 1-1 of the project's Draft Waste Management Plan. (Ex. 3, Response 138.) *See* Table 1-1 at the end of this section. Staff reviewed the disposal methods described in the Draft Waste

Management Plan and concluded that all wastes will be disposed in accordance with all applicable LORS. (Ex. 51, p. 4.12-4.)

The Project Owner will be a generator of hazardous wastes during construction. Wastes will be accumulated at satellite locations and transported daily to the construction contractor's 90-day hazardous waste storage area. The wastes thus accumulated will be properly manifested, transported, and disposed of by licensed hazardous waste collection and disposal companies. (Ex. 51, pp. 4.12-4 and 4.12-5; Ex. 3, Response 138.)

3. Operation

a. Nonhazardous Waste

Applicant expects about 80 tons per year of nonhazardous waste materials will be generated during Project operation including trash, office wastes, empty containers, broken or used parts, used packaging, used filters, and other wastes from routine maintenance activities. Non-recyclable solid wastes will be regularly transported by a permitted waste hauler to a Class III landfill. (Ex. 1, p. 5.13-4.)

b. Zero Liquid Discharge System

About 1,200 tons of solid waste from the Zero Liquid Discharge (ZLD) crystallizers will be generated annually. This process removes calcium, silica, and other minerals from the blowdown water and sends most of the water back to the cooling tower for reuse. The solid waste product (salt cake) is comprised of dried solids from the blowdown water combined with dried treatment chemicals (mainly sulfates) along with trace amounts of dispersants and non-metal based corrosion inhibitors. Applicant found that salt cake toxicity would be below levels of significance so salt cake could be designated nonhazardous waste. (Ex. 1, p. 5.13-5.) However, Applicant reviewed potential toxicity based on the use of

California Aqueduct water for cooling. Subsequently, the parties submitted evidence on the options of using either recycled water from the Tracy Wastewater Treatment Plant (TWTP) or dry cooling technology. *See* the Soil and Water section of this Decision. The record indicates that Staff reviewed information on the anticipated mineral content of TWTP recycled water and believes that the toxicity levels would not be appreciably different from that generated from Aqueduct water. (Ex. 51, p. 4.12-6.)

Staff expects the salt cake will be classified as a nonhazardous waste. However, the salt cake may be considered a California *designated waste* due to its high salt content. (Ex. 51, p. 4.12-5.) The category of designated waste includes nonhazardous waste that contains pollutants which, under ambient environmental conditions at a waste management unit, could be released in concentrations that could exceed applicable water quality objectives or affect the beneficial uses of waters of the state. (Cal. Code Regs., tit. 27, § 20210). Designated wastes must be disposed of at Class I or Class II disposal sites. Condition of Certification **WASTE-6** requires testing of the salt cake to determine appropriate disposal.

c. Hazardous Waste

Hazardous wastes generated during routine Project operation include waste oil, oily rags, oil absorbent, Selective Catalytic Reduction (SCR) catalysts, and used chemical cleaning solutions. Applicant estimated the Project would produce about 3,600 gallons of waste oil per year and 240,000 pounds of SCR catalyst every 3 to 5 years. The waste oil will be recycled. The used catalyst will be returned to the manufacturer for reclamation or disposal. (Ex. 1, § 5.13.2.3).

The turbines and HRSGs will be periodically cleaned by a licensed contractor, resulting in the production of waste wash water and chemical solutions. These wastes will be accumulated by the contractor and analyzed for hazardous

characteristics, then appropriately disposed of by the contractor. (Ex. 51, p. 4.12-6.) Overall, hazardous wastes will be generated in quantities less than 1,000 kg (2,205 lbs) per month, classifying the TPP as a small quantity generator. (*Ibid*.) Applicant's Table 1-2 in the Draft Waste Management Plan shows the operation waste streams and materials. *See* Table 1-2 at the end of this section.

4. Potential Impacts on Waste Disposal Facilities

Applicant's Table 5.3-1, replicated below, shows local Class II and III landfills within 25 miles of the site that will accept nonhazardous solid waste. Most of the nonhazardous waste produced during Project construction and operation will be recyclable. According to Applicant, the amount of nonrecyclable Project wastes will be insignificant relative to current disposal volumes at the nearest local Class III landfill located in Livermore, which totals more than 69.1 million cubic yards of remaining capacity to the year 2024. (Ex. 1, § 5.13.1.1.) Staff concurred that disposal of project-related solid nonhazardous wastes will not result in any significant direct or cumulative impacts on the capacities of local Class III landfill facilities. (Ex. 51, p. 4.12-7.)

Nonhazardous Solid Waste Disposal Sites (Class II and III)					
Landfill Disposal Site Name	**Location**	**Current (2000) Daily Usage (tons)**	**Remaining Capacity (cubic yards)**	**Anticipated Year of Closure**	**Approximate Distance from Project Site (miles)**
Vasco Road Landfill Class III	Livermore	2503	10,900,000	2015	8
Altamont Landfill Class II/III	Livermore	6000	69,100,000	2024+	4
Pleasanton Transfer Station Class III	Pleasanton	325	NA	NA	16
Tri-Cities Recycling and Disposal Class II/III	Fremont	2100	1,300,000	2001	24
TOTAL		**10,928**	**81,300,000**		

Source: Ex. 1, Table 5.13-1

Three major Class I landfills have permits to accept hazardous waste in California: Chemical Waste Management Landfill located in Kettleman Hills in Kings County; Safety-Kleen Buttonwillow Inc. in Kern County; and Safety-Kleen Superstition Hills in Imperial County.[2] According to Staff, more than 20 million cubic yards of hazardous waste disposal capacity exists at these landfills with up to 50 years of remaining operating lifetimes. (Ex. 51, p. 4.12-7.) Staff concluded that the minimal amount of project-related hazardous waste delivered to California's Class I landfills would not significantly impact the capacity or remaining lives of any of these facilities. (*Ibid*.) *See* the following Table listing Class I Landfills in California.

Hazardous Waste Landfills (Class I) in California

Disposal Site Name	Location	Permitted Capacity (cubic yards)	Estimated Remaining Operational Life
Safety-Kleen Buttonwillow,.	Lokern Road between State Routes 33 and 58, Buttonwillow, Kern County	13 million	40 years (~2040)
Chemical Waste Management, Kettleman Hills Landfill	State Highway 41, Kettleman Hills, Kings County	8 million (remaining capacity)	30 years (~2030)
Safety-Kleen Superstition Hills	5295 S. Garvey Road, Westmorland, Imperial County	2 million (remaining capacity)	50 years (~2050)

Source: Ex. 1, § 5.13.1.2

6. Cumulative Impacts

As proposed, the quantities of nonhazardous and hazardous wastes generated during construction and operation of the TPP will add to the total quantities of waste generated in Alameda County and the State of California. This facility will generate an estimated 1,200 tons of solid waste during construction and approximately 1,280 tons per year during operation. Additionally, it will produce

[2] In addition to landfills, there are several offsite commercial hazardous waste treatment and recycling facilities in California, for example, Safety Kleen has 11 branch offices, two

approximately 3,600 gallons of waste oil each year and 240,000 pounds of SCR catalyst every 3 to 5 years. The evidence indicates that because the wastes will be generated in minimal quantities, recycling efforts will be prioritized wherever practical, and capacity is available in a variety of treatment and disposal facilities, the added waste generated by TPP will not result in significant cumulative waste management impacts. (Ex. 51, p. 4.12-7.)

FINDINGS AND CONCLUSIONS

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

1. The TPP will generate hazardous and nonhazardous wastes during excavation, construction, and operation of the Project and linear facilities.

2. Applicant's Phase I Environmental Site Assessment (ESA) did not find any recognized adverse environmental conditions at the site that would indicate potential for contaminated soils.

3. Staff's Phase I ESA did not identify any contaminated soils along the wastewater pipeline route but recommended a Phase II ESA for soil sampling due to use of pesticides on agricultural lands adjacent to the route.

4. Staff's Interim Phase II ESA sampling and analysis of soils determined that toxicity levels for pesticide and metal residues were not significant.

5. Prior to construction of the wastewater pipeline, the Project Owner will test the remaining segments of the pipeline route that were inaccessible during the Phase II ESA soil sampling exercise.

6. The TPP will recycle hazardous and nonhazardous wastes to the extent possible and in compliance with applicable law.

7. Hazardous wastes that cannot be recycled will be transported by registered hazardous waste transporters to appropriate Class I landfills.

8. Solid nonhazardous wastes that cannot be recycled will be deposited at Class III landfills in the local area.

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accumulation centers, and one recycling center. (Ex. 1, § 5.13.1.2.)

9. 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.

10. Disposal of Project wastes will not result in any significant direct, indirect, or cumulative impacts to existing waste disposal facilities.

11. 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.

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 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 site or along the linear facility routes 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 Alameda County Waste Management Authority, the Alameda County Environmental Health Department, the Alameda County Fire Department, and the Berkeley Regional Office of 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 The Project Owner shall obtain a hazardous waste generator identification number from the Department of Toxic Substances Control prior to generating any hazardous waste during either construction or operations.

Verification: The Project Owner shall keep its copy of the identification number on file at the Project site and notify the CPM via the Monthly Compliance Report of its receipt.

WASTE-4 Upon becoming aware of any impending waste management-related enforcement action by any local, state, or federal authority, the Project Owner shall notify the CPM of any such action taken or proposed to be taken against the Project itself, or against any waste hauler or disposal facility or treatment operator with which the owner contracts.

Verification: The Project Owner shall notify the CPM in writing within 10 days of becoming aware of an impending enforcement action. The CPM shall notify the Project Owner of any changes that will be required in the manner in which project-related wastes are managed.

WASTE-5 The Project Owner shall prepare a Construction Waste Management Plan and an Operation Waste Management Plan for all wastes generated during construction and operation of the facility, respectively, and shall submit both plans to the CPM for review and approval. The plans shall contain, at a minimum, the following:

- A description of all waste streams, including projections 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 later than 30 days prior to the start of site mobilization, the Project Owner shall submit the Construction Waste Management Plan to the CPM.

The Operation Waste Management Plan shall be submitted to the CPM no later than 30 days prior to the start of Project operation. The Project Owner shall submit any required revisions within 20 days after 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 described in the original Operation Waste Management Plan.

WASTE-6 The Project Owner shall test the salt cake product from the crystallizer for the presence of hazardous levels of metals. If levels are below ten times the Soluble Threshold Level Concentration as listed in Title 22, California Code of Regulations, section 66261.24, then future testing is not required unless there is a substantial change in the wastewater treatment process. If not classified as a hazardous waste, the Project Owner shall manage the salt cake product appropriately as a designated waste.

Verification: No later than 30 days after the initial generation of salt cake, the Project Owner shall notify the CPM of the test results and the planned disposal method. Testing of salt cake shall be required and the disposal method reviewed thereafter if there is a substantial change in the wastewater treatment method.

WASTE-7 The Project Owner shall test the remaining parcels of segment 3A of the wastewater pipeline route as described in the Interim Phase II Environmental Site Assessment (ESA) for pesticides and metals. The sampling and laboratory analysis shall be done according to procedures described in the Phase II ESA.

Verification: The Project Owner shall provide the sampling and laboratory results to the CPM for approval at least 30 days prior to the start of construction of the recycled water pipeline.

Table 1-1. Anticipated Construction Waste Streams and Materials

Waste Stream	Waste Stream Classification	Estimated Amount	Estimated Frequency of Generation	No. Truck Trips and Frequency	Quantity Shipped	Anticipated Route
Scrap wood, steel, glass, plastic, paper, calcium silicate insulation, mineral wool insulation	Non-hazardous solids	40 cubic yards	Weekly	1 per week	40 cubic yards	Midway Rd to I-580 to Recycler or Class III landfill
Empty hazardous material containers	Hazardous solids	1 cubic yard	Weekly	1 per week	1 cubic yard	Midway Rd to I-580 to Class I landfill
Used and waste lube oil during combustion turbine and steam turbine lube oil flushes	Hazardous or non-hazardous liquids	55 gallon drums	200 drums over life of construction	1 per 90 days	25 - 55 gallon drums	Midway Rd to I-580 to Oil Recycler or TSD facility
Oil rags, oil absorbent generated during normal construction activities excluding lube oil flushes	Hazardous liquids	55 US gallons	Monthly	1 per month	55 US gallons	Midway Rd to I-580 to Class I landfill or TSD facility
Solvents, used construction equipment lube oils, paint, adhesives	Hazardous liquids	200 US gallons	Monthly	1 per month	200 US gallons	Midway Rd to I-580 to Recycler or TSD facility
Spent lead acid batteries	Hazardous solids	2 batteries	Yearly	1 per year	2 batteries	Midway Rd to I-580 to Battery Recycler
Spent alkaline batteries	Hazardous solids	60 batteries	Monthly	1 per month	60 batteries	Midway Rd to I-580 to Battery Recycler
ST and pre-boiler piping cleaning waste, chelant	Hazardous or non-hazardous liquids	600,000 US gallons	Once before initial startup	68	600,000 US gallons	Midway Rd to I-580 to Approved Off-Site Location or TSD facility
Waste oil from oily waste holding tank	Hazardous or non-hazardous liquids	20 US gallons	Monthly	1 per month	20 US gallons	Midway Rd to I-580 to Oil Recycler or TSD facility
Sanitary waste from potable chemical toilets and construction office holding tanks	Non-hazardous liquids	400 US gallons	Weekly	1 per week	400 US gallons	Midway Rd to I-580 to Municipal Sewage Treatment Plant
Storm water from construction area	Non-hazardous liquids	7 acre-feet	For a once in 2 year, 24 hour storm event	n/a	n/a	n/a
Fluorescent, mercury vapor lamps	Hazardous solids	60	Yearly	1 per year	60	Midway Rd to I-580 to Recycler
Hydrotest water	Hazardous or non-hazardous liquids	600,000 US gallons	Once before initial startup	68	600,000 US gallons	Midway Rd to I-580 to Approved Off-Site Location or TSD facility

Table 1-2. Anticipated Operation Waste Streams and Materials

Waste Stream	Waste Stream Classification	Estimated Amount	Estimated Frequency of Generation	No. Truck Trips and Frequency	Quantity Shipped	Anticipated Route
Used hydraulic fluid, oils, grease, oily filters	Hazardous or non-hazardous liquids	Less than 10 US gallons	Daily	1 per month	Less than 300 US gallons	Midway Rd to I-580 to Oil Recycler or TSD Facility
Spent lead acid batteries	Hazardous solids	4 batteries	Yearly	1 per year	4 batteries	Midway Rd to I-580 to Battery Recycler
Spent alkaline batteries	Hazardous solids	60 batteries	Monthly	1 per month	60 batteries	Midway Rd to I-580 to Battery Recycler
Spent catalyst (heavy metals)	Hazardous solids	240,000 lbs	Every 7 years	8 per 7 years	240,000 lbs	Midway Rd to I-580 to Spent Catalyst Recycler
Waste oil from oily water separator	Hazardous or non-hazardous liquids	200 US gallons	Yearly	1 per year	200 US gallons	Midway Rd to I-580 to Oil Recycler or TSD Facility
Oil rags, oil absorbent generated during normal operating and maintenance activities excluding lube oil flushes	Hazardous solid	110 US gallons	Monthly	1 per month	110 US gallons	Midway Rd to I-580 to TSD Facility
CTG used air filters	Non-hazardous	4,200 filters	Every 3 years	1 per 3 years	4,200 filters	Midway Rd to I-580 to Class III or II landfill
CTG water wash	Hazardous or non-hazardous liquids	20,000 US gallons	Yearly	2 per year	20,000 US gallons	Midway Rd to I-580 to Approved Off-Site Location or TSD Facility
HRSG Chemical Cleaning	Hazardous or non-hazardous liquids	840,000 US gallons	Every 10 Years	93 every 10 years	840,000 US gallons	Midway Rd to I-580 to Approved Off-Site Location or TSD Facility
Hydrotest water	Hazardous or non-hazardous liquids	340,000 US gallons	Yearly	38 per year	340,000 US gallons	Midway Rd to I-580 to Approved Off-Site Location or TSD Facility
Fluorescent, mercury vapor lamps	Hazardous solids	60	Yearly	1 per year	60	Midway Rd to I-580 to Recycler
Sanitary waste	Non-hazardous liquids	3 US gallons	Daily	1 every 3 years	3,000 US gallons	Midway Rd to I-580 to Class III or II landfill or TSD Facility
Storm water	Non-hazardous liquids	7 acre-feet	For a once in 2 year, 24 hour storm event	n/a	n/a	n/a
Spent Ion Exchange Resin	Non-hazardous solid	100 cubic feet per bottle	4 bottles once every 3 years	1 per 3 years	400 cubic feet	Midway Rd to I-580 to Class III or II landfill
Salts from zero level discharge rotary drum	Non hazardous solids	18,000 lbs	Daily	4 per week	40,000 lbs	Midway Rd to I-580 to Class III or II landfill
Chemical and transformer water collection	Non-hazardous liquids	20,000 US gallons	For a once in 2 year, 24 hour storm event	n/a	n/a	n/a

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 habitats potentially affected by the Project and its linear facilities include annual grassland, riparian communities, and freshwater wetlands. Much of the habitat in the Project vicinity has been altered due to decades of grazing, agriculture, and urban development. Sensitive and protected biological resources, which occur within 12 miles of the Project site, are listed below: (Ex. 1, pp. 5.3-3 to 5.3-8, Figure 5.3-1; Ex. 51, p. 4.2-4 et seq.):

- **Conservation and Mitigation Banks**

  - Haera Wildlife Mitigation Bank, comprised of 562 acres, is adjacent to the southern border of the Project site and was established to provide mitigation habitat credits for the San Joaquin kit fox and burrowing owl. Mitigation banks are authorized to sell habitat values (credits) to substitute habitat land for habitat lost to development where avoidance or on-site mitigation is not feasible.

- Brushy Creek Mitigation Bank is a 120-acre parcel in Contra Costa County about 11 miles northwest of the Project site, which provides mitigation credits for burrowing owls.

- CDFG Significant Natural Areas (SNAs) lie immediately north and south of Project site, adjacent to the Haera Wildlife Mitigation Bank. SNAs support special status species and are identified for educational purposes and to assist in achieving bioregional protection of natural resources.

▪ **California State Parks**

- Bethany Reservoir State Recreation Area, part of the State Parks System, is approximately 4 miles north of the Project site. Water recreation is popular at the reservoir, which is surrounded by U.S. Fish and Wildlife Service (USFWS) designated core habitat for the California red-legged frog. This area also provides habitat for San Joaquin kit fox and many other grassland species.

- Lake Del Val State Recreation Area, 12 miles southwest of the site, encompasses 4,000 acres of land and a 750-acre reservoir. A pair of bald eagles nests in this area. (Ex. 1, p. 5.3-5.)

▪ **Resource Conservation Districts (RCDs)** were established to restore natural resources, prevent erosion and flooding, enhance natural diversity, improve air quality, and provide natural resource education. Alameda County and San Joaquin County RCDs are located within 12 miles of the TPP site and include the following Resource Management Plans. (Ex. 1, § 5.3.1.8.)

- The San Joaquin County Multispecies Habitat Conservation and Open Space Plan (SJMSCP) provides a strategy for balancing protection of essential wildlife habitat and open space with meeting the increasing demand for land development. The SJMSCP relies upon minimizing, avoiding, and mitigating impacts to species covered within the plan. The San Joaquin kit fox is one of the primary species intended for protection.

- The Recovery Plan for Upland Species focuses primarily on recovery of 11 endangered and threatened species, along with protection and long-term conservation of candidate species and species of special concern. The species covered in the plan inhabit grasslands and scrublands of the San Joaquin Valley, adjacent foothills, and small valleys. The San Joaquin kit fox is a focal species in this plan as well.

- **Riparian habitats** provide nesting, hunting, and roosting areas for diverse animal species and provide habitat for native plants. The TPP area contains remnant riparian communities to the south and southeast of the Project site. There is a small section of degraded riparian habitat, Patterson Run Creek, which is a seasonally wet creek along the southwestern corner of the proposed construction laydown area. (Ex. 51, pp. 4.2-5; 4.2-21.)

- **Wetlands** are sensitive habitats characterized by many uniquely adapted plant and animal communities. Emergent freshwater marshes are present to the south and east of the Project site. Wetlands are also found along Patterson Run Creek. Numerous wetland plants were documented within the Project area including: rushes, grasses, forbs, and trees. However, no special status wetland species were detected during biological surveys conducted by the Applicant. Vernal pools have not been identified in areas directly impacted by the Project. (Ex. 1, p. 4.2-5 et seq. and p. 4.2-23.)

- **Special Status Species** are protected under the federal Endangered Species Act (ESA) and the California Endangered Species Act. Plants may also be listed by the California Native Plant Society (CNPS) as rare or endangered in California. (Ex. 1, Tables 5.3-1 and 5.3-2 and Appendix J-4).

Staff's Biological Resources Table 1, replicated below, lists the special status species that may occur in the Project area.

Biological Resources Table 1
Special Status Species That May Occur in the Project Area

Common Name	Scientific Name	Status
	Plants	
Large-flowered fiddleneck	*Amsinckia grandiflora*	FES/SE/1B
Alkali milkvetch	*Astragalus tener var. tener*	FSC/ 1B
Ferris' milkvetch	*Astragalus tener var ferrisiae*	FSC/ 1B
Heartscale	*Atriplex cordulata*	FSC/ 1B
San Joaquin saltbush	*Atriplex joaquiniana*	FSC/ 1B
Big tarplant	*Blepharizonia plumose*	--/ 1B

Livermore tarplant	*Deinandra bacigalupii*	FSC/1B
Recurved larkspur	*Delphinium recurvatum*	SC/ 1B
Mt. Diablo buckwheat	*Eriogonum truncatum*	--/1A
Rose mallow	*Hibiscus lasiocarpus*	--/2
Mason's lilaeopsis	*Lilaeopsis masonii*	--/1B
Diamond-petaled Calif.poppy	*Eschscholzia rhombipetala*	--/1B
Showy madia	*Madia radiata*	--/ 1B
Little mousetail	*Myosurus minimus apu*	*s*--/ 3
Caper- fruited tropidocarpum	*Tropidocarpum capparideum*	FSC/ 1A
	Insects and Crustacea	
Longhorn fairy shrimp	*Branchinecta longiatenna*	FE/--
Vernal pool fairy shrimp	*Branchinecta lynchi*	FT/--
Valley elderberry longhorn beetle	*Desmocercus californicus dimorphus*	FT/--
Curved-footed hygrotus diving beetle	*Hygrotus curvipe*	*s*FSC/--
Vernal pool tadpole shrimp	*Lepidurus macrolepidotus*	FE/--
California linderiella fairy shrimp	*Linderiella occidentalis*	FSC/--
Molestan blister beetle	*Lytta molesta*	FSC/--
	Mammals	
Pacific western big-eared bat	*Corynorhinus townsendii townsendii*	FSC/SSC
Greater western mastiff bat	*Eumops perotis californicus*	FSC/SSC
Small-footed myotis bat	*Myotis ciliolabrum*	FSC/--
Long-eared myotis bat	*Myotis evotis*	FSC/--
Fringed myotis bat	*Myotis thysanodes*	FSC/--
Long-legged myotis bat	*Myotis volan*s	FSC/--
Yuma myotis bat	*Myotis yumanensis*	FSC/SSC
San Francisco dusky-footed woodrat	*Neotoma fuscipes annectens*	FSC/SSC
Riparian woodrat	*Neotoma fuscipes riparia*	FE/SSC
San Joaquin pocket mouse	*Perognathus inornatu*s	FSC/--
Riparian brush rabbit	*Sylvilagus bachmani ripariu*	*s*FE/SE
San Joaquin kit fox	*Vulpes macrotis mutica*	FE/ST
	Reptiles and Amphibians	
California tiger salamander	*Ambystoma californiense*	FC/ SSC
California horned lizard	*Phyrnosoma coronatum frontale*	FSC/SSC/SP
Western pond turtle	*Clemmys marmorata*	FSC/SSC
California red-legged frog	*Rana aurora draytonii*	FT/SSC/SP
Foothill yellow-legged frog	*Rana boylii*	FSC/SSC/SP
Western spadefoot toad	*Scaphiopus hammondi*	FSC/CSC/SP
Alameda whipsnake	*Masticophis lateralis euryxanthus*	FT/ST
Giant garter snake	*Thamnophis gigas*	FT/ST
	Birds	
Golden eagle	*Aquila chrysaetos*	SFP/SSC
Ferruginous hawk	*Buteo regalis*	FSC/MNBMC/SSC
Swainson's hawk	*Buteo swainsoni*	--/ ST
Northern harrier	*Circus cyaneus*	--/SSC
White-tailed kite	*Elanus leucurus*	--/ SFP
Burrowing owl	*Athene cunicularia*	FSC/ SSC
Short-eared owl	*Asio flammeus*	MNBMC/SSC
Mountain plover	*Charadrius montanus*	FPT/SC
Tricolored blackbird	*Agelaius tricolor*	FSC/SSC
Bell's sage sparrow	*Amphispiza belli belli*	FSC/SSC
Little willow flycatcher	*Empidonax trailli brewsteri*	FSC/MNBMC/SE
California horned lark	*Eremophila alpestris actia*	--/SSC

Greater sandhill crane	*Grus canadensis tabida*	--/SSC/FP
Loggerhead shrike	*Lanius ludovicianus*	--/SSC
White-faced ibis	*Plegadis chihi*	FSC/MNBMC/SSC

SOURCE: Ex. 1, Table 5.3-1; Ex. 51, p. 4.2-7 et seq.
NOTES: FE = Federally listed as endangered. FT = Federally listed as threatened. FPE = Proposed endangered. FPT = Proposed threatened. FC = Candidate for listing as federal threatened or endangered. Proposed rules have not yet been issued because they have been precluded at present by other listing activity. FSC = Species of Special Concern threatened. SE = Species whose continued existence in California is jeopardized. ST = Species that although not presently threatened in California with extinction, is likely to become endangered in the foreseeable future. SC = State candidate for listing as threatened or endangered. SSC = California Department of Fish and Game Species of Special Concern (species with declining populations in California). SFP = Fully protected against take pursuant to the California Fish and Game Code Section 3503.5. SP= State Protected. MNBMC = Fish and Wildlife Service Migratory Nongame Bird of Management Concern. -- = No California or federal status. CNPS = California Native Plant Society Listing (does not apply to wildlife species). 1A = Plants presumed extinct in California. 1B = Plants, rare, threatened or endangered in California and elsewhere and are rare throughout their range. 3 = Species for which more information is needed. According to CNPS, all of the plants constituting List 1B meet the definitions of Sec. 1901, Chapter 10 (Native Plant Protection) of the California Department of Fish and Game Code and are eligible for state listing.

2. Potential Impacts

The power plant footprint within the Project fence line will result in permanent and unavoidable impacts to a 27.6-acre area of annual grassland. This area provides habitat for a number of special status species, especially the San Joaquin kit fox and burrowing owl. Adverse impacts resulting from permanent removal of the 27.6 acres are considered significant. The 24-acre construction laydown area is located southeast of the TPP footprint within a 49-acre parcel. This parcel is adjacent to Patterson Run Creek (to the southeast) as well as the Haera Mitigation Bank (to the southwest). Impacts to the California tiger salamander and the riparian habitats to the south are a major concern. (Ex. 51, p. 4.2-9; Ex. 1 p. 5.3-39.)

There are five special status plant species listed in Biological Resources Table 1 for which habitat exists within the vicinity of the Project site. These species are: Large-flowered fiddleneck, Big tarplant, Rose mallow, Mason's Lilaeopsis, and Caper-fruited tropidocarpum. Other plant species listed in Table 1 are unlikely to occur within the Project site or linear corridors due to unfavorable growing conditions where the area is disturbed by grazing and related agricultural

activities. No special status plant species were observed during surveys of the site; rather, the plant species within the site and along the linear alignments were common or non-native species. Staff noted, however, that the site lies close to natural areas where populations of special status plant species, such as the Big tarplant, may persist and should be avoided during construction activity. (Ex. 51, p. 4.2-11.)

There are several special status wildlife species that inhabit the Project site and vicinity, including the San Joaquin kit fox, the burrowing owl, and the California tiger salamander. Further, there is potential for many of the other special status species listed in Table 1 to occur within the Project site because the TPP property and vicinity provide foraging and dispersal habitats in an area that has become increasingly fragmented by human development. Staff also noted that the adjacent Haera Mitigation Bank attracts wildlife to the area. (Ex. 51, p. 4.2-12.)

The San Joaquin kit fox is a federally endangered and state threatened species, whose current distribution is restricted to the San Joaquin Valley and surrounding foothills of the coastal ranges, Sierra Nevada, and Tehachapi Mountains. Land conversion from uncultivated natural habitat to urban development and agriculture has been a major causal factor in the decline of this species. According to Staff, potential impacts to San Joaquin kit fox are considered highly significant by the USFWS. The Project area represents an important, fragile portion of the northern kit fox habitat range, which used to extend throughout San Joaquin Valley and parts of Alameda and Contra Costa counties.[1] (Ex. 51, p. 4.2-13; 9/11/03 RT, pp. 124-125.)

[1] The Recovery Plan for Upland Species of the San Joaquin Valley, the San Joaquin County Multi-Species and Open Space Conservation Plan, and the Draft Conservation Strategy for the San Joaquin Kit Fox in the Tracy Triangle Area have identified the TPP vicinity as vital to the recovery of this species. In addition, the San Joaquin kit fox Planning and Conservation Team (KF PACT) has identified habitat loss and fragmentation, especially in the Livermore area and Tracy Triangle area, as a priority concern that must be addressed to protect the species. (Ex. 1, p. 4.2-13.)

The kit fox is a largely nocturnal species, which prefers open grassland habitats, hunting small mammals, insects, reptiles, and birds and dig dens in sandy, loose-textured, loamy soils. Due to habitat loss within its historic range, this small fox must use agricultural fields, rangelands, and associated landscape features such as ditches and roadsides for denning and hunting. (Ex. 51, p. 4.2-13.)

Based on consultations with USFWS and the California Department of Fish and Game (CDFG), Applicant and Staff agreed the Project would cause several significant impacts to the San Joaquin kit fox, including:

- Loss of and fragmentation of habitat within a critical migration corridor[2] (also a cumulative impact);
- Loss of dens and foraging habitat[3]; and
- Degradation of existing foraging, dispersal, and breeding habitat due to increased human activity. (Ex. 1, p. 4.2-13; Ex. 4, Response 211.)

Conditions of Certification **BIO-13** and **BIO-14** provide a comprehensive mitigation program to protect and enhance kit fox habitat in the Project vicinity. Staff also recommended that TPP-related landscaping be designed to minimize impacts to kit fox habitat. (Ex. 51, p. 4.2-26 et seq.) The planting of tall evergreen trees and dense shrubs, which would screen the power plant from viewers on nearby roads and highways, would also provide cover for kit fox predators. (*Ibid*.) To protect the kit fox and to provide mitigation for viewshed impacts, Condition **BIO-14** requires the Project Owner to implement a landscape plan consistent with the guidelines established in Condition **VIS-6**.

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[2] The TPP site would cause a dispersal barrier to the kit fox due to its location immediately north of the Haera Mitigation Bank, which was designed to protect the affected corridor. Alameda County constitutes a critical pinch point for the northern population of the kit fox. The grassland habitat west of Interstate 580 and the Delta Mendota Canal provide important migration corridors to connect increasingly isolated satellite kit fox populations. (Ex. 51, p. 4.2-13.)

[3] Applicant's surveys identified 18 potential kit fox dens within the overall 60-acre Project site and determined that 8 would be destroyed as a result of construction activities. (Ex. 3, Response 30.)

According to Staff, the Project will also result in significant permanent impacts to regional and local habitats used by the burrowing owl and California tiger salamander. The burrowing owl is a state species of special concern that is likely to forage and breed in the Project vicinity since nesting and wintering burrowing owls are seen regularly throughout much of the Altamont Pass area. Several burrows were identified in the Project vicinity and Staff, therefore, believes the Project will cause a direct and significant loss of nest burrows and foraging habitat for this species.[4] (Ex. 51, p. 4.2-15.)

The California tiger salamander is a federal candidate species and a state species of special concern. Historically, the tiger salamander inhabited grasslands throughout much of the state, but now is found only in grassland/wetland habitats in the Central Valley, the Sierra Nevada foothills (at elevations below 1,000 feet), and the coastal region. This species breeds in vernal pools and ponds, and summers (estivates) in animal burrows or soil crevices. Breeding ponds must remain wet for approximately 10 weeks (until mid-May) to allow sufficient time for breeding and metamorphosis. The Project site provides suitable estivation habitat although no breeding ponds were identified at the site when Applicant conducted initial surveys. Staff believes there is potential for the California tiger salamander to inhabit areas adjacent to and bordering the site as they disperse along drainages (Patterson Run Creek) and wet areas. Since these fossorial salamanders are difficult to remove from areas they occupy in the soil, Staff considers Project impacts to be significant and permanent due to the disruption and probable "take" that will occur during construction activities. (Ex. 51, p. 4.2-16.)

Staff and Applicant identified 16 additional wildlife species (endangered, threatened, or of special concern) that could potentially inhabit the Project area,

[4] The Project footprint will result in the removal of at least two active burrows. Four owl burrows lie within 1,000 feet of the main construction area and two burrows exist within the construction area. Two additional burrows were mapped within 1,000 feet of the water pipeline route and four burrows were mapped within 1,000 feet of the gas pipeline route. (Ex. 3, Response 31, p. 15.)

including California red-legged frog, Swainson's hawk, Golden eagle, White-tailed kite, Ferruginous hawk, Short-eared owl, Northern harrier, Loggerhead shrike, California horned-lark, Tricolored blackbird, Mountain plover, Western pond turtle, San Joaquin whipsnake, California horned lizard, Western spadefoot toad, and bats. (Ex. 51, p. 4.2-16 et seq.; Ex. 1, p. 5.3-14 et seq.) Although no nesting or breeding sites for these species have been identified at the Project site, habitats supporting these species occur at the site and could be impacted directly, indirectly, and cumulatively by Project activities during construction, operation, and maintenance. Since the Project will permanently remove approximately 27.6 acres of suitable habitat at the site, which may be occupied by some or all of these species over the life of the Project , Staff was concerned about potential long-term impacts. (Ex. 51, p. 4.2-16.)

Staff recommended that the TPP's final Habitat Management Plan[5] include mitigation for these 16 "potentially significantly impacted" wildlife species. In addition, Staff proposed that the Project Owner conduct pre-construction surveys and employ avoidance and minimization measures in consultation with the USFWS and CDFG to ensure that adverse impacts to these species are not significant. (Ex. 51, p. 4.2-17.) Conditions **BIO-11** and **BIO-12** require the Project Owner to design Project components to avoid or minimize impacts on biological resources and to implement construction measures to avoid harassment or harm to wildlife species.

Other potential impacts to biological resources include HRSG stack emissions and cooling tower drift.[6] (Ex. 51, p. 4.2-29 et seq.) The evidence indicates that deposition rates of SO_2 and NO_2 from HRSG emissions fall below U.S. Forest

[5] Applicant provided a draft Habitat Management Plan (Ex. 14A) that must be approved by the Commission's CPM, in consultation with USFWS and the CDFG, and incorporated into the mitigation plan required by Conditions **BIO-5** and **BIO-13**.

[6] The deposition rate of cooling tower drift is below that deposition rate shown to cause barely perceptible vegetation stress from salt mist in the most sensitive plants. Deposition on vegetation and soils is diluted by annual rainfall and does not accumulate. Accordingly, cooling tower drift is not expected to result in significant impact on native vegetation. (Ex. 51, p. 4.2-31.)

Service thresholds for levels causing significant impacts to vegetation and ecosystems. (9/11/03 RT, pp. 100-102; Ex. 1, Table 5.2-33.) Emissions of particulate matter (PM_{10} and $PM_{2.5}$) have the potential to affect vegetation and wildlife in the area. However, implementation of the mitigation measures included in the Conditions of Certification on Air Quality will reduce potential impacts to insignificant levels. (*See* Ex. 23, p. 19, Appendix E, p. E-8.) The Habitat Management Plan for the Project will require monitoring of air quality impacts on local plant and animal communities. (Ex. 51, p. 4.2-30; Ex. 14A.)

The risk of avian collisions with TPP-related structures is inconsequential since the stacks and other components are lower than 500 feet where collisions typically occur. (Ex. 51, pp. 4.2-31 and 4.2-32.) Transmission lines will be designed to reduce the risk of avian electrocutions. Staff recommended that the Project Owner monitor electrocution events, which we will require in conjunction with monitoring programs specified in Condition **BIO-5**. (Ex. 51, p. 4.2-37.)

Project noise and nighttime lighting have 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. The Conditions of Certification for Noise ensure that noise impacts on area wildlife will be insignificant. (Ex. 51, p. 4.2-33.) Mitigation measures designed to minimize the effects of nighttime lighting on surrounding wildlife are incorporated in the Conditions on Visual Resources. The efficacy of these measures will be monitored using methods identified in Condition **BIO-5**. Testimony of the USFWS witness indicated that the kit fox adjust to industrial noise and light and “seem to do quite well in [Kern County] oil fields, actually.” (9/18/03 RT, p. 97:2-11.)

Staff's Biological Resources Table 3, below, quantifies the impacts on habitat types in the Project area. According to the Applicant, no wetland or riparian habitats will be impacted.

Biological Resources Table 3[7]
Habitats Permanently and Temporarily Impacted by Project Components

Project Component	**Grassland Habitat (acres)**		**Agricultural Lands (acres)**	
	Permanent	Temporary	Permanent	Temporary
Power Plant and Construction Laydown Area	27.6	40.0	**?** (*60 acres due to cancellation of Williamson Act contract*)	**?** (*40 acres for laydown*)
Transmission Line	0.1	0.9	0	0
Ravenswood Line Relocation	0.1	0.4	0	0
Water Supply Pipeline	0	10.3 (right of way)	0	0
Water Supply Pump Station	0.5	0	0	0
Reclaimed Water Pipeline		**66.7?**		**?**
Reclaimed Water Pumps	**0.2?**	**?**	**?**	**?**
Gas Supply Pipeline	0	13.8	0	7.7
Total	**28.3?**	**55.1?**	**?**	**7.7?**

Source: Ex. 51, p. 4.2-10; Ex. 14, p. 2; Ex. 52, p. 2.2-13.)

3. Mitigation

Applicant's Biological Mitigation Proposal identifies parcels of land that will be purchased for habitat conservation in the Project area to mitigate for disturbances to special status species habitat. (Ex. 14.) The following table from

[7] Staff and Applicant did not include the loss of agricultural land due to cancellation of the Williamson Act Contract. The parties shall explain this discrepancy in comments on the PMPD. Further, Staff shall provide a corrected version of Table 3 that includes the calculations for temporary and permanent impacts due to construction of the reclaimed water pipeline and associated water pumping stations.

Applicant's Biological Mitigation Proposal shows acreage required to mitigate impacted habitats identified in Biological Resources Table 3.

Compensation Land (Acres) Required for TPP[8]

Special Status Species	Habitat Loss	Compensation Ratio	Acres Required
Kit Fox			
Temporary Habitat Loss	55.1 acres	1.1:1	60.6
Permanent Habitat Loss	28.3 acres	3:1	84.9
Total			**145.5**
Burrowing Owl			
Temporary Habitat Loss	55.1 acres	1:1	55.1
Permanent Habitat Loss	28.3 acres	3:1	84.9
Total			**140.0**

(Ex. 14, pp. 2-3.)

Applicant intends to mitigate the significant adverse impacts to the San Joaquin kit fox and burrowing owl by providing land and/or conservation easements across adjacent and nearby suitable mitigation habitat. Applicant believes the California red-legged frog, California tiger salamander, and other special status species will also benefit from protection and management of this habitat. To secure the necessary habitat mitigation land, Applicant will acquire and preserve conservation easements on the properties illustrated by the map on the next page and described as follows.[9] (Ex. 14, p. 3.)

[8] This Table does not include mitigation acreage for the reclaimed water pipeline or associated water pumps. Staff shall correct this Table and revise the proposed mitigation, if appropriate.

[9] Mitigation lands will be managed by a qualified third party natural land management organization approved by USFWS, CDFG, and Energy Commission compliance staff as provided in Conditions **BIO-5** and **BIO-13**.

INSERT MAP

- Dedication of 99.97 acres in a parcel north and west of the Project site (APN 099B-7825-01-03), which will be owned by Applicant and managed in perpetuity through a conservation easement.[10] This parcel has suitable habitat for burrowing owl as demonstrated by several owls observed in this area. The parcel forms the northern border of the abandoned railway right of way for about 0.5 mile, which is believed to provide a migration corridor for the kit fox.
- Following Project construction and installation of landscaping, dedication of 25.8 acres of the Project site outside the Project facility fenceline (portions of APN 099B-7825-01-04), which is optioned by Applicant and would be managed in perpetuity through a conservation easement.
- Dedication of 320 acres in a parcel west of the Project site and southeast of the intersection of Grantline Road and I-580 (APN 099B-7825-002-01), which will be owned by Applicant and managed in perpetuity through a conservation easement. This parcel, known as the Castello property, provides the habitat favored by both kit fox and burrowing owl. (Ex. 51, p. 4.2-45.)
- Dedication of 19.7 acres south of the Project site (portions of APN 99B-7885-1-2), which Applicant will purchase from Wildlands, Inc.[11] and manage in perpetuity through a conservation easement. This parcel includes a portion of Paterson Run Creek, a designated critical habitat for the California red-legged frog.

All four parcels are contiguous with or provide connectivity to the Haera Mitigation Bank and are intended to expand the influence of the Haera Mitigation Bank to provide the desired connectivity for the kit fox corridor.[12] The 320-acre parcel will protect properties on both sides of a portion of the abandoned railway

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[10] This parcel will also be dedicated as a permanent agricultural preserve in conjunction with the partial cancellation of the Williamson Act contract for the Project site. Mr. Adolph Martinelli, former Director of the Alameda County Community Development Agency, testified that grazing and habitat preservation are compatible since habitat in the area has historically been grazed. The land trust proposed under the County's General Plan and identified in Condition **LAND-7** to preserve agriculture and open space includes habitat protection as well. (9/11/03 RT, pp. 134-135; *See* Land Use section in this Decision.)

[11] Wildlands, Inc. is a non-profit organization that acquires and develops mitigation banks and sells credits to mitigate impacts on the San Joaquin kit fox and burrowing owl. (9/11/03 RT, p. 133.) Wildlands, Inc. currently manages the Haera Mitigation Bank.

[12] Mitigation banks, such as the Haera Mitigation Bank, must be approved as special species conservation preserves by the USFWS and the CDFG. Thus, the Applicant's mitigation proposal and Habitat Management Plan were developed in consultation with and must be approved by both USFWS and CDFG. (9/11/03 RT, p. 133.)

right of way and connects the Haera Mitigation Bank to the critical I-580 undercrossing at Grantline Road as requested by USFWS. (Ex. 14, p. 4.) Although Applicant's calculations based on standard mitigation ratios initially determined that 145 acres were needed to replace affected habitat, consultation with the USFWS and CDFG indicated that standard ratios would not be sufficient to protect fragile kit fox habitat.[13] (Ex. 51, p. 4.2-45.) Therefore, Applicant agreed to provide a combined total of 467 acres to ensure connectivity and protection of kit fox corridors in the area. (9/11/03, pp. 126-129, 135-136; Ex. 14.) The Applicant has consulted with Wildlands, Inc. to develop habitat management practices that are similar to those implemented at the Haera Mitigation Bank. (Ex. 51, p. 4.2-46; Ex. 14, p. 5.)

To monitor potential impacts to biological resources due to construction activities at the TPP site, Conditions **BIO-1**, **BIO-2**, and **BIO-3** require the Project Owner to employ a qualified Biologist with authority to conduct mitigation and other compliance efforts in accordance with the Conditions of Certification. Condition **BIO-4** requires the Project Owner to develop a Worker Environmental Awareness Program to train construction crews on preventing impacts to sensitive species and their habitats. Under Condition **BIO-5**, the Project Owner must provide a comprehensive Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP), which will incorporate all the biological mitigation and compliance measures required by local, state, and federal agencies regarding biological resources.[14]

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[13] According to Staff, the USFWS indicated that the Project must ensure protection of the larger kit fox habitat corridor, general habitat compensation ratios would not be applicable, the mitigation area could not be at an off-site preserve, and the mitigation must provide substantial protection of the corridor. (Ex. 51, p. 4.2-45.)

[14] The draft BRMIMP was initially identified in the record as Exhibit 6, Supplemental Response 40. Since the draft BRMIMP was also filed separately on December 17, 2002, we have renumbered it as Exhibit 166. The final BRMIMP must be filed for review and approval by the Commission's CPM in consultation with USFWS and CDFG and other appropriate agencies at least 60 days prior to any site mobilization activities.

The TPP must comply with state and federal permit requirements. Condition of Certification **BIO-7** requires the Project Owner to obtain an Incidental Take Permit from the CDFG and/or a Consistency Determination, which must be incorporated into the Project's BRMIMP. Condition **BIO-8** requires the Project Owner to acquire a Streambed Alteration Agreement from the CDFG and incorporate its terms and conditions into the BRMIMP. Condition **BIO-9** requires a Biological Opinion from the USFWS per Section 7 of the Endangered Species Act. Applicant submitted a Biological Assessment (Ex. 61) in December 2001 to initiate the Section 7 review but the release date for the Biological Opinion was still pending at the time of evidentiary hearings. (9/18/03 RT, pp. 74-75.) Applicant must provide the final Biological Opinion to the Commission prior to the start of any Project mobilization activities. Under Condition **BIO-10**, the Project Owner shall also provide a final copy of the U.S. Army Corps of Engineers Section 404 permit and incorporate its terms and conditions into the BRMIMP.

Staff's proposed 11-mile reclaimed water pipeline route is primarily located in San Joaquin County. Staff's biological assessment of the pipeline route does not differ substantially from that of the site vicinity except that most of the route is more disturbed by farming and urbanization. (Ex. 52, p. 2.2-3.) Staff was concerned that incidental take of special status plant or animal species may occur during pipeline construction: in particular, the Big tarplant, which was discovered during spring surveys; Swainson's hawk, which nests in trees along the route; burrowing owl, which burrow in the soil; and amphibians, which inhabit bodies of water along the route. The risk of incidental take can be reduced to insignificance with implementation of impact avoidance and minimization measures tailored to protect special status species. (*Id*. at pp. 2.2-14, 2.2-20 et seq.)

Condition **BIO-16** requires the Project Owner to implement avoidance measures identified in the San Joaquin County Multi-Species Habitat Conservation and Open Space Plan. Condition **BIO-12** requires the Project Owner to avoid

removal of walnut trees on Grantline Road and other large trees (consistent with concerns about avoiding tree roots discussed in the Visual Resources section of this Decision) to protect Swainson's hawk nesting habitat along the pipeline route. Condition **BIO-12** also requires the Project Owner to avoid disturbances to irrigation ditches or canals by employing appropriate construction methods and to place soils removed during trench-digging in pre-approved locations that would not adversely impact biological resources.

Staff recommended that the BRMIMP include biological resource concerns associated with construction of the reclaimed water pipeline, including the results of Big tarplant field surveys and required mitigation. (Ex. 52, p. 2.2-19.) Staff's recommendations are reflected in Condition **BIO-15,** which requires completion of Big tarplant field studies and implementation of recommended mitigation, if necessary, such as reseeding and maintenance of the affected areas.

The use of reclaimed water by the TPP would reduce the current Tracy Waste Water Treatment Plant (TWWTP) discharge volume into the Old River. Staff's analysis indicated that special status fish in the Delta region that may inhabit or migrate through the Old River would not be significantly adversely impacted by decreased flows, but rather, aquatic species may benefit from the expected improvement in water quality as a result of the decrease and use of tertiary treatment. (Ex. 52, p. 2.2-15.)

4. Buena Vista Lake Shrew

Applicant proposed to use California Aqueduct water for Project cooling by exchanging Kern County Water Agency's entitlement to the Aqueduct water with floodwater purchased from the Kern River via the Floodwater Banking and Recovery Program ("Banking Program") sponsored by the Buena Vista and Rosedale-Rio Bravo Water Storage Districts in Kern County. (*See* the Water Resources section of this Decision.) The USFWS was concerned about potential

impacts of this water exchange on the endangered Buena Vista Lake shrew in Kern County. (Ex. 63.) Extensive testimony was presented by Applicant and Staff regarding the Buena Vista Lake shrew. (Ex. 155; Ex. 157A; 9/11/03 RT, p. 199 et seq.; 9/18/03 RT, p. 54 et seq.; p. 83 et seq.; Ex. 58.)

In a letter dated September 25, 2003, from USFWS to Commission staff, the USFWS determined that use of Kern River water is not a part of the Tesla Power Plant Project because the water withdrawal is likely to occur whether or not the TPP is built. (Ex. 164.) The Committee requested the parties' positions regarding this letter, which was filed after the close of evidentiary hearings.

The Applicant argues that the Banking Program will not result in impacts to the Buena Vista Lake shrew, nor will it violate any federal or state laws. The Applicant further asserts the TPP and the Banking Program are unrelated separate projects; the Banking Program has several customers and the TPP is only the first long-term buyer among several additional customers anticipated in the future; and the Banking Program will proceed whether or not the TPP participates. Thus, Applicant contends the TPP will not result in potential impacts to the shrew by participating in the Banking Program.

Staff asserts that the TPP must comply with Section 7 of the ESA, which requires a USFWS Biological Opinion to address potential impacts to the shrew if the TPP pursues the Kern County water source available through the Banking Program. The USFWS witness testified that no Section 7 consultation with the USFWS was initiated regarding potential impacts of the Banking Program on the shrew although the witness participated in a Staff-sponsored workshop regarding potential impacts of the TPP water proposal on the shrew. (9/18/03 RT, pp. 76-86.) The testimony indicates that the Final Environmental Impact Report (FEIR) for the Banking Program does not fulfill all requirements of a biological assessment, which is usually the document submitted to initiate a USFWS Section 7 consultation. (*Id*. at p. 88.)

In our view, the record establishes that the Banking Program will operate whether or not the TPP participates in the water exchange proposal. Moreover, the FEIR for the Banking Program (published September 2002) found that potential impacts to the Buena Vista Lake shrew were insignificant or nonexistent. (Ex. 15; Ex. 155.) We have no authority to determine whether the USFWS must complete a Section 7 consultation for the Banking Program, nor is it relevant to our inquiry. We believe the two projects are separate and will operate independently of each other, which is the clearest reading of the September 25, 2003, letter from the USFWS. (Ex. 164.) The Banking Program was designed to sell excess floodwater to customers and the FEIR considered the overall impacts of meeting the water demands of a customer base. TPP's proposal to purchase water from the Banking Program as a customer is subsumed in the purpose of the Banking Program. We believe the issue of potential impacts on the Buena Vista shrew is between the USFWS and the Banking Program.[15] Our determination of whether the TPP can participate in the Banking Program as part of the water diversion plan to supply cooling water is not based on potential impacts to the shrew but rather on whether use of fresh water is appropriate when recycled water is available. *See* the Soil and Water Resources section.

5. Cumulative Impacts

The Commission has certified two other power plants in the TPP vicinity: the East Altamont Energy Center (EAEC), a 1,100-MW facility located less than 6 miles from the TPP site and the Tracy Peaker Project, a simple cycle 169-MW facility in the City of Tracy. According to Staff, these projects will result in significant cumulative adverse impacts to terrestrial habitats for special status species such as the San Joaquin kit fox. Habitat mitigation for the EAEC would be located on 151-acre Gomes Farms property near the EAEC location in Alameda County. Habitat mitigation for the Tracy Peaker Project consists of participation in the San

[15] In a letter to the Buena Vista WSD dated January 26, 2004, the U.S. Fish and Wildlife Service indicated its determination that the Banking Program "will not result in take of the listed Buena Vista Lake Shrew." (Ex. 168, p. 2.)

Joaquin County Habitat Conservation Plan as well as an on-site conservation easement. Both of these projects are on the northeast side of the critical kit fox migration corridor identified by USFWS. Staff believes the impacts of the three energy projects may be cumulatively significant due to the TPP's location within the kit fox corridor. (Ex. 51, p. 4.2-38.) The Applicant also identified industrial, commercial, and residential projects, which could contribute significantly to cumulative impacts. Specifically, the Tesla Substation expansion, the Altamont Pass Wind Resource Area, the Tracy Logistics Center, and Patterson Pass Business Complex are located within 3 miles of the TPP and within the critical kit fox habitat corridor. (Ex. 1, § 5.3.8, Table 5.3-8; Ex. 51, p. 4.2-38.)

According to Staff, TPP-related construction and operation activities could contribute to cumulative biological impacts without implementation of avoidance and minimization measures. Cumulative impacts to habitat losses will be mitigated, however, to less than significant levels as specified in the TPP's compensation package, which is based on habitat quality, quantity, and connectivity, and requires the TPP to employ appropriate performance standards to manage and monitor the program for the benefit of special status species. (Ex. 51, pp. 4.2-38 and 4.2-39.)

6. Intervenors

Intervenors presented the testimony of Shawn Smallwood, Ph.D., who asserted that the kit fox is almost extinct in the Project area and that biological impacts of the TPP are so extensive that the Applicant should be required to spend $47.3 million on mitigation, including use of SCONOX to reduce air pollutant emissions, purchase of conservation easements on thousands of acres in the Altamont Pass, funding of research to reduce avian mortality due to wind turbines, funding a monitoring program for multiple special status species, and habitat restoration for special status species. (Ex. 103, pp. 1-4.) Dr. Smallwood argued that Staff underestimated impacts to wildlife in the area and used inappropriate

methodology to determine whether special status species exist on the site. According to Dr. Smallwood, if a special species habitat occurs in an area, then biologists should assume that the species supported by that habitat also occur in the area. (9/11/03 RT, p. 143 et seq.) In Dr. Smallwood's opinion, Applicant's plan to mitigate impacts on local wildlife by establishing conservation easements adjacent to the TPP site will fail since a power plant and wildlife habitat are not compatible. (*Ibid*.)

The evidentiary record indicates that Applicant and Staff consulted with state and federal agencies to develop appropriate mitigation, which is incorporated in the Applicant's draft Habitat Management Plan. (Ex. 14A). According to Staff, other habitat mitigation locations away from the TPP site were considered but the final mitigation plan was focused on securing several adjacent parcels in the Project vicinity to preserve open space and protect the Tracy Triangle kit fox corridor. (9/11/03 RT, pp. 124-129.) Staff expects this plan will also benefit the Haera Mitigation Bank by providing adjacent habitat to enhance the success of efforts to protect kit fox habitat. (*Id*. at pp. 120-121.)

In response to the Intervenors' concerns about grazing land used as mitigation property, the USFWS witness testified that the issue will be addressed in the Biological Opinion. The witness believes the mitigation parcels can be maintained as grazing land in accordance with guidelines established by the U.S. Bureau of Land Management (BLM) and other agencies. (9/18/03 RT, pp. 97-98.)

Dr. Smallwood testified that he was denied an opportunity for meaningful and informed participation in the TPP proceeding. (9/11/03 RT, pp. 141-144.) He claimed that he did not receive a copy of the draft BRMIMP, which was docketed December 17, 2002, nine months before the hearing in this matter. (Ex. 166.) No evidence was presented to indicate the document was not properly served and we therefore assume it was served on the Intervenors. The inability of the Intervenors' witness to review the draft BRMIMP cannot be blamed on the

Applicant or Staff or the process itself. Further, the information contained in the draft BRMIMP was identified and discussed in the parties' prepared testimony and during the course of evidentiary hearings. (9/11/03 RT, p. 94 et seq.)

With Dr. Smallwood's testimony, we are presented with the opinions of expert witnesses who disagree on the scope and efficacy of the Applicant's mitigation plan. The evidentiary record establishes that the agencies most involved in protecting the affected special status species support the plan and believe it is viable. We are persuaded that the habitat value of the mitigation parcels is high because it will provide suitable grassland habitat for the San Joaquin kit fox and other species; create and maintain habitat connectivity with adjacent wildlife preserves, mitigation parcels, and open space; and provide adequate size to mitigate for Project impacts. (Ex. 166, pp. 4-7.) The alternative mitigation parcels identified by TPP represent non-native grassland habitats, which would be inconsistent with the USFWS view that mitigation should include preservation of current migration corridors. (*Ibid*.) Accordingly, we find the TPP's habitat mitigation plan is acceptable. Implementation of the Conditions of Certification will ensure that impacts to biological resources will be mitigated to insignificant levels.

FINDINGS AND CONCLUSIONS

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

1. The TPP site and linear facilities traverse areas where sensitive habitat and special status species occur.

2. Construction of the power plant and linear facilities will result in the permanent and unavoidable loss of **28.3** acres and the temporary loss of **55.1** acres of annual grassland habitat, which supports special status species including the San Joaquin kit fox, burrowing owl, and California tiger salamander. [Note to parties: the loss of acreage does not include

habitat lost due to construction of the reclaimed water pipeline and associated water pumps.]

3. The TPP will cause significant impacts to the San Joaquin kit fox, burrowing owl, and California tiger salamander as well as potential impacts to 16 additional wildlife species.

4. The U.S. Fish and Wildlife Service (USFWS) and the California Department of Fish and Game (CDFG) are concerned about impacts to fragile kit fox habitat in the Tracy Triangle area due to habitat loss and fragmentation resulting from development in the area.

5. The TPP site will cause a dispersal barrier to kit fox due to its location immediately north of the Haera Mitigation Bank, which was designed to protect the affected kit fox corridor.

6. USFWS and CDFG determined that standard habitat mitigation ratios to replace affected habitat, initially calculated as 145 acres, were not sufficient to ensure connectivity and protection of kit fox corridors in the area.

7. TPP will purchase a total of 467 acres of habitat in the site vicinity to ensure connectivity and protection of kit fox corridors as follows: 99.97 acres north and west of the site (APN 099B-7825-01-03); 25.8 acres of the Project site outside the fence line (portions of APN 099B-7825-01-04); 320 acres (Castello property) west of the site and southeast of the intersection of Grantiline Road and I-580 (APN 099B-7825-002-01); and 19.7 acres south of the site (portions of APN 099B-7825-7885-01-02).

8. The TPP's mitigation properties will be dedicated in perpetuity as conservation easements and managed by a qualified third party natural habitat management organization recommended by the USFWS and CDFG and approved by the Commission.

9. The TPP's comprehensive habitat preservation plan will mitigate impacts to kit fox and other special status species by providing suitable grassland habitat, creating and maintaining habitat connectivity with adjacent wildlife preserves and open space, and providing adequate size to compensate for Project impacts.

10. 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.

11. The Project Owner will obtain an Incidental Take Permit from the CDFG and/or a Consistency Determination.

12. The Project Owner will acquire a Streambed Alteration Agreement from the CDFG.

13. The Project Owner will obtain a Section 404 permit from the U.S. Army Corps of Engineers.

14. The Project Owner will provide a Biological Opinion from the USFWS.

15. At least 60 days prior to the start of any Project mobilization activities, the Project Owner will submit a Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP) incorporating all biological mitigation and compliance measures required by applicable local, state, and federal agencies, including the permits and requirements listed above in Findings 11-14.

16. Deposition rates of SO_2 and NO_2 from HRSG emissions fall below U.S. Forest Service thresholds for levels causing significant impacts to vegetation and ecosystems.

17. Implementation of mitigation measures identified in the Conditions of Certification on air quality will reduce potential impacts from PM_{10} and $PM_{2.5}$ emissions on biological resources to insignificant levels.

18. Transmission lines will be designed to reduce the risk of avian electrocutions and the Project Owner will monitor electrocution events in conjunction with required monitoring programs specified in the BRMIMP.

19. Potential effects of construction noise and nighttime lighting on surrounding wildlife will be mitigated to insignificant levels.

20. The TPP's proposal to divert water from the California Aqueduct for Project cooling in exchange for water diversion in Kern County under the Buena Vista/Rosedale-Rio Bravo Water Banking and Recovery Program is not reviewed on the basis of impacts to the Buena Vista Lake shrew since the TPP and the Banking Program are separate projects. The issue of whether the Banking Program will result in significant impacts to the Buena Vista Lake shrew in Kern County is between the USFWS and the Banking Program.

21. The use of reclaimed water for Project cooling could potentially provide a benefit to aquatic species in the Delta due to a decrease in the amount of reclaimed water discharged to the Old River by the Tracy Waste Water

Treatment Plant and the improvement in water quality from tertiary treatment.

22. With implementation of the mitigation measures described in the evidentiary record and incorporated into the Conditions of Certification below, the TPP will not result in cumulative impacts to biological resources.

23. With implementation of the mitigation measures described in the evidentiary record and incorporated into the Conditions of Certification listed below, the TPP 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

Selection of the Designated Biologist

BIO-1 The Project Owner shall submit the resume, including contact information, of the proposed Designated Biologist to the CPM for approval.

Verification: The Project Owner shall submit the specified information at least 60 days prior to the start of any site (or related facilities) mobilization. Site and related facility activities shall not commence until an approved Designated Biologist is available to be on site.

The Designated Biologist must meet the following minimum qualifications:

1. Bachelor's Degree in biological sciences, zoology, botany, ecology, or a closely related field;
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;
3. At least one year of field experience with biological resources found in or near the Project area; and
4. An ability to demonstrate to the satisfaction of the CPM the appropriate education and experience for the biological resources tasks that must be addressed during Project construction and operation.

If a Designated Biologist needs to be replaced, then 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. Should emergency replacement of the designated specialist become necessary, the Project Owner shall immediately notify the CPM to discuss the qualifications of the proposed replacement specialist.

Duties of the Designated Biologist and Biological Monitors

BIO-2 The Project Owner shall ensure that the Designated Biologist performs the following, with full disclosure, during any site (or related facilities) mobilization, ground disturbance, grading, construction, operation, and closure activities. These duties also pertain to the Biological Monitors.

1. Advise the Project Owner's Construction/Operation Manager, supervising construction and operations engineer on the implementation of the biological resources Conditions of Certification;
2. Be available to supervise trained and approved Biological Monitors, supervise or conduct 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;

3. The Designated Biologist and Biological Monitors shall be thoroughly familiar with the Biological Conditions of Certification and the BRMIMP;
4. Clearly mark sensitive biological resource areas and inspect these areas at appropriate intervals for compliance with regulatory terms and conditions;
5. Inspect active construction areas where animals may have become trapped prior to construction commencing each day. At the end of the day, inspect for the installation of structures that prevent entrapment or allow escape during periods of construction inactivity. Periodically inspect areas with high vehicle activity (parking lots) for animals in harms way;
6. Notify the Project Owner and the CPM of any non-compliance with any biological resources Condition of Certification; and
7. Respond directly to inquiries of the CPM regarding biological resource issues.

Verification: The Project Owner shall ensure that the Designated Biologist maintains written records of the tasks described above, and summaries of these records shall be submitted in the Monthly Compliance Reports. Qualified Biological monitors shall be approved by the CPM and training shall be verified according to procedures established in the BRMIMP including familiarity with the Conditions of Certification. During Project operation, the Designated Biologist shall submit record summaries in the Annual Compliance Report.

Authority of the Designated Biologist and Biological Monitors

BIO-3 The Project Owner's Construction/Operation Manager shall act on the advice of the Designated Biologist and Biological Monitors to ensure conformance with the biological resources Conditions of Certification.

If required by the Designated Biologist or Biological Monitors, the Project Owner's Construction and Operation Manager shall halt all site mobilization, ground disturbance, grading, construction, and operation activities in areas specified by the Designated Biologist.

The Designated Biologist and Biological Monitors shall:

1. Require a halt to all activities in any area where there would be an adverse impact to sensitive 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 halt.

Verification: The Project Owner shall ensure that the Designated Biologist 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-4 The Project Owner shall develop and implement a CPM approved Worker Environmental Awareness Program (WEAP) in which each of its employees, as well as employees of contractors and subcontractors who work on the Project site or any related facilities during site mobilization, ground disturbance, grading, construction, operation and closure are informed about sensitive biological resources associated with the Project. The training may be presented in the form of a video.

The 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 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. Provide an understanding of the duties and authority of the Designated Biologist and Biological Monitors;
6. Identify whom to contact if there are further comments and questions about the material discussed in the program;

7. Include a training acknowledgment form to be signed by each worker indicating that they received training and shall abide by the guidelines; and
8. The specific program can be administered by a competent individual(s) acceptable to the Designated Biologist.

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 (2) copies of the WEAP and all supporting written materials prepared or reviewed by the Designated Biologist and a resume of the person(s) administering the program for review and approval.

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. The signed training acknowledgement forms 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-5 The Project Owner shall submit to the CPM for review and approval a copy of the BRMIMP and shall implement the measures identified in the approved BRMIMP. Any changes to the approved BRMIMP must also be approved by the CPM in consultation with CDFG, the USFWS and appropriate agencies to insure no conflicts exist.

The final BRMIMP shall identify:

1. All biological resources mitigation, monitoring, and compliance measures proposed and agreed to by the Project Owner;
2. All Conditions of Certification identified in the Commission's Final Decision related to biological resources;
3. All biological resource mitigation, monitoring and compliance measures required in federal agency terms and conditions, such as those provided in the USFWS Biological Opinion ;
4. All biological resources mitigation, monitoring and compliance measures required in other state agency terms and conditions, such as those provided in the CDFG Take Permit and Streambed Alteration Agreement and ACOE permits;
5. All biological resources mitigation, monitoring and compliance measures required in local agency permits, such as site grading and landscaping requirements;

6. All sensitive biological resources to be impacted, avoided, or mitigated by Project construction, operation and closure;
7. All required mitigation measures for each sensitive biological resource;
8. Required habitat compensation strategy, including provisions for acquisition, enhancement, and management for any temporary and permanent loss of sensitive biological resources;
9. A detailed description of measures that will be taken to avoid or mitigate temporary disturbances from construction activities;
10. 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;
11. Aerial photographs, at an approved scale, of all areas to be disturbed during Project construction activities - one set collected prior to any site or related facilities mobilization disturbance and one set collected subsequent to completion of mitigation measures. Include planned timing of aerial photography and a description of why times were chosen;
12. Duration for each type of monitoring and a description of monitoring methodologies and frequency;
13. Performance standards to be used to help decide if and when all proposed mitigation is or is not successful. For example, performance standards may cover, but are not limited to, the following and will be fully developed during completion of the BRMIMP, the Habitat Management Plan, and in consultation with the USFWS, CDFG, and the third party habitat management entity:
    a. Quantitative and qualitative measures of habitat quality (i.e. percent vegetative cover, target/percent species composition, vegetation height and density) required to compensate for impacts to San Joaquin kit fox, burrowing owl, and California tiger salamander;
    b. Measurable and robust habitat quality characteristics to evaluate habitats intended to support special status species;
    c. Habitat restoration criteria for areas used temporarily during construction;
    d. Quantitative and qualitative criteria to evaluate the success of riparian restoration along Patterson Run Creek as part of the landscaping plan;
    e. Success/failure standards and monitoring procedures for all mitigation monitoring, including that related to San Joaquin kit fox

escape dens, the presence of species, and mortality of birds due to electrocution, collisions, and other causes of wildlife mortality;

f. Quantitative criteria to be used to monitor impacts of grazing on vegetation providing habitat to special status species.

14. All performance standards and remedial measures to be implemented if performance standards are not accomplished during time periods to be developed and specified for each item under number 13 above. Remedial measures may cover, but are not limited to the following and will be fully developed during completion of the BRMIMP and in consultation with the USFWS, CDFG, and the third party habitat management entity:

    a. The Habitat Management Plan will include such remedial measures to address problems arising that could affect the successful compensation and funding for restoration and management of compensation lands;

    b. Landscape management measures in the event that restoration plantings within Patterson Run Creek do not survive or meet success criteria;

    c. Remedial measures for the San Joaquin kit fox escape dens if monitoring determines that they are causing problems for San Joaquin kit fox or are attracting red fox or coyote; and

    d. Protocols and measures to reduce documented and unexpected wildlife mortality due to Project construction, bird collisions with Project-related structures, bird electrocutions, road kill, or other Project-related mortality.

15. A discussion of biological resources related facility closure measures;

16. A description of the third party habitat management entity, a copy of the habitat management plan, and a copy of the contract between the Project Owner and that third party;

17. A process for proposing plan modifications to the CPM and appropriate agencies for review and approval;

18. A copy of all permits attained for biological resources; and

19. Results of the fall 2003 Big tarplant field surveys and recommended mitigation, if necessary.

Verification: At least 60 days prior to start of any site or related facility mobilization activities, the Project Owner shall provide the CPM with two copies of the BRMIMP for this Project, and provide copies to the CDFG and the USFWS.

The CPM, in consultation with the CDFG, the USFWS and any other appropriate agencies, will determine the BRMIMP's acceptability within 45 days of receipt.

The Project Owner shall notify the CPM no less than 5 working days before implementing any modifications to the approved BRMIMP to obtain CPM approval.

Within 30 days after completion of Project construction, the Project Owner shall provide to the CPM, for review and approval, a written report identifying which items of the BRMIMP have been completed, a summary of all modifications to mitigation measures made during the Project's construction phase, and which mitigation and monitoring items are still outstanding.

If there are any permits for biological resources that have not yet been received when the BRMIMP is first submitted, these permits shall be submitted to the CPM, USFWS, and CDFG as addendum to the BRMIMP within 10 days of their receipt.

Closure Plan Measures

BIO-6 The Project Owner will incorporate into the permanent or unexpected permanent closure plan, and the BRMIMP, measures that address the local biological resources.

The planned permanent or unexpected permanent closure plan will address the following biological resources related mitigation measures:

1. Removal of transmission conductors when they are no longer used and useful;
2. Removal of gas and water lines and related facilities;
3. Removal of all power plant site facilities and related facilities;
4. Measures to restore wildlife habitat to promote the re-establishment of native plant and wildlife species; and
5. Revegetation of the plant site and other disturbed areas utilizing an appropriate seed mixture.

Verification: At least twelve months prior to commencement of closure activities, the Project Owner shall address all biological resources related issues associated with facility closure, which is incorporated into the BRMIMP, in a Biological Resources Element. The Biological Resources Element will be incorporated into the Facility Closure Plan and include a complete discussion of the local biological resources and proposed facility closure mitigation measures.

Incidental Take Permit

BIO-7 The Project Owner shall acquire an Incidental Take Permit from the California Department of Fish and Game (CDFG) (per Section 2081(b) of the Fish and Game Code; California Endangered Species Act) and/or a Consistency Determination (per Section 2080) and incorporate the terms and conditions into the Project's BRMIMP.

Verification: At least 30 days prior to the start of any site or related facilities mobilization activities, the Project Owner shall submit to the CPM a copy of the final CDFG Incidental Take Permit and/or a Consistency Determination.

Streambed Alteration Agreement

BIO-8 The Project Owner shall acquire a Streambed Alteration Agreement from the CDFG (per Section 1600 of the Fish and Game Code), and incorporate the biological resource related terms and conditions into the Project's BRMIMP.

Verification: At least 30 days prior to the start of any site or related facilities mobilization activities, the Project Owner shall submit to the CPM a copy of the final CDFG Streambed Alteration Agreement.

Federal Biological Opinion

BIO-9 The Project Owner shall provide final copies of the Biological Opinion per Section 7 of the federal Endangered Species Act obtained from the U. S. Fish and Wildlife Service. The terms and conditions contained in the Biological Opinion shall be incorporated into the Project's BRMIMP.

Verification: At least 30 days prior to the start of any site or related facilities mobilization activities, the Project Owner shall submit to the CPM a copy of the U. S. Fish and Wildlife Service's Biological Opinion.

U. S. Army Corps of Engineers Section 404 Permit

BIO-10 The Project Owner shall provide a final copy of the U.S. Army Corps of Engineers Section 404 of the federal Clean Water Act permit. The biological resources related terms and conditions contained in the permit shall be incorporated into the Project's BRMIMP.

Verification: At least 30 days prior to the start of any site or related facilities mobilization activities, the Project Owner shall submit to the CPM a copy of the U.S. Army Corps of Engineers permit.

Preventative Design Mitigation Features

BIO-11 The Project Owner shall modify the Project design to incorporate all feasible measures that avoid or minimize impacts to the local biological resources.

These measures shall include, as appropriate to the site:

1. Design transmission line poles, access roads, pulling sites, and storage and parking areas to avoid identified sensitive resources;
2. Avoid impacts to wetland and riparian habitats; and
3. Design and construct transmission lines and all electrical components to reduce the likelihood of electrocutions of large birds.

Verification: All mitigation measures and their implementation methods will be included in the BRMIMP.

Construction Mitigation Management to Avoid Harassment or Harm

BIO-12 The Project Owner shall manage the construction site and related facilities in a manner to avoid or minimize impacts to the local biological resources.

The Project Owner shall implement the following measures:

1. Appropriate avoidance and minimization measures shall be in place before site mobilization of a particular area, or activity that may impact sensitive biological resources;
2. Clearly mark construction area boundaries with stakes, flagging, silt fencing, and/or rope or cord to minimize inadvertent degradation or loss of adjacent habitat during facility construction/modernization;
3. All equipment storage will be restricted to designated construction zones or areas that are currently not habitat for special status species;
4. Enforce a speed limit of 20 miles/hour at all Project locations including the construction access road;
5. Traffic is restricted to existing roads, designated access roads, construction storage and staging areas, and parking areas;
6. Daytime construction at all drainages and drains to avoid impacts to special status reptiles, amphibians, and mammals;
7. Install temporary fencing and wildlife escape ramps for construction areas that contain steep walled holes, or trenches if outside of an approved, permanent exclusionary fence. The temporary fence will be hardware cloth or similar materials that are approved by USFWS and CDFG;
8. Open trenches in active construction areas shall be inspected for wildlife each morning prior to start of daily construction activities. Within active construction areas, inspect all construction pipes, culverts, or similar structures with a diameter of 4-inches or greater for sensitive species (such as kit foxes) prior to pipe burial. Any wildlife observed shall be allowed to escape on its own if possible prior to commencement of construction. Otherwise, the Designated Biologist shall contact the appropriate agency for assistance;
9. Pipes left in trenches overnight shall be capped;
10. Use of rodenticides shall be prohibited unless pre-approved and authorized in writing by the USFWS in consultation with the CPM

so that the pesticide is enclosed or otherwise protect kit fox, birds of prey, and other non-target species from becoming inadvertently poisoned. Monitoring and reporting of use will be required in monthly status reports and annual management reports;

11. Immediate removal of hazardous debris and waste on-site and along linears;
12. Implementation of an erosion prevention and control (see **Soil and Water Resources** section) on-site, at the construction laydown area, and along linear routes;
13. Implement dust control measures during construction and operation;
14. Install shielded, down-facing lighting to protect environmentally sensitive habitats from nighttime lighting;
15. All food-related trash shall be disposed of in closed containers and removed at least once a week. Feeding of wildlife shall be prohibited;
16. Prohibit non-security related firearms or weapons from being brought to the site;
17. Prohibit pets from being brought to the site;
18. Report all inadvertent deaths of sensitive species to the appropriate Project representative. Injured animals will be immediately reported to CDFG and USFWS, and the Project Owner will follow instructions that are provided by CDFG and USFWS;
19. Revegetate and maintain all linear routes, construction, staging, temporary parking, and equipment storage areas with CPM-approved plant species;
20. Conduct pre-construction surveys for special-status plant and animals according to USFWS, and CDFG survey requirements and recommendations, and in consultation with the CEC. Surveys should provide confirmation that *A. grandiflora* is not present on-site or impacted by Project actions. Survey methodology shall be provided in the BRMIMP. All surveys shall be conducted and reported to the USFWS, CDFG, and CPM for review prior to any site mobilization;
21. Pre-construction surveys shall be implemented for the San Joaquin kit fox in compliance with all measures established in the USFWS Biological Opinion;
22. Pre-construction surveys shall be implemented for California tiger salamander on the TPP site, along linears, and the construction laydown area (as required by the USFWS);

23. Pre-construction surveys shall be implemented for burrowing owl on the TPP site, along linears, and the construction laydown area, followed by avoidance or passive relocation, if owls are observed;
24. Avoid sensitive habitats and species during construction by developing construction exclusion zones and silt fencing around sensitive areas;
25. Specific avoidance and minimization measures identified in the BRMIMP for special status species;
26. Implement the construction practices and mitigation measures as outlined in Standardized Recommendations for Protection of the San Joaquin Kit Fox Prior to or During Ground Disturbance (USFWS 1999);
27. San Joaquin kit fox dens and burrowing owl burrows shall be temporarily flagged to establish a visible buffer/avoidance zone. This zone shall be monitored by the Designated Biologist during construction;
28. Restrict construction within all drainages, excluding Horizontal Directional Drilling (HDD), to daylight hours to avoid impacts to special status reptiles, amphibians, and mammals;
29. Construction of transmission lines and pipelines shall be limited to daylight hours;
30. Transmission line poles, access roads, pulling sites, and storage and parking areas shall be situated to avoid impacts to sensitive resources;
31. Transmission lines and poles shall be designed to reduce risk of electrocution for large birds;
32. To prevent entrapment of listed species, or other animals during construction, all excavated, steep-walled holes or trenches more than 2 feet deep shall either be covered at the close of each working day or covered to prevent animal entry into trench, or provided with one or more escape ramps (3:1) constructed of earth fill or wooden planks. For all open trenches, an escape ramp shall be constructed at a minimum of every 0.25-mile;
33. Setbacks and buffers shall be established for the protection of special-status wildlife species. Distances will be determined through consultation with the USFWS and CDFG prior to construction;
34. The temporary construction laydown area (49-acres) would be restored as soon as feasible after construction is completed and as part of the habitat compensation lands and/or managed as grazing land, similar to its current use;

35. Areas to be impacted by transmission line construction shall be surveyed within 30 days prior to ground disturbance. Construction of the main transmission line shall be conducted when Patterson Run Creek is dry. The transmission line shall be hand-pulled across the creek to avoid impacts of machinery, and the permanent transmission towers shall be located at least 30 feet from the defined bed of Patterson Run Creek;

36. Ravenswood transmission line construction shall entail the use of an "H" wood pole structure so that the conductor can be strung across the creek without entering or disturbing the riparian habitat;

37. Pre-construction surveys shall be implemented for raptor nests and all sensitive and special status species of animals and plants that are potentially on the Project site, along linears, and at the construction laydown area within 14 days prior to commencement of any construction activities;

38. A monitoring program for avian electrocution and collisions shall be implemented within 30 days following the start of facility operation for a period of 12 months from the start date to determine if mitigation, such as the installation of bird-flight diverters, is necessary. The monitoring plan will be included in the BRMIMP and developed in consultation with the USFWS and CDFG. Monitoring will include bird collisions with stacks and other tall building facilities;

39. Avoid removal of walnut trees on Grant Line Road and other large trees along the route during construction of the reclaimed water supply line;

40. Avoid disturbances to irrigation ditches or canals by employing appropriate construction technology such as horizontal directional drilling or jack and bore techniques, or by trenching only when the water body is dry;

41. Place the tailings or soil removed during digging of the trench in a CPM pre-approved location that will not adversely impact biological resources; and

42. Implement mitigation measures recommended by the SJCOG/ SJMSCP and approved by the Commission's CPM.

Verification: All mitigation measures and their implementation methods will be included in the BRMIMP. The Project Owner shall provide a post-construction compliance report within 45 calendar days of completion of the Project construction to the Commission's CPM.

Habitat Compensation

BIO-13 Prior to the start of site mobilization for the Project and any related facilities, the Project Owner shall:

1. Provide evidence that the lands listed in the **Table BIO-13** below have been purchased and placed under permanent conservation easements to mitigate for impacts to the habitat of the San Joaquin kit fox, burrowing owl, and all other special status species;

Table BIO-13 Required Habitat Compensation for the Tesla Power Project

Parcel Acreage to be placed under Conservation Easement	**Parcel Location**
320 Castello Property	Grassland parcel west and northwest of Project site
25.8	Grassland within the 60-acre Project site
99.97	Grassland north of Project site
19.7	Grassland and riparian habitat
Total 465.47 acres under Conservation Easement	

2. Provide a Property Assessment Report (PAR) analysis for establishment of an endowment to provide for the long-term management of the habitat lands;
3. A Habitat Management Plan for all mitigation lands shall be implemented that includes management and monitoring that protects and enhances habitat for species such as San Joaquin kit fox, burrowing owl, California tiger salamander, and all other special status species potentially impacted by the Project;
4. Provide the endowment funds to the approved third party management organization;
5. Within the 49.53-acre construction laydown parcel, 19.7 acres shall be placed under conservation easement. In addition, as much of the 29.83 acre laydown area as possible shall be returned to its pre-use condition and protected as open space and wildlife habitat; and
6. If the Project Owner causes impacts to additional acres of habitat during construction or operation of the Project they shall be required to mitigate for those impacts with additional habitat compensation, at a ratio of 3:1 for permanent impacts and 1:1 for temporary impacts, at the Haera mitigation bank or other location to be approved by the CPM in consultation with the USFWS and CDFG.

If habitat mitigation is required for impacts in San Joaquin County that are related to the reclaimed water supply pipeline, the Project Owner shall provide funds to the SJCOG as required to be in compliance with the SJMSCP (see **BIO-16**).

Verification:

1. At least 90 days prior to site mobilization, the Project Owner shall provide documentation confirming that the a) land purchases, and b) implementation of conservation easements for all mitigation parcels have been completed. The conservation easement on the mitigation parcels shall be reviewed and approved by the CPM in consultation with the USFWS and CDFG and will remain in effect in perpetuity;
2. Upon completion of the acquisition and transfer, if applicable, of all habitat lands to the approved recipient(s) for management, the Project Owner shall provide the CPM with copies of all title transfer records (including county parcel numbers) and conservation easement contracts or records verifying other approved transactions;
3. At least 90 days prior to site mobilization, the Project Owner shall provide the Final Habitat Management Plan (HMP) for all mitigation lands to the CPM for review and approval in consultation with the USFWS, CDFG, and the third party resource management entity. The HMP will become part of the BRMIMP and may include elements of the Haera Mitigation Bank Management Plan. The HMP shall implemented at least one day prior to the start of site mobilization;
4. At least 90 days prior to site mobilization, the Project Owner shall provide to the CPM for approval, the name of the third party management entity, and written verification that the appropriate endowment fund (determined by the PAR analysis) has been received by the approved third party management entity. Selection of the third party management agency and management procedures for the conservation easement lands must be approved by the CPM in consultation with the USFWS, and CDFG;
5. If additional habitat compensation is required under the SJMSCP, the Project Owner shall provide to the CPM for approval written confirmation, at least 90 days prior to site mobilization, that all required habitat compensation has been provided to the SJCOG;
6. Each month, the Project Owner shall provide information on additional planned or unplanned impacts to habitats that will be permanently or temporarily impacted by the Project. The Project Owner shall provide written information at least 30 days prior to incurring the impacts for planned impacts and within 30 days of incurring unplanned impacts provide a written summary of the impacts;
7. Each month, the Designated Biologist shall prepare, as part of the monthly compliance report, a detailed description and evaluation of any additional habitat impacts. The report shall include appropriately scaled and detailed maps, the number of acres to be impacted or already impacted, the types of habitat(s) impacted and all impacts to special status species; and
8. Within 30 days of the completion of construction, the Project Owner shall submit a final report on all additional acres impacted, if any. In this report, the

Project Owner shall provide evidence of consultation with the CPM, USFWS, and CDFG to confirm the location and acreage of habitat compensation to be provided at the approved mitigation ratio. If no additional habitat acres are impacted, no additional habitat mitigation shall be required.

Refuge Burrows for San Joaquin Kit Fox

BIO-14 To protect San Joaquin kit fox from predators and competitors that may benefit from the approved landscaping, and to generally minimize adverse impacts to the kit fox, the Project Owner shall install and monitor artificial refuge dens amidst the landscaping area or in other approved areas around the perimeter of the facility. The Project Owner's Landscape Plan Conceptual Design submitted in December 2002 shall be submitted to the CPM for final review and approval after licensing and implemented as approved per Condition of Certification **VIS-6** and **APPENDIX VR-4**.

Verification: At least 60 days prior to the start of any site or related facility mobilization activities, the Project Owner shall provide the final San Joaquin kit fox den installation and monitoring plan to the CPM for review and approval. The spacing and size of the dens shall be determined in consultation with CDFG and USFWS and shall be included in the BRMIMP. The monitoring plan concerning the use of the dens by kit fox and other species shall also be developed and implemented adaptively in consultation with CDFG, and USFWS and the final plan shall be included in the BRMIMP. Installation and monitoring of the installed San Joaquin kit fox refuge burrows shall be completed during installation of the final Landscaping Plan. The kit fox refuge burrows shall be managed and monitored for the life of the Project as part of the BRMIMP. The results of the monitoring shall be provided in a quarterly report to the CPM for the first three years and thereafter in the Annual Compliance Report.

Pre-construction Surveys for Big Tarplant

BIO-15 The Project Owner shall conduct a big tarplant survey along the reclaimed water supply route as well as all TPP Project areas that may be impacted by construction. The survey shall be conducted by a suitably trained botanist during the proper time of year (late summer and early fall) to ensure proper identification. Approved mitigation measures shall be included in the TPP BRMIMP.

If big tarplant is found along the proposed reclaimed water supply pipeline or within any area to be disturbed by Project construction, appropriate steps would be taken to avoid impacts to the individual plants. If impacts are unavoidable, the applicant would be required to provide mitigation, that includes consider of:

1. Collect seeds from the big plant(s);
2. Reseed the area(s) impacted with the big tarplant seeds; and

3. Implement monitoring and maintenance of the affected area(s) using success criteria contained in the final approved BRMIMP.

Verification: The Project Owner shall provide the final results of big tarplant surveys to the CPM within 30 days of completion of the surveys. The Project Owner shall include approved mitigation for detected plants within the final BRMIMP (see Condition of Certification **BIO-5**).

Compliance with the San Joaquin County Multi-species Habitat Conservation and Open Space Plan (SJMSCP)

BIO-16 The Project Owner must provide written verification to the CPM that the Project is in compliance with the SJMSCP prior to the start of any Project-related construction activities.

Verification: At least 60 days prior to any Project-related site mobilization activities, the Project Owner must provide written verification to the CPM that the Project has provided the required habitat compensation for the Tesla Power Project to the San Joaquin Council of Governments. In addition, all take avoidance measures required by the Council of Governments as part of the SJMSCP approval must be included in the final BRMIMP (see Condition of Certification **BIO-5**).

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. The analysis also includes a review of Project cooling options and in particular, whether the options of using wastewater for Project cooling or dry cooling technology are more consistent with state water policy than the Applicant's proposed use of fresh water from the State Water Project. 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

Approximately 60 acres at the site will be disturbed during Project construction and about 25 acres will ultimately be used for permanent facilities. Earthmoving activities during excavation and grading can result in accelerated wind and water-induced erosion. Construction of the Project will create impermeable surfaces at the site, which could also contribute to water-induced erosion. As a result, sediment discharged from the site can be carried into downstream receiving waters and contribute to degradation of water quality. (Ex. 51, p. 4.13-16.)

The TPP site is part of the Patterson Run Watershed, which consists of spring-fed, ephemeral tributaries discharging to Patterson Run in a distribution pattern controlled by fractures and faulting within the underlying bedrock. Patterson Run flows to the northeast and water carried within the channel dissipates into the sediments of the Sacramento-San Joaquin River Delta Basin without joining any other surface water drainage feature. Run-off from the site naturally drains to the southeast via a broad swale through the site to Patterson Run Creek beyond the

60-acre TPP parcel. (Ex. 51, pp. 4.13-7 and 4.13.8; Ex. 3, Responses 152-153 with attached Grading, Drainage, and Erosion Control Detail Plan.) Outside the site boundary, storm water runoff will be intercepted in perimeter ditches along the north, west, and east sides and discharged to the south as overland flow. Within the site, non-contact storm water runoff will be directed to a new storm water sedimentation/detention basin via drainage ditches and underground piping consistent with requirements of the Alameda County Flood Control and Water Conservation District ("Zone 7").[1] The sedimentation/detention basin will be grass-lined and allow storm water to diminish by evaporation and percolation and will also serve as a sedimentation basin during construction. (Ex. 51, pp. 4.13-15, 4.13-22; Ex. 4, Responses 240-245, 248; Ex. 5, Responses 322-323; Ex. 6, Responses 324-326.)

The site is not located within the 100-year floodplain of Patterson Run. However, the moderately steep topography of the site could result in flooding due to localized, heavy rain. Condition of Certification **SOIL & WATER 2** requires the Project Owner to design the perimeter drainage ditches with enough capacity to intercept run-on storm water during heavy rains. Storm water released from the site is not expected to increase peak flows in Patterson Run nor increase potential for flooding in Patterson Run. (Ex. 51, p. 4.13-17.)

The erosion factor for the clay loam type soils at the site and along the linear corridors is characterized in Staff's Soil & Water Resources Table 1 as follows:

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[1] According to Staff, existing roadway drainage culverts along Midway Road are in poor condition and lack excess capacity so that even minor changes in the flow regime would be detrimental to existing soils. Based on consultation with Zone 7, Applicant has agreed to construct a shallow earth ditch lined with geotextile fabric and seeded for establishing vegetation cover for the entire length of the outlet area from the detention/sedimentation basin to the confluence with Patterson Run Creek. The confluence of the drainage ditch with Patterson Run will be armored with 1/8 ton rip-rap for almost 100 feet along the left bank of Patterson Run Creek. Staff believes that reducing Project storm water discharges to less than pre-developed conditions at the site will avoid significant adverse impacts to Patterson Run Creek. (Ex. 51, p. 4.13-22.)

Soil & Water Table 1
Soil Types Affected & Characteristics

Project Element	Soil Name	% Slope	Depth (inches)	USDA Texture	USCS Classifi-cation (1)	Permeability	Drainage	Erosion Hazard Rating
Project Site	Linne Clay Loam	3-15	36	Clay Loam	CL, ML	Moderately Slow	Well Drained	Slight to moderate
	Linne Clay Loam	30-45	10-50	Clay Loam	CL, Ml	Moderately Slow	Well Drained	Severe
Linear Features	Linne Clay Loam	3-45	10-50	Clay Loam	CL, ML	Moderately slow	Well Drained	Slight to Severe
	Calla-Carbona	8-30	18-62	Clay Loam	CL, ML	Moderately slow to slow	Well Drained	Severe
	Calla-Carbona	30-50	18-62	Clay Loam	CL, ML	Moderately Slow to Slow	Well Drained	Severe
	Diablo Clay	15-30	36-60	Clay	CL	Slow	Well Drained	Slight to Moderate

(Ex. 51, p. 4.13-7; Ex. 1, § 5.6 & Table 5.6-1)
(1) Unified Soil Classification System

The Project Owner will incorporate Best Management Practices (BMPs) into Project design to minimize erosion and sedimentation impacts during construction and operation. (Ex. 51, p. 4.13-38.) Staff identified specific measures that the Project Owner must include in the final plans to ensure the BMPs are effective:

- Drawings showing the topographic features of the Project including all pipeline construction routes, laydown (staging) area, transmission upgrades, and stockpile location(s). The mapping scale should be at least 1"= 100' (1"=50' recommended). The topography and existing features of the surrounding areas should also be provided on the drawings.
- A construction sequence that addresses all events from initial mobilization until final stabilization (i.e. vegetation/asphalt) is achieved.
- Grading activities must be restricted to the period of April 16–September 30,[2] when average precipitation is 0.5 inches or less per month, to avoid exposure to erosion during periods with higher rainfall.

[2] Alameda County prohibits grading and earth-disturbing activities during the rainy season defined as October 1 to April 15. (County Ordinance 15.36.530; Ex. 52, p. 3.13-1.)

- Proposed contours shall be designed to join with existing contours. All utilities including storm water facilities should be shown on the plan drawings. All erosion and sedimentation control facilities shall be included on the drawings. All drawings shall contain a legend of complete mapping symbols to identify all existing and proposed features including the soil boundary and a limit of construction. The limit of construction boundary shall include the Project facility, pipeline areas, stockpile areas, laydown areas, and any off-site staging areas.
- Silt fence and sandbags should be used to trap sediment and not as runoff conveyance facilities. Earthen berms or channels may be substituted to intercept sediment-laden runoff and direct it into the sediment retention basin/trap. A sediment trap should be used for drainage areas less than five acres and a sediment basin should be used for drainage areas greater than five acres.
- All excavated material should be kept away from active surface water flows. Site specific BMPs shall be included in the erosion and sediment control plan. The soil should be covered via a liner or anchored mulch. Areas disturbed during construction should be stabilized via permanent vegetation upon completion of the process.
- Specific BMPs for all project-related construction should be included and clearly identified on the drawings (including, but not limited, to access roads, directional drilling / tunneling, linear facilities, and any off-site staging areas).
- The drawings shall identify vegetative areas that will be disturbed and include a description of revegetation procedures on the drawings.
- Maintenance and monitoring protocol for erosion/storm water control.

Conditions **SOIL & WATER-1**, **2**, and **3** require the Project Owner to submit a Sedimentation and Erosion Control Plan (SECP), a Storm Water Pollution Prevention Plan (SWPPP), and a Storm Water Management Plan to address erosion runoff and sedimentation impacts during construction, post-construction, and operational phases consistent with requirements of the Central Valley Regional Water Quality Control Board (RWQCB).[3] Condition **CIVIL-1** in the **Facility Design** section requires design approval of the project's drainage structures, the grading plan, and erosion and sedimentation control plans. Condition **SOIL & WATER-1** incorporates Alameda County's restriction limiting

[3] The SWPPP shall also include a Spill Prevention Control and Countermeasure Plan (SPCC) and a Chemical Spill Contingency Plan (CSCP) that describe measures to control chemical spills and management of hazardous materials stored on-site.

grading and earth-disturbing activities to the period of April 16-September 30 to avoid the potential for erosion and storm water run-off during the rainy season. These measures will minimize wind and water erosion and reduce the potential for soil erosion impacts to insignificant levels.

Although local groundwater resources are known to exist in the Project area, local groundwater will not be used to support the project's water supply. An existing on-site water supply well, powered by a windmill, is currently used for livestock watering and will continue in its current use. Localized surface water drainage and overflow from livestock watering tends to pond near the well and coupled with cattle activity in the area, creates the potential for groundwater contamination. (Ex. 51, p. 4.13-17.) Condition **SOIL & WATER-4** requires the Project Owner to provide an "as-built plan" of the existing well and plans for well-head improvements to prevent groundwater contamination. This Condition also prohibits use of well water by the TPP at any time.[4] (Ex. 4, Response 253.)

TPP is required to comply with general NPDES requirements established by the Central Valley RWQCB to regulate storm water discharges. Conditions **SOIL & WATER-2** and **3** require the Project Owner to obtain an NPDES General Permit for Storm Water Discharges Associated with Construction and an NPDES General Permit to Discharge Storm Water Associated with Industrial Activity.[5]

The Alameda County Flood Control and Water Conservation District ("Zone 7") assesses a Special Drainage Area (SDA) 7-1 Fee for creation of new impervious areas related to new construction. Condition **SOIL & WATER-7** requires the Project Owner to pay the appropriate 7-1 fee to Zone 7.

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[4] Staff noted that the existing well may have adequate capacity to supply TPP's estimated potable water demand of approximately 1 gpm. (Ex. 51, p. 4.13-41.) Under Section 1769 of the Commission's regulations, the Project Owner must file an amendment to the Certification Decision if well water is proposed for use in the future. (Cal. Code Regs., tit. 20, §1769.)

[5] Since the TPP will employ zero liquid discharge (ZLD), the Project is not required to obtain an NPDES permit for industrial discharge. (Ex. 51, pp. 4.13-20, 4.13-41.)

The project's zero liquid discharge (ZLD) system will eliminate all process liquid waste. Condition **SOIL & WATER-6** requires the Project Owner to specify a backup wastewater disposal plan to be implemented when the ZLD system is down. Condition **SOIL & WATER-5** requires that wash water and chemical cleaning wastewater, generated during periodic cleaning of compressors and HRSGs, be contained in an on-site sump and periodically pumped out by vacuum truck and transported off-site for disposal at a licensed facility. (Ex. 51, p. 4.13-21; Ex. 4, Responses 247, 249; *See* Waste Management section.) Condition **SOIL & WATER-10** requires the TPP's septic system to comply with Alameda County requirements. (Ex. 3, Responses 166-168.)

2. Water Supply

The TPP requires approximately 5,900 acre feet of water per year (AFY) for Project cooling and other industrial processes. (9/12/03 RT, p. 14:23.) Applicant proposes to use fresh water from the California Aqueduct to meet its water demand. Applicant would exchange Kern County Water Agency (KCWA) State Water Project (SWP) water from the California Aqueduct for surface water or groundwater stored by the Buena Vista Water Storage District (WSD) and Rosedale-Rio Bravo WSD Water Banking and Recovery Program ("Banking Program") in Kern County.[6] (Ex. 1, § 5.4.1.4; Ex. 45.) The water would be provided via construction of a new turnout and pump station adjacent to the Aqueduct and delivered via a new 1.7-mile water supply pipeline connecting the pump station to the TPP. The new turnout would be located at Milepost 8.5 on the Aqueduct and owned and operated by Zone 7, an existing SWP contractor, which has jurisdiction in Alameda County. Applicant would fund the cost of

[6] Rosedale-Rio Bravo WSD is located west of Bakersfield and covers 43,000 acres of agricultural land. Rosedale-Rio Bravo's annual entitlement from the SWP is 29,900 acre feet per year (AFY). Buena Vista WSD is located immediately west of Rosedale-Rio Bravo and covers 50,000 acres of agricultural land. Buena Vista's overall groundwater balance is in surplus averaging about 30,000 AFY net accumulation per year. Buena Vista estimated it would have 81,000 AFY already banked for the TPP at the time of TPP start-up. Buena Vista's annual entitlement from the SWP is 21,300 AFY. (Ex. 26, p. 6; Ex. 157; 9/11/03 RT, p. 100 et seq.)

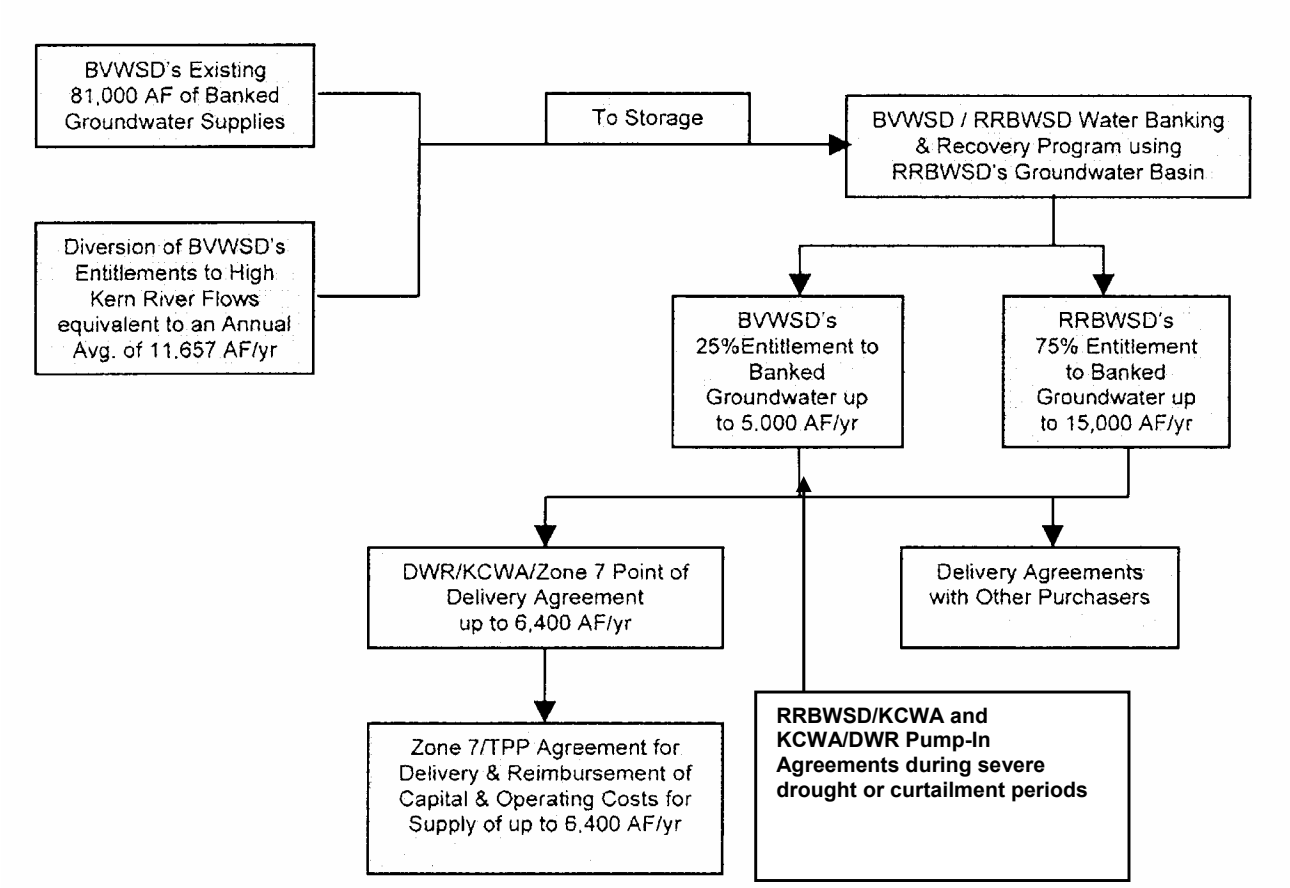
design and construction of the new turnout with payments to Zone 7, which would in turn reimburse the Department of Water Resources (DWR) for the water. (Ex. 51, p. 4.13-8; Ex. 3, Response 175.) An agreement between Zone 7 and DWR is required for construction, operation, and maintenance of the turnout. (*Ibid*.)

The contractual arrangement for fresh water would rely on the Banking Program that enables storage of Buena Vista WSD's entitlements to Kern River high flows in Rosedale-Rio Bravo WSD's groundwater basin. (Ex. 26, p.7.) Using existing Buena Vista banked groundwater and Rosedale-Rio Bravo's recharged groundwater with Buena Vista's entitlements to high Kern River flows, the WSDs will maintain and develop water storage reserves capable of meeting new firm water supplies to customers within and outside their existing service areas. The delivery of water outside the service area to TPP is possible through a Change in Point of Delivery Agreement. Because KCWA is the SWP contractor in Kern County and the WSDs are two of its member agencies, KCWA would represent the two WSDs in the Change in Point of Delivery Agreement between DWR, KCWA, and Zone 7. (*Ibid*.)

The proposed agreement between the WSDs and TPP would provide 6,400 AFY (not to exceed 6,720 AFY) to the TPP but would not require transfer of SWP entitlements; rather, the water supply would come from Buena Vista's Kern River high flows, which are captured and stored in Rosedale-Rio Bravo's groundwater recharge and banking facilities. The water would be delivered to Zone 7 at the proposed new turnout at the Aqueduct using in-lieu aqueduct capacities and SWP allocations dedicated to the two WSDs. (Ex. 160; Ex. 161; Ex. 51, p. 4.13-13.) The reduction in SWP water delivery to the WSDs' customers would be covered by an exchange of water drawn from their groundwater resources, which have been banked as a result of the recharge activities coordinated by their

Banking Program.[7] (Ex. 26, p. 8; 9/11/03 RT, p. 208 et seq.) The contractual arrangement, as depicted by Applicant, is shown below. (Ex. 26, p. 7.)

Contractual Arrangement of the TPP Water Supply Program



[7] To provide an average of 5,100 AFY and maximum of 6,400 AFY to TPP from the Aqueduct by Zone 7, Buena Vista and Rosedale-Rio Vista WSDs will change the point of delivery of their SWP allocations of 1,600 AFY and 4,800 AFY, respectively, for delivery to TPP. If SWP allocations to Buena Vista and Rosedale-Rio Vista are not adequate to make water available for delivery to TPP, the WSDs will pump up to 6,400 AFY from their banked groundwater into the State Aqueduct to make up for the water withdrawn by the TPP. (Ex. 26, pp. 6-7.)

3. State Water Policy

Staff believes that the proposed use of fresh water for Project cooling is a waste or unreasonable use of water resources in contravention of state water 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…

Staff refers to several state policy documents published by the Department of Water Resources (DWR) detailing 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).[8] According to Staff, 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.[9] The largest future shortages are forecast for the Tulare Lake (including Kern County) and South Coast regions,

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[8] California Water Plan Updates (DWR, 1998 and 2003); SWP Delivery Reliability Report (DWR, 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.) Cited by Staff at Ex. 51, pp. 4.13-24 and 4.13-25.

[9] During the most recent droughts (1991-92), urban residents faced water supply cutbacks and mandatory rationing, some small rural communities had their wells go dry, agricultural lands were fallowed, and environmental water supplies were reduced. (Ex. 51, p. 4.13-25.)

areas that rely heavily on imported water supplies and where large population increases are expected to occur. (Ex. 51, p. 4.13-25.)

Water Code section 13552.6(a) states that use of potable domestic water for cooling towers is a waste or an unreasonable use of water within the meaning of Section 2, Article X of the California Constitution if suitable recycled water is available to the user as follows:

> The Legislature hereby finds and declares that the use of potable domestic water for…cooling towers…is a waste or an unreasonable use of water within the meaning of Section 2 of Article X of the California Constitution if recycled water, for these uses, is available to the user, and the water meets the requirements set forth in Section 13550, as determined by the state board after notice and a hearing.

Staff acknowledges this section of the Water Code is administered by the State Water Resources Control Board (SWRCB) but notes that Water Code section 13552.8 authorizes any public agency to require the use of recycled water in cooling towers if the SWRCB determines it is available, does not affect any existing water right, and is subject to appropriate control or mitigation of public exposure to cooling tower mist. Staff also looked at SWRCB policy; in particular, Resolution 75-58, which 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 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.) Economically unsound is defined as

economically or otherwise infeasible. Feasible means capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors. (*Ibid*.)

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).) In Staff's view, Applicant did not provide an adequate discussion of alternatives to its fresh water proposal so Staff analyzed the feasibility of reclaimed water sources as well as the alternative of dry cooling technology. (Ex. 51, p. 4.13-30.)

4. Cooling Options

Staff identified the following water supply and cooling alternatives:

- Alternative 1 – Recycled water supply from Mountain House Community Services District (MHCSD) and fresh water supply from Zone 7;
- Alternative 2 – Recycled water supply from City of Livermore and fresh water supply from Zone 7;
- Alternative 3 – Recycled water supply from City of Tracy;
- Alternative 4 – Fresh Water from Zone 7 (Applicant's proposal)
- Alternative 5 – Dry Cooling

Based on a comparison of environmental and engineering measures, Staff determined that reclaimed water from the City of Tracy (Alternative 3) is the preferable alternative. (Ex. 51, p. 4.13-30.) Staff's Soil & Water Resources Appendix Table 2, below, compares the availability of the reclaimed water supply as follows:

Soil & Water Resources Appendix Table 2
Comparison of TPP's Dependency on Fresh Water & Availability of Reclaimed Water Supply based on Average Dry Weather Flows (mgd)

Source	2002	2005	2010	2015	2020	2025	2030	TDS
								mg/L
Alt. 1								
Mountain House CSD		0.8	2.1	3.4	4.8	5.3	5.3	818
Zone 7 Fresh Water	N/A	7.5	6.2	4.9	3.5	3.0	3.0	290
MHCSD Annual Volume (AFY)		895	2,350	3,800	5,370	5,930	5,930	
Alt. 2								
City of Livermore	5.5	5.5	6.3	7.2	8.1	9.0	9.9	700
Zone 7 Fresh Water	N/A	2.8	2.0	1.1	0.2	0	0	290
Livermore Annual Volume (AFY)		6,150	7,050	8,055	9,060			
Alt. 3								
City of Tracy	7.2	9.0	11.3	13.6	16.0	18.3	20.6	1,020
Zone 7 Fresh Water	N/A	0	0	0	0	0	0	290
Alt. 4 (Proposed Project)								
Zone 7 Fresh Water	N/A	8.3	8.3	8.3	8.3	8.3	8.3	290
Alt. 5 (Dry Cooling)								
Zone 7 Fresh Water	N/A	0.1	0.1	0.1	0.1	0.1	0.1	290

Source: Ex. 51, § 4.13, Appendix A, p. 4.13a-17.

1) City of Livermore available supply accounts for up to 3 mgd of other reclaimed water customer demands, phased from 1.0 to 3.0 mgd from 2002 to 2020;
2) Assumes the average TPP water supply requirements are 4.6 mgd, and the peak requirements are 8.3 mgd; the comparison is based on peak demands;
3) Assumes the TPP could begin operation by 2005, with average annual demands of 5,100 afy.

Reclaimed water from the City of Tracy is the only source that would meet both average and peak demands for the TPP when Project start-up is expected. The City's wastewater treatment upgrades are planned in conjunction with an overall capacity expansion of its wastewater treatment plant (from 9.0 to 10.8 mgd in the initial phase). (Ex. 66.) The City has scheduled tertiary-treated recycled water to be available by January 2006. According to the City's Deputy Director of Public Works, if the recycled water upgrade is not completed by the time of TPP start-up, the City could temporarily provide fresh water to the TPP from its groundwater or projected new surface water resources.[10] (9/12/03 RT, p. 173 et seq.; Ex. 51, p. 4.13-34.)

[10] Applicant initially anticipated start-up in 2005, but the start-up schedule has been changed to 2006. Members of the public expressed concern about the potential impact on Tracy's potable water supply if an interim water source were used to supply the TPP. Given the timelines for

In addition to considering the quantity of reclaimed water available, Staff addressed the issue of cost based on water quality and environmental effects. (Ex. 51, § 4.13 Appendix A, p. 4.13a-17.) Staff asserted that the average concentration of total dissolved solids (TDS) in tertiary treated reclaimed water from Tracy and fresh water from the Aqueduct would be comparable and therefore the cost of the ZLD system to treat sludge from the cooling water would be similar for both water sources. Both Applicant and Staff assumed the TDS levels in Tracy wastewater would be 1,020 mg/l but the City of Tracy advised Staff that its reclaimed water would have a TDS of 600 mg/l as a result of implementing its South County Surface Water Supply Project in 2004, which displaces the existing use of higher TDS groundwater. (Ex. 54, p. 9.) The TDS level of Aqueduct water typically ranges from an average of 290 mg/l to 500-600 mg/l due to variability of water quality from the Delta during the summer and fall months, which corresponds to the TPP's peak power production months. According to Staff, this would require the ZLD treatment system to be sized about the same for either reclaimed water from Tracy or fresh water from the Aqueduct. (Ex. 54, p. 10; 9/12/03 RT, pp. 156-157.)

Staff based energy costs for operating the ZLD system on the estimated annual power load multiplied by a blended energy rate comprised of the value of both internal generation when one or more generating units are operating and standby power provided by PG&E during TPP shutdowns. Using the revised 600 mg/l TDS level for Tracy reclaimed water, Staff estimated the annual power load for the ZLD system would be about 6,500 MWH/y. Staff used a high and low range of $45/MWH and $37.55/MWH, respectively, to compare the costs of using reclaimed or fresh water. (Ex. 54, p. 10.)

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completion of the wastewater treatment upgrades and the TPP's online date, it is unlikely that an interim water supply for TPP will be required or that the potable water supply for Tracy residents will be affected by TPP's use of effluent from the Tracy Waste Water Treatment Plant.

According the City of Tracy Deputy Director of Public Works, the City would provide reclaimed water to the TPP at no cost for the first 15-20 years of Project operation and then renegotiate for an appropriate cost. The City would expect TPP to pay all pipeline construction costs and the cost of pumping water to the TPP. (9/12/03 RT, p. 178.) Staff estimated pipeline construction costs as a range of $150-$200/lf for the 20-inch diameter, 1.7-mile fresh water pipeline from the Aqueduct and $200-$250/lf for the 30-inch diameter, 11-mile reclaimed water pipeline from Tracy. Staff also estimated that the City would charge a range of $50-$75 an acre-foot for reclaimed water at the end of the 15 year period of free water supply. (Ex. 54, p. 9; 9/12/03 RT, pp. 161-163.)

Staff also included the cost of Applicant's proposed payment of $2.5 million to Zone 7 in mitigation of potential adverse effects to Zone 7's water supply due to construction and operation of the new turnout at the Aqueduct. (Ex. 54, p. 10;

Cost comparisons are shown below in Staff's Soil and Water Resources Appendix Table 5A:

Staff's Appendix Table 5A
Economic Summary of Alternatives 3 and 4 (Interest Rate of 7%)

Cost Component	Alt. 3a - Low Est	Alt. 3b - High Est	Alt. 4a - Low Est	Alt. 4b - High Est
	Tracy	Tracy	Zone 7 Aqueduct	Zone 7 Aqueduct
Capital Costs				
			(1.7 Miles @ $150/lf)	(1.7 Miles @ $200/lf)
20" Diameter Fresh Water Pipeline	$0	$0	$3,420,000	$4,915,000
	(11 Miles @ $200/lf)	(11 Miles @ $250/lf))		
30" Diameter Recycled Water Pipeline	$17,540,000	$23,064,000	$0	$0
TPP ZLD Water Treatment System	$19,137,000	$21,637,000	$19,137,000	$19,137,000
Wet Cooling Tower	$15,200,000	$15,200,000	$15,200,000	$15,200,000
Zone 7 Infrastructure Fund	$0	$0	$2,500,000	$2,500,000
Subtotal - Pres. Value of Capital Costs	**$51,877,000**	**$59,901,000**	**$40,257,000**	**$41,752,000**

Annual Costs				
Annual Water Pumping O&M & Energy	$491,000	$491,000	$223,000	$223,000
Annual TPP Water Treatment Operations				
Energy	$244,075	$292,500	$183,055	$219,375
Chemicals	$700,000	$900,000	$581,000	$581,000
Parts & Maintenance	$191,000	$216,000	$191,000	$191,000
Sludge Disposal	$357,000	$476,000	$238,000	$238,000
Incremental Manpower	$0	$0	$0	$0
Annual TPP Water Treatment Operations	$1,492,075	$1,884,500	$1,193,055	$1,229,375
			(5100 AF x $360.50/AF)	(5100 AF x $360.50/AF)
Annual Water Purchase Cost – Fresh	$0	$0	$1,838,550	$1,838,550
Annual Cost of Potable Water Hauled to Site	$19,320	$19,320	$0	$0
	(5100 AF x $0/AF, Yr 1 - 15), (5100 AF x $50/AF or $75/AF, Yr 16 - 30)			
Annual Water Purchase Cost – Recycled	$0 & $255,000	$0 & $382,500	$0	$0
Pres. Value of Annual Water Purch's in Yr 16	$2,485,094	$3,727,642	$0	$0
Pres. Value of Future Cost in Year 1	$900,713	$1,351,069	$0	$0
Equiv. Annual Recy.Water Cost for 30 Years	$67,837	$101,755	$0	$0
Annual Wet Cooling Operating Costs	$1,440,000	$1,440,000	$1,440,000	$1,440,000
Subtotal - All Annual Costs	**$3,510,232**	**$3,936,575**	**$4,694,605**	**$4,730,925**
PV of Annual Costs (2002 $, 7%, 30 Years)	**$46,607,711**	**$52,268,559**	**$62,333,435**	**$62,815,680**
PV of All Costs (2002 $, 7%, 30 Years)	**$98,484,711**	**$112,169,559**	**$102,590,435**	**$104,567,680**
Avg. Annual Rate of Total Costs	**$7,417,317**	**$8,447,983**	**$7,726,537**	**$7,875,452**
Incremental Power Prod. Cost ($/KWH)	**$0.00108**	**$0.00123**	**$0.00113**	**$0.00115**
Min. Annual Loss of Power Revenues	$0	$0	$1,600,000	$1,600,000
Pres. Value of Lost Power	$0	$0	$21,244,279	$21,244,279
PV of All Costs & Lost Power Revenues	**$98,484,711**	**$112,169,559**	**$123,834,714**	**$125,811,959**
Avg. Ann. Rate of Costs w/ Lost Power	**$7,417,317**	**$8,447,983**	**$9,326,537**	**$9,475,452**
Incremental Power Prod. Cost ($/KWH)	**$0.00108**	**$0.00123**	**$0.00136**	**$0.00138**

Source: Ex. 54, pp. 13-14.

The following points highlight the economic analysis shown in Table 5A.

- The analysis considers both initial capital costs during construction and ongoing operation and maintenance costs over a 30-year period. All costs are then converted into both a present value and an average annual rate of total costs to facilitate comparison of all capital and annual costs.

- Costs are estimated as a range of expected costs due to potential broad variability in construction bids, future energy prices, water purchase costs.
- The high and low estimates for the two alternatives are comparable before considering the potential effects of water supply interruption.
- For the low estimate, the present value of all costs for the 30-year period differs by only about $3 million, or 3% of total costs ($98,484,711 vs. $102,590,435 respectively). The Tracy alternative is about $3 million less than the Zone 7 alternative.
- For the high estimate, the present value of all costs for the 30-year period differs by only about $8 million, or 7% of total costs ($112,169,559 vs. $104,567,680 respectively). The Zone 7 alternative is about $8 million less than the Tracy alternative.
- After considering the potential effects of water supply interruption, the Tracy alternative is lower in cost than the Zone 7 alternative in both the low and high range estimates, by about $25 million (25%) and $13 million (12%) respectively.
- When comparing the alternatives on the basis of the incremental power production cost attributable to water supply, the water supply costs are comparable, and differ for the low and high estimates by only $0.00005/KWH and $0.00008/KWH respectively (less than 1/100th of a cent per KWH) before considering the effect of water supply interruptions. Staff believes the effect of considering potential water supply interruptions would negatively affect the economics of the Zone 7 alternative and would not affect the Tracy alternative.
- Staff believes the difference in costs of water supply are negligible between the Tracy and Zone 7 alternatives, when considered on both an equivalent cost basis (present value) and as an incremental power production cost attributable to water supply, and are therefore comparable. (Ex. 54, p. 14.)

Applicant disagreed with the characterizations and assumptions used by Staff in preparing the economic comparisons shown above in Table 5A. (9/12/03 RT, pp. 94-96.) Applicant's witness disputed the assumed TDS concentrations in Tracy wastewater compared with fresh water and the associated cost of the ZLD system. Applicant also disputed Staff's assessment of a water supply "reliability penalty" for lost generation based on potential outages or flow curtailments of fresh water from the Aqueduct. (9/12/03 RT, p. 83 et seq.; Ex. 26; Ex. 45, p. 5 et seq.) Applicant asserted that the reliability of the fresh water supply is equivalent to the reliability of the reclaimed water source and, therefore, the penalty

assumed by Staff artificially reduces the difference in cost between the two sources of water. (9/12/03 RT, pp. 87, 93.) Applicant also argued that the TPP's 8.3 million gallon on-site water storage tank would hold enough water for a one-to-two day outage thus reducing the potential for lost generation due to water shortages. (*Id*. at pp. 82, 199.)

Based on the data presented by Applicant, it is reasonable to conclude that Staff may have over-estimated the $21 million "reliability penalty" in its comparative cost analysis since this type of estimation is highly speculative. We believe, however, that the reliability issue is essentially a business risk assumed by the Applicant in the competitive power market.[11] We find the issues of environmental impacts and feasibility more compelling.

Staff identified several environmental considerations in its analysis of cooling options. (Ex. 51, pp. 4.13-33 and 4.13-34, Appendix A, Table 7, p. 4.13a-57.)

- Dependency on Fresh Water – This is a measure of the extent of fresh water conservation that is achievable. Alternative 3 (Tracy reclaimed water) and Alternative 5 (dry cooling) would diminish fresh water needs for cooling to 0 mgd and 0.1 mgd, respectively. Reclaimed water alternatives 1(MHCSD) and 2 (Livermore) would require some levels of fresh water to augment recycled water for much if not all of the life of the project. Alternative 4 (Zone 7) would rely entirely on fresh water for cooling for the life of the project.
- Adequacy of Water Quality Before Treatment – All alternative water sources would provide adequate quality for power plant cooling. TPP includes filtration of water supply before use in the cooling tower to remove suspended solids, but will have little effect on removal of TDS. Applicant considered the ZLD treatment requirements using a range of water quality from best case using fresh water with a TDS of 290 mg/l to worst case using Tracy recycled water, which initially contained a TDS of 1,020 mg/l. The distinctions in treatment requirements for each alternative are reflected in the economic analysis.

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[11] We note that the proposed agreement between the TPP and the WSDs for fresh water expressly excludes drought as a force majeure event that would relieve the WSDs from their obligation to deliver the water dedicated to TPP. (Ex. 161, p. 9, ¶ 4.5; see also 9/18/03 RT, p. 228 et seq. [Counsel statement].) This example illustrates Applicant's ability to manage the risk.

- Effect of Recycled Water Use on Public Health – All identified alternative sources of recycled water are either already treated, or will be treated to Title 22 tertiary standards by 2006 when TPP is projected to be operational.
- Adverse Effects to Downstream Water Rights – No adverse effects are expected to downstream water rights under any alternative. TPP use of Tracy's effluent would result in a net decrease in reclaimed water discharge to Old River and the Delta. This would improve downstream water quality.
- Degradation to Water Quality – None of the alternatives would result in degradation to water quality. Use of Tracy effluent combined with the ZLD process would result in a net benefit to improving Delta water quality by reducing discharge of high level TDS effluent.
- Injury to Plants, Fish, & Wildlife – With respect to water use, none of the alternatives would cause a significant adverse impact to plants, fish, or wildlife. (*See* discussion in the Biological Resources section of this Decision.)
- Reasonable Cost of Water Supply – Alternatives 2 and 5 are comparatively higher than Alternatives 1, 3, and 4.

Staff's Soils and Water Resources Appendix Table 7, below, compares the environmental and economic impacts of the alternative cooling options.

Soils and Water Resources Appendix Table 7
Environmental & Economic Summary of Alternatives

Environmental & Economic Measure	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5
	MHCSD/Zone 7 & Hybrid Cooling	Livermore/Zone 7 & Hybrid Cooling	Tracy Supply & Hybrid Cooling	Zone 7 Supply & Hybrid Cooling	Zone 7 Supply & Dry Cooling
Air Quality – PM10 Construction Emissions	Higher Emissions No Sig. Impact	Higher Emissions No Sig. Impact	Higher Emissions No Sig. Impact	Base Case No Sig. Impact	Higher Emissions No Sig. Impact
Air Quality – PM10 Operation Emissions	Higher Emissions No Sig. Impact	Higher Emissions No Sig. Impact	Higher Emissions No Sig. Impact	Base Case No Sig. Impact	Lower Emissions No Sig. Impact
Biological – Cooling Tower Habitat Loss for the San Joaquin Kit Fox	Same as Base Case Significant Impact	Same as Base Case Significant Impact	Same as Base Case Significant Impact	Base Case Significant Impact	Higher Habitat Loss Significant Impact
Biological – Water Pipeline Habitat Loss for the San Joaquin Kit Fox	No Significant Impact	No Significant Impact	No Significant Impact	Base Case No Significant Impact	No Significant Impact
Cultural Resources – Effects to Historically Significant Resources	Can Mitigate Potential Significant Impact	Can Mitigate Potential Significant Impact	Can Mitigate Potential Significant Impact	Can Mitigate Potential Significant Impact	Can Mitigate Potential Significant Impact
Geology & Paleontology – Effects to Paleontologic Resources	Can Mitigate Potential Significant Impacts	Can Mitigate Potential Significant Impacts	Can Mitigate Potential Significant Impacts	Can Mitigate Potential Significant Impacts	Can Mitigate Potential Significant Impacts
Hazardous Materials	No Significant Impact	No Significant Impact	No Significant Impact	No Significant Impact	No Significant Impact
Land Use – Power Plant Site Consistency with Williamson Act and Alameda County LORS	Potential Significant Impact	Potential Significant Impact	Potential Significant Impact	Potential Significant Impact	Potential Significant Impact
Land Use – Linear Facilities Consistency with Williamson Act and County LORS	No Significant Impact	No Significant Impact	No Significant Impact	No Significant Impact	No Significant Impact
Noise	No Significant Impact	No Significant Impact	No Significant Impact	No Significant Impact	Can Mitigate Potential Significant Impacts

Power Plant Reliability & Efficiency	No Significant Impact	No Significant Impact	No Significant Impact	No Significant Impact	No Significant Impact
Public Health	No Significant Impact	No Significant Impact	No Significant Impact	No Significant Impact	No Significant Impact
Traffic/Transportation	Can Mitigate Potential Significant Impacts	Can Mitigate Potential Significant Impacts	Can Mitigate Potential Significant Impacts	Can Mitigate Potential Significant Impacts	Can Mitigate Potential Significant Impacts
Visual - Effects from Cooling Structures	Same as Base Case Significant Impact	Same as Base Case Significant Impact	Same as Base Case Significant Impact	Same as Base Case Significant Impact	Same as Base Case Significant Impact
Visual - Water Pipelines	No Significant Impacts	No Significant Impacts	No Significant Impacts	No Significant Impacts	No Significant Impacts
Waste Management	No Significant Impact	No Significant Impact	No Significant Impact	No Significant Impact	No Significant Impact
Worker Safety	No Significant Impact	No Significant Impact	No Significant Impact	No Significant Impact	No Significant Impact
Soil & Water Resources - Sediment & Erosion Control	No Significant Impact	No Significant Impact	No Significant Impact	No Significant Impact	No Significant Impact
Soil & Water Resources – Bay & Delta Water Quality	Improvement to Water Quality	Improvement to Water Quality	Improvement to Water Quality	No Significant Impact	No Significant Impact
Soil & Water Resources – Adequacy of Water Supplies to Meet TPP Peak Demands	Recycled Supply Not Adequate	Recycled Supply Not Adequate Until 2021	Adequate in 2005	Adequate in 2005	Adequate in 2005
Soil & Water Resources – Avg. Annual Days of Water Supply Interruption	0 - 2 Days	0 - 2 Days	0 Days	- 2 Days	0 Days
Soil & Water Resources – Compliance with Water LORS	No	No	Yes	No	Yes
Soil & Water Resources – Total Water Supply & Cooling Costs and Lost Power Revenues (2002$, 7%, 30 Years)	**$111,501,000 - $121,592,000**	**$154,902,000 - $159,483,000**	**$111,528,000**	**$100,076,000 - $121,320,000**	**$161,565,000**
Soil & Water Resources – Incremental Power Production Cost ($/KWH)	**$0.00122 - $0.00133**	**$0.00170 - $0.00175**	**$0.00122**	**$0.00110 - $0.00133**	**$0.00177**

Staff's Appendix Table 7 was prepared prior to Appendix Table 5A and testimony indicates the cost range estimates are more likely accurate in Table 5A since TDS levels in Tracy wastewater and ZLD costs will be lower than assumed in Table 7 but estimated costs of incremental power production are higher. (Ex. 54.) We direct Staff to update Appendix Table 7 to reflect the testimony and/or to revise the testimony to incorporate accurate cost comparisons.

Intervenors Sarvey and CARE (Mike Boyd) presented the testimony of Mr. Bill Powers who argued that dry cooling is the preferable alternative. (Ex. 104.) The record contains Staff's analysis of the comparable merits of dry cooling ("air-cooled condensers" or "ACC") and wet cooling ("evaporative cooling") technologies. (Ex. 51, § 4.13, Appendix A, p. 4.13a-6 et seq.)

According to Staff, dry cooling is the best choice of cooling technologies with regard to water conservation and is equivalent to implementing ZLD in eliminating

wastewater discharge. However, dry cooling technology reduces power plant efficiency, requires larger parcels of land, and has higher initial capital costs. The following is Staff's general list of the advantages and disadvantages of dry cooling. (Ex. 51, § 4.13, Appendix A, pp. 4.13a-6 and 4.13a-7.)

- Advantages of Dry Cooling
  - Saves valuable fresh water for other beneficial uses.
  - Not water dependent so plant location is not tied to a water source.
  - Minimizes the use of water treatment chemicals.
  - Minimizes the generation of liquid and solid wastes.
  - Does not generate visible plumes are commonly associated with wet cooling towers.
  - Eliminates impacts to aquatic biological resources.
  - Eliminates the need for discharge permits.
  - Eliminates disturbance of wetland/aquatic substrate habitat.
  - Eliminates PM_{10} emissions and the need for biocides in cooling towers.
- Disadvantages of Dry Cooling
  - Requires air-cooled condensers that can have negative visual effects.
  - Requires the disturbance of a larger surface area for the air-cooled condensers than is required for wet cooling towers.
  - Potential noise impacts greater than wet cooling systems because of the number of fans and the considerably greater total airflow rate. New quieter fans and other mitigation measures are available, however, to reduce these impacts.
  - Power plant steam cycle efficiency and output can be reduced, depending on site conditions and seasonal variations in ambient conditions. Auxiliary power needed to operate cooling fans.
  - Capital costs for air-cooled condensers are generally higher than capital costs for wet cooling.

According to Staff, aside from the relatively more expensive installation of ACC, the primary concern regarding use of dry cooling is thermal performance or plant efficiency. Dry cooling requires more auxiliary power (not available for export)

than evaporative cooling due to the large fans used in the ACC process. (Ex. 51, § 4.13, Appendix A, p. 4.13a-26.)

Evaporative cooling is achieved by the "wet bulb" temperature of the ambient air, which absorbs the water evaporated by the cooling tower. In contrast, the ACC process uses simple convection heat transfer for cooling so the "dry bulb" or normal ambient temperature affects the cooling process. Essentially, the difference between wet bulb and dry bulb temperatures is a measurement of humidity; in dry climates wet bulb temperature is typically lower than dry bulb. Staff asserts that even on a theoretical basis, an evaporative cooling tower will perform better than ACC unless the humidity level is so high that wet bulb and dry bulb temperatures are the same, which is not the case at the TPP site. (Ex. 51, § 4.13, Appendix A, p. 4.13a-26.)

The efficiency difference between wet and dry cooling methods can be modified to some extent by Project design, size, and configuration of ACC components. Applicant presented an ACC footprint option, which the parties used to calculate costs and efficiencies.[12] (Ex. 1, § 3.10, Figure 3.10-3.) The parties agreed that dry cooling creates higher STG exhaust pressure due to a higher cooling temperature, which is the primary cause of thermal performance degradation. The record indicates that the highest temperature recorded at the site is 112°F. According to Staff, at the extreme day of 112°F with HRSG firing, the difference in efficiency at peak capacity between wet and dry cooling would be 41 MW, or 8 percent per unit. If a more typical hot temperature is presumed, such as the 1 percent of summer (101°F, which will be exceeded only 30 hours per year), the loss would be about 35 MW, nearly 7 percent per unit. On an average

[12] There is sufficient area at the site to reconfigure the Project footprint and add one to two more acres to accommodate the necessary ACC components. As proposed by Applicant, the ACC option would consist of 40 cells per unit arranged in an array of 5 by 8 cells, which would require a total area of 302 by 190 feet. (Ex. 51, § 4.13, Appendix A, p. 4.13a-25.)

temperature day, the loss of efficiency at peak capacity is estimated at 7.5 MW. (Ex. 51, p. 4.13-31 and Appendix A, pp. 4.13a-25 and 4.13a-26.)

Based on an estimated worst-case loss of power production of 35 MW for 3,000 hours/year (105,000 MWH/year) associated with dry cooling, Staff calculated the lost power revenue could range from $3 million/year to $10 million/year, assuming a range of power values from $30/MWH to $100/MWH, making this alternative less attractive from an economic standpoint.[13] Applicant estimated that the cost of capital installation for dry cooling technology would be $79.8 million while wet cooling installation would cost $15.2 million. (Ex. 51, p. 4.13-31 and Appendix A, p. 4.13a-25; Ex. 1, § 3.10, Table 3.10-5.)

Intervenors' witness Powers challenged the energy cost estimates asserting that parasitic load for both technologies would be about the same since he included the cost of chemical treatment for cooling water in his analysis. Mr. Powers agreed with the $79.8 million capital cost estimate for dry cooling but questioned the $15.2 million for evaporative cooling, citing the 560 MW Palomar Energy Project, which estimated its cooling tower capital cost at $18 million. According to Mr. Powers, since Palomar is half the size of TPP, its tower cost should be closer to $36 million.[14] Mr. Powers also estimated that reclaimed water would cost $300/acre foot for the life of the Project so that his comparable lifetime cost estimates for both cooling technologies appears to be similar: $132 million for wet cooling and $130 million for dry cooling. (Ex. 104, pp. 2-4.)

While Mr. Powers is a strong advocate for dry cooling, we are not persuaded that his calculations are more accurate than those offered by Applicant and Staff.

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[13] We are concerned that Staff's worst-case calculation is based on an efficiency loss of 35 MW at 101°F, which occurs only 30 hours a year, rather than the predicted loss of 7.5 MW at average temperature. Staff is directed to clarify this discrepancy and recalculate based on peak efficiency loss and average efficiency loss per year.

[14] Applicant shall provide evidence confirming that its cost estimate for the cooling tower is accurate or provide a corrected estimate, if appropriate.

Moreover, Mr. Power's speculation regarding the cost of reclaimed water from Tracy is rebutted by the evidentiary record in which the City has offered its tertiary treated recycled water to the TPP without cost for the first 15-20 years of Project operation. In addition, we note Mr. Powers' concern about denitrification of reclaimed water to ensure effective biocide treatment in the cooling tower. (*See* Public Health section of this Decision.) We address this concern in the Public Health section of the Decision; however, since the record does not contain evidence on whether the City will include denitrification in the tertiary treatment process or whether the TPP would install water treatment technology at the site or whether the biocide treatment required by Condition Public Health-1 would incorporate denitrification to ensure effective removal of microorganisms in the cooling tower, we cannot determine if Mr. Powers' cost estimate for water treatment is accurate. We direct Staff to provide testimony that would resolve this issue.

CEQA requires an analysis of a "reasonable range of alternatives" that can feasibly accomplish most of the basic objectives of the Project and avoid or substantially lessen one or more significant effects. (Cal. Code Regs., tit. 14. § 15126.6.)

The weight of the evidence establishes that use of recycled water for Project cooling will not result in significant adverse impacts to regional water supply. On the contrary, local water agencies believe the project's consumption of recycled water is a beneficial use. Moreover, it is consistent with state water policy, which encourages use of reclaimed water for power plant cooling. (State Water Board Resolution 75-58; *See also,* Water Code, § 13550.) However, if the reclaimed water option cannot be achieved due to failure of negotiations between the City and Applicant or other factors, the dry cooling option should be reconsidered as a viable alternative to the fresh water exchange proposed by Applicant. As shown in Appendix Table 7, above, and as indicated in the list of advantages for dry cooling, it represents the least environmentally intrusive cooling method

available.[15] Nevertheless, we recognize that the efficiency deficit resulting from dry cooling is an economic disincentive for the Applicant and, therefore, we support Applicant's efforts to pursue evaporative cooling if reclaimed water is available.

Applicant addressed the issue of reclaimed water availability in testimony of FPL's Vice President for Western Regional Development (Mr. Derrell Grant). Mr. Grant identified a series of terms that Applicant believes must be met by the City of Tracy in order for TPP to obtain Project financing. (9/12/03 RT, p. 10 et seq.) According to Mr. Grant, the negotiating terms offered to the City would include: a binding water supply agreement for 35 years approved by City Council Resolution, reliable interim water supply until reclaimed water is available, reliable delivery of up to 5,900 AFY at the times necessary to support plant operation, tertiary treatment would comply with Title 22 standards, and other reasonable and customary commercial terms. In addition, the cost of reclaimed water would be comparable to the cost of using the Applicant's proposed fresh water supply. (*Ibid*.)

By Resolution dated December 3, 2002, the Tracy City Council authorized City staff to negotiate with Applicant for an agreement to supply recycled water to the TPP. (Ex. 121.) By letter dated January 28, 2003, City staff proposed terms of negotiation to Applicant, including recycled water at no cost, compliance with Title 22 standards, Applicant to pay for design and construction of the pipeline, City to operate pumping facilities, listing of necessary regulatory approvals, and an agreement term for less than 35 years. (Ex. 65; *see also* Ex. 122.) The City's Deputy Director of Public Works testified that the City would be willing to provide recycled water without charge for 15-20 years and than seek a reopener on the agreement for the remaining life of the project. (9/12/03 RT, p. 178.)

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[15] Dry cooling eliminates cooling tower emissions and construction of the 11-mile wastewater pipeline. Biological mitigation for additional acreage can be incorporated into the BRMIMP.

During evidentiary hearings, the Committee encouraged Applicant to continue negotiating for a reclaimed water supply agreement with the City. Since there is no evidence regarding the status of negotiations between Applicant and the City since September 2003, we direct Applicant to provide a status report to the Committee by the end of the PMPD comment period. Without an agreement at this juncture, we cannot conclude that Tracy reclaimed water is available to the TPP. Once an agreement has been approved by the City, we will recommend the TPP incorporate use of recycled water into Project design and operation.

In consultation with Applicant and the City of Tracy, Staff proposed the route for the 11-mile wastewater pipeline and performed an independent environmental assessment concerning potential impacts during pipeline construction and operation. With implementation of the mitigation measures described by Staff, we find the preferred pipeline route would not result in adverse environmental impacts. (Ex. 52, p. 2.13-1 et seq.) Further discussion of the route and mitigation measures will be included in the Revised PMPD.

The Commission's regulations provide that "…the applicant shall have the burden of presenting sufficient substantial evidence to support the findings and conclusions required for certification…." (Cal. Code Regs., tit. 20, § 1748(d)). We are not persuaded that the Aqueduct fresh water proposal should be adopted. Applicant's evidence of efforts to obtain approvals from the various water agencies involved in that proposal does not establish compliance with state water conservation policy nor is it compelling in our determination of whether TPP complies with Commission water policy as expressed in the 2003 IEPR. Fundamentally, our inquiry is focused on evidence of whether the other options (reclaimed water or dry cooling) are "economically unsound" since we have concluded that those options are environmentally preferable to the use of fresh water. Appendix Table 7, above, indicates that reclaimed water costs would be reasonably equivalent to the fresh water proposal while dry cooling would be substantially more expensive. Applicant's negotiating terms with the City include

cost equivalency of the reclaimed and fresh water options. The evidence indicates that Applicant is unwilling to make the larger capital investment for dry cooling but does not indicate whether it would be economically infeasible if Tracy reclaimed water is not available. (Ex. 1, § 3.10.6.6.) Applicant agreed to accept a Condition of Certification requiring use of Tracy reclaimed water with the caveat that if an agreement cannot be negotiated, then the TPP will be allowed to pursue the fresh water option. We are considering this proposal but cannot rule definitively until we have an opportunity to review the additional information we have requested.

FINDINGS AND CONCLUSIONS

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

1. Soils at the Tesla Power Plant (TPP) site are susceptible to erosion during excavation and construction.

2. Storm water runoff at the TPP site has the potential to pollute groundwater and surface water channels in the Patterson Run Watershed.

3. The Project Owner will submit a Storm Water Pollution Prevention Plan (SWPPP) and a Sedimentation and Erosion Control Plan (SECP) for both the construction and operation phases of the TPP.

4. The SWPPP and SECP plans will be consistent with Alameda County and San Joaquin County requirements, including Best Management Practices (BMPs), and shall comply with requirements of the Central Valley RWQCB.

5. Grading and excavation activities will be restricted to the period of April 16-September 30 to avoid exposure to erosion during the rainy season.

6. 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.

7. The Project Owner will obtain a General NPDES Permit for Discharges of Strom Water Associated with Industrial Activity consistent with requirements of the Central Valley RWQCB.

8. The TPP will employ a zero liquid discharge (ZLD) system to eliminate all process liquid waste, thus eliminating the requirement for an Industrial Discharge Permit.

9. The TPP will not at any time use well water from the existing on-site well that is currently used for livestock watering

10. Project design includes a plume-abated wet cooling system.

11. The Project will require 5,900 acre feet of water (AFY) per year for cooling and other industrial processes.

12. Applicant proposes to use fresh water from the California Aqueduct via construction of a new turn-out at Milepost 8.5 on the Aqueduct and delivered via a new 1.7-mile water supply pipeline to the TPP.

13. Applicant would exchange Kern County Water Agency (KWCA) State Water Project (SWP) water from the Aqueduct for surface water or groundwater stored by the Buena Vista Water Storage District (WSD) and Rosedale-Rio-Bravo WSD Water Banking and Recovery Program in Kern County.

14. The Alameda County Flood Control and Conservation District ("Zone 7"), an existing SWP contractor, has jurisdiction in Alameda County and would own and operate the new turnout at Milepost 8.5.

15. A Change in Point of Delivery Agreement between the KWCA, which represents the two WSDs, Zone 7, and the Department of Water Resources (DWR) is required to obtain Aqueduct water allocated to the WSDs in Kern County.

16. The Change in Point of Delivery Agreement has not been executed.

17. The proposed use of Aqueduct fresh water for Project cooling and other industrial processes can be considered a waste or unreasonable use of water resources in contravention of state water policy.

18. Use of tertiary treated wastewater or dry cooling technology is environmentally preferable to use of fresh inland waters for power plant cooling.

19. The City of Tracy is in the process of upgrading its wastewater treatment facility to Title 22 standards to produce tertiary treated recycled water that could be used for power plant cooling.

20. Staff proposed the use of tertiary treated recycled water from the City of Tracy via a new 11-mile wastewater supply pipeline from the Tracy Wastewater Treatment Plant to the TPP.

21. The City of Tracy adopted a Resolution authorizing its staff to negotiate with Applicant for an agreement to supply recycled water to the TPP.

22. The City's wastewater treatment upgrades will be completed in the first quarter of 2006.

23. Applicant is willing to negotiate with the City for an agreement to obtain Title 22 wastewater for power plant Project cooling.

24. The City would provide wastewater without charge to the TPP for the first 15-20 years of Project operation with a reopener for the remaining life of the Project if Applicant agrees to pay for design and construction of the 11-mile wastewater pipeline.

25. Applicant and the City have not concluded negotiations to supply recycled water to the TPP and there is no "Will Serve" agreement.

26. The dry cooling alternative represents the least environmentally intrusive method available compared with wet cooling but capital investment in the technology is more expensive and higher cooling temperatures can reduce power plant efficiency resulting in lost power revenues.

27. The evidence does not establish that dry cooling is an "economically unsound" alternative in the event that reclaimed water is not available for Project cooling.

28. 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; however, Conditions of Certification associated with power plant cooling cannot be determined until resolution of negotiations with the City of Tracy for reclaimed water.

At this juncture, the evidentiary record is incomplete and we cannot conclude that the Project will comply with all applicable laws, ordinances, regulations, and standards (LORS) associated with power plant cooling.

CONDITIONS OF CERTIFICATION

[Note: To ensure clarity and enforceability, the Committee has revised Staff's proposed Conditions on erosion and sedimentation. We have not included Conditions related to power plant cooling since the issue is pending. The parties shall submit new draft Conditions on power plant cooling by the end of the PMPD comment period.

SOIL & WATER 1: The Project Owner shall provide a Sedimentation and Erosion Control Plan (SECP) for all Project elements consistent with Alameda County and San Joaquin County (as applicable) standards for Grading and Excavation Permits as well as the requirements of the Alameda County Flood Control and Water Conservation District (Zone 7). The SECP shall restrict all TPP-related earth-disturbing activities to the period of April 16–September 30 to avoid exposure to erosion-inducing runoff during periods with higher rainfall. The SECP shall include, but shall not be limited to, the following site-specific Best Management Practices (BMPs):

- Drawings showing the topographic features of the Project including all pipeline construction routes, laydown (staging) area, transmission upgrades, and stockpile location(s). The mapping scale should be at least 1"= 100' (1"=50' recommended). The topography and existing features of the surrounding areas should also be provided on the drawings.
- A construction sequence that addresses all events from initial mobilization until final stabilization (i.e. vegetation/asphalt) is achieved.
- Schedule restricting grading activities to the period of April 16–September 30 when average precipitation is 0.5 inches or less per month, to avoid exposure to erosion during periods with higher rainfall.
- Proposed contours shall be designed to join with existing contours. All utilities including storm water facilities shall be shown on the plan drawings. All erosion and sedimentation control facilities shall be included on the drawings. All drawings shall contain a legend of complete mapping symbols to identify all existing and proposed features including the soil boundary and a limit of construction. The limit of construction boundary shall

include the Project facility, pipeline areas, stockpile areas, laydown areas, and any off-site staging areas.

- Silt fence and sandbags shall be used to trap sediment and not as runoff conveyance facilities. Earthen berms or channels may be substituted to intercept sediment-laden runoff and direct it into the sediment retention basin/trap. A sediment trap shall be used for drainage areas less than five acres and a sediment basin shall be used for drainage areas greater than five acres.
- All excavated material shall be kept away from active surface water flows. The soil shall be covered via a liner or anchored mulch. Areas disturbed during construction shall be stabilized via permanent vegetation upon completion of the process.
- Specific BMPs for all project-related construction should be included and clearly identified on the drawings (including, but not limited, to access roads, directional drilling / tunneling, linear facilities, and any off-site staging areas).
- The drawings shall identify vegetative areas that will be disturbed and include a description of revegetation procedures on the drawings.
- Maintenance and monitoring protocol for erosion/storm water control.

Verification: At least 60 days prior to initiation of any site mobilization activities, the SECP shall be submitted to the appropriate agencies in the Counties of Alameda and San Joaquin for review and comment and to the CPM for approval. The CPM must approve the SECP prior to initiation of any site mobilization activities. Any request by the Project Owner to perform earth-disturbing activities outside the period of April 16–September 30 will be considered on a case-by-case basis subject to review by Alameda and San Joaquin Counties and review and approval by the CPM.

SOIL & WATER 2: The Project Owner shall submit a Notice of Intent for construction under the General National Pollutant Discharge Elimination System (NPDES) Permit for Discharges of Storm Water Associated with Construction Activity to the Central Valley Regional Water Quality Control Board (RWQCB). The Project Owner, as required, shall develop and implement a Storm Water Pollution Prevention Plan (SWPPP) for the construction of the entire project. The SWPPP shall include final construction drainage design

consistent with the Hydrology and Hydraulic Criteria Summary for Western Alameda County and specify BMPs for all on and off-site TPP Project facilities. These include calculations for determining the design capacity of the perimeter drainage ditches for intercepting run-on storm water, calculations for determining the design capacity of the detention/sedimentation basin, as well as final site drainage plans and locations of BMPs. BMPs shall also include measures to prevent soil erosion from drainage below the detention/sedimentation pond.

Verification: At least 60 days prior to the start of any site mobilization activities, the Project Owner shall submit a SWPPP for Construction Activity and a copy of the General NPDES Permit for Discharges of Storm Water Associated with Construction Activity to the U.S. Army Corps of Engineers (U.S.ACOE) for consideration of jurisdiction under Section 404 of the Clean Water Act, to the Alameda County Flood Control and Water Conservation District (Zone 7), to the Central Valley RWQCB for review and comment, and to the CPM for review and approval.

SOIL & WATER 3: The Project Owner shall obtain a General NPDES Permit for Discharges of Storm Water Associated with Industrial Activity from the Central Valley Regional Water Quality Control Board, and obtain CPM approval for the related Storm Water Pollution Prevention Plan (SWPPP) for Industrial Activity. The SWPPP will include final operating drainage design consistent with the Hydrology and Hydraulic Criteria Summary for Western Alameda County and specify Best Management Practices (BMPs) and monitoring requirements for the TPP Project facilities. BMPs shall also address prevention of soil erosion from drainage below the detention/sedimentation pond. This includes final site drainage plans, calculations for determining the design capacity of the detention/sedimentation, and locations of BMPs.

Verification: At least 60 days prior to the initiation of Project operation, the SWPPP for Industrial Activity and a copy of the General NPDES Permit for Discharges of Storm Water Associated with Industrial Activity shall be submitted to the CPM for approval.

SOIL& WATER 4: The Project Owner shall submit as-built plans of the existing on-site well and plans for well-head improvement as

necessary in order to prevent contamination of ground water. The intended use of the well is to continue livestock watering. The plans and specifications for well-head reconfiguration and piping to the stock water facility shall be submitted to Alameda County Flood Control and Water Conservation District (Zone 7) for review and to the CMP for review and approval. At no time shall ground water from the on-site well be used by the project.

Verification: At least 60 days prior to the start of any site mobilization, the Project Owner shall submit as-built construction diagrams of all piping and features associated with the well, and plans for improving well head reconfiguration to the Alameda County Flood Control and Water Conservation District (Zone 7) for review and to the CPM for review and approval. Any improvements necessary to the well head shall be completed prior to start of site mobilization.

SOIL & WATER 5: Wash water resulting from periodic cleaning of the compressors and heat recovery steam generators shall be contained on-site in a sump with the contents of the sump periodically pumped out by a vacuum truck and transported off-site for disposal at an appropriately licensed facility.

Verification: In the annual compliance report, the Project Owner shall provide an accounting summary of the quantity of wash and chemical cleaning water contained on-site, including the frequency of pumping, and the volume of water transported off-site for disposal.

SOIL & WATER 6: The Project Owner shall identify a backup wastewater disposal scheme to be implemented during periods of zero liquid discharge system shutdown or maintenance. If no approved backup scheme is identified, the Project shall cease operation when the zero liquid discharge system is not operating.

Verification: At least 60 days before the start of Project operation, the Project Owner shall submit a plan to the CPM for review and approval detailing the backup wastewater scheme to be implemented when the zero liquid discharge system is not operating.

SOIL & WATER 7: The Project Owner shall pay a Special Drainage Area (SDA) 7-1 Fee to the Alameda County Flood Control and Water Conservation District (Zone 7) in compliance with Zone 7's

regulations to mitigate effects of increasing impermeable surfaces at the TPP site.

Verification: Within 30 days after certification of the TPP by the Energy Commission, the Project Owner shall submit to the CPM documentation that the appropriate SDA 7-1 Fee has been paid to Zone 7.

[Note: The following Conditions Soil & Water-8 and Soil & Water-9 appear to be more pertinent to the topic of Biological Resources. Staff shall provide rationale for including these Conditions in the Soil and Water topic or move them to the Biology section, if appropriate.

SOIL & WATER 8: The Project Owner shall provide the CPM with evidence of pre-construction notification and authorization from the U.S. Army Corps of Engineers regarding compliance with Nationwide Permit # 3, consistent with Section 404 of the Clean Water Act, as applicable for placement of rock rip-rap for the storm water outfall in Patterson Run Creek. In association with obtaining authorization for use of Nationwide Permit # 3, the Project Owner may also be required to obtain Section 401 Water Quality Certification from the SWRCB and/or may be required to perform Section 7 consultation with USFWS for determination of effects to endangered species.

Verification: At least 30 days prior to construction of the storm water outfall, the Project Owner shall submit to the CPM evidence of authorization from the U.S. ACOE of Nationwide Permit # 3 compliance with Section 404 of the Clean Water Act. The Project Owner shall submit a copy of the 401 Water Quality Certification and/or a Section 7 Biological Opinion or written verification from the appropriate agency that the permits are not required.

SOIL & WATER 9: The Project Owner shall obtain a Streambed Alteration Agreement (SAA) or written verification from California Department of Fish and Game (CDFG) that a SAA is not required for placement of the storm water outfall in Patterson Run Creek.

Verification: At least 30 days prior to construction of the storm water outfall, the Project Owner shall submit to the CPM a Streambed Alteration Agreement or written verification from CDFG that a SAA is not required.

SOIL & WATER 10: The Project Owner shall comply with the requirements of Alameda County regarding the septic system. Septic

system construction shall not begin until Alameda County has reviewed the septic system plan and it has been approved by the CPM.

Verification: At least 30 days prior to the initiation of construction, the Project Owner shall submit evidence of compliance with Alameda County requirements and the final septic system plan to the CPM for approval.

[Note: The following Conditions were proposed by Staff; however, we will not recommend them to the Commission until negotiations for reclaimed water have been successfully completed.]

SOIL & WATER 11: The Project Owner shall secure a User Agreement for Reclaimed Water from the City of Tracy for the TPP's process and cooling water supply.

Verification: At least 60 days prior to the start of Project operation, the Project Owner shall submit to the CPM a copy of its User Agreement for Reclaimed Water from the City of Tracy to supply reclaimed water to the TPP for power plant cooling and other industrial processes.

SOIL & WATER 12: The Project Owner shall use tertiary-treated water supplied by the City of Tracy Waste Water Treatment Plant as its primary water supply source for cooling, process, and landscape irrigation. The Project Owner shall meter in-plant uses of water. The Project Owner shall prepare an annual summary, which shall include the monthly range and monthly average of daily water usage in gallons per day, and total water used by the Project on a monthly and annual basis in acre-feet. For subsequent years, the annual summary shall also include the yearly range and yearly average water use by the project.

Verification: The Project Owner shall submit as part of its annual compliance report a water use summary as described above to the CPM on an annual basis for the life of the project.

SOIL & WATER 13: In the event the TPP is constructed prior to the availability of recycled water and an interim water supply is to be used, the Project Owner shall submit a schedule of monthly water demand to the City of Tracy for review and comment and to the CPM for approval.

Verification: At least 30 days prior to the initial use of the interim water supply the TPP's monthly schedule of interim water supply requirements shall be submitted to the City of Tracy for review and comment and to the CPM for approval.

SOIL & WATER 14: If connections from the City of Tracy's fresh water distribution system are made to the reclaimed pipeline to serve TPP as an interim water supply, all connections must be severed and inspected at least 24 hours prior to connection of the system to the reclaimed water supply. A copy of the inspection report shall be submitted to the CPM prior to the connection of the reclaimed water supply.

Verification: At least 48 hours prior to the connection of the reclaimed water supply, the Project Owner shall inform the CPM of the date and time the fresh water connections will be severed. All fresh water connections must be severed and inspected at least 24 hours prior to connection of the system to the reclaimed water supply. A copy of the inspection report shall be submitted to the CPM prior to the connection of the reclaimed water supply.

SOIL & WATER 15: The Project Owner shall not use the interim water supply for more than 45 days once the tertiary-treated water supply has become available.

Verification: The Project Owner shall submit as part of its first annual compliance report a water use summary to the CPM, which shall include the date reclaimed water was available at the treatment plant and the date the power plant started using the reclaimed water.

C. CULTURAL RESOURCES

Cultural resource materials such as artifacts, structures, or land modifications reflect the history of human development. Certain places that are important to Native Americans or local national/ethnic groups are also considered valuable cultural resources. This topic analyzes the structural and cultural evidence of human development in the Project vicinity, where cultural resources could be disturbed by Project excavation and construction. Federal and state laws require a Project developer, such as the Applicant in this case, to implement mitigation measures that will 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].) Since there is often a five year lag between resource evaluation and the date that eligibility is decided, cultural resource specialists may use 45 years as a criterion for considering potential eligibility.

1. Background

Throughout California, significant archaeological and historic artifacts related to Native American cultures, Spanish and Mexican settlements, and/or American frontier settlements could be discovered during Project development and construction activities. The first historic mention of the Project vicinity is found in the record of Lieutenant Colonel Juan Bautista de Anza's expedition in 1776, which is memorialized by the Juan Bautista de Anza National Historical Trail marked at the intersection of Patterson Pass Road and Midway Road. Records indicate that in the early 1800s, missionaries contacted native populations of the Diablo Range–Livermore region and the northern San Joaquin Valley and Delta region. Over the next century, land grants were issued to Mexican citizens and other immigrants; a large land grant (35,556 acres) located north of the Project area was known as Rancho del Pescadero. The current Grant Line Road roughly follows the rancho boundary. In the late 1840's, the rancho was subdivided and several smaller farms and ranches appeared in the area. In 1885, the TPP site was sold as a 160-acre parcel and it has been used for agricultural purposes since that time. (Ex. 1, § 5.16.1.2; Ex. 51, pp. 4.3-5 and 4.3-6.)

In 1869, the Central Pacific Railroad (subsequently Southern Pacific) completed construction of the now-abandoned grade bordering the Project site on the north and passing east of Midway Road near the settlement of Midway. State Historic Landmark 780-7, located at the railroad bridge where it crosses the San Joaquin River near Mossdale Crossing, states that the bridge was the site of the final completion of the transcontinental railroad. The Delta-Mendota Canal, which was completed in 1952, is about two miles east of the site, and is considered eligible for the National Register of Historic Places (NRHP). The TPP gas supply line will cross under the canal alignment. (Ex. 1, § 5.16.1.2; Ex. 51, pp. 4.3-5 and 4.3-6.)

2. Methodology

The Applicant's investigation of cultural resources in the Project vicinity involved both archival research and field surveys. (Ex. 1, § 5.16.1.3.) Archival research was conducted at the Northwest Information Center of the California Historical Resources Information System (CHRIS) located at Sonoma State University in Rohnert Park for Alameda and Contra Costa Counties and the Central California Information Center of the CHRIS at Stanislaus State University in Turlock for San Joaquin County. (*Ibid*.) Archival research specifically covered the Area of Potential Effect (APE) for the TPP site and areas within one mile of the APE.[1] (Ex. 1, p. 5.16-22.)

The records search identified two historical archaeological sites, CA-ALA-432H and CA-ALA-433H, on Patterson Pass Road immediately west of the junction with Midway Road, approximately 0.5 mile south of the TPP site. The abandoned Southern Pacific Railroad (formerly CPRR) grade was not recorded but has been assigned a site number (CA-SJO-250H) in San Joaquin County. According to Applicant's consultants, no other city, county, state, and/or federal historically or architecturally significant structures, landmarks, or points of interest are located in or adjacent to the Project site. (Ex. 1, § 5.16.1.3; Ex. 51, p. 4.3-7.)

In June 2001, Applicant's consultants conducted a pedestrian field survey of all the TPP Project elements. (Ex. 3, Response 48, Attachment 1, p. 42.) The consultants found a light scatter of random historic debris typical of agricultural land and one concentration of late 19th century artifacts ("Site A"). No artifacts were observed during field surveys of the new transmission line route or the gas pipeline route.[2] Although the transmission route runs within 200 feet of site CA-

[1] The APE comprises an area 0.25 mile around the power plant site and 65 feet on either side of the natural gas pipeline route and transmission line. (Ex. 1, § 5.16.1.4.)

[2] TPP's interconnection to the Tesla Substation requires rerouting of the Ravenswood line along the western side of the Substation. With the exception of a single isolated fragment of solarized glass, no historic materials were noted. (Ex. 1, p. 5.61-12; Ex. 51, p. 4.3-8.)

ALA-433H, it does not cross that archaeological site. No resources were identified on the 49-acre construction and laydown area directly south of the TPP site; however, the consultants noted a verbal report of an unmarked cemetery (Haera-Brockman-Clark) next to Patterson Pass Road, which passes the laydown area. (Ex. 1, § 5.16.1.3; Ex. 1, p. 4.3-8.)

2. Potential Impacts

Archaeological Site A. Subsequent to the initial field survey, Applicant's consultants conducted a more detailed investigation of Site A to clarify the status of the isolated artifacts found in the initial survey and to determine the nature and extent of the archaeological site.[3] Applicant identified the site as the probable residence of Walter Gorman, who farmed the site and occupied the house circa 1885 until 1909. Applicant's consultants believe Site A should be reclassified as an historic occupation deposit with potential household and structural remains dating to the last decades of the nineteenth century. (Ex. 1, § 5.16-13; Ex. 3, Responses 76-82; Ex. 51, p. 4.3-10.)

Staff agrees that Site A is potentially eligible as an historic resource under CRHR Criterion 4.[4] (*See*, Cal. Code of Regs., tit. 14, §§ 4852(b) and (c)). Construction of the TPP has the potential to destroy Site A due to excavation and ground moving activities. In mitigation, Condition **CUL-3** requires the Project Owner to implement a Cultural Resources Monitoring and Mitigation Plan (CRMMP), which must include avoidance measures, a testing protocol, and a data recovery plan to protect any known or unknown cultural resources from project-related effects.

[3] Site A covers an area of 150 feet (46 meters) North-South and 250 feet (76 meters) East-West. Artifact recovery ranged from 857 to over 3,000 items per cubic meter. The maximum depth of Site A is still unknown but exceeds two feet (60 cm) in places. (Ex. 1, p. 5.16-13.)

[4] The known historic association of the site, short duration of use, and variety of the artifact assemblage increases the importance of Site A as a comparative example of a late 19th century household and decreases the dependency on spatial integrity required for archaeological interpretation. (Ex. 51, p. 4.3-10.)

We find that implementation of the CRMMP will reduce the potential for adverse impacts at Site A to insignificant levels.

Archaeological Sites CA-ALA-432 and CA-ALA-433H. The evidence indicates that there will be no TPP-related impacts at these sites. (Ex. 1, p. 5.16-13.)

Southern Pacific Railroad (formerly CPRR) Grade. Staff believes the CPRR grade is eligible for the CRHR under criteria 1, 3, and 4. The sandstone masonry bridge or culvert over Patterson Run may be affected by construction of the reclaimed water and natural gas pipelines. According to Staff, monitoring and recordation of the resource should be conducted when construction equipment is operating within boundaries of the grade or its associated cut or fill areas and the condition of the stone culvert should be monitored for any subsidence or deterioration caused by operation of heavy construction equipment. To ensure the railroad grade is protected, recordation and monitoring protocols will be included in the CRMMP. (Ex. 51, p. 4.3-22; Ex. 52, pp. 2.3-8 and 2.3-9.) Condition **CUL-9** requires the Project Owner to ensure the grade is returned to its original contour and appearance after construction is completed.

Delta-Mendota Canal. Segments of the Delta-Mendota Canal are eligible for the NRHP and the CRHR. Applicant does not anticipate direct or indirect effects to the resource as a result of TPP's gas pipeline route; however, Staff was concerned that directional drilling associated with constructing the pipeline could affect the canal.[5] Although impacts are not anticipated, mitigation measures established in the CRMMP will be implemented if necessary. (Ex. 51, p. 4.3-23; Ex. 52, pp. 2.3-10 and 2.3-11.)

[5] The U.S. Bureau of Reclamation (BOR), which owns the canal, will review the potential for impacts due to the directional drilling proposal and consult with Applicant and the Commission's Compliance Project Manager regarding the need for mitigation. (Ex. 51, p. 4.3-23; Ex. 52, p. 2.3-11.) Condition **CUL-11** directs the Project Owner to provide copies of any NHPA Section 106 compliance permit required by the BOR.

Archaeological Site CA-SJO-7. This prehistoric site was identified in the CCIC record search near the reclaimed water pipeline. Due to discrepancies between the original site record location and the CCIC plotted map location, the exact location is uncertain. Consistent monitoring in the vicinity of this site will ensure that subsurface features are identified during construction. Condition **CUL-7** requires full-time monitoring in the vicinity of known resources. Condition **CUL-6** requires the cultural resource monitor to halt construction if unknown resources are discovered or known resources are impacted and to recommend additional mitigation where an archaeological site cannot be avoided.

Grant Line Road (old Lincoln Highway). The proposed reclaimed water pipeline route runs under a segment of Grant Line Road, which follows the historic alignment of the first transcontinental paved road and retains much of its original rural ambience lined with mature walnut trees and bordered by pasture and agricultural fields. According to Staff, this segment appears eligible as an historic resource under Criterion 1 of the CRHR. (Ex. 52, 2.3-10.) Although pipeline construction will directly affect Grant Line Road, physical effects will be temporary and not significant since the road will be restored to its current appearance following construction. Staff was concerned, however, that construction west of Byron Road would have the potential to affect the root systems and health of historic walnut trees lining the route. Under Condition **CUL-10** the pipeline must be located in the center of Grant Line Road or other location to avoid damage to the root systems of these trees. (*Ibid*.)

Haera-Brockman-Clark Cemetery. Accidental incursions by Project-related traffic could affect the cemetery on Patterson Pass Road but no impacts are anticipated. Since this is a sensitive location, Applicant has agreed to place restrictive barriers around the cemetery with the approval of the landowner so construction vehicles will not enter the area from the adjoining lot or roadway. (Ex. 51, p. 4.3-19.)

Gallagher Foundation and Windmill. The Gallagher Foundation and windmill are located outside the anticipated impact area of the natural gas pipeline; however, Applicant agreed that monitoring in the vicinity of this site is an appropriate mitigation measure to ensure that subsurface features are identified during construction. Monitoring measures will be included in the CRMMP. (Ex. 51, p. 4.3-19.)

3. California Native American Heritage Commission

The Native American Heritage Commission (NAHC) maintains records and maps of traditional resource sites and sacred lands located throughout the state. NAHC's records did not indicate the presence of sacred lands in the Project area. (Ex. 1, p. 5.16-14; Appendix L-2; Ex. 51, p. 4.3-7.) To obtain further information about Native American resources near the site, Applicant sent letters and maps to groups and individuals identified by the NAHC. (Ex. 3, Response 52, Attachment 2.) Only one response was received by telephone call to Applicant's consultants but the response did not reveal any unrecorded cultural resources in the area. (*Id*., Response 53.) Conditions **CUL-3(4)** and **CUL-7(4)** require the Project Owner to implement a monitoring program consistent with NAHC guidelines.

4. Cumulative Impacts

Two resources in the Project area, the CPRR/Transcontinental Railroad and the Pacific Intertie, have been affected by urbanization and changes in the transportation system, which have diminished the integrity of the setting in the areas of extensive post-World War II growth. According to Staff, the addition of the power plant in the rural area would be another change that diminishes the integrity of the setting. Alteration of the setting for each of these resources is incremental and although each small change is a cumulative impact, we conclude that the addition of the power plant is not sufficient to be cumulatively considerable for either of the resources. (*See* Ex. 51, pp. 4.3-19 and 4.3-20.)

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

1. The Native American Heritage Commission has not recorded any Native American sacred properties within the Project vicinity.

2. Archival research revealed several known archaeological or historic resources within the Area of Potential Effect (APE) for the TPP site and areas within one mile of the APE.

3. No TPP-related impacts are anticipated at two archaeological sites (CA-ALA-432 and CA-ALA-433H) or other known resources located within the APE.

4. Archaeological site CA-SJO-7 is located near the wastewater supply pipeline; however, since the exact location cannot be determined from the record search, monitoring, reporting, and curation during excavation and construction will be required.

5. Pedestrian surveys of the APE revealed additional sites that may be eligible for listing as historic resources in the National Register of Historic Places (NRHP) and the California Register of Historical Resources (CRHR).

6. Archaeological Site A, located within the APE, revealed artifacts from a late 19th century household, which could be destroyed due to project-related excavation and ground moving activities.

7. The abandoned Southern Pacific Railroad (formerly Central Pacific) Grade located within the APE represents a segment of the first transcontinental railroad, segments of which are listed in the NRHP, and could be affected by project-related construction of the natural gas and wastewater supply pipelines near the stone masonry culvert over Patterson Pass.

8. The Project Owner will restore the grade and culvert to its original contour and appearance in the event that any damage is documented as a result of project-related construction.

9. Directional drilling associated with constructing the natural gas pipeline could affect the Delta-Mendota Canal, segments of which are eligible for the NRHP and the CRHR.

10. The Project Owner will comply with any NHPA Section 106 requirements related to directional drilling under the Delta-Mendota Canal.

11. Construction of the wastewater supply pipeline route could damage the root systems of historic walnut trees that line portions of Grant Line Road (old Lincoln Highway), which follows the historic alignment of the first transcontinental paved road and retains its original rural ambience.

12. The Project Owner will install the wastewater pipeline in the center of Grant Line Road or other locations to avoid damaging the root systems of historic walnut trees.

13. The potential for impacts to unknown cultural resources may not be discovered until subsurface soils are exposed during excavation and construction.

14. 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.

15. The potential for cumulative impacts to cultural resources is insignificant.

16. 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 ground disturbance, the Project Owner shall obtain the services of a Cultural Resources Specialist (CRS), and one or more alternates, if alternates are needed, to manage all monitoring, mitigation and curation activities. The CRS may elect to obtain the services of Cultural Resource Monitors (CRMs) and other technical specialists, if needed, to assist in monitoring, mitigation and curation activities. The Project Owner shall ensure that the CRS evaluates any cultural resources that are newly discovered or that may be affected in an unanticipated manner for eligibility to the California Register of Historic Resources (CRHR).

CULTURAL RESOURCES SPECIALIST

The resume for the CRS and alternate(s) shall include information demonstrating that the minimum qualifications specified in the U.S. Secretary of Interior Guidelines, as published in the Code of Federal Regulations, 36 CFR Part 61, are met. In addition, the CRS shall have the following qualifications:

1. a technical specialty appropriate to the needs of the Project and a background in anthropology, archaeology, history, architectural history or a related field; and
2. at least three years of archaeological or historic, as appropriate, resource mitigation and field experience in California.

The resume of the CRS shall include the names and telephone numbers of contacts familiar with the work of the CRS on referenced projects, and demonstrate that the CRS has the appropriate education and experience to

accomplish the cultural resource tasks that must be addressed during ground disturbance, grading, construction and operation. In lieu of the above requirements, the resume shall demonstrate to the satisfaction of the CPM, that the proposed CRS or alternate has the appropriate training and background to effectively implement the conditions of certification.

CULTURAL RESOURCES MONITOR

CRMs shall have the following qualifications:

1. a BS or BA degree in anthropology, archaeology, historic archaeology or a related field and one year experience monitoring in California; or
2. an AS or AA degree in anthropology, archaeology, historic archaeology or a related field and four years experience monitoring in California; or
3. enrollment in upper division classes pursuing a degree in the fields of anthropology, archaeology, historic archaeology or a related field and two years of monitoring experience in California.

The Project Owner shall submit the resume for the CRS, and alternate(s) if desired, at least 45 days prior to the start of ground disturbance to the CPM for review and approval.

At least 10 days prior to a termination or release of the CRS, the Project Owner shall submit the resume of the proposed new CRS to the CPM for review and approval.

At least 20 days prior to ground disturbance, the CRS shall submit written notification to the CPM identifying anticipated CRMs for the Project stating they meet the minimum qualifications required by this condition. If additional CRMs are needed later, the CRS shall submit written notice one week prior to any new CRMs beginning work.

At least 10 days prior to the start of ground disturbance, the Project Owner shall confirm in writing to the CPM that the approved CRS will be available for on-site work and is prepared to implement the cultural resources conditions of certification.

CUL-2 Prior to the start of ground disturbance, the Project Owner shall provide the CRS and the CPM with maps and drawings showing the footprint of the power plant and all linear facilities. Maps will include the appropriate USGS quadrangles and a map at an appropriate scale (e.g., 1:2000 or 1 inch = 200 feet) for plotting individual artifacts. If the CRS requests enlargements or strip maps for linear facility routes, the Project Owner shall provide copies to the CRS and CPM. The CPM shall approve all submittals.

If the footprint of the power plant or linear facilities changes, the Project Owner shall provide maps and drawings reflecting these changes, to the CRS and the CPM. Maps shall identify all areas of the Project where ground disturbance is anticipated.

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 CPM.

At a minimum, the CRS shall consult 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.

The Project Owner shall notify the CRS and CPM of any changes to the scheduling of the construction phases.

Verification: At least 30 days prior to the start of ground disturbance, the Project Owner shall provide the CRS and the CPM with the maps and drawings.

If this is to be a phased project, the Project Owner shall also provide to the CRS and CPM a letter identifying the proposed schedule of the ground disturbance or construction phases, and the associated dates for submittal of maps and drawings, along with the initial maps and drawings.

If there are changes to the footprint for a Project phase, revised maps and drawings shall be provided to the CRS and CPM at least 15 days prior to start of ground disturbance for that phase. 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.

CUL-3 Prior to the start of ground disturbance, the Project Owner shall submit the Cultural Resources Monitoring and Mitigation Plan (CRMMP), as prepared by the CRS, to the CPM for review and approval. The CRMMP shall identify general and specific measures to minimize potential impacts to sensitive cultural resources.

The CRMMP shall include, but not be limited to, the following elements and measures.

1. A proposed general research design that includes a discussion of research questions and testable hypotheses applicable to the Project area. A refined research design will be prepared for any resource where data recovery is required.
2. Specification of the implementation sequence and the estimated time frames needed to accomplish all project-related tasks during

ground disturbance, construction, and post-construction analysis phases of the project.

3. Identification of the person(s) expected to perform each of the tasks; a description of each team member's qualifications and their responsibilities; and the reporting relationships between Project construction management and the mitigation and monitoring team.
4. A discussion of the inclusion of Native American observers or monitors, the procedures to be used to select them, and their role and responsibilities.
5. A discussion of all avoidance measures such as flagging or fencing, to prohibit or otherwise restrict access to sensitive resource areas that are to be avoided during 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 construction and how long they will be needed to protect the resources from project-related effects.
6. A discussion of the requirement that all cultural resources encountered will be recorded on a DPR form 523 and mapped (may include photos). In addition, all archaeological materials collected as a result of the archaeological investigations shall be curated in accordance with The State Historical Resources Commission's "Guidelines for the Curation of Archaeological Collections," into a retrievable storage collection in a public repository or museum. The public repository or museum must meet the standards and requirements for the curation of cultural resources set forth at Title 36 of the Federal Code of Regulations, Part 79.
7. A discussion of any requirements, specifications, or funding needed for curation of the materials to be delivered for curation and how requirements, specifications and funding will be met. Also the name and phone number of the contact person at the institution shall be included. In addition, include information indicating that the Project Owner will pay all curation fees and that any agreements concerning curation will be retained and available for audit for the life of the project.
8. A discussion of the availability and the CRS's access to equipment and supplies necessary for site mapping, photographing, and recovering any cultural resource materials encountered during construction.
9. A discussion of the proposed Cultural Resource Report which shall be prepared according to Archaeological Resource Management Report (ARMR) Guidelines.

Verification: At least 30 days prior to the start of ground disturbance, the Project Owner shall provide the CRMMP to the CPM for review and approval., A letter shall be provided to the CPM indicating that the Project Owner will pay curation fees for any materials collected as a result of the archaeological studies. Ground disturbing activities may not commence until the CRMMP is approved.

CUL-4 The Project Owner shall submit the Cultural Resources Report (CRR) to the CPM for approval. The CRR shall report on all field activities including dates, times and locations, findings, samplings and analysis. All survey reports, DPR 523 forms and additional research reports not previously submitted to the California Historic Resource Information System (CHRIS) shall be included as an appendix to the CRR.

Verification: Within 90 days after completion of ground disturbance (including landscaping), the Project Owner shall submit the subject CRR. Within 10 days after CPM approval, the Project Owner shall provide documentation to the CPM that copies of the CRR have been provided to the curating institution (if archaeological materials were collected), the State Historic Preservation Office (SHPO) and the CHRIS.

CUL-5 Worker Environmental Awareness Program (WEAP) shall be provided on a weekly basis to all new employees prior to the beginning and for the duration of ground disturbance. The training may be presented in the form of a video. The training shall include:

1. a discussion of applicable laws and penalties under the law;
2. samples or visuals of artifacts that might be found in the Project vicinity;
3. information that the CRS, alternate CRS or CRM has the authority to halt construction in the event of a discovery or unanticipated impact to a cultural resource;
4. instruction that employees are to halt or redirect work in the vicinity of a find and to contact their supervisor and the CRS or CRM;
5. an informational brochure that identifies reporting procedures in the event of a discovery;
6. an acknowledgement form signed by each worker indicating that they have received the training;
7. and a sticker that shall be placed on hard hats indicating that environmental training has been completed.

Verification: At least 5 days prior to the start of ground disturbance, the Project Owner shall commence the WEAP training. The Project Owner shall provide in the Monthly Compliance Report the WEAP Certification of Completion

form of persons who have completed the training in the prior month and a running total of all persons who have completed training to date.

CUL-6 The CRS, alternate CRS and the CRM(s) shall have the authority to halt construction if previously unknown cultural resource sites or materials are encountered, or if known resources may be impacted in a previously unanticipated manner.

If such resources are found or impacts can be anticipated, the halting or redirection of construction shall remain in effect until all of the following have occurred:

1. the CRS has notified the Project Owner, and the CPM has been notified within 24 hours of the find destination and the work stoppage;
2. the CRS, the Project Owner, and the CPM have conferred and determined what, if any, data recovery or other mitigation is needed; and
3. any necessary data recovery and mitigation has been completed.

Verification: At least 30 days prior to the start of ground disturbance, the Project Owner shall provide the CPM with a letter confirming that the CRS, alternate CRS and CRM(s) have the authority to halt construction activities in the vicinity of a cultural resource find, and that the CRS or Project Owner will notify the CPM immediately (no later than the following morning or the incident, or Monday morning in the case of a weekend) of any halt of construction activities, including the circumstance and proposed mitigation measures.

CUL-7

1. The CRS, alternate CRS, or CRM(s) shall monitor ground disturbance full time in the vicinity of the Project site, linear alignments, laydown areas, access roads and other ancillary areas to ensure there are no impacts to undiscovered resources or known resources affected in an unanticipated manner. In the event that the CRS determines that full-time monitoring is not necessary in certain locations, a letter providing a detailed justification for the decision to reduce the level of monitoring shall be provided to the CPM for review and approval.

2. CRM(s) shall keep a daily log of any monitoring or cultural resource activities and the CRS shall prepare a weekly summary report on the progress or status of cultural resources-related activities. The CRS may informally discuss cultural resource monitoring and mitigation activities with Energy Commission technical staff.

3. The CRS shall notify the Project Owner and the CPM within 24 hours, by telephone or e-mail, of any incidents of non-compliance with any cultural resources conditions of certification. The CRS shall also recommend corrective action to resolve the problem or achieve compliance with the conditions of certification.

   Cultural resource monitoring activities are the responsibility of the CRS. Any interference with monitoring activities, removal of a CRM from duties assigned by the CRS or direction to a CRM to relocate monitoring activities by anyone other than the CRS shall be considered non-compliance with these conditions of certification.

4. 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 will be monitored.

Verification: During the ground disturbance phases of the project, if the CRS wishes to reduce the level of monitoring occurring at the project, a letter identifying the area(s) where the CRS recommends the reduction and justifying the reductions in monitoring shall be submitted to the CPM for review and approval.

During ground disturbance, the Project Owner shall include in the MCRs copies of the weekly summary reports prepared by the CRS regarding project-related cultural resources monitoring. Copies of daily logs shall be retained on-site and made available for audit by the CPM.

Within 24 hours of recognition of a non-compliance issue with the conditions of certification and/or applicable LORS, the CRS and the Project Owner shall notify the CPM by telephone of the problem and of steps being taken to resolve the problem. The telephone call shall be followed by an e-mail or fax detailing the non-compliance issue and the measures necessary to achieve resolution of the issue. Daily logs shall include forms detailing any instances of non-compliance. In the event of any non-compliance issue, a report written no sooner than two weeks and no later than six weeks after a non-compliance incident that describes the issue, resolution of the issue and the effectiveness or the resolution measures, and shall be provided in the MCR following completion of the report.

At least 10 days prior to ground disturbance in areas where there is potential to discover Native American cultural resources, the Project Owner shall send

notification to the CPM identifying the person(s) retained to conduct Native American monitoring. If efforts to obtain the services of a qualified Native American monitor are unsuccessful, the Project Owner shall immediately inform the CPM who will initiate a resolution process.

CUL-8 1. Prior to the start of ground disturbance, the Project Owner shall conduct additional testing of Site A using a testing plan approved by the CPM in order to determine if Site A is eligible for the CRHR.

2. If Site A is determined by the CPM to meet the eligibility requirements of the CRHR, a data recovery plan shall be submitted to the CPM for review and approval.

3. The data recovery plan shall be implemented prior to any ground disturbance within the boundaries of Site A.

Verification: At least 30 days prior to the start of ground disturbance, the Project Owner shall provide the CPM with a testing plan for review and approval.

At least 20 days prior to the start of ground disturbance, the Project Owner shall provide the CPM with the testing results and a recommendation of the eligibility of Site A for the CRHR.

At least 10 days prior to the start of ground disturbance, the Project Owner shall provide the CPM with a data recovery plan if the CPM determines that Site A is eligible for the CRHR. All data recovery must be completed prior to ground disturbance within the site boundaries of Site A.

CUL-9 Prior to the start of ground disturbance, the Project Owner shall provide written descriptions and detailed photographs of the CPRR grade and the stone culvert to the CPM for review and approval. The grade shall be returned to original contour and appearance after construction is completed. Monitoring of excavation within the parameters of the railroad grade shall be conducted. If archeological materials or deposits are found, reporting will be done in accordance with **CUL-6**. Monthly monitoring of the stone culvert shall be conducted to determine if any settling, subsidence, or other degradation is occurring to the stone culvert. If damage is observed, reporting will be done in accordance with **CUL-6**.

Verification: At least 30 days prior to the start of ground disturbance, the Project Owner shall provide written descriptions and photographs of the CPRR grade and architectural features to the CPM for review and approval.

After completion of construction across the CPRR grade, photographs of the restored grade shall be provided to the CPM for review and approval. The CPM shall review the documentation and approve the restoration of the grade and culvert.

CUL-10 Ground disturbance for the reclaimed water line shall avoid damaging the root system of the historic walnut trees that line portions of Grant Line Road. The ground disturbance for the water line shall occur outside the drip line of tree foliage. The location of the water line shall be in the center of Grant Line Road or at another location that avoids the walnut tree roots. Monitoring shall occur full time in the vicinity of the walnut trees to ensure avoidance. Monitoring shall also occur full time along the portion of the pipeline that extends from Tracy Blvd. to Corral Hollow Road. If the northern alignment is used, at least ten days prior to ground disturbance, a pedestrian archaeological survey shall be conducted on the portion of the alignment between Corral Hollow Road and Naglee Road. Any discoveries shall be reported pursuant to Condition **CUL-6**.

Verification: At least 20 days prior to ground disturbance in the vicinity of the historic walnut trees, the Project Owner shall submit, for CPM approval, a description of the chosen route and demonstrate via map or aerial photo that the drip line of the walnut trees will be avoided. Detailed reports of monitoring in the vicinity of the walnut trees and on the portion of the pipeline route that extends from Tracy Blvd. to Corral Hollow Road shall be provided in the Monthly Compliance Report.

CUL-11 The Project Owner shall consult with the U.S. Bureau of Reclamation to determine whether a federal permit triggers National Historic Preservation Act (NHPA) Section 106 Compliance regarding the Delta-Mendota Canal, and the Project Owner shall ensure that a copy of the permit and copies of correspondence from the federal agency to the Project Owner are provided to the CPM.

Verification: Within 10 days after permitting by a federal agency as required by the U.S. Bureau of Reclamation, copies of the permit shall be provided to the CPM. Within 10 days after the Project Owner receives any correspondence from the federal agency, the Project Owner shall provide copies of the correspondence to the CPM.

D. GEOLOGY AND PALEONTOLOGY

This section reviews the project's potential impacts on significant geologic, mineralogic, and paleontologic resources. It also evaluates whether project-related activities could result in public exposure to geologic hazards; and if so, whether proposed mitigation measures will adequately protect public health and safety.

SUMMARY AND DISCUSSION OF THE EVIDENCE

The TPP site and linear routes are located within the California Coast Ranges geomorphic province at the northern end of the San Joaquin Valley. This area is bounded by the Diablo Range to the west and the Great Valley geomorphic province to the east. (Ex. 51, p. 5.2-2; Ex. 1, § 5.5.1.1.) The regional geology of the Coast Ranges represents a complex system of folds and faults characterized by rolling hills, generally resulting from the interaction of the strike-slip tectonics of the San Joaquin fault system and the compressional tectonics of the Coast Ranges. (Ex. 1, § 5.5.1.1.)

The site vicinity consists of deformed strata of the San Pablo Group (marine sandstone) dipping up to 30 degrees. The site is located on the eastern flank of the Altamont Anticline, the largest fold in the area. The axis of the fold tends northwest at 40 degrees, typical of the structural features of the area, and plunges to the southeast. The site itself is relatively flat and bordered by low rolling hills. Bedrock at the site is comprised of Miocene marine and non-marine rocks of the Neroly Formation and Pliocene non-marine rocks of the Tulare formation. Quaternary alluvial deposits from erosion of surrounding hills underlie the site. (Ex. 1, § 5.5.1.1.)

Geologic hazards that could affect the TPP include faulting and seismicity, liquefaction, dynamic compaction, hydrocompaction, subsidence, expansive soils, landslides, and tsunamis and seiches. (Ex. 51, p. 5.2-3.)

1. Potential for Seismic Events

Applicant's consultant, GEOCON, conducted a Geotechnical Engineering Investigation to assess potential geological hazards at the site and along the linear alignments. (Ex. 1, Appendix G.)

The TPP site is located in a region of known faulting and seismicity. Several significantly active faults are present in the area. [1] (Ex. 1, § 5.5.1.5 et seq., Appendix G.2, § 4.1.2; Ex. 50, p. 5.2-3.) The Coast Range-Central Valley (CRCV) Thrust System is located 1.5 miles east of the site and the Greenville Fault is approximately 6 miles west of the site. (Ex. 1, § 5.5.1.5.) The CRCV Thrust System is at the boundary between the Great Valley and Coast Range and runs north-south for about 300 miles. Two significant historic seismic events were related to the CRCV Thrust System; specifically, a 6.7 Richter event near Coalinga in 1983 and a 7.0 Richter event near Winters in 1892. The Greenville Fault is a right-lateral strike-slip fault associated with the San Andreas Fault System. In 1980, a 5.8 Richter event occurred on the Greenville Fault with the epicenter located near Livermore, about 6 miles west of the TPP site. The Midway Fault, which is about 7 miles long, runs across the site near the northeast boundary; two earthquakes (5.0 and 3.5 Richter events) associated with the Midway Fault were reported in the last 100 years. According to GEOCON, seismicity in the region is dominated by the Greenville Fault because it has a higher recurrence interval than the CRCV Thrust System. (Ex. 1, Figure

[1] The California Division of Mines and Geology (CDMG) defines an "active" fault as one that has shown evidence of surface displacement within Holocene time and a "sufficiently active" fault when there is evidence of displacement along one or more of its branches. The DMCG delineates Earthquake Fault Zones near active faults pursuant to the Alquist-Priolo Earthquake Fault Zoning Act. (Ex 1, § 5.5.1.5)

5.5-3, Appendix G.2, § 4.1.2.) GEOCON also believes the Midway Fault is potentially active and should be included in any deterministic seismic analysis although the Midway quadrangle is not considered an Earthquake Fault Zone according to the CDMG.[2] (Ex. 1, Appendix G.2, § 6.0; Ex. 3, Response 86.)

The project area is designated Seismic Zone 4 for the highest level of earthquake activity as defined by the California Building Code (CBC). Pursuant to the CBC, the Applicant must provide a site-specific geotechnical study, which assesses the potential for ground rupture, liquefaction, dynamic compaction, hydrocollapse, subsidence, expansive soils, and landslides beneath or adjacent to project components that would present potential hazards associated with strong seismic shaking and/or unusual water infusion. (Ex. 51, p. 5.2-3.) The evidentiary record indicates there is low potential for occurrence of these phenomena in the event of seismic activity.[3] (Ex. 1, § 5.5.1.7; Ex. 3, Responses 88-90; Ex. 51, p. 5.2-4 et seq.)

The site is situated 380 feet above mean sea level and no large bodies of water are nearby; thus, there is no potential for flooding or earthquake-induced waves to affect the site. (Ex. 51, p. 5.2-6.)

Conditions of Certification **GEN-1**, **GEN-5**, **CIVIL-1**, and **STRUC-1** in the **Facility Design** section of this Decision require the project owner to submit the appropriate design calculations and specifications and the required CBC geotechnical reports for approval before project construction. Condition **GEO-1**, below, ensures that the project owner will comply with the CBC requirements.

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[2] According to GEOCON, the primary hazard posed by the Midway Fault is ground rupture and consequently, a 50-foot setback from the fault and associate shear zone will be established for construction of critical and occupied structures. (Ex. 1, p. 5.5-18, Appendix G.2, § 6.0.)

[3] GEOCON performed fault trenching at the site and did not find evidence of free standing groundwater, but well logs for the surrounding area indicate that static groundwater levels range from a depth of 25 feet below ground surface (bgs) to 85 feet bgs and seasonal fluctuations may occur due to variations in rainfall, temperature, and other factors. (Ex. 1, Appendix G.2, §§ 4.1.3.3 and 4.2.3.)

2. Potential Impacts to Geologic, Mineralogic, and Paleontologic Resources

No geologic or mineralogic resources are known to exist in the site vicinity. (Ex. 51, p. 5.2-6.) However, paleontologic resources have been identified within 3 miles of the site. Applicant's Paleontologic Resources Report assigns a sensitivity rating of high for all geologic units that underlie the power plant and associated linear facilities. (Ex. 1, § 5.7.2.2; Appendix O; *see* Pub. Resources Code, § 21000, Appendix G.) Therefore, due to the high probability of encountering paleontologic resources during project construction (specifically, grading and ground-moving activities), the parties proposed several measures to mitigate potential impacts, including an onsite Paleontologic Resource Specialist to monitor activities and the implementation of a Paleontologic Resources Monitoring and Mitigation Plan. (Ex. 51, p. 5.2-7.) These mitigation measures are incorporated in Conditions of Certification **PAL 1** through **PAL-7**, below.

FINDINGS AND CONCLUSIONS

Based on the uncontroverted 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 Code (CBC).

3. Final project design will comply with the CBC 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 no potential for flooding at the TPP site due to earthquake-induced waves.

5. There is no evidence of existing or potential geologic or mineralogic resources at the project site or along the linear alignments.

6. Paleontologic resources have been identified within 3 miles of the site and the probability of encountering paleontologic resources during project construction is high.

7. The Applicant will implement several mitigation measures to avoid impacts to paleontologic resources, including a Paleontologic 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 geologic, mineralogic, 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, mineralogic, or paleontologic 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, and **GEO-1**, below. Paleontologic Conditions of Certification follow.

GEO-1 The project owner shall submit a Soils Engineering Report as required by the 2001 CBC Appendix Chapter 33, Section 3309.5 Soils Engineering Report, which shall specifically include data regarding the liquefaction potential, dynamic compaction potential, hydrocompaction potential, expansion potential, and landslide potential of site soils. The liquefaction analysis shall be implemented by following the recommended procedures contained in *Recommended Procedures for Implementation of California Division of Mines and Geology Special Publication 117, Guidelines for Analyzing and Mitigating Liquefaction Hazards in California* dated March 1999.

Verification: The project owner shall include in the application for a grading permit a copy of the Soils Engineering Report, which describes the collapse, expansion, and liquefaction potential of the site foundation soils and a

summary of how the results of the analyses were incorporated into the project foundation and grading plan design for review and comment by the Chief Building Official (CBO). A copy of the Soils Engineering Report, application for grading permit, and any comments by the CBO shall be provided to the CPM no later than 30 days prior to the commencement of grading activities.

PAL-1 The project owner shall provide the CPM with the resume and qualifications of its Paleontologic Resource Specialist (PRS) for review and approval. If the approved PRS is replaced prior to completion of project mitigation and report, the project owner shall obtain CPM approval of the replacement. The project owner shall submit to the CPM and keep on file, resumes of the qualified Paleontologic Resource Monitors (PRMs). If the PRMs are replaced, the new monitors' resumes shall also be provided to the CPM.

The PRS resumes shall include the names and phone numbers of contacts. The resumes shall also demonstrate to the satisfaction of the CPM, the appropriate education and experience to accomplish the required paleontologic 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 Paleontologists (SVP) guidelines of 1995. The experience of the PRS shall include the following:

1. institutional affiliations or appropriate credentials and college degree;

2. ability to recognize and recover fossils in the field;

3. local geological and biostratigraphic expertise;

4. proficiency in identifying vertebrate and invertebrate fossils and;

5. the PRS shall have at least 3 years of paleontologic resource mitigation and field experience in California, and at least one year of experience leading paleontologic resource mitigation and field activities.

The project owner shall ensure that the PRS obtains qualified paleontologic resource monitors to monitor as necessary on the project. Paleontologic resource monitors (PRMs) shall have the equivalent of the following qualifications:

1. BS or BA degree in geology or paleontology and one year experience monitoring in California; or

2. AS or AA in geology, paleontology or biology and four years experience monitoring in California; or
3. Enrollment in upper division classes pursuing a degree in the fields of geology or paleontology and two years of monitoring experience in California.

Verification: 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 onsite work.

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 paleontologic 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 onsite duties.

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 and all linear facilities. Maps shall identify all areas of the project where ground disturbance is anticipated. If the PRS requests enlargements or strip maps for linear facility routes, the project owner shall provide copies to the PRS and CPM. The site grading plan and the plan and profile drawings for the utility lines would normally be acceptable for this purpose. The plan drawings should show the location, depth, and extent of all ground disturbances and can be 1 inch = 40 feet to 1 inch = 100 feet range. If the footprint of the power plant or linear facility changes, the project owner shall provide maps and drawings reflecting these changes to the PRS and CPM.

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 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: At least 30 days prior to the start of ground disturbance, the project owner shall provide the maps and drawings.

If there are changes to the footprint of the project, revised maps and drawings shall be provided at least 15 days prior to the start of ground disturbance.

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 submits to the CPM for review and approval, a Paleontologic Resources Monitoring and Mitigation Plan (PRMMP) to identify general and specific measures to minimize potential impacts to significant paleontologic resources. Approval of the PRMMP by the CPM shall occur prior to any ground disturbance. The PRMMP shall function as the formal guide for monitoring, collecting, and sampling activities and may be modified only with CPM approval. This document shall be used as a basis for discussion in the event that onsite decisions or changes are proposed. Copies of the PRMMP shall reside with the PRS, each monitor, the project owner's onsite manager, and the CPM.

The PRMMP shall be developed in accordance with the guidelines of the Society of the Vertebrate Paleontologists (SVP, 1995) and shall include, but not be limited to, the following:

1. copy of the Paleontologic 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 all conditions for certification;

3. A thorough discussion of the anticipated geologic units expected to be encountered, the location and depth of the units relative to the project when known, and the known sensitivity of those units based on the occurrence of fossils either in that unit or in correlative units;

4. An explanation of why, how, and how much sampling is expected to take place and in what units. Include descriptions of different

sampling procedures that shall be used for fine-grained and coarse-grained beds;

5. A discussion of the locations of where the monitoring of project construction activities is deemed necessary, and a proposed plan for the monitoring;

6. A discussion of the procedures to be followed in the event of a significant fossil discovery, including notifications;

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 Paleontologists standards and requirements for the curation of paleontologic resources; and

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 Conditions of Certification on Paleontologic Resources.

Verification: At least 30 days prior to ground disturbance, the project owner shall provide a copy of the PRMMP to the CPM. The PRMMP shall include an affidavit of authorship by the PRS, and acceptance of the project owner evidenced by an authorized signature.

PAL-4 Prior to ground disturbance and for the duration of construction, the project owner and the PRS shall prepare and conduct weekly CPM-approved training for all project managers, construction supervisors, and workers involved with or who operate ground disturbing equipment or tools. Workers shall not excavate in sensitive units prior to receiving CPM-approved worker training. Worker training shall consist of an initial 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.

The Worker Environmental Awareness Program (WEAP) shall address the potential to encounter paleontologic 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. For locations of high sensitivity, good quality photographs or physical examples of vertebrate fossils that may be expected in the area shall be provided;
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 paleontologic 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: At least 30 days prior to ground disturbance, the project owner shall submit the proposed WEAP including the brochure with the set of reporting procedures the workers are to follow.

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.

If an alternate paleontologic trainer is requested by the owner, the resume and qualifications of the trainer shall be submitted to the CPM for review and approval. Alternate trainers shall not conduct training prior to CPM authorization.

The project owner shall provide in the Monthly Compliance Report (MCR) the WEAP copies of the Certification of Completion forms with the names of those

trained and the trainer or type of training offered that month. The MCR shall also include a running total of all persons who have completed the training to date.

PAL-5 The project owner shall ensure that the PRS and PRM(s) monitor consistent with the PRMMP, all construction-related grading, excavation, trenching, and augering in areas where 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 PRMMP, the project owner shall notify and seek the approval of the CPM.

The project owner shall ensure that the PRS and PRM(s) have the authority to halt or redirect construction if paleontologic 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 plan presented in the PRMMP shall be proposed in a letter or email from the PRS and the project owner to the CPM prior to the change in monitoring. The letter or email shall include the justification for the change in monitoring and 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 paleontologic resource activities. The PRS may informally discuss paleontologic resource monitoring and mitigation activities with the CPM at any time.

3. The project owner shall ensure that the PRS immediately notifies the CPM of any incidents of non-compliance with any paleontologic 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 paleontologic resources encountered, either the project owner or the PRS shall notify the CPM immediately (no later than the following morning after the find, or Monday morning in the case of a weekend) of any halt of construction activities.

The project owner shall ensure that the PRS prepares a summary of the monitoring and other paleontologic activities that will be placed in the Monthly Compliance Reports. The summary will include the name(s) of PRS or monitor(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 will include the geologic units or subunits encountered; descriptions of sampling within each unit; and a list of fossils identified in the field. 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 project 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 paleontologic activities in the MCR.

PAL-6 The project owner shall ensure preparation of a Paleontologic Resources Report (PRR) by the designated PRS. The PRR shall be prepared following completion of the ground disturbing activities. The PRR shall include an analysis of the collected fossil materials and related information and submitted to the CPM for review and approval.

The report shall include, but not be limited to, a description and inventory of collected fossil materials; a map showing the location of paleontologic resources encountered; determinations of sensitivity and significance; and a statement by the PRS that project impacts to paleontologic resources have been mitigated.

Verification: Within 90 days after completion of ground disturbing activities, including landscaping, the project owner shall submit the Paleontologic Resources Report under confidential cover.

PAL-7 The project owner, through the designated PRS, shall ensure the collection, preparation for analysis, analysis, identification and inventory, the preparation for curation, and the delivery for curation of all significant paleontologic resource materials encountered and collected during the monitoring, data recovery, mapping, and mitigation activities related to the project.

Verification: The project owner shall maintain in its 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 PRR. The project owner shall be

responsible to pay any curation fees charged by the museum for fossils collected and curated as a result of paleontologic monitoring and mitigation.

CERTIFICATION OF COMPLETION
WORKER ENVIRONMENTAL AWARENESS PROGRAM
TESLA POWER PLANT [DOCKET # 01-AFC-21(C)]

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, Paleontologic, and Biologic Resources for all personnel (i.e. construction supervisors, crews, and plant operators) working onsite or at related facilities. By signing below, the participants indicate that they understand and shall abide by the guidelines set forth in the Program materials. Include this completed form in the Monthly Compliance Report to the California Energy Commission.

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Cul Trainer _____ Signature_____ Date ___/___/____

PaleoTrainer _____ Signature_____ Date ___/___/____

Bio Trainer _____ Signature_____ Date ___/___/____

VII. LOCAL IMPACT ASSESSMENT

All aspects of a power plant Project affect to some degree 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 analysis 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 TPP include the Alameda County General Plan, the East County Area Plan (ECAP), Alameda County Measure D (Save Agriculture and Open Space Initiative), and the Alameda County Zoning Ordinance. The San Joaquin County General Plan is also applicable since 1.7 miles of the project's natural gas pipeline and 8 miles of the proposed wastewater pipeline are located in San Joaquin County. (Ex. 51, p. 4.5-2 et seq.)

1. The Site

The TPP will be situated on a 25-acre portion of a 60-acre parcel within the unincorporated area of eastern Alameda County. The site is located within 1.0 mile of the boundary between Alameda and San Joaquin Counties, about 7 miles east of the City of Livermore (Alameda County) and 5 miles west of the City of Tracy (San Joaquin County). The proposed site is currently used for cattle grazing. The TPP's linear facilities (gas and water pipelines as well as the new transmission interconnection lines) cross open spaces and agricultural lands also used for cattle grazing. (Ex. 51, p. 4.5-4 et seq.)

The 60-acre Project site is subject to a Williamson Act Land Conservation ("Williamson Act") Contract[1] recorded February 29, 1972.[2] (*See* Ex. 2, Response No. 2 Attachment.) The Williamson Act contract covers approximately 320 contiguous acres on three parcels (APN 0099B-7825-001-01, -03, and -04). Applicant holds an option to purchase the 60-acre site, which is identified as Parcel 4 under the contract. (Ex. 19.)

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[1] 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 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.

[2] Williamson Act Contract 72-26428 (Alameda County Agricultural Preserve No. 1972-42), filed by the property owner (Martin Family Trust) on February 29, 1972 with the Alameda County Recorder, File No. RC 3071, IM. 749 et seq.

2. Potential Impacts

a. Williamson Act

The development of a power plant at the proposed TPP site is not consistent with a Williamson Act contract since the facility would result in permanent conversion of agricultural land to industrial/infrastructure use.[3] (Ex. 51, p. 4.5-7; Ex. 64B, p. 3.) To allow construction of the TPP, Applicant submitted a request to Alameda County for partial cancellation of the Williamson Act contract.[4] (Exs. 16 and 19.) On February 6, 2003, the Alameda County Board of Supervisors granted tentative approval of the partial cancellation. (Ex. 21: Alameda County Resolution No. R-2003-322.) The partial cancellation applies only to 59 acres of the contract area (Parcel 4) while the remaining 260 acres will remain under the original contract with 100 acres (Parcel 3) subject to the additional protection of a new permanent agricultural conservation easement. (*Ibid*.)

The Board of Supervisors made a series of mandated "findings" required for a Williamson Act contract cancellation in accordance with Government Code section 51282. The key required findings were:

1. The cancellation is for land on which a notice of contract nonrenewal has been filed.
2. The cancellation is not likely to result in the removal of adjacent lands from agricultural use.
3. The cancellation is for an alternative use consistent with applicable provisions of the city or county general plan.
4. The cancellation will not result in discontiguous patterns of development.

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[3] The TPP's linear facilities are compatible uses within a Williamson Act agricultural land preserve since transmission lines and gas and/or water pipelines do not preclude agricultural activities. (Ex. 51, p. 4.5-7.)

[4] Based upon the Applicant's option to purchase the site and upon agreement of the landowner, the California Department of Conservation, which administers Williamson Act contracts, assigned Applicant the right to act for the landowner in submitting the petition for partial cancellation. (Ex. 18; Ex. 64E.)

5. There is no proximate (i.e. nearby) noncontracted land, which is both available and suitable for the proposed use.

b. Consistency with Land Use LORS

While the Energy Commission is lead agency on the TPP project, Alameda County is the responsible agency with sole jurisdiction over the Williamson Act contract issue. Since the Commission's siting process is the functional equivalent of environmental review required by CEQA, the County relied on the Commission staff's Preliminary Staff Assessment (PSA) as the Initial Study to determine whether power plant development on Parcel 4 would have a significant effect on the environment. (Ex. 19, p. 3.) The County concluded that with the mitigation measures recommended in the PSA, a Mitigated Negative Declaration could be adopted in support of the partial cancellation. (Ex. 21.) The County conditioned its tentative approval of the partial cancellation upon Commission certification of the TPP. If the Project is not certified, the partial cancellation would be void. In addition, the County may commence proceedings to withdraw the cancellation if the Applicant does not begin construction of the TPP within 5 years of the tentative approval date. (*Ibid*.)

The TPP site is currently designated Large Parcel Agriculture ("A" Zoning District) in the ECAP. The Board of Supervisors found the TPP is an acceptable land use under ECAP Policies 81A and 85, with the provision that adjacent agricultural land shall be preserved. ECAP Policy 13 allows certain types of public uses, public facilities, and infrastructure to create adequate service for the East County. Infrastructure is defined as "public facilities, community facilities, and all structures and development necessary to the provision of public services and utilities." (Ex. 21, p. 3, ¶ 3.) The Board determined that the TPP falls within the definition of "infrastructure" and, as mitigated, conforms with the preservation

of "agricultural/open space areas" requirement established by Policy 58.[5] (*Ibid*. cont. to p. 4.)

Intervenors CARE and Sarvey argue that the TPP is inconsistent with ECAP as modified by Measure D (Save Agriculture and Open Space Lands Initiative).[6] Intervenors presented the testimony of Richard Schneider, co-author of Measure D, who asserted that a large power station such as the TPP is not a public or quasi-public use as described in ECAP Policy 54, which provides limited exemptions (infrastructure, hospitals, research facilities, landfills, jails, etc.) to the Large Parcel Agriculture land use designation outside the Urban Growth Boundary (UGB). (Ex. 75B, pp. 2-3.) Measure D changed the UGB in eastern Alameda County to focus urban-style development near existing cities and to limit industrial development beyond its boundaries. (*See* Ex. 51, p. 4.5-3.) The few exceptions are those uses directly supporting agriculture and natural resource protection activities. Mr. Schneider argued that the TPP should not qualify for an exemption since it is outside the UGB and does not support agricultural activities. According to Mr. Schneider, the drafters of Measure D specifically *deleted* a provision allowing "industrial uses appropriate for remote areas and [that could be] determined to be compatible with agriculture." (*Id*. at p. 4.)

Mr. Schneider believes the County stretched its interpretation of the Measure D exemption for expanded or replacement infrastructure. Measure D, Policy 14A as quoted by Mr. Schneider, states that the County "shall not provide nor authorize public facilities or other infrastructure in excess of that needed for permissible development consistent with the Initiative." (Ex. 75B, p 6.) Policy 14A includes only infrastructure necessary to create adequate service for the East County; maintenance, repair or improvement of public facilities, which do

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[5] The County's Community Development Agency (CDA) staff report in favor of the partial cancellation provides an analysis of the infrastructure exemption for the TPP. (Ex. 19.)

[6] Public referendum in Alameda County approved by the voters in November 2000. (Ex. 75A.)

not increase capacity; and infrastructure such as pipelines, canals, power transmission lines, which would have no excessive growth-inducing effect on the East County area. (*Ibid*.) According to Mr. Schneider, the TPP is much larger than any infrastructure contemplated by Measure D. The 1,120 MW power plant is intended to serve more than one million homes: a magnitude of 12 to 17 times larger than necessary to serve existing residents of eastern Alameda County and nearly 40 times larger than necessary to serve the incremental growth projected for the area. (*Id*. at p. 7.)

Mr. Schneider disputes the County's position that the TPP can be sized substantially larger than the needs of East County residents in order to supply a statewide commodity.[7] He believes that approach is growth-inducing and thwarts the purpose of Measure D, which was intended to limit the development of industrial uses on existing agricultural lands.[8] (Ex. 75B, p. 9.)

Echoing Mr. Schneider's concerns, Commission staff was initially skeptical about the project's compatibility with the County's "Large Parcel Agriculture" General Plan use designation and questioned whether the Williamson Act contract cancellation was consistent with Measure D. (Ex. 51, p. 4.5-10.) Specifically, ECAP Policy 86 states that the County shall not approve cancellation of a Williamson Act contract outside the UGB for purposes inconsistent with agricultural or public facility uses. (*Id*. at pp. 4.5-3 and 4.5-12.) Staff generally considers electric generating facilities such as the TPP to be large industrial uses, which depending on the overall geographic setting, fall within the broad category of urban development. (*Id*. at p. 4.5-10.)

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[7] Mr. Schneider is especially concerned that the 1,120 MW TPP and the recently certified 1,100 MW East Altamont Energy Center (about 6 miles from the TPP) that are intended to serve the greater Northern California electric grid (not limited to Alameda County) will require the residents of East Alameda County to host the two large power plants, which in combination will provide power to more than 2 million homes. (Ex. 75B, p. 7 et seq.)

[8] Mr. Schneider participated at the Board of Supervisors hearing on the partial cancellation of the Williamson Act contract and expressed his views to the Board. (9/11/03 RT, pp. 57-58.)

The Alameda County CDA determined that an electric power plant meets the public service infrastructure category while urban development would be defined as a residential subdivision or a manufacturing facility. (9/11/03 RT, pp. 48-51; Ex. 19.) In the infrastructure context, the CDA concluded that an electric power plant is consistent with agricultural uses and is allowed under ECAP Policy 13. (*Ibid*.) The CDA acknowledged that the Project would provide electricity beyond that "needed" by the East County area residents and businesses.[9] However, the CDA believes that ECAP/Measure D, when applied to energy production, does not have a geographic restriction. Therefore, electricity produced at the TPP would serve the needs of the East County area and the larger California electricity market without conflicting with ECAP/Measure D. Furthermore, according to the CDA, the TPP would function as a public utility because it substantially serves a key need of the public at large. (Ex. 64B.) In this context, Commission staff considered that there are several reasonable perspectives on the concept of "public service infrastructure" and accepted the County's interpretation as plausible. (Ex. 51, p. 4.5-12.)

We acknowledge the concerns of the Intervenors and the skepticism of Staff regarding the consistency of the Project with ECAP/Measure D. Although the TPP is obviously an industrial use requiring agricultural conversion, Alameda County's interpretation is credible since the Project can be viewed as infrastructure necessary to meet electricity needs in the County. We typically give due deference to a public agency's interpretation of its own land use LORS unless that interpretation conflicts with the Commission's siting authority or would

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[9] In January 2000, the Legislature repealed the statute that previously required the Energy Commission to conduct a statewide integrated assessment of need for power plant development. (SB 110, Stats 1999, Ch. 581.) The Commission's Notice of Intention (NOI) process, which is intended to identify appropriate site locations for new power facilities remains viable (Pub. Resources Code, §§ 25502-25516), however, gas-fired power plants are exempt from the NOI process. (*Id*., at § 25540.6(a).) The Commission's February 2001 Report to the Governor on Potential Peaking Power Plant Sites identifies a potential site near the Tesla Substation. *See*: www.energy.ca.gov/sitingcases/peakers/documents/2001-02-22_GOV_REPORT.PDF
Although the Report focuses on small peaker plants, locating generation in proximity to existing substations is considered an important factor in meeting power demand in California.

cause the Commission to rely on factual error. (Ex. 51, p. 4.5-13; *See* Cal. Code Regs., tit. 20, § 1714.5(b).) We have neither jurisdiction nor good cause to second guess the official action of the County Board of Supervisors in this case. The Board of Supervisors is the land use agency that represents County voters. Given the Board's action, we conclude that the Project is consistent with the overall policy intent of ECAP/Measure D Policy 86.

The Applicant proposed several financial incentives to enhance the value of the Project to Alameda County. The incentives include a $750,000 grant to the County or the prospective East County Agricultural Land Trust to acquire and manage additional agricultural preserves; $250,000 to the Agricultural Advisory Commission Work Program to promote agriculture in Alameda County; and $90,000 to be used for the Agricultural Center Vineyard Demonstration Program. The Board of Supervisors found the combination of those actions along with the 100-acre permanent agricultural easement provides a public benefit that outweighs the loss of 59 acres of grazing land. (Ex. 21, p. 5.) Condition **LAND-7** incorporates the Applicant's proposals, including the permanent 100-acre agricultural conservation easement adjacent to the TPP site.

The 100-acre parcel is included in the Applicant's biological mitigation plan. Intervenor Sarvey questioned whether there is potential conflict in establishing an agricultural preserve and biological mitigation on the same parcel. Intervenor Sarvey believes that designating the agricultural preserve as biological mitigation essentially removes the land from agricultural use in violation of the partial cancellation of the Williamson Act contract. (9/11/03 RT, pp. 43-44.) The Applicant clarified that several parcels are involved in the biological mitigation plan (discussed in the section on Biological Resources) and there is a crossover in compatibility between biological habitat and agriculture. (*Id*. at pp. 66-68; *See* also, pp. 134-135.) According to Applicant, all the mitigation properties can be concurrently used for agriculture (cattle grazing) and biological mitigation. (*Ibid*.; Ex. 4, Response 212.) Condition **LAND-7** requires the Applicant to coordinate

the 100-acre agricultural preserve with implementation of Condition **BIO-5** to ensure the preserve is consistent with development of the biological mitigation plan.

c. Subdivision Map Act

The TPP site is classified A-160 in the Agricultural District, which requires a minimum size of 160 acres for new parcels. The allocations of 60 acres for the Project site and 100 acres for the contiguous agricultural preserve were deemed acceptable by the County since these allocations are not new parcels. The Applicant recorded two Certificates of Compliance issued by the County on October 19, 2001, which confirm that the 60-acre and the 100-acre parcels complied with applicable provisions of the State Subdivision Map Act and the Alameda County Subdivision Ordinance at the time of their creation and are conclusively presumed to have been lawfully created. (Ex. 51, pp. 4.5-14 and 4.5-15.)

d. Conditional Use Permit

The Alameda County Zoning Ordinance requires a Conditional Use Permit (CUP) for public utility uses in the Agricultural Zoning District where the TPP site is located. (Ex. 51, pp. 4.5-3 and 4.5-4.) Agricultural districts were established to promote agricultural and other non-urban uses, to conserve and protect existing agricultural uses, and to provide space for and encourage such uses where intensive development is not necessary for the general welfare. (County Zoning Ordinance, Section 17.06.010.) The County CDA submitted a set of tentative CUP findings to the Commission, which the County would have considered if it were the permitting agency for the TPP. (Ex. 64G.) The tentative findings address the public need for reliable power; the Applicant's proposal to preserve 100 acres of adjacent farmland; the project's compatibility with other uses such as the Tesla Substation and existing wind turbines; mitigation measures to

ensure the TPP will not result in detrimental effects to public health or the environment; and the project's consistency with ECAP policies as determined in the proceeding for partial cancellation of the Williamson Act contract. (*Ibid*.) Based on those tentative findings, we conclude that the County would have granted a CUP to the Project for public utility use.

According to Commission staff, there are no building or structural height limitation requirements in the Agricultural Zoning District (County Zoning Ordinance, Ch. 17.06). (Ex. 51, p. 4.5-15.)

We have incorporated specific County requirements in the Conditions of Certification to ensure the TPP conforms with the County Zoning Ordinance as follows: design and performance standards for the "A" District (**LAND-1**); parking standards (**LAND-2**); outdoor advertising regulations (**LAND-3**); description of the TPP's laydown/staging areas (**LAND-4**); stack lighting in accordance with FAA air safety regulations (**LAND-5**); and, final site plan approval (**LAND-6**).

e. San Joaquin County General Plan

The natural gas pipeline and the proposed wastewater line transverse lands designated by the San Joaquin County General Plan as "General Agricultural" and "Limited Industrial". The San Joaquin County General Plan (Section D) allows major infrastructure facilities such as wastewater treatment, water supply, storm drainage, and solid waste disposal, as well as utility corridors for transmission lines. San Joaquin County encourages utilities to route facilities underground along property lines and rights-of-way to avoid interference with agricultural operations or other land use activities. According to Staff, the 1.7 miles of natural gas pipeline and 8 miles of wastewater pipeline in San Joaquin County are consistent with San Joaquin County General Plan designations and the requirements of the San Joaquin County Development Title. (Ex. 51, pp. 4.5-15 and 4.5-16.)

Further, the wastewater pipeline will not cause growth-inducing impacts in San Joaquin County or the City of Tracy since it is intended to meet the cooling water needs of an electric power plant in eastern Alameda County rather than enabling urban growth such as new residential development. The wastewater pipeline, located primarily within San Joaquin County's Tracy Planning Area and within the City of Tracy's Sphere of Influence, is consistent with the City's land use designation for Public Facilities and the Light Industrial Zone along the pipeline route. (Ex. 51, p. 4.5-16.)

f. Compatibility with Existing and Planned Uses

We find the TPP site and related linear facilities are compatible with existing and planned land uses. There are no established communities within the immediate vicinity of the site. Although the TPP will be constructed on 25 acres of grazing land, cattle grazing will continue on the adjacent parcels under the permanent agricultural land preserve required by the Board of Supervisors in the Williamson Act contract partial cancellation action described above. Existing land uses in the area consist of large spans of grazing lands, the Tesla Substation, several transmission lines, wind turbines, and scattered rural and agricultural activities. In this setting, we believe the TPP is compatible with the current agriculture and open space pattern for the region established by ECAP/Measure D. (*See* Ex. 51, p. 4.5-17.)

g. Cumulative Impacts

Staff's Land Use Table 1, replicated below, identifies the reasonably foreseeable development projects within a 6-mile radius of the Project site.

Land Use Table 1
Reasonably Foreseeable Development Projects

Development	Size	Location	Jurisdiction	Status
Old River Specific Plan	1,000 acres	North of I-205 and northeast of the TPP site	San Joaquin County	The plan is under consideration as an amendment to the San Joaquin County General Plan. Community meetings have been held regarding what would be a commercial/industrial development.
Auto Auction Facility	200 acres	Patterson Pass Road Business Park	San Joaquin County	Under review by San Joaquin County.
Mountain House Community Service District – "New Town" Development	5,000 acres	Approx. 5 miles north of the TPP site, bounded to the west by the Alameda County Line, to the east by Mountain House Parkway and between I-205 to the south and the Old River to the north.	San Joaquin County	Phasing for the Specific Plan I has begun with construction of the Mountain House Community Service District's water treatment plant, site grading, and laying of infrastructure on the site. The Project involves development of a new community with residential, commercial, and industrial development
Catellus Project	Unknown	Approx. 5 miles northeast of the TPP site, between I-205 and Grant Line Road, west of Lammers Road	City of Tracy	Application for annexation to the City of Tracy to be filed.
Bright Development	160 acres	Approx. 4.1 miles to the northeast of TPP, bounded by Lammers Road to the east, I-205 to the north, and 11th Street to the south.	City of Tracy	Application for annexation to the City of Tracy filed.
Tracy Gateway	538 acres	Approx. 1.8 miles to the northeast of TPP, along I-205	City of Tracy	Application for annexation to the City of Tracy filed. Project currently in Draft EIR process.
North Livermore Plan	13,500 acres	Approx. 7 miles to the southwest of TPP, north of Livermore	City of Livermore	EIR was finalized and adopted by the City of Livermore in 2000. The plan has been delayed due to passage of Alameda County Citizen's Initiative Measure D.
Califia community	6,800 acres	Approx. 10 miles northeast of the TPP, near Lathrop in western San Joaquin County.	City of Lathrop	Lathrop has annexed the property; environmental review process is occurring. Groundbreaking is expected in 2004.
Tracy Peaker Project	10 acres	Approx. 4.4 miles east of the TPP site, in San Joaquin County, south of Schulte Road and west of Lammers Road	San Joaquin County	Project approved by the Energy Commission and currently operational
East Altamont Energy Center	25 acres	Aprox. 5.5 miles north of the TPP site, in Alameda County, just north of the Mountain House Rd/Kelso Rd intersection	Alameda County	Project approved by the. Energy Commission
Source: Ex. 51, p. 4.5-18.				

Section 15130(a) of the CEQA Guidelines provides that the lead agency shall 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.)) As shown in Land Use Table 1, several development projects are planned in San Joaquin County, primarily mixed-uses with residential, commercial, and light industrial sectors. Although the land required by TPP is relatively small compared to the existing and proposed projects in the area, the combination of the TPP with other proposed projects will contribute to a regional loss of agricultural land and open space. (Ex. 51, p. 4.5-18.)

The Applicant's proposal to create a permanent agricultural preserve adjacent to the TPP site is deemed to mitigate the project-related loss of agricultural land and open space in the region. There is no evidence that TPP will contribute significantly to cumulative regional impacts resulting from population expansion and the concomitant increased demand for public services connected with the new mixed-use developments. (Ex. 51, p. 4.5-19.)

FINDINGS AND CONCLUSIONS

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

1. The 60-acre Project site is subject to the Alameda County General Plan and specifically, the East County Area Plan (ECAP) as modified by Measure D (Save Agriculture and Open Space Initiative).

2. The Project site is currently designated Large Parcel Agriculture ("A" Zoning District) under the Alameda County Zoning Ordinance.

3. The Project site is subject to a Williamson Act Land Conservation Contract recorded with Alameda County on February 29, 1972.

4. The Alameda County Board of Supervisors granted tentative approval of Applicant's request for partial cancellation of the Williamson Act contract for the 60-acre site with the provision that Applicant dedicate 100 acres of the adjacent property as a permanent agricultural conservation easement as mitigation for the conversion of agricultural land.

5. The Board of Supervisors made a series of mandated findings required for a Williamson Act contract cancellation, including a finding that the Project is consistent with applicable provisions of the Alameda County General Plan.

6. The TPP can be considered “infrastructure” under ECAP Policy 13.

7. The proposed 100-acre permanent agricultural conservation easement conforms with the preservation of agricultural/open space requirement of ECAP Policy 58.

8. The Project Owner will coordinate development of the 100-acre agricultural easement in conjunction with the biological resources mitigation plan.

9. The Project Owner will provide a $750,000 grant to Alameda County or the prospective East (Alameda) County Agricultural Land Trust to acquire and manage additional agricultural preserves; $250,000 to the Agricultural Advisory Commission Work Program to promote agriculture in Alameda County; and $90,000 to be used for the Agricultural Center Vineyard Demonstration Program.

10. The TPP will comply with conditions of approval that would have been included in a Conditional Use Permit required by Alameda County if it had permitting jurisdiction in this case.

11. The Project is consistent with applicable land use LORS in Alameda County.

12. The Project is compatible with Alameda County’s existing and planned uses and zoning designations for the site and surrounding area.

13. The project’s linear facilities are consistent with the San Joaquin County General Plan and the City of Tracy Planning Area and compatible with existing land uses along the linear routes.

14. Although the TPP will result in the conversion of land zoned for agricultural uses, there is no evidence that significant farmland will be affected by development of the TPP site.

15. There is no potential for the TPP to disrupt or divide the physical arrangement of an established community or unduly restrict existing or planned land uses.

16. There is no evidence that the TPP will result in a significant cumulative contribution to land use impacts caused by foreseeable regional development.
17. The Conditions of Certification, below, ensure that the TPP 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 TPP will not result in direct, indirect, or cumulative land use impacts. Implementation of the Conditions of Certification, below, ensure that the TPP will comply with all applicable laws, ordinances, regulations, and standards (LORS) related to land use.

CONDITIONS OF CERTIFICATION

LAND-1 The Project Owner shall comply with the minimum design and performance standards for the Agricultural ("A") District set forth in the Alameda County Zoning Ordinance.

Verification: At least 30 days prior to the start of construction, the Project Owner shall submit to the CPM written documentation, including evidence of review by the Alameda County Community Development Agency that the Project meets the above-referenced design and performance standards, including any comments and revisions by the County.

LAND-2 The Project Owner shall comply with the parking standards established by the Alameda County Zoning Ordinance (Title 17, Chapter 52, Sections 780-950).

Verification: At least 30 days prior to start of construction, the Project Owner shall submit to the CPM, written documentation, including evidence of review by the appropriate Alameda County agency demonstrating that the Project conforms to all applicable parking standards.

LAND-3 The Project Owner shall ensure that any signs erected (either permanent or for construction only) comply with the outdoor advertising regulations established by the Alameda County Zoning Ordinance (Title 17, Chapter 52, Section 510).

Verification: At least 30 days prior to start of construction, the Project Owner shall submit to the CPM, written documentation, including evidence of review by the appropriate Alameda County agency that all erected signs will conform to the zoning ordinance.

LAND-4 The Project Owner shall provide the Director of the Alameda County Community Development Agency for review and comment and the CPM for review and approval, descriptions of the final lay down/staging areas identified for construction of the project. The description shall include:

a) Assessor's Parcel numbers;

b) Addresses;

c) Land use designations;

d) Zoning;

e) Site plan showing dimensions;

f) Owner's name and address (if leased); and,

g) Duration of lease (if leased); and,

h) If a discretionary permit is required, 2 copies of all discretionary and/or administrative permits necessary for site use as lay down/staging areas.

Verification: At least 30 days prior to the start of any ground disturbance activities, the Project Owner shall provide the documents specified above to the CPM for review and approval.

LAND-5 The Project Owner shall provide appropriate evidence of compliance with Federal Aviation Administration (FAA) regulations regarding the marking and/or lighting of the project's new exhaust stacks.

Verification: At least 30 days prior to start of commercial operation, the Project Owner shall submit proof to the CPM that the project's stacks have been marked and/or lighted in accordance with FAA regulations and requirements.

LAND-6 The Project Owner shall provide to the appropriate Alameda County agency for review a site plan with dimensions showing the locations of the proposed buildings and structures in compliance with the minimum yard area requirements (setbacks) from the property line as required by the Alameda County Zoning Ordinance.

Verification: At least 30 days prior to the start of construction, the Project Owner shall submit to the CPM for approval a site plan showing that the Project conforms to all applicable yard area requirements as set forth in the Alameda

County Zoning Ordinance, with comments and revisions provided by the appropriate Alameda County agency.

LAND-7 The Project Owner shall submit an agricultural land conservation easement plan consistent with Condition of Certification **BIO-5**, subject to review by the Alameda County Board of Supervisors and the approval of the CPM. The easement plan shall provide a deed restriction provision and identify the process for purchasing land development rights to establish a permanent agricultural land preserve of 100 acres adjacent to the Project site, which would mitigate the loss of agricultural land due to conversion of 60 acres for the TPP.

The plan shall describe the long-term management protocol including funding, endowment, maintenance, and monitoring. The plan shall explain the Project Owner's off-site mitigation involving one or both of the following: 1) the purchase of a 100-acre agricultural conservation easement adjacent to the TPP plant site, with the easement then given to Alameda County for agricultural land conservation purposes; or 2) the Project Owner's payment of monies to Alameda County, or other land trust fund to be used for the purpose of purchasing the permanent agricultural conservation easement.

The Project Owner shall provide funds to the prospective East (Alameda) County Agricultural Land Trust, if established and authorized to receive funds to purchase conservation easements, or to the American Farmland Trust, or other similar agricultural land trust approved by the CPM. These funds shall be sufficient to purchase a minimum of 100 acres of grazing land adjacent to and comparable in quality (as determined by the CPM after consultation with the Trust staff) to the 60 acres of grazing land that will be converted to infrastructure use due to construction of the TPP.

As additional mitigation for the permanent loss of agricultural conservation land, the Project Owner shall provide a $750,000 grant to Alameda County or the prospective East (Alameda) County Agricultural Land Trust to acquire and manage additional agricultural preserves; $250,000 to the Agricultural Advisory Commission Work Program to promote agriculture in Alameda County; and $90,000 to be used for the Agricultural Center Vineyard Demonstration Program.

Verification: At least 60 days prior to the start of construction, the Project Owner shall provide the CPM with the final agricultural conservation easement plan, which shall include a copy of any final agreement signed between the Project Owner and the Alameda County Board of Supervisors and/or the prospective East (Alameda) County Agricultural Land Trust, if applicable, and/or

the American Farmland Trust or other agency or non-profit organization that is publicly recognized and authorized to hold agricultural land conservation easements, for approval by the CPM. The Project Owner shall provide to the CPM, a copy of the executed agricultural conservation easements and/or receipt for the payment of monies to an agricultural land mitigation trust account to demonstrate the Project Owner's fulfillment of its mitigation requirement.

At least 60 days prior to the start of construction, the Project Owner shall provide documentary evidence of its payments of the additional mitigation grants described above to Alameda County or the prospective East (Alameda) County Agricultural Land Trust, the Agricultural Advisory Commission Work Program, and the Agricultural Center Vineyard Demonstration Program.

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, § 5.11; Ex. 53, p. 4.9-1 et seq.)

SUMMARY AND DISCUSSION OF THE EVIDENCE

The TPP site is 0.5 mile north of the existing Tesla Substation in eastern Alameda County near the Alameda/San Joaquin County boundary. The site is bordered by an abandoned railroad right-of-way to the north and Midway Road to the east. Staff's Traffic and Transportation Figure 1, replicated below, shows the site and surrounding area. Rural roadways provide access to the site. There are no nearby urban services. Descriptions of relevant roads and highways in the Project area are provided below. (Ex. 53, pp. 4.9-3 and 4.9-4.)

- U.S. Interstate 580 (I-580), located north and east of the Project site, consists of eight lanes and connects the San Francisco Bay Area with Interstate 5 (I-5). I-580 currently carries approximately 112,000 vehicles per day near Midway Road.

INSERT REGIONAL MAP FROM FSA (TRAFFIC & TRANS FIGURE 1)

(NOTE: SEE SUSAN'S ACCORDIAN FILE ON T&T)

- U.S Interstate 205 (I-205), located north of the Project site, is an east-west freeway consisting of eight lanes. I-205 currently carries approximately 83,000 vehicles per day east of the intersection with I-580.

- Midway Road provides access to the Project site and is a two-lane rural roadway. Midway Road currently carries approximately 160 vehicles per day. This roadway is characterized by limited width, a lack of paved shoulders, horizontal and vertical curves, and limited sight distance. The structural integrity was not designed to accommodate heavy commercial vehicles.

- Altamont Pass Road is a two lane east-west rural roadway carrying approximately 2,800 vehicles per day west of Midway Road.

- Grant Line Road is a two lane east-west rural roadway carrying approximately 1,800 vehicles per day east of Midway Road.

- Mountain House Parkway is a two lane north-south rural roadway, with approximately 1,700 vehicles per day east of the TPP site.

No planned roadway improvements are expected to directly affect Project access. Existing intersection controls on roadways providing access to the site (described below) are expected to remain the same during the construction and operation period. (Ex. 53, p. 4.9-4.)

The evidence indicates that a maximum of 3 trucks per hour currently travel on Patterson Pass Road and Midway Road near the TPP site. Truck traffic on Mountain House Road near the site ranges from 14 to 16 percent of all traffic (23 trucks during the PM peak hour near Grant Line Road, and 121 trucks during the PM peak hour near Schulte Road). On Grant Line Road nearest the TPP site, trucks represent about 1 percent of all traffic. (Ex. 53, p. 4.9-4.)

According to Staff, intersections are usually the critical elements of the roadway system when assessing adequate travel capacity, maximizing safety, and minimizing environmental impacts. 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). However, it is not a measure of safety or accident potential. LOS can

range from “A”, representing free-flow conditions with little or no delay, to “F”, representing saturated conditions with substantial delay. (Ex. 53, pp. 4.9-4 and 4.9-5.)

LOS standards for Alameda County and San Joaquin County are similar in the vicinity of the TPP site: both jurisdictions utilize LOS C as the applicable Level of Service standard. Any study roadway or intersection below LOS C would require mitigation measures. The five study intersections and the current service levels (AM/PM) are listed below in Staff’s Traffic and Transportation Table 1. (Ex. 53, pp. 4.9-4 and 4.9-5.)

Traffic and Transportation Table 1
Intersection Level of Service - Existing Conditions

North/South Street	*East/West Street*	*Jurisdiction/ Analysis Type*	*AM*	*PM*
			LOS	*LOS*
Midway Rd.	Grant Line Rd.	Alameda Co./ Two-Way Stop	Midway Rd.=C Grant Line Rd.=A	Midway Rd.=C Grant Line Rd.=B
Altamont Pass Road	Grant Line Rd.	Alameda Co./ Two-Way Stop		Grant Line Rd.=A Altamont Pass=B
Mountain House Pkwy.	Grant Line Rd.	San Joaquin Co./ All-Way Stop		Mtn. House= A (NB) A (SB) Grant Line= B (EB) A (WB)
Mountain House Pkwy.	Schulte Rd.	San Joaquin Co./ Traffic Signal		B
Midway Rd.	Patterson Pass Rd.	Alameda Co./ Two-Way Stop	Midway Rd.=B Patterson Pass=A	Midway Rd.=B Patterson Pass=A

Source: Ex. 53, p. 4.9-6.

- HCS 2000 two-way stop control and all-way stop control methodologies provides LOS calculations by movement, not for the entire intersection.
- Levels of service are provided for each intersection approach where applicable.
- EB = Eastbound; WB= Westbound; NB = Northbound; SB = Southbound
- Mountain House/Schulte is controlled by a traffic signal; all other intersections are controlled by stop signs.

1. Potential Impacts

During construction, TPP-related trip generation includes construction worker commuter trips and truck deliveries. Peak construction will require a workforce of approximately 974 workers per day. Applicant estimated 1,298 *peak construction period* daily commuter trips and 519 peak hour trips based on the assumption that carpooling will result in an average vehicle occupancy rate of 1.5 workers per vehicle.[1] Approximately 90-peak *construction period* truck delivery trips per day are also anticipated. During the two-year construction period, the *average* number of construction worker daily trips will be approximately 648, plus 40 truck delivery trips. (Ex. 53, p. 4.9-7; Ex. 1, § 5.11.2.1.)

Workers from Livermore/Pleasanton and eastern Alameda County will commute to the site via I-580, Grant Line Road, and Midway Road. Workers from Tracy/Stockton and San Joaquin County will likely commute via I-205, I-580, Mountain House Parkway, Schulte Road, and Midway Road. Staff's Traffic and Transportation Table 2, below, summarizes intersection operations with the addition of TPP-related construction traffic, which assumes 1.5 workers per vehicle due to carpooling. (Ex. 53, p. 4.9-7.)

The evidentiary record indicates that LOS at the intersection of Midway Road and Grant Line Road will deteriorate from LOS C/A to LOS D/A (AM peak hour, 6 a.m. to 7 a.m.) and from LOS C/B to LOS D/B (PM peak hour, 5 p.m. to 6 p.m.) during the peak month of construction activity. Sight distance is also limited at this intersection by both the alignment of the roadway and the presence of the bridge structure crossing the California Aqueduct. (Ex. 2, Responses 4 and 5, p. 28; Ex. 53, p. 4.9-7.)

[1] Staff concurred with this assumption based on reviews of the recent carpooling trends associated with power plant construction in nearby areas (e.g. the Livermore/Pleasanton/San Jose region and the Tracy/Stockton/Sacramento region). (Ex. 53, p. 4.9-7.)

The intersection of Altamont Pass Road with Grant Line Road will deteriorate from LOS A/B to LOS A/E in the PM peak hour (5 p.m. to 6 p.m.) during the peak construction period. LOS at all other study intersections are not expected to change with the addition of Project -related traffic. (Ex. 53, p. 4.9-7.)

Traffic and Transportation Table 2
Intersection Level of Service - Existing Plus Project (Construction Peak)

North/South Street	*East/West Street*	*Jurisdiction/ Analysis Type*	*AM LOS*	*PM LOS*
Midway Rd.	Grant Line Rd.	Alameda Co./ Two-Way Stop	Midway Rd.=**D** Grant Line Rd.=A	Midway Rd.=**D** Grant Line Rd.=B
Altamont Pass Road	Grant Line Rd.	Alameda Co./ Two-Way Stop		Grant Line Rd.=A Altamont Pass=**E**
Mountain House Pkwy.	Grant Line Rd.	San Joaquin Co./ All-Way Stop		Mtn. House= A (NB) A (SB) Grant Line= C (EB) A (WB)
Mountain House Pkwy.	Schulte Rd.	San Joaquin Co./ Traffic Signal		B
Midway Rd.	Patterson Pass Rd.	Alameda Co./ Two-Way Stop	Midway Rd.=C Patterson Pass=B	Midway Rd.=C Patterson Pass=A

Source: Ex. 53, p. 4.9-8.

- HCS 2000 two-way stop control and all-way stop control methodologies provides LOS calculations by movement, not for the entire intersection.
- EB = Eastbound; WB= Westbound; NB = Northbound; SB = Southbound
- AM peak hour results are not included at three locations due to the relatively higher traffic volumes (and resulting worst case results) during the PM peak hour.
- Project -related impacts are shown in boldface.
- Levels of service are provided for each intersection approach where applicable.
- Mountain House/Schulte is controlled by a traffic signal; all other intersections are controlled by stop signs.

Although the LOS policies in Alameda County and San Joaquin County do not specifically address circumstances where only one movement at an intersection

(rather than the entire intersection) exceeds LOS C, Staff regarded those findings as potentially significant impacts at the intersections of Midway Road/Grant Line Road and Altamont Pass Road/Grant Line Road. In mitigation, Staff recommended that the Project Owner develop and implement a Traffic Control Plan (TCP) for construction traffic, which would include the placement of warning signs where sight limitations exist and the placement of temporary traffic signals at the intersections of Midway Road/Grant Line Road and Altamont Pass Road/Grant Line Road. Further, given the narrow road and lack of shoulders on Midway Road, the TCP would also designate personnel to direct traffic when extra wide loads require temporary lane closure. (Ex. 53, p. 4.9-8.) Applicant agreed to these measures with modifications that were accepted by Staff.[2] (Ex. 156; Ex. 124, p. 20 et seq.; 9/10/03 RT, p. 108 et seq.; 9/11/03 RT, p. 4 et seq.) We have incorporated the parties' mitigation proposals in Condition **TRANS-1**.

The TPP's proposed entrance road creates a new intersection with Midway Road. According to Staff, sight distance to the north (800 feet) and sight distance to the south (550 feet) is adequate based on established engineering standards. (Ex. 53, p. 4.9-9.) To ensure public safety, however, we have adopted Condition **TRANS-6**, which requires the Project Owner to install a traffic deceleration lane, a related northbound left turn storage lane, and additional pavement as needed at the intersection of the new TPP access road with Midway Road.

On-site construction worker parking will be provided in the southwest portion of the site, which is sufficient in size to accommodate anticipated parking needs (i.e., approximately 500 vehicles). All construction laydown areas will be located on-site along the northern edge of the site. (Ex. 53, p. 4.9-9.) Condition **TRANS-**

[2] Staff also considered public comments related to traffic safety on the rural roadways as well as comments filed by the Alameda County Public Works Agency. (Ex. 53, p. 4.9-15 and 4.9-16.) To ensure that the measures included in the TCP are enforceable, the Project Owner will be required to develop the TCP in consultation with the Alameda County Public Works Agency, the San Joaquin County Public Works Department, and the City of Tracy Public Works Department.

5 requires identification of designated parking and staging plans for all phases of Project construction.

During peak construction, 21 truck deliveries per day are expected to access the Project site, which averages to 3 trips per hour. Midway Road is narrow and lacks paved shoulders, and was not designed to accommodate heavy commercial vehicles. Conditions **TRANS-1**, **TRANS-2**, **TRANS-3**, and **TRANS-7** include the following measures to address potential truck traffic impacts:

- Scheduling truck deliveries during off peak hours,
- Complying with California Department of Transportation (Caltrans) and affected local jurisdictions on limitations on vehicle size and weight,
- Complying with Caltrans and local jurisdictional limitations for encroachment into public right-of-way, and
- Development of a TCP to minimize the effect of the construction traffic (i.e. commuter workforce, trucks and oversize/overweight loads) on Midway Road.

Transportation of equipment that exceeds the load size and limits of certain roadways will require special permits from Alameda County, San Joaquin County, and/or Caltrans. (Ex. 53, p. 4.9-9.) The TCP must include the option of using multi-axle/extra wheel vehicles to spread heavy weighted loads more evenly on Midway Road. Condition **TRANS-7** requires the Project Owner to repair any road damage resulting from construction, which addresses concerns expressed by the Alameda Public Works Department. Condition **TRANS-2** addresses oversize/overweight loads.

Construction of the linear facilities will occur in areas that are not high-volume traffic generators. (Ex. 53, p. 4.9-12.) Short-term construction traffic and temporary lane closures resulting from pipeline construction on the wastewater pipeline route will not result in deterioration of LOS to unacceptable levels. The Grant Line/Altamont Pass intersection will not be affected and construction at the Grant Line/Midway intersection will be timed to avoid peak traffic periods as required in Condition **TRANS-1**. (*Ibid.*) Staff recommended that the Project

Owner take photos or videos of the roads and intersections that could potentially be affected by pipeline construction to ensure accurate restoration. (*Ibid*.) We have included this measure in Condition **TRANS-7**.

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-4**, 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 TPP. Condition **HAZ-12** 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 TPP will add 36 fulltime employees with 20 assigned to the day shift. Given this relatively small number of personnel, TPP-related commuter trips on local roadways will be insignificant. Applicant estimated the Project would generate an average of two truck deliveries per day, which would not likely affect the LOS on local roadways. (Ex. 1, § 5.11.2.2; Ex. 53, p. 4.9-12.)

Although the Project is located far from any major airport facilities, the parties agreed that the TPP's four 200-feet tall HRSG stacks should be marked and lighted to mitigate any potential conflicts with aerial activities related to local agricultural operations. (Ex. 53, p. 4.9-13.) Condition **TRANS-8** includes this measure.

3. Cumulative Impacts

The record indicates there are no other major construction Project s anticipated in the area that would affect the roadways utilized by TPP-related traffic and, therefore, no adverse cumulative traffic impacts are expected during the construction phase. Likewise, no adverse cumulative impacts are expected to occur due to Project operation. (Ex. 53, p. 4.9-13.)

FINDINGS AND CONCLUSIONS

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

1. The addition of traffic associated with construction and operation of the PEP Project will not have a significant effect on area freeways or existing LOS at local roadways except for the intersections of Midway Road/Grant Line Road and Altamont Pass Road/Grant Line Road.
2. The Project Owner will implement a traffic construction plan (TCP) approved by the Counties of Alameda and San Joaquin Public Works Departments and the City of Tracy Public Works Department to mitigate TPP construction-related congestion at the intersections identified above in item 1.
3. The construction of the Project's linear alignments will not result in a significant effect on traffic due to the temporary nature of the construction period and the changing locations for construction activities.
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 Project Owner will ensure that vendors delivering hazardous materials to the TPP site follow the preferred truck route for transport of hazardous materials.
6. 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.
7. 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 result in 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 develop a construction traffic control plan that limits peak hour construction-period truck and commute traffic in coordination with the Alameda County Public Works Agency, San Joaquin County Public Works Department, and the City of Tracy Public Works staff. The Project Owner shall also consult with Alameda and San Joaquin County, and the City of Tracy staff dealing with traffic regulation enforcement, and the California Highway Patrol to develop measures intended to minimize speeding by construction-related vehicles. Specifically, the overall traffic control plan shall include the following:

- Verbal and written instruct
- tions to construction workers and related suppliers intended to raise awareness of existing speeding problems on area roadways.
- Require the EPC and major subcontractors to develop and implement a construction employee carpool program;
- Through worker education and shift scheduling, maximize worker commute trips during off-peak hours (off-peak hours are (1) before 6 a.m.; (2) between 9 a.m. and 4 p.m. and (3) after 6 p.m. or other hours as agreed to by the CPM;
- Schedule heavy vehicle equipment and building material deliveries, as well as the movement of materials and equipment to the site, including the adjacent laydown area to occur during off-peak hours (off-peak hours are (1) before 6 a.m.; (2) between 9 a.m. and 4 p.m.; and (3) after 6 p.m.) or other hours as agreed to by the CPM. Equipment and materials delivery occurring on private roads in the site vicinity with no public traffic would not have peak-hour restrictions.; and
- an assessment of the need for, and design of turning movement studies at the intersections of 1) Midway Road at Grantline Road, and 2) Altamont Pass at Grantline Road, followed by a

determination of the need for temporary traffic controls (e.g. traffic signals or flagperson) at these intersections.

The construction traffic control and transportation demand management program shall also include the following restrictions on construction traffic addressing the following issues for linear facilities:

- Timing of water and gas pipeline construction (all pipeline construction affecting local roads shall take place outside the peak traffic periods to avoid traffic flow disruptions) or other hours as agreed to by the CPM;
- Signing, lighting, and traffic control device placement,
- Temporary travel lane closures and potential need for flagmen;
- Maintaining access to adjacent residential and commercial properties; and
- Emergency access.

Verification: At least 60 days prior to start of ground disturbance , the Project Owner shall provide to Alameda County and San Joaquin County, the City of Tracy, and the California Highway Patrol for review and comment and to the CPM for review and approval, a copy of their construction traffic control plan.

TRANS-2 The Project Owner shall comply with California Department of Transportation (Caltrans) and other affected jurisdictions' limitations on vehicle sizes and weights. In addition, the Project Owner or their 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-3 The Project Owner shall ensure compliance with Caltrans and other relevant jurisdictions' limitations for encroachment into public rights-of-way, and shall obtain necessary encroachment permits from Caltrans and all relevant jurisdictions.

Verification: In the Monthly Compliance Reports, the Project Owner shall submit copies of any encroachment 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-4 The Project Owner shall ensure that permits and/or licenses are secured from the California Highway Patrol and Caltrans for the transport of all hazardous materials, and that all federal and state regulations for the transport of hazardous materials are observed.

Verification: The Project Owner shall include in its Monthly Compliance Reports during construction and Annual Compliance Reports during operations copies of all permits and licenses required for the transport of hazardous materials.

TRANS-5 Prior to the construction of the power plant and all related facilities, the Project Owner shall develop a parking and staging plan for all phases of Project construction, to enforce a policy that all Project related parking occurs on-site or in designated off-site parking areas.

Verification: At least 30 days prior to the start of site mobilization, the Project Owner shall submit the plan to the Alameda County Public Works staff for review and comment, and to the CPM for review and approval. The material submitted to the CPM shall include documentation of the County's review and comments. Monthly Compliance Reports submitted to the CPM shall describe the Project Owner's actions to ensure that this condition is being met.

TRANS-6 The Project Owner shall fund and install a 150-foot left-turn lane for northbound traffic and a 150-foot right-turn deceleration lane for southbound traffic on Midway Road at both the construction access intersection and the ultimate driveway location, which will be accomplished with additional pavement as needed.

Verification: At least 60 days prior to site mobilization, the Project Owner shall submit its plans for installation of a 150-foot northbound left-turn lane, a 150-foot right-turn, southbound deceleration lane on Midway Road, and additional pavement as needed, to the Alameda County Public Works Agency staff for review and comment, and to the CPM for approval. The Project Owner shall include photographs or videotape of affected roadways prior to construction of lanes.

Prior to pouring foundations, the Project Owner shall submit to the CPM notification that the installation of the northbound left-turn lane southbound right-turn deceleration lane, and any additional pavement required have been completed.

TRANS-7 Prior to the beginning of site mobilization activities, the Project Owner shall prepare a road mitigation plan for any roads affected by oversize or overweight vehicles and/or underground pipeline construction, to the Alameda County Public Works Agency, the San Joaquin County

Public Works Department, the City of Tracy Public Works Agency, and the CPM. The intent of this plan is to insure that any roads affected by oversize or overweight vehicles and/or underground pipeline construction will be repaired and reconstructed to original or as near original condition as possible. This plan shall:

- Document the pre-construction condition of the affected roads in the region of the site (i.e., Midway and Patterson Pass) and those along the pipeline route (i.e., Midway, Patterson Pass, Arbor, Tracy, Corral Hollow, Naglee, Middle, San Jose, and Grant Line Roads) with photographs or videotape of the affected roads.
- Document any portions of roads that may be inadequate to accommodate oversize or large construction vehicles, and complete remediation measures that are necessary;
- Provide appropriate bonding or other assurances to insure that any damage to a road due to construction activity will be remedied by the Project Owner;
- Relocate utility poles if necessary, to insure that adequate clear zones are established along the property frontage; and
- Reconstruct portions of roads that are affected by the installation of underground utilities.

Verification: At least 90 days prior to the start of site mobilization, the Project Owner shall submit a road mitigation plan to Alameda County for review and comment and to the CPM for review and approval.

At least 90 days prior to the start of pipeline construction, the Project Owner shall submit a separate road mitigation plan to San Joaquin County and the City of Tracy for review and comment and to the CPM for review and approval.

TRANS-8 The HRSG stacks shall have the lighting and markings required by the Federal Aviation Authority (FAA) so that the stacks do not create a hazard to air navigation. The Project Owner shall submit to the FAA Form 7460-1, Notice of proposed Construction or Alteration and supporting documents on how the Project plans to comply with stack lighting and marking requirements imposed by the FAA.

Verification: At least 30 days prior to the start of construction, the Project Owner shall provide copies of the FAA Form 7460-1 with copies of the response to Form 7460-1, to the CPM and the Alameda County Public Works Agency.

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 areas of Alameda and San Joaquin Counties that could potentially be affected by an influx of workers, specifically, the City of Livermore (Livermore-Pleasanton County subdivision) in eastern Alameda County, and the Cities of Tracy and Mountain House in western San Joaquin County. (Ex. 1, § 5.8.1.) Since Alameda and San Joaquin Counties as well as the adjacent Contra Costa County represent a large and diverse labor pool with skills available to fulfill the labor needs for Project construction, it is unlikely that a large influx of workers would require housing accommodations within the study area due to relatively short commuting distances to the Project site. [1] (*Ibid*., Tables 5.8.1` and 5.8-2; Ex. 51, p. 4.8-2.)

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[1] The record indicates that the construction sector in Alameda and Contra Costa Counties employs about 66,300 workers. Of these workers, about 14,100 are employed in general building contracting, 7,300 in heavy construction, and 44,900 in specialty trades. In San Joaquin County,

1. Potential Impacts

The construction period will take about 23 months with a peak workforce of 974 workers for 2 months, an average of 850 workers during the busiest 8-month construction period, and an overall average workforce of about 490 workers, consisting of skilled workers and contractor staff. (Ex. 51, p. 4.8-3; Ex. 1, § 5.8.2.1.) Applicant expects to hire about 36 full-time employees for Project operation and maintenance. Most operational employees will be drawn from the local area except for possibly 5 positions requiring specialized skills and expertise necessary to operate the equipment. (Ex. 1, § 5.8.2.2.)

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 Applicant, there is adequate motel space available in Livermore or Tracy to accommodate those workers who might choose to commute on a work-week basis. (Ex. 1, p. 5.8-6.)

The evidentiary record demonstrates there is ample and varied housing in Alameda and San Joaquin Counties 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. Impacts on housing and related services will be negligible in relation to the supply of available housing and services available. No

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the construction sector employs about 12,000 workers. The construction labor pool for major construction projects comes from areas that are within a two-hour commute of a Project site. Therefore, in addition to the local labor force in Alameda County, the labor pool could commute to the Project area from Contra Costa and San Joaquin Counties, or any of the other counties proximate to Alameda County such as Solano, Sacramento, or Napa counties. Employment data compiled in February 2002 shows there are about 78,300 construction workers in the three-county area. (Ex. 51, p. 4.8-2.) The Alameda County Building Trades Council coordinates the allocation of skilled workers for construction projects in the Alameda County area, which covers 35, 000 skilled workers. (*Id*. at p. 4.8-4; Ex. 1, § 5.8.2.1.)

replacement or displacement of residential housing will be necessary as a result of the project. (Ex. 1, pp. 5.8-6 and 5.8-7)

Since project-induced potential population increases will be minimal or non-existent, construction and operation of the TPP will not result in significant adverse impacts on schools, public utilities, or emergency services in the local communities. (Ex. 1, §§ 5.8.2.1, 5.8.2.2; Ex. 51, p. 4.8-5 et seq.)

Applicant anticipates an estimated construction payroll of $70 million (2001 dollars); and an estimated $18-20 million will be spent on local purchases of materials and equipment during construction. The Project will generate property tax revenues of approximately $6.0 million per year.[2] The local operations payroll of approximately $3.4 million and local purchases of supplies during operation will yield an estimated $500,000 per year in sales tax revenues. Total capital cost of the Project including payroll is estimated at $600-700 million. (Ex. 51, pp. 4.8-3 and 4.8-7; Ex. 1, §§ 5.8.2.1 and 5.8.2.2.)

The TPP is located in Alameda County, which is the local agency that would have issued a permit for construction of the TPP but for the Energy Commission's exclusive jurisdiction to license power plants over 50 MW. Section

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[2] Under AB 81 (Rev. and Taxation Code, § 100.9), the responsibility for property tax assessment for large power plants such as the TPP 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. The record indicates that the local public service providers currently receiving property tax revenues in the TPP Tax Rate Area will receive equivalent portions of the tax revenues generated by the TPP. (Ex. 51, p. 4.8-7.) AB 81 requires annual reassessment at fair market value, which could increase or decrease total property tax revenue derived from the Project over its lifespan. Under AB 81, local governments, schools, and other special districts in the TPP Tax Rate Area will continue to receive property tax revenue from the TPP property at the same percentage of the total that they currently receive from property assessed by the County Assessor. However, we find the record fails to address whether the impact of AB 81 on County property tax revenues could affect the anticipated $6 million per year property tax from the TPP. Applicant shall provide evidence of an agreement and/or another method that would insure a minimum property tax payment to Alameda County in the event that the BOE's property assessment for TPP is reduced. (*Cf.* Socioeconomics, Revised PMPD for Morro Bay Power Plant Project, CEC Docket No. 00-AFC-12.)

17620 of the Education Code allows any school district to levy a school impact fee against new construction within its boundaries to be collected by the appropriate local permitting jurisdiction, which in this case is the County as the in-lieu permitting agency. The school impact fee is calculated at $0.33 per square foot for the covered and enclosed space of commercial and industrial development. (Educ. Code, § 17620((a)(1)(A).) Based on the total area of the TPP's covered and enclosed structures of 20,000 square feet, the Project Owner is required to pay a one-time school impact fee of $6,600.[3] (Ex. 167.) Condition of Certification **SOCIO-1** incorporates the school impact fee requirement. However, although the record indicates there will be no in-migration impacts on local school districts, the potentially affected school districts (Tracy Unified School District and Mountain House Elementary School District) described in Applicant's and Staff's analyses are located in San Joaquin County. The record does not state whether the TPP site is located within those school districts. Section 17623 of the Education Code allows the proportionate allocation of fees by agreement of two non-unified school districts with common territorial jurisdiction. While Section 17623 may not be directly applicable to facts of this case, the Committee directs the parties to identify the school district(s) in which the TPP site is located and discuss whether the school impact fee required by Condition **SOCIO-1** should be subject to an agreement between Alameda and San Joaquin Counties reflecting the interests of the potentially affected school districts.

2. Section 25523(h) 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

[3] Staff's testimony relied on Applicant's initial calculation of the in lieu school impact fee, which the Committee found was inaccurate. The Committee ordered Applicant to correct the calculation; however, neither Staff nor Applicant clarified the process by which Alameda County shall provide the fee to the Tracy Unified School District.

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. (Ex. 1, p. 5.8-9 et seq.) According to Applicant, however, the most important public benefit of the Project is local generation of reliable electrical power in the PG&E service area using efficient state-of-the-art generators and modern pollution control technology. Since the Project will not cause unmitigated significant effects on the environment, the TPP provides an environmental benefit compared with older generating facilities in the Greater Bay Area that are less efficient and more polluting. (*Id*., §§ 1.0, 2.0.)

3. Environmental Justice Screening Analysis

Staff conducted a screening analysis to determine whether environmental justice concerns are present in this case.[4] (Ex. 51, p. 4.8-7 et seq; Ex. 1, § 5.8.3.) 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*.)

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[4] 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 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.

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.[5] The data indicate that 59 percent of the population in Alameda County represents people of color while the population within the 6-mile radius (which includes a portion of San Joaquin County) represents only 41 percent people of color. However, the data show multiple census blocks with pockets or clusters where more than 50 percent of the population consists of people of color in the Project vicinity and therefore, Staff conducted focused environmental justice analyses in several technical areas to ensure there would be no disproportionate health effects due to the TPP.[6] The data also indicate that of the total population of 7,515 in the 6-mile radius, only 401 persons or 5.3 percent are below the poverty level. Since the percentage of people living under the poverty level falls well below 50 percent, there is no evidence of potentially disproportionate impacts on low income populations. (Ex. 51, p. 4.8-8; Ex. 1, § 5.8.3.)

Compliance with all Conditions of Certification adopted 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 TPP will not be significant, no population, including environmental justice populations, will be disproportionately impacted by the TPP and no further environmental justice analysis is required. (*See* Ex. 51, p. 4.8-8.) Although the Intervenors

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[5] 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. 51, p. 4.8-8.)

[6] Staff reviewed the following technical areas for potential environmental justice impacts: air quality, public health, hazardous materials, noise, water, waste, traffic and transportation, visual resources, land use, and transmission safety and nuisance. (Ex. 51, p. 1-2.)

disputed Staff's environmental justice screening analysis, they did not present evidence to rebut the conclusions. (Ex. 102; 9/18/03 RT, p. 417 et seq.)

3. Cumulative Impacts

While construction of the East Altamont Energy Center (about 6 miles north of the TPP site) may coincide with TPP construction activities, the large local labor force will be able to provide workers for both projects. (Ex. 1, § 5.8.6.) Since the TPP 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 Alameda, San Joaquin, and Contra Costa Counties 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 Livermore/Tracy area.

3. The Project will not result in significant adverse effects to local employment, housing, schools, public utilities, or emergency services.

4. The TPP will pay a one-time in lieu school impact fee of $6,600.

5. The TPP will provide a construction payroll of about $70 million (2001 dollars).

6. The TPP will spend an estimated $18-20 million on local purchases of materials and equipment during construction.

7. The TPP will generate property tax revenues of approximately $6.0 million per year.

8. The local operations payroll of approximately $3.4 million and local purchases of supplies during operation will yield an estimated $500,000 per year in sales tax revenues.

9. Total capital cost of the Project including payroll is estimated at $600-700 million.

10. The demographic environmental justice screening analysis indicates that low income and/or minority populations are not disproportionately represented in the area surrounding the TPP site.

11. Since TPP 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 PG&E service area.

13. Construction and operation of the Project will not result in any direct, indirect, or cumulative adverse socioeconomic impacts.

14. Implementation of the Condition of Certification, below, and the mitigation measures described in the evidentiary record, ensures that the Project will not result in adverse socioeconomic impacts in the Project vicinity.

We therefore conclude that implementation of all Conditions of Certification in this Decision, including the Condition of Certification below, ensures 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**.

CONDITION OF CERTIFICATION

SOCIO-1: The Project Owner shall pay the one-time statutory school facility development fee, in the amount required at the time of filing, for the in-lieu building permit to Alameda County to be made available by agreement to the Tracy Unified School District. [This may be modified based on the parties' clarifications.]

Verification: The Project Owner shall provide proof of payment of the statutory school facility development fee in the next Monthly Compliance Report following the payment.

D. NOISE AND VIBRATION

The construction and operation of any power plant Project will create noise. The character and loudness of this noise, the times of day or night during which it is produced, and the proximity of the Project to sensitive receptors combine to determine whether Project noise will cause significant adverse impacts to the environment. In some cases, vibration may be produced as a result of construction activities such as blasting, which has the potential to cause structural damage and annoyance. This review evaluates whether noise and vibration produced during Project 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 Alameda County Noise Ordinance and the Alameda County General Plan Noise Element.[1] The Noise Ordinance sets exterior noise standards for unincorporated areas of the county. For noise sensitive uses, including residences, nighttime (10 p.m. to 7 a.m.) noise levels may not exceed 45 dBA. Daytime (7 a.m to 10 p.m.) noise levels may not exceed 50 dBA.[2] (Ex. 1, p. 5.9-1; Ex. 51, p. 4.6-4.) The Noise Element establishes a noise limit of 60 dBA CNEL at exterior locations of residential land uses and the Alameda County Building Code sets an interior noise level of 45 dbA CNEL inside residential structures. The County Ordinance requires that residences exposed to an exterior CNEL of 60 dBA must be designed to limit intruding noise to 45 dBA CNEL. (*Ibid*.)

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[1] Alameda County Noise Ordinance, Title 6, Health and Safety, Chap. 6.60, § 6.60.040.

[2] Staff's Noise Tables Appendices 1, 2, 3, and 4, replicated at the end of this section, explain the definitions of these and other noise measurement terms

The Noise Ordinance provides that each of the above standards will be reduced by 5 dBA when applied to a steady audible sound characterized by tonal components, speech or music, or recurring impulsive noise. (Ex. 51, p. 4.6-4.)

CEQA Guidelines set forth characteristics of noise impacts that may indicate potentially significant effects from project-related noise, such as "a substantial permanent increase in ambient noise levels in the Project vicinity above levels existing without the project." (Cal. Code Regs., tit. 14, § 15000 et seq., Appendix G, Section XI.) In accordance with this standard, Staff uses the significance threshold of 5 dBA when project-related noise emissions exceed existing ambient noise levels at the nearest sensitive receptor. (Ex. 51, p. 4.6-3.)

1. The Setting

The TPP site and vicinity are located in a rural environment where the predominant agricultural activity is cattle grazing. Several power transmission lines cross the site in a north-south direction to interconnect at the Tesla Substation, about 0.5 mile south of the site. Wind farms represent the other major industrial land use in the area, while only a few isolated rural residences exist south and southeast of the site near the Tesla Substation. Primary sources of noise in the area are the Substation and traffic on local roads. Patterson Pass Road generally carries light traffic except during the morning and afternoon rush hours when many commuters use it to bypass Interstate 580 (I-580) across Altamont Pass. (Ex. 1, § 5.9.1.)

The nearest sensitive noise receptor is a single-family residence about 1.0 mile southeast of the site on Midway Road. The next nearest residence is about 1.2 miles south of the site. (Ex. 1, p. 5.9.2.)

2. Potential Impacts

To determine whether noise impacts could occur in the site vicinity, Applicant conducted a noise survey at noise-sensitive locations where Project-related activities could result in an increase of 5 dBA or more over existing background noise levels. (Ex. 1, p. 5.9-2.) In April 2001, Applicant's consultants took ambient noise measurements at the residential locations identified above and at the site of its proposed water pumping facility[3] near the Aqueduct as follows:

> **Location 1** (L1): North of the site on Midway Road at the California Aqueduct north of I-580 near the site of the proposed water pumping station. Sources of noise included local traffic on Midway Road and occasional traffic noise from I-580.
>
> **Location 2** (L2): In front of the nearest residence about 1.0 mile southeast of the site on Midway Road. The residence is 200 yards south of Patterson Pass Road and 400 years east of the Tesla Substation. Sources of noise included the Substation and traffic on Patterson Pass Road. Midway Road ends about 0.5 mile south of the residence where two other residences are situated.
>
> **Location 3** (L3): South of the site at the Mulqueeney Ranch gate west of the Substation. The ranch residence is 0.25 mile south of the gate and 1.2 miles south of the site. Primary sources of noise included traffic on Patterson Pass Road and the Tesla Substation.

Staff's Noise Table 3, replicated below, summarizes the ambient noise measurement results. (Ex. 51, p. 4.6-5; Ex. 1, § 5.9.1.2)

Noise Table 3 - Long-Term Noise Measurement Summary

Monitoring Location	L_{dn}	Average L_{90} in dBA	
		Day	Night
L1 – Aqueduct	56.5	41.4	45.4
L2 – Midway & Patterson Pass	58.0	46.2	45.4
L3 – Mulqueeney Ranch	60.1	37.3	42.2

Source: Ex. 1, Table 5.9-2

[3] The Aqueduct location may not be pertinent pending resolution of Applicant's negotiations with the City of Tracy for reclaimed water. *See* the Soil and Water section of this Decision. Condition Noise-6 shall be revised to reflect the power plant cooling option approved by the Commission.

The dominant noise sources at these locations were primarily local vehicular traffic. At two locations (L1 and L3), the average L_{90} during the day was lower than the nighttime noise levels due to heavier truck traffic on the Interstate at night. (Ex. 51, p. 4.6-5.)

Staff performed a second survey in March 2002 to confirm the data obtained during the first survey. Measurement locations were similar except they were located closer to the residences. Results of these measurements are shown in Staff's Noise Table 4, replicated below. During this survey, Staff noted additional residences approximately 1.0 mile from the Project site, just west of the Altamont Speedway about 1,000 feet south of I-580. These homes may be partially shielded from the Project site by intervening terrain but they experience relatively high ambient noise levels due to their close proximity to the Interstate. (Ex. 51, p. 4.6-5.)

Noise Table 4 – Second Survey Measurement Summary

Monitoring Site	L_{dn}	Lowest Avg. Day L_{90}, dBA	Lowest Avg. Night L_{90}, dBA
L1 – House near Aqueduct	59.1	46.8	47.8
L2 – Midway & Patterson Pass	61.2	42.2	38.5
L3 – Mulqueeney Ranch House	56.0	38.2	43.4

Source: Ex. 51, p. 34.6-5

Staff found that elevated noise levels from both surveys were mostly due to traffic noise. At L-1, Interstate 580 is clearly audible most of the time. At L-2 and L-3, wind turbines and the Substation are audible most of the time; however, the wind turbines are noisiest in high wind conditions. During this second survey, the wind was moderately high; much of the time wind speed was in the range of 10 to 15 miles per hour.

3. Mitigation Measures

a. Construction

Construction of the power plant will cause temporary noise impacts. To allow the construction of new facilities, construction noise during certain hours is commonly exempt from enforcement by local ordinances. The County noise standard does not specifically address construction noise; the limits are based on levels of all noise sources at a receptor location.

Applicant analyzed potential construction noise impacts, listing noise levels caused by specific types of equipment and construction activities and predicted the sound levels that could be expected at the nearest residence. (Ex. 1, § 5.9.2.1, Tables 5.9-3 and 5.9-4.) According to Applicant, the sound levels at the nearest residence would be between 47 dBA and 49 dBA based on the predicted sound levels for the loudest normal construction activities (excluding steam blow discussed below). These levels will be higher than existing daytime L_{90} levels but lower than the ambient L_{eq} levels measured at the receptors and are, therefore, considered insignificant.[4] (Ex. 1, p. 5.9-14.) Condition **NOISE-8** limits noisy construction and demolition work to daytime hours. This restriction also applies to construction of the wastewater supply pipeline and pump station, which are located near residential receptors. (Ex. 52, p. 2.6-1.)

Project construction will require pile driving, a vibration-producing process to create the building pads for the power plant components. The nearest potentially affected receptor, which is 1.0 mile from the site, is beyond the range where pile driving vibration would be potentially significant. (Ex. 51, p. 4.6-7.)

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[4] According to Staff, construction noise is intermittent in nature and thus, L_{eq} is an appropriate metric. (Ex. 51, p. 4.6-6.)

The loudest construction noise will be created by steam blows, which are necessary to flush piping and tubing of accumulated debris prior to start-up. A series of short steam blows, lasting a few minutes, will be performed several times daily over a period of two to three weeks. (Ex. 51, p. 4.6-7.) Unsilenced steam blow noise levels could be as high as 96 dBA at L2, the nearest sensitive receptor. With an appropriate silencer, noise levels can be reduced by 30 to 40 dBA, to a level ranging from 56 to 66 dBA at L2. Although the resulting noise levels would be above the range of ambient noise levels during daytime hours, Staff believes the higher levels should be acceptable due to the temporary nature of this noise source. (*Ibid*.)

Condition **NOISE-4** requires the Project Owner to muffle any high pressure steam blows with appropriate silencers and to limit steam blows to daytime hours to minimize annoyance to nearby residents. Condition **NOISE-5** requires the Project Owner to implement a notification process to make neighbors aware of scheduled steam blows. Conditions of Certification **NOISE-1** and **NOISE-2** require the Project Owner to implement a community noise notification and complaint program to respond to project-related noise concerns.

To protect 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 Cal/OSHA standards.[5] (Ex. 1, § 5.9.6.2; Ex. 51, p. 4.6-8.)

b. Operation

During normal baseload operation, TPP will emit a steady, continuous noise source day and night. Applicant will include noise attenuation measures in plant

[5] 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.)

design. Staff believes that in quiet rural environments such as that surrounding the TPP, an average value for several consecutive hours, more than four hours, is the more appropriate measure than the lowest hourly level. In this case, although daytime levels are sometimes lower than those measured at night due to truck traffic on the Interstate, nighttime noise levels affect residential receptors when they are most sensitive to noise and, therefore, the nighttime average L_{90} was selected as the background ambient. The average nighttime L_{90} value, calculated from the two surveys, is shown below in Staff's Noise Table 5.

Noise Table 5 — Average Ambient Background Levels

Monitoring Site	Average Nighttime L_{90} (dBA)
L1 — House near Aqueduct	47
L2 — Midway & Patterson Pass	43
L3 — Mulqueeney Ranch House	43

The projected TPP noise level at the nearest residential receptors, L2 and L3, is a constant hourly L_{eq} of 41 dBA. Based on the results of the two noise surveys, the Project constant noise level at these two sites is less than the assumed average ambient L_{90} of 43 dBA. Utilizing the additional factors shown in Noise Table 3 above, the resultant composite noise level will be 45 dBA. According to Staff, this noise level increase will not be perceptible although the plant may be audible during very quiet periods. (Ex. 51, p. 4.6-9.)

Although Applicant did not predict noise levels due to operation of the water pumping station, Applicant agreed to enclose all water pumping station noise producing equipment in an appropriate noise reduction building to limit noise emanating from the pump station to an hourly nighttime level of 45 dBA at the nearest residential receptor.[6] (Ex. 52, p. 2.6-1; Ex. 1, p. 5.9-17.) Condition **NOISE-6** incorporates this measure. According to Staff, adding the pumping

[6] Applicant's agreement to reduce noise created by the water pump station was initially intended for the pump station at the Aqueduct. Staff's analysis of the wastewater supply pipeline indicates that the wastewater pump station along the route will be located near residences, especially Alternative Site A; therefore, Applicant's intention to house the pump station applies as well to the wastewater pump station to ensure that any noise impacts are mitigated to insignificant levels.

station noise level of 45 dBA to the ambient produces a composite noise level of 49 dBA, an undetectable increase of 2 dBA. This would apply to the wastewater pump station as well. (Ex. 51, p. 4.6-9; Ex. 52, p. 2.6-1.)

Staff's recommendations are included in Condition **NOISE-6**, which restricts the average noise level produced by plant operation to an hourly L_{eq} of 41 dBA measured at any residence and the noise level produced by the pumping station to an hourly L_{eq} of 45 dBA measured at any residence. These limitations ensure that Project operation does not cause significant noise impacts to sensitive residential receptors. The noise levels for the three receptor locations are shown below in Staff's Noise Table 6.

Noise Table 6 — Resultant Noise Levels Due to Project Operation

Monitoring Site	Resultant Level L_{eq} (dBA)	Increase at Receptor L_{eq} (dBA)
L1 — House near Aqueduct	49	2
L2 — Midway & Patterson Pass	45	2
L3 — Mulqueeney Ranch House	45	2

To prevent strong tonal noises or hissing sounds that could result from the various Project components, TPP will be designed to blend the many noise sources so no single noise source will stand out. (Ex. 51, p. 4.6-10.) Condition **NOISE-6** requires Project design to blend noise levels and muffle equipment to prevent legitimate complaints from affected residential receptors.

Noise levels in and near the power plant components will require implementation of industrial occupational safety measures to protect plant employees from hazardous noise exposure. (Ex. 1. § 5.9.6.2; Ex. 51, p. 4.6-7.) Condition **NOISE-7** requires the Project Owner to conduct an occupational noise survey, identify necessary protective measures for on-site employees during Project operation, and implement a hearing conservation program.

The ambient noise analysis identified all existing noise sources and the addition of the TPP does not cumulatively contribute to noise impacts in the area. No new projects within 0.5 mile of the TPP that would contribute to cumulative noise impacts in the area were identified in the record. (Ex. 51, p. 4.6-11.)

FINDINGS AND CONCLUSIONS

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

1. Construction and operation of TPP will 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 daytime hours in accordance with local noise control laws and ordinances, and providing notice to nearby residences and businesses, as appropriate.

3. The nearest sensitive noise receptors (L1, L2, and L3) are residential areas at the Aqueduct (where the proposed water pump would have been located), 1.0, and 1.2 miles from the site where the existing average ambient nighttime noise levels are 47.$_{L90}$, 43 dBA$_{L90}$, and 43 dBA$_{L90}$, respectively.

4. At two locations (L1 and L3), the average L_{90} during the day was lower than the nighttime noise levels due to heavier truck traffic on the Interstate at night.

5. The pump station at the Aqueduct or at a site along the wastewater supply pipeline route will be enclosed in a noise reduction building to ensure that the hourly nighttime noise levels due to pump operation do not exceed 45 dBA$_{Leq}$.

6. Noise reduction measures will be incorporated in the Projectdesign to ensure that operation noise shall not exceed 45 dBA at L1, 41 dBA at L2, and 41 dBA at L3, which effectively limits any noise increase to 2 dBA above background levels and ensures compliance with local noise control laws and ordinances.

7. The Project Owner will implement measures to protect workers from injury due to excessive noise levels by complying with pertinent Cal/OSHA regulations.

8. There is no evidence of potential cumulative noise impacts resulting from the addition of the TPP 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 TPP 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 Prior to the start of ground disturbance, the Project Owner shall notify all residents within 1.5 mile of the site, by mail, or other effective means, of the commencement of Project construction. This notification must also include residences in San Joaquin County and those in the vicinity of the new water pumping stations at the City of Tracy wastewater treatment plant and along the wastewater pipeline route to the TPP site. 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: Notification is to occur at least 15 days prior to the start of ground disturbance. The Project Owner shall transmit to the Energy Commission Compliance Project Manager (CPM) in the first Monthly Construction Report following the start of ground disturbance, a statement, signed by the Project Manager, attesting that the above notification has been performed, and describing the method of that notification. This statement shall also attest that the telephone number has been established and posted at the site.

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 attached hereto or 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 stating that the noise problem is resolved to the complainant's satisfaction.

Verification: Within 5 days of receiving a noise complaint, the Project Owner shall file a copy of the Noise Complaint Resolution Form, or similar instrument approved by the CPM, with the Alameda County Planning Department, and with the CPM, documenting the resolution of the complaint. If mitigation is required to resolve a complaint, and the complaint is not resolved within a 30-day period, the Project Owner shall submit an updated Noise Complaint Resolution Form when the mitigation is finally implemented.

NOISE-3 Prior to the start of ground disturbance, the Project Owner shall submit to the CPM for review a noise control program. The noise control program shall be used to reduce employee exposure to high noise levels during construction and also to comply 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 above referenced program. The Project Owner shall make the program available to OSHA upon request.

NOISE-4 If a traditional, high-pressure steam blow process is employed, the Project Owner shall equip steam blow piping with a temporary silencer that quiets the noise of steam blows to no greater than 65 dBA, measured at any residential receptor. The Project Owner shall conduct steam blows only on weekdays during the hours of 7 a.m. to 7 p.m., unless the CPM agrees to longer hours based on a

demonstration by the Project Owner that off-site noise impacts will not cause annoyance. If a low-pressure continuous steam blow process is employed, the Project Owner shall submit a description of this process, with expected noise levels and projected period of execution, to the CPM, who shall review the proposal with the objective of ensuring that the resulting noise levels do not exceed the average nighttime ambient L_{90} value plus 5 dBA. If the low-pressure process is approved by the CPM, the Project Owner shall implement it in accordance with the requirements of the CPM.

Verification: At least 15 days prior to any steam blow activity, the Project Owner shall submit to the CPM drawings or other information describing the process, including the noise levels expected and the projected time schedule for execution of the process.

NOISE-5 Prior to the first steam blow, the Project Owner shall notify all residents and businesses within a 1.5-mile radius of the site of the planned activity, and shall make the notification available to other area residents in an appropriate manner. The notification may be in the form of letters to the area residences, telephone calls, fliers or other effective means. The notification shall include a description of the purpose and nature of the steam or air blow(s), the proposed schedule, the expected sound levels, and the explanation that it is a one-time operation and not a part of normal plant operations.

Verification: Notification shall be provided at least 15 days prior to the first steam blow. Within 5 days of notifying these entities, the Project Owner shall send a letter to the CPM confirming that they have been notified of the planned steam or air blow activities, including a description of the method(s) of that notification.

NOISE-6 **To Be Revised Upon Selection of Appropriate Plant Cooling Option:** The Project design and implementation shall include appropriate noise mitigation measures adequate to ensure that the noise level produced by operation of the power plant will not exceed an hourly L_{eq} of 41 dBA measured at any residence, and that the noise level produced by the water pumping station will not exceed an hourly L_{eq} of 45 dBA measured at any residence. Steam relief valves shall be adequately muffled to preclude noise that draws legitimate complaints.

a) Within 30 days of the Project 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 Locations 1, 2, and 3 as a minimum. At the pumping station, the noise measurement shall be made at a position close to the nearest receptor, such as

that used for the second survey. The noise surveys shall also include short-term measurement of one-third octave band sound pressure levels at each of the above locations to ensure that no new pure-tone noise components have been introduced.

b) If the results from the noise survey indicate that the noise level due to the plant operations exceeds 41 dBA at any residence for any given hour during the 25-hour period, or that the noise level due to the water pumping station operation exceeds 45 dBA at any residence for any given hour during the 25-hour period, mitigation measures shall be implemented to reduce noise to a level of compliance with these limits.

c) If the results from the noise survey indicate that pure tones are present, mitigation measures shall be implemented to eliminate the pure tones.

Verification: Within 15 days after completing the community noise survey, the Project Owner shall submit a summary report of the survey to the Alameda County Planning Department, and to the CPM. Included in the survey report will be a description of any additional mitigation measures necessary to achieve compliance with the above listed noise limits, and a schedule, subject to CPM approval, for implementing these measures. Within 15 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-7 When the Project first achieves 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: The survey shall be performed within 30 days of the Project first achieving a sustained output of 80 percent or greater of rated capacity. Within 15 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.

NOISE-8 Noisy construction, demolition work, and construction of the wastewater supply pump station at Alternative Site A, shall be restricted to the times of day delineated below:

Weekdays	7 a.m. to 7 p.m.
Weekends and Holidays	8 a.m. to 5 p.m.

Haul trucks and other engine-powered equipment shall be equipped with adequate mufflers. Haul trucks shall be operated in accordance with posted speed limits. Truck engine exhaust brake use shall be limited to emergencies.

Horizontal drill rigs may be operated on a continuous basis, provided that the rigs are fitted with adequate mufflers and engine enclosures.

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
TESLA POWER PLANT
01-AFC-21 (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 TPP is situated on a 60-acre site in a rural area in the Livermore Valley on the eastern edge of the Diablo Range. The Altamont Range separates the flat valley lands of the Livermore Valley from those of the San Joaquin Valley to the east. Rounded hills and smooth contours characterize the region. The valley elevation in the vicinity of the Project site ranges from approximately 350 feet mean sea level (msl) to 400 feet msl. The adjacent hills near the site range from approximately 450 to 600 feet in elevation. The higher crest of the Diablo Range is located to southwest of the site with peaks ranging from approximately 1,500 feet msl to 2,100 feet msl. The area is sparsely vegetated with annual grassland and scattered trees along drainages or planted along fence lines and near residences. (Ex. 1, § 5.10.1.1; Ex 51, p. 4.11-9.)

The region's visual character is heavily influenced by the wind farms in the Altamont Pass where the world's largest concentration of wind energy conversion (WEC) turbines are located. More than 6,000 WEC turbines (60 to 300 feet tall) are situated in rows along the ridgelines of the Altamont Range and can be seen from long distances from all approaches to the Altamont Pass. (Ex. 1, 5.10.1.1; Ex. 51, p. 4.11-8.)

Man-made features dominate the small valley where the site is located. These features include the PG&E Tesla Substation located approximately 0.5 mile south of the site and transmission lines and towers, which converge upon the Substation, some of which traverse the TPP site. Other human-made features include the Union Pacific Railroad line crossing Patterson Pass Road 0.8 mile south of the site, Interstate 5 and 580, Patterson Pass Road along the southern edge and Midway Road along the eastern edge of the valley, ranching facilities, and three residences located south and southeast of the site. (Ex. 51, p. 4.11-9.)

The major visible components of the power plant include: the 22-cell cooling tower extending along the northern side of the site; the four HRSG units and HRSG stacks perpendicular to the cooling tower; the four CTG units located south of the HRSG units; and the water storage tank on the eastern side of the site. The switchyard, on the south side of the site, includes transformers, support structures, and other electrical equipment all situated on a concrete pad. The new interconnection transmission lines will be carried by either steel poles or lattice towers about 90 feet tall. (Ex. 51, p. 4.11-6.) Table 1, below, shows the heights of key Project components that will be visible from adjacent areas.

Visual Resources Table 1
Dimensions of Key Project Components

Component	**Height (feet)**	**Length (feet)**	**Diameter/Width (feet)**
HRSG Units	75	170	30w
HRSG Stacks	200		19d
Combustion Turbines	45	125	25w
Cooling Tower	56	1,060	43w/30d (fan)
Raw Water Storage Tank	48		180d
Demineralized Storage Tank	40		45d
Control/Admin Building	15	145	50w
Maintenance Building	15	135	90w
Structures in the Switchyard	30		
T-line support poles/towers	90		3d

Source: Ex. 1, Figures 3.4-1, 3.4-2, 3.4-3, and p. 5.10-10; Ex. 51, p. 4.11-21.

1. Methodology

The visual impact analysis for the power plant was based on an assessment of potential viewshed impacts for a set of 10 defined Key Observation Points (KOPs) at various locations in the area surrounding the Project site:

KOP #	KOP Location and Description[1]
1&7	View to the southwest from Midway Road, northeast of the Project site.
2	View to the northwest from Midway Road, southeast of the Project site.
3	View to the northwest from Midway Road and Patterson Pass Road intersection.
4	View to the northwest from nearest residences to the southeast.
5	View to the north from entrance to the Mulqueeney Ranch off of Patterson Pass Road.
6	View to the northeast from the rail line located south of the Project site.
8	View to northwest of the water supply pump station from the driveway of rural residence
9	View to southeast of the water supply pump station from nearest edge of Midway Road.
10	View of PG&E Maintenance Center and Proposed Gas Metering Site near Patterson Pass Road

The 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.[2] The assessment involved computer based visual simulations using

[1] Ex. 1, § 5.10.1.4.

[2] Temporary viewshed disturbances will occur with pipeline construction when work areas are visible at the areas where the natural gas and wastewater pipelines will be placed under or adjacent to public roadways. After construction, the underground pipelines will not be visible to the public and these areas were not included in the analysis. (Ex. 51, p. 4.11-10.) Two new

facility renderings superimposed on photographs of existing conditions. (Ex. 1, § 5.10.2.2.) Project Owner relied on these simulations to determine whether Project impacts will be noticeable to sensitive public views. (*Ibid*.)

2. Potential Impacts

A summary of the Visual Resources analysis is shown in Staff's Appendix VR-1, which is replicated on the following page. (Ex. 51, Visual Resources, Appendix VR-1.)

Construction of the power plant and linear facilities will cause temporary adverse visual impacts due to the presence of heavy construction equipment, materials, storage and temporary laydown/staging areas. (Ex. 51, p. 4.11-20.) To minimize the adverse visual impact of these views, Condition of Certification **VIS-4** requires the restoration of the construction areas and pipeline rights-of-way after completion of Project construction.[3] Due to the relatively short-term nature of Project construction, the visual impacts during construction will not be significant. (*Ibid*.)

The analysis indicates that after construction the power plant will be clearly visible from KOP 1&7, a combined viewpoint representing an unobstructed, transitional view of the TPP for the southbound traveler on Midway Road from the point where the plant comes into full view (about 600 feet from the northern property line). (Ex. 51, p. 4.11-11.) When considered within the context of the overall rural, agricultural landscape, the TPP creates a high degree of visual

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pumping stations associated with the reclaimed water pipeline may result in visual effects that are discussed below. (Ex. 52, § 2.11.)

[3] While most construction activities will occur during daylight hours, some construction will take place at night. (Ex. 51, p. 4.11-20.) Condition **VIS-3** requires all lighting to be shielded, hooded, and directed downward to minimize potential impacts on sensitive receptors. A lighting complaint resolution form shall document lighting complaints and resolutions.

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contrast resulting in an adverse and significant visual impact at this KOP. (*Id*., at p. 4.11-23; Ex. 1, p. 5.10-13.)

The view from KOP 2 represents the view of northbound travelers on Midway Road. The view of the now vacant site includes existing steel lattice transmission towers. However, the rectangular mass of the overall plant complex and the vertical HRSG structures will create a transient view blockage of the Diablo Range hills that form the horizon. (Ex. 51, p. 4.11-24.) When considered in the context of the moderately low visual sensitivity of the existing landscape, the moderately high visual change at KOP 2 will cause an adverse but less than significant direct visual impact. However, according to Staff, the project's incremental visual effect due to its high degree of visual contrast and moderate to high degree of dominance will be cumulatively considerable resulting in a significant cumulative impact without mitigation. (*Id*. at p. 4.11-34.)

Mitigation measures designed to address the visual impacts at KOPs 1&7 and 2 include the implementation of a landscape plan, which is described in Condition **VIS-6**. The plan is based on the assumption that the moderate duration of the view and the limited number of viewers at KOPs 1&7 and 2 do not require a total screening of structures to reduce impacts to less than significant. (Ex. 51, p. 4.11-44.) Additionally, in accordance with the analysis discussed in the Biological Resources section of this Decision, it is necessary to minimize the amount of landscaping that could potentially provide cover for predators of the San Joaquin kit fox. The addition of screening trees in the grasslands bordering the site will tend to degrade the grassland habitat for the kit fox species. (*Ibid*.) Thus, the landscaping plan provides for tree placement at strategic locations adjacent to Midway Road rather than perimeter landscaping around the site. Based on Staff's analysis, the landscape scheme will be sufficient to reduce the project's direct and cumulative adverse impacts at KOPs 1&7 and 2 to less than significant levels within 5 years of planting. (*Ibid.*)

In the vicinity of KOP 2, it is possible to enhance the riparian vegetation along Pattern Run Creek, which passes between the TPP site and Midway Road since existing scattered riparian vegetation partially screens the TPP site. By restoring and enhancing the natural vegetation along the creek, visual screening of the TPP will be more effective. (*Id*. at p. 4.11-45.) Staff's Appendix VR-4, appended to the Visual Resources Conditions in this section of the Decision, provides landscape guidelines for implementing **VIS-6**.

The evidence indicates that views of the power plant and linear facilities from KOPS 3 through 10 were less than significant and thus, no specific mitigation measures were identified for those viewpoints. (Ex. 51, p. 4.11-24 et seq.) In addition, none of those views were found to be cumulatively considerable and Staff believes the landscape plan in Condition **VIS-6** will minimize any adverse cumulative visual effects described in the record. (*Id*. at p. 4.11-34.)

The wastewater pipeline will require two aboveground pumping stations (one at the City of Tracy wastewater treatment plant and another one either adjacent to Grant Line Road (alternative Site A) or adjacent to Midway Road (alternative Site B). Staff determined that the pumping station located at the wastewater treatment plant will blend in with existing buildings and have no significant adverse visual impacts. However, Staff believes it is necessary for the Project Owner to plant shrubbery around the pump station at alternative Site A to soften its appearance if substantially visible at nearby residences. (Ex. 52, p. 2.11-2.) Condition **VIS-7** requires landscape screening of the pump station at alternative Site A. (*See* Ex. 52.) If exterior lighting is installed, it must comply with the requirements of Condition **VIS-2** described below.

The Project requires nighttime lighting for operational safety and security. Since the undeveloped site currently has no lighting, the project's lighting will change the character of the existing nighttime landscape, resulting in significant light and glare impacts. (Ex. 51, p. 4.11-29.) Condition **VIS-2** requires the Project Owner

to design all permanent exterior lighting to prevent light trespass outside the Project boundary and to minimize illumination as feasible. A lighting complaint resolution process will also be implemented to address public concerns.

To reduce the contrast between the existing landscape and the power plant, all TPP structures will be painted a neutral gray or tan color to blend in with the background. Condition **VIS-1** requires the Project Owner to submit the proposed color treatment for review by the Compliance Project Manager prior to operation.

Emissions from the cooling tower and CTG/HRSG create the potential to cause visible plumes. (Ex. 51, p. 4.11-29.) TPP will incorporate a plume abatement system in the cooling tower design to prevent the formation of visible plums when ambient temperature is about 30ºF and the relative humidity is less than 80 percent.[4] (*Ibid*.; Ex. 3, Response 133.) Staff conducted an independent modeling analysis to predict the frequency of Project vapor plumes associated with the non-abated HRSGs and the plume-abated cooling tower. Staff employs a significance frequency threshold of ten percent or greater for plume occurrence during seasonal[5] daylight no rain/no fog (SDNRNF) hours to determine whether a more detailed analysis is required. (Ex. 51, p. 4.11-30.)

Staff's analysis determined that visible plume formation will occur mainly during the nighttime hours and that plume abatement will be effective at nearly eliminating visible plumes during conditions of good daytime visibility. (Ex. 51, Appendix VR-5, p. 4.11-61 et seq.) The seasonal daytime plume is not considered potentially significant since it will be well below ten percent of SDNRNF hours. Staff therefore concluded that Project plumes would not result

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[4] The record indicates that the plume abatement system shall include ambient temperature and relative humidity sensors to record data relevant to cooling tower operation to ensure the plume abatement system operates properly and that operation will be anticipatory rather than reactionary. (Ex. 54, p. 16.)

[5] "Seasonal" is defined as the six consecutive months per year when the potential for plume formation is greatest; in this case, the months are November through April. (Ex. 51, p. 4.11-30.)

in significant visual impacts and no further visual analysis of visible plumes was conducted. (*Id*. at p. 4.11-30.) Condition **VIS-5** ensures that the Project Owner will implement plume abatement measures to reduce visible plumes to insignificant levels.

3. Cumulative Impacts

Cumulative impacts to visual resources can occur where Project facilities or activities (such as construction) occupy the same field of view as other structures or impacted landscapes. Since views of the site are already degraded by existing transmission lines, the WECs, roadways, and fences, the TPP would add to the number of visible structures in the viewshed. However, the evidence indicates that implementation of the landscape plan and other mitigation measures described in the Conditions of Certification will reduce TPP's contribution to cumulative visual impacts to insignificant levels. (Ex. 51, p. 4.11-34.)

4. Compliance with Applicable LORS

The following Table (Staff's Visual Resources Table 3) lists the applicable LORS for Alameda and San Joaquin Counties that pertain to the enhancement and/or maintenance of visual quality and the protection of views. Staff's uncontroverted analysis indicates that the TPP is consistent with these LORS.

VISUAL RESOURCES Table 3
TPP's Consistency with
Local LORS Applicable to Visual Resources

LORS			
Source	**Description of Principles, Objectives, and Policies**		
Alameda County			
Alameda County East County Area Plan, as amended by Measure D	Policy 106A: Structures may not be located on ridgelines or hilltops or where they will Project above a ridgeline or hilltop, as viewed from public roads, trails, parks and other public viewpoints, unless there is no other site on the parcel for the structure or on a contiguous parcel in common ownership …...	CONSISTENT	The power plant is situated such that the distant ridgeline of the Diablo Range, from KOP 1 and KOP 7 would be blocked. However, the relocation of the plant on the parcel would not be possible, since the power plant is sited to allow a 50 foot setback from the Midway Fault, which crosses the northeast corner of the Project site (FPL Energy 2002a, AFC p. 5.5-23). Therefore the TPP is considered consistent with this policy.
Alameda County East County Area Plan, as amended by Measure D	Policy 107 The County shall permit no structure (e.g. housing unit, barn or other building with four walls) that projects above a visually sensitive major ridgeline. 107A. To the extent possible,….structures shall be located on that part of a parcel, ……where the development is least visible to persons on public roads, trail, parks and other public viewpoints.	CONSISTENT	Major ridgelines listed in the ECAP do not include ridgelines visible from the TPP site (Alameda County 1994 p. 30). The power plant is located such that it is prominent from the viewpoints on Midway Road, north of the site. It would not be possible to relocate the power plant on the site such that it would be less prominent. Therefore the TPP is considered consistent with this policy.
Alameda County East County Area Plan	Policy 111 requires that development maximize views of a number of specified "prominent visual features."	CONSISTENT	The Project site is not one of the listed "prominent visual features" (Alameda County 1994 p. 31).

Alameda County East County Area Plan	Policy 114 (formerly ECAP Policy 113) requires the use of landscaping in both rural and urban areas to enhance the scenic quality of the area and to screen undesirable views. Choice of plants should be based on compatibility with surrounding vegetation, drought-tolerance, and suitability to site conditions; and in rural areas, habitat value and fire retardance.	CONSISTENT	The applicant has proposed a conceptual landscape plan (see **Visual Resources Figure 14**) that appears to be consistent with this policy in that the plan provides for plantings around the periphery of the power plant site, and vegetation that is generally compatible with the surrounding area. However, it is necessary to minimize the amount of landscaping that could potentially provide cover for predators of the San Joaquin kit fox, a federally listed endangered species. Strategically placed trees at specific locations adjacent to Midway Road would be sufficient to reduce adverse impacts of the Project to less than significant levels within an acceptable period of time (within 5 years of planting). Staff has consulted with USFWS to develop landscape guidelines and has consulted with Alameda County Community Development Agency (Jensen 2003). The applicant's revised landscape plan provides for visual screening that would be compatible with preservation goals for endangered species, and at the same time ensure that the County's goals for landscape treatments are met.
Alameda County East County Area Plan, as amended by Measure D.	Policy 115 (formerly Policy 113A) In all cases appropriate building materials, landscaping and screening shall be required to minimize the visual impact of development. Development shall blend with and be subordinate to the environment and character of the area where located, so as to be as unobtrusive as possible and not detract from the natural, open space or visual qualities of the area. To the maximum extent practicable, all exterior lighting must be located, designed and shielded so as to confine direct rays to the parcel where the lighting is located."	CONSISTENT	CEC staff consulted with Alameda County Development Agency regarding consistency with this policy. The County considers the Project in total and on average from a variety of public viewpoints. The siting of the Project limits its visibility from middle and distant viewpoints, and use of reasonable landscaping to soften local views would achieve consistency with this policy (Jensen 2003). The applicant's mitigation measures proposed to use structural materials and surface coatings that will reduce glare and blend with the environment. Conditions of Certification **VIS-1** through **VIS-3** further require that Project structures are colored and treated to blend with their surroundings and that lights are hooded/shielded to prevent light trespass offsite and backscatter to the night sky is minimized. Condition **VIS-6** softens local views of the plant by planting landscaping at strategic viewpoints adjacent to Midway Road and by enhancing natural vegetation in Patterson Run Creek.

Alameda County East County Area Plan, as amended by Measure D.	Policy 113B "To the maximum extent possible, development shall be located and designed to conform with rather than change natural landforms. The alteration of natural topography, vegetation, and other characteristics by grading, excavating, filling or other development activity shall be minimized. To the extent feasible, access roads shall be consolidated and located where they are least visible from public viewpoints."	CONSISTENT	The Project would be consistent with this policy since the power plant is located on relatively level terrain, and once constructed, cut slopes would not be extensive and could be screened by landscaping (Grading Plan Figure 3.5-2, C). The access road would be relatively short, approximately 150 feet (AFC p. 5.10-19, FPL Energy 2002a).
Alameda County East County Area Plan	Policy 116 The county shall require access roads be sited and designed to minimize grading.	CONSISTENT	The Project would be consistent with this policy in that the power plant is located on relatively level terrain. The access road would not require extensive grading (AFC Figures 3.4-1 and 3.5-2, FPL Energy 2002a).
Alameda County East County Area Plan	Policy 120 (Formerly Policy 117) requires that utility lines be placed underground whenever feasible. When located above ground, utility lines and supporting structures shall be sited to minimize their visual impact.	CONSISTENT	The 230 kV transmission interconnection would be built overhead rather than underground, which is typical for the higher voltage transmission facilities such as that associated with the proposed project. Staff consulted with Alameda County Community Development Agency regarding consistency with this policy. The County indicates that in the context of the existing Tesla Substation, with its array of transmission towers and lines, the addition of new transmission lines would be only a small part of the overall visual character and undergrounding of the proposed project's lines would not substantially benefit the visual character of the area. The proposal to place lines overhead would not be inconsistent with this policy (Jensen 2003).

Alameda County East County Area Plan	Policy 197 requires that the County manage development and conservation of land in East County scenic highway corridors to maintain and enhance scenic values.	CONSISTENT	Patterson Pass Road is a Rural Scenic Route (Jensen 2002). Existing development in the vicinity of the TPP, along Patterson Pass Road consists of the Tesla Substation and associated transmission infrastructure. The TPP is outside of the 1,000-foot scenic corridor and will not substantially alter the landscape as viewed from Patterson Pass Road.
Alameda County East County Area Plan	Policy 287 (formerly Policy 264) states that new developments are to locate utility lines underground, whenever feasible.	CONSISTENT	See Policy 120, above.
Alameda County General Plan Scenic Route Element Principles	Definition: Scenic Rural-Recreation Routes - are those major rural roads that traverse areas of outstanding scenic quality or that carry traffic to major scenic and recreational areas. Scenic Rural-Recreation Routes in selected areas may be combined with public recreation areas such as parks, parkways, reservoirs, or hiking riding and cycling trails. The scenic corridor in rural areas can extend up to 1000 feet from the roadway.	CONSISTENT	Patterson Pass Road is shown on the map contained in the Scenic Route Element (p.7) and may be considered a Scenic Rural Route. TPP would be located approximately 0.8 mile north of Patterson Pass Road, and therefore would be outside the scenic route corridor. Midway Road is not a Scenic Rural Recreation Route.

Alameda County General Plan Scenic Route Element Principles	Principle: Provide a continuous, convenient system of scenic routes. Principle: Establish efficient and attractive connecting links. Principle: Provide for unimpeded pleasure driving. Principle: Coordinate scenic routes and recreation areas. Principle: Guide and control preservation and development of scenic routes through legislative standards.	CONSISTENT	The Project does not specifically impede the implementation of any of the referenced principles.
	Provide for normal uses of land and protect against unsightly features. Locate transmission towers and lines outside of scenic route corridors.	CONSISTENT	The power plant site is outside of the scenic route corridor. The proposed transmission towers, however, cross Patterson Pass Road. Existing transmission lines and the existing Tesla Substation are historic land uses on the properties adjacent to the road. Because of the nature of the existing land uses, the proposed Project is considered consistent with this policy.
	Establish architectural and site design review.	CONSISTENT	The power plant site is outside of the scenic route corridor. However, the applicant has committed to working with the County of Alameda to ensure that various Project design elements meet County Goals.
	Use landscaping to increase scenic qualities of scenic route corridors.	CONSISTENT	The power plant is not located within a scenic route corridor, however the transmission towers pass through and over the Patterson Pass Road scenic corridor. Because of the nature of the existing land uses at this location, the proposed Project is considered consistent with this policy.
	Landscape all properties and streets.	CONSISTENT	The Project includes landscaping and vegetative screening.
San Joaquin County General Plan: Community Organization and Development Pattern	Objectives 5. To create a visually attractive County.	CONSISTENT	The Project facilities that would be visible in San Joaquin County would be the tie-in for the natural gas supply line. These facilities are consistent with the existing land uses in the area.

San Joaquin County General Plan: Recreation	Objective 2. To protect the diverse resources upon which recreation is based, such as waterways, marsh lands, wildlife habitats, unique land and scenic features, and historical and cultural sites.	CONSISTENT	The Project facilities that would be visible in San Joaquin County would be the tie-in for the natural gas supply line. These facilities are consistent with the existing land uses in the area.
San Joaquin County General Plan: Open Space	Objective 1. To preserve open space land for the continuation of commercial agricultural and productive uses, the enjoyment of scenic beauty and recreation, the protection and use of natural resources, and for protection from natural hazards.	CONSISTENT	The Project facilities that would be visible in San Joaquin County would be the tie-in for the natural gas supply line. These facilities are consistent with the existing land uses in the area.
San Joaquin County General Plan: Air Quality	Objective: *To protect public health, agricultural crops, **scenic resources**, and the built and natural environments from air pollution.* Policy 1: San Joaquin County shall meet and maintain all state and national standards for air quality.	CONSISTENT	The interconnection with the natural gas supply and the underground pipeline would not adversely affect existing State and national air quality standards and thus, would not adversely affect county scenic resources.

FINDINGS AND CONCLUSIONS

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

1. The Tesla Power Project site is situated in a rural area in the Livermore Valley on the eastern edge of the Diablo Range where dominant features are rolling hills and dominant structures include wind energy turbines in the Altamont Pass with transmission lines and roadways crossing the otherwise flat valley grassland.

2. Construction of the project's underground wastewater and natural gas pipelines will cause temporary visual impacts but no permanent visual impacts will result.

3. Project components that could affect visual resources include the HRSGs, the 200-foot tall HRSG exhaust stacks, the CTGs, the STG, cooling tower, storage tanks, new switchyard, and new transmission lines.

4. The project's potential impacts on the relevant viewshed were analyzed at ten defined Key Observation Points (KOPs) at different locations surrounding the Project site.

5. Significant visual impacts were indicated at KOPs 1&7 (a combined viewpoint representing an unobstructed, transitional view of the TPP for the southbound traveler on Midway Road) and KOP 2 (the view of northbound travelers on Midway Road).

6. The Project Owner will design and implement a Landscape Plan to plant trees at selected locations along Midway Road and to enhance riparian vegetation along Pattern Run Creek to mitigate significant visual impacts at KOPs 1&7 and 2.
7. The Landscape Plan will be compatible with protection requirements of San Joaquin kit fox habitat, which could be degraded by the overplanting of trees that provide cover for predators of the San Joaquin kit fox.

8. If the reclaimed water supply pump station is located at alternative Site A, the Project Owner will provide landscaping to screen the pump station from residential views.

9. The Project Owner will treat Project surfaces with colors that minimize visual intrusion and contrast.

10. The Project Owner will implement appropriate mitigation measures to reduce or eliminate visual impacts from nighttime lighting and glare and will also implement a lighting complaint procedure.

11. The predicted occurrence of vapor plumes from the HRSG stacks and the cooling tower fall below the significance threshold of ten percent seasonal daytime no rain/no fog hours and will not result in significant impacts to visual resources.

12. The TPP will incorporate a plume abatement system with temperature and humidity sensors to anticipate appropriate operation of the system.

13. The TPP will comply with all applicable LORS regarding Project design, architecture, landscaping, and other zoning requirements.

14. Potential cumulative visual impacts will be mitigated to insignificant levels.

15. Implementation of the Conditions of Certification, below, will insure that TPP complies with all applicable laws, ordinances, regulations, and standards relating to visual resources as identified in Visual Resources Table 3 in this section and in the pertinent portions of **Appendix A** of this Decision.

The Commission concludes that the implementation of the mitigation measures identified in the Conditions of Certification and otherwise described in the evidentiary record ensures that the TPP will not result in significant adverse impacts to visual resources.

CONDITIONS OF CERTIFICATION

VIS-1 Prior to first turbine roll, the Project Owner shall treat the surfaces of all Project structures and buildings visible to the public such that their colors minimize visual intrusion and contrast by blending with the landscape; their surfaces do not create glare; and they are consistent with local laws, ordinances, regulations, and standards. The Project Owner shall submit a specific treatment plan, whose proper implementation will satisfy these requirements, for CPM review and approval and for Alameda County Community Development Agency and San Joaquin County (for alternative Site A reclaimed water pipeline pump station only) review and comment. The treatment plan shall include:

a) Specification, and 11" x 17" color simulations at life size scale, of the treatment proposed for use on Project structures, including structures treated during manufacture;

b) A list of each major Project structure, building, tank, transmission line tower and/or pole, and fencing/walls specifying the color(s) and finish proposed for each (colors must be identified by name and by vendor brand or a universal designation);

c) Two sets of brochures and/or color chips for each proposed color;

d) Samples (minimum 5"x7" in size) of each proposed treatment and color on each material to which they would be applied that would be visible to the public;

e) A detailed schedule for completion of the treatment; and

f) A procedure to ensure proper treatment maintenance for the life of the project.

Verification: The Project Owner shall not specify to the vendors the treatment of any buildings or structures treated during manufacture, or perform the final treatment on any buildings or structures treated on site, until the Project Owner receives notification of approval of the treatment plan by the CPM.

The Project Owner shall submit its proposed treatment plan at least 90 days prior to ordering the first structures that are color treated during manufacture.

If a revision is required, the Project Owner shall provide the CPM with a revised plan within 30 days of receiving notification that revisions are needed.

Prior to first turbine roll, the Project Owner shall notify the CPM that all buildings and structures 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 permanent lighting such that light bulbs and reflectors are not visible from public viewing areas; lighting does not cause reflected glare; and illumination of the project, the vicinity, and the nighttime sky is minimized. To meet these requirements the Project Owner shall submit a lighting mitigation plan that includes but is not necessarily limited to the following:

a) Lighting shall be designed so 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 the lighting shall be such that the luminescence or light source is shielded to prevent light trespass outside the Project boundary;

b) All lighting shall be of minimum necessary brightness consistent with worker safety;

c) High illumination areas not occupied on a continuous basis (such as maintenance platforms) shall have switches or motion detectors to light the area only when occupied;

A lighting complaint resolution form (following the general format of Visual Resources Appendix VR-3 attached hereto) shall be used by plant operations to record all lighting complaints received and document the resolution of those complaints. All records of lighting complaints shall be kept in the on-site compliance file.

Verification: At least 90 days prior to ordering any permanent exterior lighting, the Project Owner shall contact the CPM to arrange a meeting to discuss the documentation required in the lighting mitigation plan.

At least 60 days prior to ordering any permanent exterior lighting, the Project Owner shall submit to the CPM for review and approval a plan that describes the measures to be used and demonstrates that the requirements of the condition will be satisfied. The Project Owner shall not order any exterior lighting until it receives CPM approval of the lighting mitigation plan.

Prior to first turbine roll, the Project Owner shall notify the CPM that the lighting has been completed and is ready for inspection.

The Project Owner shall report any complaints about permanent lighting and provide documentation of resolution in the Annual Compliance Report.

VIS-3 The Project Owner shall ensure that lighting for construction of the power plant, including all pipelines and ancillary facilities, is used in a manner that minimizes potential night lighting impacts, as follows:

a) All lighting shall be of minimum necessary brightness consistent with worker safety.

b) All fixed position lighting shall be shielded, hooded, and directed downward to minimize backscatter to the night sky and prevent light trespass (direct lighting extending outside the boundaries of the construction area).

c) Wherever feasible and safe, lighting shall be kept off when not in use and motion detectors shall be employed.

d) A lighting complaint resolution form (following the general format of the Attached form) shall be maintained by plant construction management, to record all lighting complaints received and to document the resolution of that complaint.

Verification: Within 5 days after the first use of construction lighting, the Project Owner shall notify the CPM that the lighting is ready for inspection.

If the CPM notifies the Project Owner that modifications to the lighting are needed to minimize impacts, the Project Owner shall implement the necessary

modifications within 15 days of receiving that notification and notify the CPM that the modifications have been completed.

The Project Owner shall report any lighting complaints and documentation of resolution in the Monthly Compliance Report, accompanied by any lighting complaint resolution forms for that month.

VIS-4 Immediately after construction is complete on pipeline sections, ground surfaces shall be restored to their original condition, and any vegetation or paving that had been removed during the construction process shall be replaced in kind. Revegetation shall comply with requirements of Conditions of Certification for **Biological Resources**, with respect to plant material selections that would be least detrimental to endangered species.

Verification: At least 30 days prior to the start of ground disturbance, the Project Owner shall provide to the CPM documentation demonstrating that the restoration will comply with the condition.

If the CPM notifies the Project Owner that modifications to the restoration plan are needed, within 30 days of receiving that notification the Project Owner shall implement the necessary modifications and notify the CPM that the modifications have been completed.

VIS-5 The Project Owner shall reduce the TPP cooling tower visible plumes through the use of a dry-cooling section that has a stipulated plume abatement design point of 30°F (dry bulb) and 80 percent relative humidity. Automated meteorological equipment that monitors potential plume forming ambient conditions will be used to notify the operator when the plume abatement system needs to be engaged to ensure that plumes are abated to the maximum extent possible for the stipulated design point. Remote verification of the plume abatement system operation will be included as a part of this system.

Verification: At least 30 days prior to the first turbine roll, the Project Owner shall provide to the CPM for review and approval the specifications for the monitoring and notification system that will be used to ensure maximum plume abatement from the dry-cooling section of the cooling tower, and the operations protocol for its use.

VIS-6 The Project Owner shall prepare and implement a landscape plan that is effective in meeting the following objectives.

- The landscape plan for TPP shall provide visual screening or enhancements to reduce significant direct and cumulative visual impacts of the power plant in combination with existing energy

related infrastructure in the area and in order to maintain consistency with the Alameda County General Plan policies requiring landscaping in rural areas to enhance the scenic quality and minimize visual impacts of development.

- The landscape plan shall be compatible with the conservation and recovery of the San Joaquin Kit Fox and its habitat in the area. Planted vegetation shall not provide good nesting or perching opportunities for large raptors, nor provide ground cover for red fox or coyotes, both of which are predators and competitors of the San Joaquin kit fox.

The final landscape plan shall be in substantial conformity with the TPP Landscape Guidelines (Visual Resources Appendix VR-4 attached hereto) and shall conform with the revised Conceptual Landscape Plan proposed by the Project Owner (Conceptual Landscape plan attached hereto) with the following modifications:

1. Restoration planting placed in Patterson Run Creek on TPP-controlled property, shall consist of species native to the creek site (including but not limited to native *Fremontia* sp. and *Salix* sp.) and shall be selected, installed and maintained in accordance with the wildlife resource agencies' recommendations.

2. The final landscape plan shall contain a separate note to ensure that landscaping installed adjacent to Midway Road will be pruned of branches to maintain a minimum three-foot clearance at the base of all shrubs (once the plants have attained sufficient size).

3. North and south of the entry gate, landscaping shall be placed on berms sufficiently tall in order to elevate the vegetation to achieve substantial screening of the HRSG units within 5 years.

4. All berms shall be contoured to appear as natural as possible and the sides shall be vegetated with grasses and wildflowers native to the area.

5. The Project Owner shall submit the landscape plan to the CPM for review and approval and to the Alameda County Community Development Agency for review and comment. The Plan shall include:

a. 11"x17" color simulations of the proposed landscaping at 5 and 20 years as viewed from KOPs 1, 2, and 7, and from a new viewpoint between KOPs 2 and 3 that would capture the Patterson Run Creek plantings in the view from Midway Road; and

b. A detailed list of plants to be used and times to maturity given their size and age at planting;

c. Details for providing a suitable means of irrigation to ensure that plantings thrive over the life of the project.

d. Maintenance procedures, including a plan for routine annual or semi-annual debris removal for the life of the project; and

e. A procedure for monitoring for and replacement of unsuccessful plantings for the life of the project.

The Project Owner shall not implement the plan until the Project Owner receives approval of the submittal from the CPM. Plantings must be completed by start of Project operation.

Verification: The Project Owner shall submit the landscaping plan to the CPM for review and approval at least 90 days prior to installing the landscaping.

If the CPM notifies the Project Owner that revisions of the submittal are needed, within 30 days of receiving that notification the Project Owner shall prepare and submit to the CPM a revised submittal.

The Project Owner shall notify the CPM within 5 days after completing installation of the landscaping that the plantings and irrigation system are ready for inspection.

The Project Owner shall report landscape maintenance activities, including replacement of dead vegetation, for the previous year of operation in each Annual Compliance Report.

VIS-7 If alternative Site A is selected for location of the reclaimed water supply pump station, the Project Owner shall provide landscaping that is effective in screening the reclaimed water supply pump station from view from nearby residences. Shrubs consisting of informal groupings of fast-growing evergreens shall be strategically placed and of sufficient density and height to effectively screen the majority of the pump station as quickly as possible. The Project Owner shall submit a landscaping plan to the CPM for review and approval and to San Joaquin County for review and comment. The plan shall include:

a) A detailed landscape, grading, and irrigation plan, at a reasonable scale;

b) A detailed list of plants to be used, specifying their rates of growth and times to maturity and their proposed size and age at planting.

c) Maintenance procedures, including any needed irrigation and a plan for routine annual or semi-annual debris removal for the life of the project; and

d) A procedure for monitoring for and replacement of unsuccessful plantings for the life of the project.

Verification: The Project Owner shall not implement the plan until the Project Owner receives approval of the submittal from the CPM. The planting must be completed by the start of commercial operation, and the planting must occur during the optimal planting season.

Prior to construction of the pump station and at least 90 days prior to installing the landscaping, the Project Owner shall submit the landscaping plan to San Joaquin County for review and comment and to the CPM for review and approval.

If the CPM determines that the plan requires revision, the Project Owner shall provide a plan to the CPM with the specified revision(s) within 30 days of receiving notification that revision is required.

The Project Owner shall notify the CPM within 5 days after completing installation of the landscaping, that the landscaping is ready for inspection.

The Project Owner shall report landscape maintenance activities, including replacement of dead vegetation, for the previous year of operation in each Annual Compliance Report.

APPENDIX VR–3 CONDITIONS OF CERTIFICATION VIS-2 and VIS-3

LIGHTING COMPLAINT RESOLUTION FORM

Tesla Power Project, Docket No. 01-AFC-21(C) Alameda County, California
Complainant's name and address: Phone number:
Date complaint received: Time complaint received:
Nature of lighting complaint:
Definition of problem after investigation by plant personnel: Date complainant first contacted:
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.)

APPENDIX VR – 4: TPP LANDSCAPE GUIDELINES

These landscape guidelines provide the Project Owner with guidance in selecting appropriate plant materials and in preparing the landscape plan for the power plant project. The Tesla Project would be sited within an essential habitat corridor for the San Joaquin kit fox and any degradation of and loss of its habitat must be avoided, or minimized and mitigated as deemed feasible by the USFWS and CDFG. The California Energy Commission has therefore requested inter-agency consultation with the U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Game (CDFG) in order to attempt to develop a landscape plan that will be compatible with the conservation and recovery of the endangered San Joaquin Kit Fox, while addressing adverse and significant visual impacts of the proposed project.

OBJECTIVES OF THE TPP LANDSCAPE PLAN

- The landscape plan for TPP shall provide visual screening or enhancements to reduce significant direct and cumulative visual impacts of the power plant in combination with existing energy related infrastructure in the area and in order to maintain consistency with the Alameda County General Plan policies requiring landscaping in rural areas to enhance the scenic quality and minimize visual impacts of development.
- The landscape plan shall be compatible with the conservation and recovery of the San Joaquin Kit Fox (kit fox) and its habitat in the area. Planted vegetation shall not provide good nesting or perching opportunities for large raptors, nor provide ground cover for red fox or coyotes, both of which are predators and competitors of the San Joaquin kit fox. The intent of the guidelines is to minimize the number of acres of habitat impacted.

GUIDELINES FOR THE TPP LANDSCAPE PLAN

- Landscape Materials: Due to the concern about preservation of San Joaquin Kit Fox habitat and need to avoid creation of predator habitat, landscape materials will consist of small trees or larger shrubs that can be maintained in a small tree form. Lower branches will be pruned to eliminate ground level cover for predators. Trees that provide good perching opportunities for raptors will be avoided. A list of suggested large shrubs is attached. To the extent practical California native plants should be used. Plants found on the California Exotic Plant Pest Council lists A, B or Red Alert List should be

avoided. Plant species installed along Patterson Run Creek shall be native to the creek area.

- Placement of Landscaping: Landscaping shall only be located near the roadway in areas where traffic will tend to discourage predators and kit fox will not be as likely to frequent. The landscaping should not prevent kit fox from clearly seeing the road and approaching traffic to minimize the risk of road kill. Landscaping shall be placed no closer than 10 feet from the edge of the Midway Road right of way.
- Installation and Maintenance: The landscape plan shall be installed and maintained in a manner that will ensure the survival of the selected plant materials. It is recommended that an expert in habitat restoration and installation of drought tolerant/California native plant materials be consulted in the development of the landscape plan and irrigation system. Vegetation shall be maintained for the life of the project, including pruning to prevent growth of low cover for predators and replacement of plants that do not thrive.
- Letters of Agreement: Project Owner shall provide letters of agreement from property owners/managers for any landscaping that requires easements on properties not under the Project Owner's control. This will affect the Alameda County Transportation Corridor in the vicinity of KOPs 1and 7.

KOPS 1 AND 7.

Objective: To reduce the project's direct impacts and contribution to cumulative visual impacts by completely screening the cooling tower and reducing the visual effect of the HRSG units for southbound travelers on Midway Road, northeast of the Project site.

Landscaping shall be placed at the northeast corner of the site on a berm sufficiently tall to elevate the landscaping area above the roadway elevation in order to achieve substantial screening within 5 years. The Project Owner shall determine the optimum elevation of the berm needed in order to make the landscaping effective in completely screening the cooling tower and substantially screening the HRSG stacks, assuming a 20-foot tall tree. The berm should be a maximum of approximately 200 feet long and be placed on the south side of the embankment of the former Central Pacific Railroad, and will be partially within the Alameda County Transportation Corridor. The berm shall be contoured to appear as natural as possible and the sides shall be vegetated with grasses and wildflowers native to the area. Any impact to the embankment or roadbed of the former railroad should be avoided.

Landscaping with large shrubs/small trees a minimum of 20 feet in height shall be placed on the north side of the railroad embankment, next to the road but no less than 10 feet outside of the Midway Road Right of Way to block motorists' view of the cooling tower and substantially screen the HRSG stacks.

KOP 2.

Objective: To reduce the project's contribution to cumulative impacts by reducing the visual impact of the power plant for northbound travelers along Midway Road in the vicinity of Patterson Run Creek and the power plant entrance road. Restoration planting (using plant species native to the site) shall be placed in Patterson Run Creek on TPP controlled property, in consultation with the wildlife resource agencies. The landscaping should substantially screen the power plant structures, including the HRSG stacks.

Place landscaping north and south of the Power Plant entrance road (to the extent allowed by safety considerations for vehicle sight distance) along Midway Road but no less than 10 feet outside of the Midway Road Right of Way. Landscaping shall be placed on berms sufficiently tall in order to elevate the vegetation to achieve substantial screening of the HRSG units within 5 years. The berms shall be contoured to appear as natural as possible and the sides shall be vegetated with grasses and wildflowers native to the area. The berms and landscaping should be constructed so as to maintain safe sight distance for vehicular traffic on Midway Road. Landscaping shall consist of clusters of large shrubs (minimum 20 feet tall) that will be placed to interrupt (break up) sight lines from the area of KOP 2 to the power plant.

Landscape clusters of sufficient width and length are to be placed between the entry gate and Patterson Run Creek (a distance of approximately 600 feet) at intervals sufficient to substantially screen the HRSGs along Midway Road.

On the north side of the entry gate, the landscape berm is to roughly follow the 350-foot contour at the base of the hill. Clusters of shrubs and/or small trees shall be of sufficient width and length spacing to achieve the desired screening.

Appendix A

LORS: Laws, Ordinances, Regulations, and Standards

AIR QUALITY

FEDERAL

The federal Clean Air Act requires any new major stationary sources of air pollution and any major modifications to existing major stationary sources to obtain a construction permit before commencing construction. This process is known as New Source Review (NSR). Its requirements differ depending on the attainment status of the area where the major facility is to be located. Prevention of Significant Deterioration (PSD) requirements apply in areas that are in attainment of the national ambient air quality standards. The Nonattainment NSR requirements apply to areas that have not been able to demonstrate compliance with national ambient air quality standards. The entire program, including both PSD and Nonattainment NSR permit reviews, is referred to as the federal NSR program.

Title V of the federal Clean Air Act requires states to implement and administer an operating permit program to ensure that large sources operate in compliance with the requirements included in the Code of Federal Regulations, Title 40, Part 70 (40 CFR 70). A Title V permit contains all of the requirements specified in different air quality regulations that affect an individual project.

Title IV of the federal Clean Air Act requires implementation of an acid rain permit program (40 CFR 72). These regulations require subject facilities to obtain emission allowances for SOx emissions.

The U.S. Environmental Protection Agency (EPA) continually reviews and evaluates the Bay Area Air Quality Management District's regulations for consistency with these federal permitting programs. The U.S. EPA recently withdrew its delegation of the PSD program in a letter dated February 28, 2003 because of revised federal PSD requirements promulgated December 31, 2002 (67 FR 80186). This action suspends BAAQMD implementation of PSD until the BAAQMD can revise its rules to conform with the federal requirements, which were revised to allow more flexibility to regulated sources undergoing modifications. The U.S. EPA has delegated to the BAAQMD the implementation of the Nonattainment NSR, Title V, and Title IV programs. The BAAQMD implements these programs through its own rules and regulations (Regulation 2, Permits), which are, at a minimum, as stringent as the federal regulations.

The TPP is also subject to the federal New Source Performance Standards (NSPS of 40 CFR 60). Enforcement of NSPS has been delegated to the BAAQMD (Regulation 10, Standards of Performance for New Stationary Sources). The proposed combined cycle power plant must comply with the requirements of NSPS Subparts Da and GG. BAAQMD emission limitations or Best Available Control Technology (BACT) requirements are, however, more restrictive than the NSPS requirements, as will be discussed below. The federal

NSPS allowable emissions concentration for NOx is 75 ppmvd @ 15% O_2, and the NSPS requirement for SO_2 emissions concentration is 150 ppm @ 15% O_2.

STATE

California State 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 cause injury, detriment, nuisance, or annoyance to any considerate 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."

State Oversight of Air Pollutant Transport

As the oversight agency for state-wide air quality management, the California Air Resources Board (CARB) is required to assess the relative contributions of upwind emissions to violations that occur in downwind air basins. Much of this effort is focused on interregional ozone problems in the state. Transport of pollutants other than ozone and ozone precursors is less-well understood, and although CARB has the authority to manage interregional transport of particulate matter, responding to particulate matter violations is almost entirely a responsibility of the local air district. State oversight of pollutant transport is important to air quality management because the routine permitting requirements of each local air pollution control districts do not consider transport across basin boundaries (BAAQMD 2003b).

CARB has found that pollutants originating in the San Francisco Bay Area impact ozone concentrations in the San Joaquin Valley (or Central Valley) area, the broader Sacramento area, and more distant coastal and Sierra mountain areas (Title 17 of the California Code of Regulations, Section 70500). The degree of impact from transported pollutants is broken down into day-specific categorizations of overwhelming, significant, or inconsequential. The impact of pollutants generated in the Bay Area varies from day-to-day among these categories (CARB 2001). On some days, Bay Area pollution is inconsequential to ozone problems in the San Joaquin Valley while on other days, the impact may be significant or overwhelming. The TPP site is within one mile of the jurisdiction of the San Joaquin Valley Air Pollution Control District.

To reduce impacts caused by the upwind emissions, CARB specifies regionwide mitigation strategies that must be implemented in the San Francisco Bay Area (Section 70600). Presently, the Bay Area is only required to provide mitigation for the small area of the San Joaquin Valley that is within Stanislaus County west of State Highway 33 (Section 70600(b)(2)), about 15 miles southeast of the TPP site. No specific strategies apply to the TPP area.

CARB is required triennially to update the assessment of ozone transport and review the efficacy of the prescriptive mitigation strategies. The most recent

update was proposed March 2002, again with no specific strategies for the TPP area. Ongoing and future discussions with stakeholders in the Bay Area, the San Joaquin Valley, and the Sacramento region will address broader mitigation options that could include:

(1) requiring upwind transport districts to adopt all feasible measures to mitigate air pollution impacts downwind;

(2) implementing improved Smog Check vehicle emission testing in the San Francisco Bay Area;

(3) making new source review thresholds equal in cases where the downwind area has a more severe classification than the upwind area; and

(4) establishing a mitigation fee bank to fund emission reduction measures in downwind districts.

Source: CARB 2002b.

LOCAL – BAAQMD

As part of the Energy Commission's licensing process, in lieu of issuing a construction permit to the applicant for the TPP, the BAAQMD prepared a Final Determination of Compliance (FDOC, BAAQMD 2003a). The FDOC evaluates whether and under what conditions the proposed project will comply with the applicable rules and regulations, as described below. The review conducted by the BAAQMD for the FDOC is conducted in a manner that is equivalent to that for an authority to construct. The BAAQMD will issue Authorities to Construct after successful completion of the Energy Commission's licensing process.

The project is subject to the specific BAAQMD rules and regulations that are briefly described below:

REGULATION 2 – PERMITS

Reg. 2 Rule 1 - General Requirements

This rule contains general requirements, definitions, and a requirement that an applicant submit an application for an authority to construct and permit to operate.

Reg. 2 Rule 2 - New Source Review

This rule applies to all new and modified sources.

Section 2-2-301 - Best Available Control Technology (BACT) Requirement. This rule requires that BACT be applied for each pollutant which is emitted in excess of 10.0 pounds per day.

Section 2-2-302 - Offset Requirement, Precursor Organic Compounds and Nitrogen Oxides. This section applies to projects with an emissions increase of

50 tons per year or more of organic compounds and/or NOx. Offsets shall be provided at a ratio of 1.15 tons of emission reduction credits for each 1.0 ton of proposed project permitted emissions.

Section 2-2-303 - Offset Requirements, Particulate Matter (TSP), PM_{10} and Sulfur Dioxide. If a Major Facility (a project that emits any pollutant greater than 100 tons per year) has a cumulative increase of 1.0 ton per year of PM_{10} or SO_2, emission offsets must be provided for the entire cumulative increase at a ratio of 1.0:1.0. Emission reductions of nitrogen oxides and/or sulfur dioxide may be used to offset increased emissions of PM_{10} at offset ratios deemed appropriate by the Air Pollution Control Officer. A facility that emits less than 100 tons of any pollutant may voluntarily provide emission offsets for all, or any portion, of their PM_{10} or sulfur dioxide emissions increase at the offset ratio required above (1.0:1.0).

Section 2-2-304 - PSD Requirements. A new major facility or a major modification of a major facility must not interfere with maintenance or attainment of ambient air quality standards for nitrogen dioxide, sulfur dioxide, PM_{10} or carbon monoxide. As of February 28, 2003, the U.S. EPA will implement the federal version of this rule (40 CFR 52). The BAAQMD may eventually resume implementation of this rule after it is revised to conform with the recent changes in the federal requirements.

Section 2-2-606 - Emission Calculation Procedures, Offsets. This section requires that emission offsets must be provided from the District's Emissions Bank, and/or from contemporaneous actual emission reductions.

Reg. 2 Rule 7 - Acid Rain

This rule applies the requirements of Title IV of the federal Clean Air Act, which are spelled out in 40 CFR 72. The provisions will apply when EPA approves the District's Title IV program, which has not been approved at this time. The Title IV requirements will include the installation of continuous emission monitors to monitor acid deposition precursor pollutants.

REGULATION 6 – PARTICULATE MATTER AND VISIBLE EMISSIONS

The purpose of this regulation is to limit the quantity of particulate matter in the atmosphere. The following two sections of Regulation 6 are directly applicable to this project:

Section 6-301 - Ringelmann No. 1 Limitation. This rule limits visible emissions to no darker than Ringelmann No. 1 for periods greater than three minutes in any hour.

Section 6-310 - Particulate Weight Limitation. This rule limits source particulate matter emissions to no greater than 0.15 grains per standard dry cubic foot.

REGULATION 9 – INORGANIC GASEOUS POLLUTANTS

Reg. 9 Rule 1 - Limitations

Section 9-1-301 - Limitations on Ground Level Sulfur Dioxide Concentration. This section requires that emissions of sulfur dioxide shall not impact at ground level in excess of 0.5 ppm for 3 consecutive minutes, or 0.25 ppm averaged over 60 minutes, or 0.05 ppm averaged over 24 hours.

Section 9-1-302 - General Emission Limitation. This rule limits the sulfur dioxide concentration from an exhaust stack to no greater than 300 ppm dry.

Reg. 9 Rule 8 - Nitrogen Oxides From Stationary Internal Combustion Engines

This rule limits emissions from internal combustion engines; however, engines rated at or below 1,000 brake-horsepower or which operate less than 200 hours per year are exempt.

Reg. 9 Rule 9 - Nitrogen Oxides From Stationary Gas Turbines

This rule limits gaseous fired, SCR equipped, combustion turbines rated greater than 10 MW to 9 ppm NOx @15%O_2.

REGULATION 10 – STANDARDS OF PERFORMANCE FOR NEW SOURCES

Reg. 10 Rule 26 - Gas Turbines

This rule adopts the national maximum emission limits (40 CFR 60) which are 75 ppm NOx and 150 ppm SO_2 at 15 percent O_2. Whenever any source is subject to more than one emission limitation rule, regulation, provision or requirement relating to the control of any air contaminant, the most stringent limitation applies.

For example, Section 5.2.3.1 of the AFC indicates that the combustion turbines and heat recovery steam generators would achieve a three-hour rolling average NOx emission level of 2 parts per million by volume dry (ppmvd) at 15 percent excess oxygen (ppmvd @ 15% O_2) using BACT. This is significantly less than the federal NSPS allowable limit. The NSPS requirements will similarly be achieved by using BACT.

LOCAL – SJVAPCD

Along with BAAQMD rules and regulations applicable to the project, certain project-related construction activities will occur in San Joaquin County. Emissions from these activities would be within the jurisdiction of the SJVAPCD. The rules for fugitive dust control in the SJVAPCD (Regulation VIII) are more stringent than those in the BAAQMD. There are no BAAQMD or SJVAPCD rules or regulations that would restrict air pollution transport from the power plant site,

which is in the jurisdiction of the BAAQMD. The specific SJVAPCD rules and regulations for construction are described below.

SJVAPCD REGULATION IV – PROHIBITIONS

Rule 4101 - Visible Emissions

This rule contains general requirements limiting visible emissions to no darker than Ringelmann No. 1 for periods greater than three minutes in any hour.

SJVAPCD REGULATION VIII – FUGITIVE PM_{10} PROHIBITIONS

Rule 8011 - General Requirements

Rule 8011 defines the types of chemical stabilizing agents and dust suppressant materials that can (and cannot) be used to minimize fugitive dust and specifies test methods and recordkeeping requirements for the rules under Regulation VIII.

Rule 8021 - Construction, Demolition, Excavation, And Extraction And Other Earthmoving Activities

Rule 8021 requires that fugitive dust emissions during construction activities be limited to no greater than 20 percent opacity by means of water application or chemical dust suppressants. The rule also requires temporarily stabilizing areas of inactivity and encourages the use of paved access aprons, gravel strips, wheel washers.

Rule 8031 - Bulk Materials

Rule 8031 limits the fugitive dust emissions from the handling and storage of materials. It specifies that bulk materials be transported using wetting agents, allow appropriate freeboard space in the vehicles, or be covered. It also requires that stored materials be covered or stabilized.

Rule 8041 - Carryout and Trackout

Rule 8041 requires use of measures sweep paved areas and to limit mud or dirt carry-out onto paved public roads.

Rule 8061 - Paved And Unpaved Roads

Rule 8061 specifies the width of paved shoulders on paved roads and the use of dust suppressants on unpaved roadways, shoulders and medians.

Rule 8071 - Unpaved Vehicle/Equipment Areas

Rule 8071 is intended to limit fugitive dust from unpaved equipment areas larger than one-acre by means of dust suppressants or paving. It also requires restricting access and periodically stabilizing areas that are inactive for more than seven consecutive days.

ALTERNATIVES

CALIFORNIA ENVIRONMENTAL QUALITY ACT

The “Guidelines for Implementation of the California Environmental Quality Act,” Title 14, California Code of Regulation §15126.6(a), provide direction by requiring 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 (CEQA) states that an environmental document does not have to consider an alternative of which the effect cannot be reasonably ascertained and of which the implementation is remote and speculative [Cal. Code Regs., tit. 14, §§15126.6(c) and (f)]. 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

Endangered Species Act of 1973

Title 16, United States Code, Section 1531 et seq., and Title 50, Code of Federal Regulations, part 17.1 et seq., designate and provide for protection of threatened and endangered plant and animal species, and their critical habitat. Section 7 requires a permit from the U.S. Fish and Wildlife Service (USFWS) if "incidental take" may result during lawful project activities. If no federal nexus exists for a project, a Section 10, Habitat Conservation Plan (HCP) may be required.

Migratory Bird Treaty Act

Title 16, United States Code, Sections 703 through 711, prohibits the take or possession of migratory birds, parts, or nests without a permit issued by the USFWS and California Department of Fish and Game (CDFG).

Bald and Golden Eagle Protection Act

Title 16, United States Code, Section 668, prohibits the take or possession of eagles, parts, or nests without a permit issued by the USFWS.

Clean Water Act of 1977

Title 33, United States Code (Sections 1251–1376) and Code of Federal Regulations, part 30, section 330.5(a)(26). The Act requires the permitting and monitoring of all discharges to surface water bodies. Section 404 permits from the U.S. Army Corps of Engineers are issued for discharges from dredged or fill materials into waters of the U.S., including wetlands, and Section 401 permits are issued by the state's water quality control boards for the discharge of pollutants.

STATE

California Endangered Species Act of 1984

Fish and Game Code Sections 2050 through 2098 protect California's rare, threatened, and endangered species.

California Code of Regulations

Title 14, California Code of Regulations, Sections 670.2 and 670.5, lists animals of California designated as threatened or endangered. The CEQA Guidelines Section 15000 et seq. defines the type and extent of biological information needed to evaluate impacts from a proposed project.

Title 20, California Code of Regulations, Section 1702 protects "areas of critical concern" and "species of special concern".

Protection for Migratory Birds

Fish and Game Code Section 3513 protects California's migratory birds by making it unlawful to take or possess any migratory nongame bird as designated in the Migratory Bird Treaty Act or any part of such migratory nongame bird.

Protection for Fully Protected Species

Fish and Game Code (Sections 3511, 4700, 5050, and 5515) designates certain species as fully protected and prohibits the take of such species or their habitat unless for scientific purposes (see also California Code of Regulations Title 14, Division 1, Subdivision 3, Chapter 3, section 670.7).

Protection of Nest or Eggs

Fish and Game Code Section 3503 protects California's birds by making it unlawful to take, possess, or needlessly destroy the nest or eggs of any bird.

Protection of Significant Natural Areas

Fish and Game Code Section 1930 et seq. designates certain areas such as refuges, natural sloughs, riparian areas, and vernal pools as significant wildlife habitat.

Fish and Game Code Section 1580 designates land and water areas as significant wildlife habitats so they can be preserved in natural condition for low impact public use.

Streambed Alteration Agreement

Fish and Game Code Section 1600 reviews project impacts to waterways, including impacts to vegetation and wildlife from sediment, diversions and other disturbances.

Native Plant Protection Act of 1977

Fish and Game Code Section 1900 et seq. designates state rare, threatened, and endangered plants.

Delta Protection Act of 1992

Sections 29700 –29712 legislate protection for the Sacramento-San Joaquin Delta and its natural resources including wildlife, fish, and the habitats on which they depend. Section 29760 specifies the adoption of comprehensive, long-term resource management plan, which includes requirements for the conservation, preservation, and restoration of Delta wildlife, fisheries, and habitats.

LOCAL

Alameda County East County Area Plan (1994)

- Policy 113 requires landscaping which enhances the scenic quality of an area. Criteria for landscaping includes: use of drought resistant plants, use of plants compatible with the surrounding vegetation, use of plants which

provide habitat value, use of plants which are fire retardant, and suitable to site conditions.

- Program 51 provides a list of extremely invasive non-native plants that are not suitable for landscaping.
- Policy 118 states that the county will secure open space, through acquisition of easements or fee title, for the specific purpose of preserving wildlife habitats.
- Policies 119-120 encourage preservation and enhancement of biological diversity and provide specific attention to management of special status species.

CULTURAL RESOURCES

FEDERAL

Code of Federal Regulations, 36 CFR Part 61. Federal Guidelines for Historic Preservation Projects: The U.S. Secretary of the Interior has published a set of Standards and Guidelines for Archaeology and Historic Preservation. These are considered to be the appropriate professional methods and techniques for the preservation of archaeological and historic properties. The Secretary's standards and guidelines are used by federal agencies, such as the Forest Service, the Bureau of Land Management, and the National Park Service. The State Historic Preservation Office refers to these standards in its requirements for mitigation of impacts to cultural resources on public lands in California.

National Historic Preservation Act, 16 U.S.C. § 470, commonly referred to as Section 106, requires federal agencies to take into account the effects of their undertakings on historic properties through consultations beginning at the early stages of project planning. Regulation revised in December 2000 (36 CFR Part 800 et. Seq.) set forth procedures to be followed for determining eligibility of cultural resources, determining the effect of the undertaking on the historic properties, and how the effect would be taken into account. The eligibility criteria and the process are used by federal agencies. Very similar criteria and procedures are used by the state in identifying cultural resources eligible for listing in the California Register of Historical Resources (CRHR).

STATE

California Code of Regulations, Title 14, section 4852 defines the term "cultural resource" to include buildings, sites, structures, objects, and historic districts.

Public Resources Code, Section 5000 establishes a California Register of Historic Places; determines significance of and defines eligible resources. It identifies any unauthorized removal or destruction of historic resources on sites located on public land as a misdemeanor. It also prohibits obtaining or possessing Native American artifacts or human remains taken from a grave or cairn and establishes the penalty for possession of such artifacts with intent to sell or vandalize them as a felony. This section defines procedures for the notification of discovery of Native American artifacts or remains, and states that it is the policy of the state that Native American remains and associated grave artifacts shall be repatriated.

The California Environmental Quality Act (CEQA) (Public Resources Code, section 21000 et seq.; Title 14, California Code of Regulations, section 15000 et seq.) requires state agencies to analyze potential environmental impacts of proposed projects and requires application of feasible mitigation measures and consideration of alternatives.

Public Resources Code section 21083.2 states that the lead agency determines whether a project may have a significant effect on "unique" archaeological

resources; if so, an EIR shall address these 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, mitigation measures shall be required as prescribed in this section. The section discusses excavation as mitigation; limits the Applicant's cost of mitigation; sets time frames for excavation; defines "unique and non-unique archaeological resources;" and provides for mitigation of unexpected resources.

Public Resources Code section 21084.1 indicates that a project may have a significant effect on the environment if it causes a substantial adverse change in the significance of a historic resource; the section further defines a "historic resource" and describes what constitutes a "significant" historic resource.

CEQA Guidelines, Title 14, California Code of Regulations, section 15126.4(b), 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 discusses mitigation through avoidance of damaging effects on any historical resource 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.

CEQA Guidelines, section 15064.5 defines the term "historical resources," explains when a project may have a significant effect on historic resources, describes CEQA's applicability to archaeological sites, and specifies the relationship between "historical resources" and "unique archaeological resources."

Penal Code, section 622 1/2 states that anyone who willfully damages an object or thing of archaeological or historic interest is guilty of a misdemeanor.

California Health and Safety Code, section 7050.5 states that if human remains are discovered during construction, the project owner is required to contact the county coroner.

LOCAL

Although the Energy Commission has pre-emptive authority over local laws, it typically ensures compliance with local laws, ordinances, regulation, standards, plans, and policies.

Alameda County

The East County General Plan portion of the Alameda County General Plan lists two policies that apply to cultural resources. Policy 127 states that the County will identify and preserve significant archaeological and historical resources, including structures and sites which contribute to the heritage of the East County. Policy 128 states that the County shall require development to be designed to avoid cultural resources or, if avoidance is determined by the County to be infeasible, to include the implementation of appropriate mitigation measures to offset the impacts.

FACILITIES DESIGN

Lists of LORS applicable to each engineering discipline (civil, structural, mechanical and electrical) are described in the AFC (FPL Energy tn:22643, Table 6.1-1 and Appendices A through E). Some of these LORS include: California Building Code (CBC), American National Standards Institute (ANSI), American Society of Mechanical Engineers (ASME), American Society for Testing and Materials (ASTM) and American Welding Society (AWS).

GEOLOGY, MINERAL RESOURCES, AND PALEONTOLOGY

FEDERAL

There are no federal LORS for geologic hazards and resources or grading for the proposed project. The Federal Antiquities Act of 1906 (L 59-209; 16 United States Code 431 *et seq.*; 34 Stat. 25), in part, protects paleontologic resources from vandalism and unauthorized collection on federal land. The National Environmental Policy Act (NEPA) of 1969 (United States Code, section 4321 et seq.; 40 Code of Federal Regulations, section 1502.25), as amended, requires analysis of potential environmental impacts to important historic, cultural, and natural aspects of our national heritage. Since the project does not use federal funding or require federal permits, NEPA does not apply.

STATE AND LOCAL

The *California Building Code* (*CBC*), 1998 edition, is based upon the *Uniform Building Code* (*UBC*), 1997 edition, which was published by the International Conference of Building Officials. The *CBC* is a series of standards that are used in the investigation, design (Chapters 16 and 18) and construction (including grading and erosion control as found in Appendix Chapter 33). The *CBC* supplements the *UBC*'s grading and construction ordinances and regulations.

The California Environmental Quality Act Guidelines Appendix G provides a checklist of questions that a lead agency should normally address if relevant to a project's environmental impacts.

- Section (V) (c) asks if the project will directly or indirectly destroy a unique paleontological resource or site or unique geological feature.
- Sections (VI) (a), (b), (c), (d), and (e) pose questions that are focused on whether or not the project would expose persons or structures to geologic hazards.
- Sections (X) (a) and (b) pose questions about the project's effect on mineral resources.

The "Measures for Assessment and Mitigation of Adverse Impacts to Non-renewable Paleontologic Resources: Standard Procedures" (Society of Vertebrate Paleontologists [SVP], 1995) is a set of procedures and standards for assessing and mitigating impacts to vertebrate paleontological resources. They were adopted in October 1995 by the SVP, a national organization.

HAZARDOUS MATERIALS MANAGEMENT

FEDERAL

The Superfund Amendments and Reauthorization Act of 1986 (Pub. L. 99-499, §301,100 Stat. 1614 [1986]), also known as SARA Title III, contains the Emergency Planning and Community Right To Know Act (EPCRA) as codified in 42 U.S.C. §11001 et seq. This Act requires that certain information about any release to the air, soil, or water of an extremely hazardous material must be reported to state and local agencies.

The Clean Air Act (CAA) of 1990 (42 U.S.C. §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 - codified in 42 U.S.C. §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 the CAA are reflected in the California Health and Safety Code, section 25531 et seq.

STATE

The California Accidental Release Prevention Program (Cal-ARP) - 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 program supersedes the California Risk Management and Prevention Plan.

Section 25503.5 of the California Health and Safety Code requires facilities which store or use hazardous materials to prepare and file a Business Plan with the local Certified Unified Program Authority (CUPA), in this case the Alameda County Environmental Heath Department. This Business Plan is required to contain information on the business activity, the owner, a hazardous materials inventory, facility maps, an Emergency Response Contingency Plan, an Employee Training Plan, and other recordkeeping forms.

Title 8, California Code of Regulations, section 5189, requires facility owners to develop and implement effective safety management plans to ensure that large quantities of hazardous materials are handled safely. While such requirements

primarily provide for the protection of workers, they also indirectly improve public safety and are coordinated with the RCPP process.

Title 8, California Code of Regulations, Section 458 and Sections 500 - 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 ASME Pressure Vessel Code, ANSI K61.1 and the National Boiler and Pressure Vessel Inspection Code. These codes apply to anhydrous ammonia but are also used to design storage facilities for aqueous ammonia.

California Health and Safety Code, section 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."

Gas Pipeline

The safety requirements for pipeline construction vary according to the population density and land use, which characterize the surrounding land. The pipeline classes are defined as follows (Title 49, Code of Federal Regulations, Part 192):

- Class 1: Pipelines in locations within 220 yards of ten or fewer buildings intended for human occupancy in any 1-mile segment.
- Class 2: Pipelines in locations within 220 yards of more than ten but fewer than 46 buildings intended for human occupancy in any 1-mile segment. This class also includes drainage ditches of public roads and railroad crossings.
- Class 3: Pipelines in locations within 220 yards of more than 46 buildings intended for human occupancy in any 1-mile segment, or where the pipeline is within 100 yards of any building or small well-defined outside area occupied by 20 or more people on at least 5 days a week for 10 weeks in any 12 month period (the days and weeks need not be consecutive).
- Class 4: Pipelines in locations within 220 yards of building s with 4 or more stories above ground in any 1-mile segment.

The natural gas pipeline will be designed for Class 3 service and will meet California Public Utilities Commission General Order 112-E and 58-A standards as well as various PG&E standards. CPUC General Order 112-E, Section 125.1 requires that at least 30 days prior to the construction of a new pipeline, the owner must file a report with the commission that will include a route map for the pipeline. The natural gas pipeline must be constructed and operated in accordance with the Federal Department of Transportation (DOT) regulations, Title 49, Code of Federal Regulations (CFR), Parts 190, 191, and 192:

- Title 49, Code of Federal Regulations, Part 190 outlines the pipeline safety program procedures;
- Title 49, Code of Federal Regulations, Part 191, Transportation of Natural and Other Gas by Pipeline; Annual Reports, Incident Reports, and Safety-Related Condition Reports, requires operators of pipeline systems to notify the U.S. Department of Transportation of any reportable incident by telephone and then submit a written report within 30 days;
- Title 49, Code of Federal Regulations, Part 192, Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards, specifies minimum safety requirements for pipelines and includes material selection, design requirements, and corrosion protection. The safety requirements for pipeline construction vary according to the population density and land use, which characterize the surrounding land. This part contains regulations governing pipeline construction, which must be, followed for Class 2 and Class 3 pipelines.

LOCAL AND REGIONAL

The Uniform Fire Code (UFC) contains provisions regarding the storage and handling of hazardous materials in Articles 79 and 80. The latest revision to Article 80 was in 1997 (Uniform Fire Code, 1997) and includes minimum setback requirements for outdoor storage of ammonia.

If not for Energy Commission jurisdiction, the Alameda County Environmental Health Department would be the issuing agency for the Consolidated Hazardous Materials Permit. The permit review and mitigation authority covers hazardous materials, hazardous waste, compressed gases and tiered treatment, the Hazardous Materials Business Plan, and the Risk Management Plan for aqueous ammonia. In regards to seismic safety issues, the site is located in Seismic Risk Zone *3*. Construction and design of buildings and vessels storing hazardous materials must conform to the 1997 Uniform Building Code, the 1998 California Building Code, and the Alameda County Building Code.

LAND USE

FEDERAL

There are no applicable federal land use LORS for the project.

STATE

Subdivision Map Act (Pub. Resources Code § 66410-66499.58)

The Subdivision Map Act provides procedures and requirements regulating land divisions (subdivisions) and the determination of parcel legality. Regulation and control of the design and improvement of subdivisions, by this Act, has been vested in the legislative bodies of local government. A designated local government agency, by ordinance, regulates and controls the initial design and improvement of common interest developments and subdivisions for which the Map Act requires a tentative and final map.

California Land Conservation Act (Gov. Code § 51200-51297.4)

The California Land Conservation Act, commonly referred to as the Williamson Act, enables local governments to enter into contracts with private landowners for the purpose of restricting specific parcels of land to agricultural or related open space uses. The landowner commits the parcel to an annually renewing ten-year period wherein no conversion out of agricultural use is permitted. In return, the land is taxed at a rate based on the actual use of the land for agricultural purposes, as opposed to its unrestricted market value. Participation in the Williamson Act program is dependent on county adoption and implementation of the program. Property owner participation in the program is voluntary. The proposed project site is under a Williamson Act contract.

Section 51282 addresses Williamson Act contract cancellation procedures. In order for a contract to be cancelled, the local elected officials (e.g. a City Council or a County Board of Supervisors) need to make a series of findings and approve the cancellation.

LOCAL

County of Alameda

Alameda County General Plan

Under California State planning law, each incorporated City and County must adopt a comprehensive, long-term General Plan that governs the physical development of all lands under its jurisdiction. The general plan is a broadly scoped planning document and defines large-scale planned development patterns over a relatively long timeframe.

The General Plan consists of a statement of development policies and must include a diagram and text setting forth the objectives, principles, standards and

proposals of the document. At a minimum, a General Plan has seven mandatory elements including Land Use; Circulation; Housing; Conservation; Open Space; Noise and Safety.

Alameda County administers the State required general plan as a group of documents organized by geographic areas and subject matter (Government Code, § 65301).

East County Area Plan

The East County Area Plan (ECAP) is a portion of the Alameda County General Plan. The ECAP was adopted by the Alameda County Board of Supervisors on May 5, 1994 and corrected March 1996 (**FIGURE 1** – ECAP General Plan Diagram). The ECAP provides goals, policies and programs for the physical development for the area designated by the Plan as eastern Alameda County. The Plan addresses specific issues that affect both unincorporated and incorporated areas, but have legal regulatory effect only within currently unincorporated areas. The proposed project site is located within the ECAP area. As a result of the passage of a local initiative, Measure D (summarized below), in November 2000, the ECAP was revised in 2001. Specific ECAP policies applicable to the TPP are listed below.

- Policy 1 directs the County to identify and maintain an Urban Growth Boundary that defines areas suitable for urban development. A related item, Policy 17, restricts the County from approving urban development if it is located outside the Boundary;
- Policy 13 restricts the County from authorizing public facilities or other infrastructure in excess of that needed for development consistent with the agricultural land preservation goals embodied in Measure D. Infrastructure needed to create adequate service for the East County is acceptable;
- Policy 54 limits the County to approving only open space, park, recreation, agricultural, limited infrastructure, public facilities (e.g. limited infrastructure, hospitals, research facilities, landfill sites, jails, etc.) and other similar and compatible uses outside the Urban Growth Boundary;
- Policy 58 states that the County shall require all new developments, to dedicate or acquire land for open space and/or pay equivalent in-lieu fees which shall be committed to open space land acquisition and management;
- Policy 81 directs the County to give highest priority in areas designated “Large Parcel Agriculture” to agriculture operations;
- Policy 82 restates the concept that areas designated “Large Parcel Agriculture” include agricultural processing facilities and other uses that primarily support the area’s agricultural production;
- Policy 86 states that “the County shall not approve cancellation of Williamson Act contracts within or outside the County Urban Growth Boundary except where findings can be made in accordance with state law, and the

cancellation is consistent with the Initiative. In no case shall contracts outside the Urban Growth Boundary be cancelled for purposes inconsistent with agricultural or public facility uses."

Alameda County Measure D – Save Agriculture and Open Space Initiative
Alameda County residents approved "Measure D" on November 7, 2000, as a measure to restrict urban development and protect agricultural and open space lands. Measure D modifies the East County Area Plan (ECAP) portion of the Alameda County General Plan. The measure establishes a County Urban Growth Boundary, to focus urban-type development in and near existing cities where it will be efficiently served by public facilities, thereby avoiding high costs to taxpayers and users as well as to the environment. The ordinance is designed to restrict the County government from approving urban development outside the Growth Boundary.

Measure D redefined the "Large Parcel Agriculture" description for the ECAP from that which was originally adopted by the County Board of Supervisors in 1994. It now requires a 100 acre minimum parcel size. The measure also re-designated areas zoned as "Urban Reserve" in the ECAP to "Large Parcel Agriculture".

Alameda County Zoning Code
The Alameda County Zoning Ordinance (Title 17 of the Alameda County General Code) establishes land use (zone) districts in the unincorporated area. In each specific land use district: land uses, dimensions for buildings, and open spaces are regulated for the purpose of implementing the general plan of the county, protecting existing development, encouraging beneficial new development, and preventing overcrowding and congestion.

The proposed project site is within an "A" (Agricultural) District (County of Alameda, 2001). Agricultural districts or A districts are established to promote agricultural and other non-urban uses, to conserve and protect existing agricultural uses, and to provide space for and encourage such uses in places where more intensive development is not desirable or necessary for the general welfare (County Zoning Ordinance, Section 17.06.010). Public utility building or uses, excluding such uses as a business office, storage garage, repair shop or corporation yard, would require a conditional use permit (Item J, County Zoning Ordinance Section 17.06.060).

County of San Joaquin

San Joaquin County General Plan
The San Joaquin County Board of Supervisors adopted the San Joaquin County General Plan on July 29, 1992. The County General Plan expresses long-range public policy to guide the use of private and public lands within the unincorporated areas of the County. The General Plan is the County's official

position on development and resource management. The Plan contains goals, objectives, policies, diagrams, and actions.

San Joaquin County Development Title

The San Joaquin County Development Title (Title 9 of the San Joaquin County General Code) was adopted on July 29, 1992. The Development Title implements the County's General Plan. It contains specific information on zoning and development application requirements, as well as standards and regulations relating to such issues as infrastructure, natural resources, signs, setbacks, lot and yard requirements and use types.

NOISE AND VIBRATION

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 to 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 land use compatibility guidelines are listed in **NOISE: Table 1**.

NOISE: Table 1 - Land Use Compatibility for Community Noise Environment

LAND USE CATEGORY	COMMUNITY NOISE EXPOSURE – Ldn or CNEL (dB)													
	50		55		60		65		70		75		80	
Residential - Low Density Single Family, Duplex, Mobile Home														
Residential - Multi-Family														
Transient Lodging – Motel, Hotel														
Schools, Libraries, Churches, Hospitals, Nursing Homes														
Auditorium, Concert Hall, Amphitheaters														
Sports Arena, Outdoor Spectator Sports														
Playgrounds, Neighborhood Parks														
Golf Courses, Riding Stables, Water Recreation, Cemeteries														
Office Buildings, Business Commercial and Professional														
Industrial, Manufacturing, Utilities, Agriculture														

	Normally Acceptable	Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.
	Conditionally Acceptable	New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features are included in the design.
	Normally Unacceptable	New construction or development should be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirement must be made and needed noise insulation features included in the design.
	Clearly Unacceptable	New construction or development generally should not be undertaken.

Source: State of California General Plan Guidelines, Office of Planning and Research, June 1990.

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. This Model further recommends that, when a pure tone is present, the applicable noise standard should be lowered (made more stringent) by 5 dBA.

Other State LORS include the California Environmental Quality Act (CEQA) and the California Occupational Safety and Health Administration (Cal-OSHA) regulations.

California Environmental Quality Act

The California Environmental Quality Act (CEQA) requires that significant environmental impacts be identified, and that such impacts be eliminated or mitigated to the extent feasible. Section XI of Appendix G of CEQA Guidelines (Cal. Code Regs., tit. 14, App. G) sets forth some characteristics that may signify a potentially significant impact. Specifically, a significant effect from noise may exist if a project would result in:

a) 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;

b) exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels;

c) a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project; or

d) a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project….

The Energy Commission staff, in applying Item c) above to the analysis of this and other projects, has concluded that a potential for a significant noise impact may exist where the noise of the project plus the background exceeds the background by 5 dBA L_{90} or more at the nearest location where the sound is likely to be perceived.

Noise due to construction activities is usually considered to be insignificant in terms of CEQA compliance if:

The construction activity is temporary,

Use of heavy equipment and noisy activities is limited to daytime hours, and

All feasible noise abatement measures are implemented for noise-producing equipment.

Cal-OSHA

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

The project is located on a 160-acre parcel of unincorporated land in Alameda County and adjacent to San Joaquin County.

County of Alameda

Title 6 - HEALTH AND SAFETY, Chapter 6.60 - NOISE, Section 6.60.040 – Exterior noise level standards, of the Noise Ordinance for Alameda County defines exterior noise limits for single or multiple family residential properties in terms of noise levels that are not to be exceeded for defined percentages of hours of the day. The L_{50} level that is the level that can not be exceeded more than 30 minutes during any hour, for day and night periods are 50 dBA and 45 dBA respectively. These limits are reduced by 5 dBA for tonal components, speech or music, or recurring impulsive noise. The day period is defined as those hours from 7:00 a.m. to 10:00 p.m., and night is defined as the hours from 10:00 p.m. to 7:00 a.m.

The County does not restrict the hours of construction.

County of San Joaquin

Although the project is located in adjacent Alameda County, the noise generated by the project could impact residents of San Joaquin County. The distance to the nearest residence in San Joaquin County is approximately the same as the distance to the residences at Receptor 2, in Alameda County near Midway. Receptor 2 is 1.2 miles south of the project site. If the noise impact at Receptor 2 is acceptable, then the residents of San Joaquin County should have similar conditions.

POWER PLANT EFFICIENCY

FEDERAL

No federal laws apply to the efficiency of this project.

STATE

California Environmental Quality Act Guidelines

CEQA Guidelines state that the environmental analysis "…shall describe feasible measures which could minimize significant adverse impacts, including where relevant, inefficient and unnecessary consumption of energy" (Cal. Code Regs., tit. 14, § 15126.4(a)(1)). Appendix F of the Guidelines further suggests consideration of such factors as the project's energy requirements and energy use efficiency; its effects on local and regional energy supplies and energy resources; its requirements for additional energy supply capacity; its compliance with existing energy standards; and any alternatives that could reduce wasteful, inefficient and unnecessary consumption of energy (Cal. Code regs., tit. 14, § 15000 et seq., Appendix F).

LOCAL

No local ordinances apply to power plant efficiency.

POWER PLANT RELIABILITY

Presently, there are no laws, ordinances, regulations or standards (LORS) that establish either power plant reliability criteria or procedures for attaining reliable operation. However, the commission must make findings as to the manner in which the project is to be designed, sited and operated to ensure safe and reliable operation [Cal. Code Regs., tit. 20, § 1752(c)].

PUBLIC HEALTH

FEDERAL

Clean Air Act section 112 (42 U.S. Code section 7412)

Section 112 requires new sources which emit more than ten tons per year of any specified hazardous air pollutant (HAP) or more than 25 tons per year of any combination of HAPs to apply Maximum Achievable Control Technology (MACT).

STATE

California Health and Safety Code sections 39650 et seq.

These sections mandate the California Air Resources Board (CARB) and the Department of Health Services to establish safe exposure limits for toxic air pollutants and identify pertinent best available control technologies. They also require that the new source review rule for each air pollution control district include regulations that require new or modified procedures for controlling the emission of toxic air contaminants.

California Health and Safety Code section 41700

This section states that "no person shall discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause injury or damage to business or property."

California Code of Regulations, Title 22, Section 60306

This section would apply if staff's recommendation in the **Soils and Water Resources** section to use recycled cooling water is adopted. It requires that, whenever a cooling system uses recycled water in conjunction with an air conditioning facility and a cooling tower that creates a mist that could come into contact with employees or members of the public, a drift eliminator shall be used and chlorine, or other, biocides shall be used to treat the cooling system recirculating water to minimize the growth of Legionella and other micro-organisms.

LOCAL

Bay Area Air Quality Management District Rule 2-1-316

This rule requires a risk assessment or risk screening analysis to be performed for new or modified facilities that emit one or more toxic air contaminants that exceed specified amounts.

SOCIOECONOMIC RESOURCES

STATE

California Government Code, Sections 65996-65997

As amended by SB 50 (Stats. 1998, ch. 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.

California Education Code, Section 17620 et seq.

As amended by SB 50 (Stats. 1998, ch. 407, sec.23), school districts may levy a one-time school impact fee upon new construction within their boundaries.

Title 14, California Code of Regulations, Section 15131

- Economic or social effects of a project shall not be treated as significant effects on the environment.
- Economic or social factors of a project may be used to determine the significance of physical changes caused by the project.
- Economic, social and particularly housing factors shall be considered by public agencies together with technological and environmental factors in deciding whether changes in a project are feasible to reduce and or avoid the significant effects on the environment.

SOIL AND WATER RESOURCES

The Alameda County Grading Department sets forth grading and erosion control requirements. County Ordinances 15.36.240 and 15.36.620 describe the requirements for the Grading, Erosion and Sediment Control Plans. County Ordinance 15.36.600 specifies that grading and earth-disturbing activities be limited to avoid the rainy season defined as October 1 to April 15. Grading Ordinance Chapter 15.36.530 and the Unified Building Code Section 3314 addresses cut and fill slopes and setbacks. In addition, the County sets storm water design criteria as specified in its Hydrology and Hydraulic Criteria Summary for Western Alameda County, and all roadway and storm drain facilities are to conform to Alameda County's Subdivision Design Guidelines and Hydrology and Hydraulic Design Criteria summary.

TRANSMISSION LINE SAFETY AND NUISANCE

AVIATION SAFETY

Any potential hazard to area aircraft would relate to the potential for collision in the navigable air space. The applicable federal LORS as discussed below are intended to ensure the distance and visibility necessary to prevent such collisions.

Federal

- Title 14, Part 77 of the Federal Code of Regulations (CFR), "Objects Affecting the Navigation Space." Provisions of these regulations specify the criteria used by the Federal Aviation Administration (FAA) for determining whether a "Notice of Proposed Construction or Alteration" is required for potential obstruction hazards. The need for such a notice depends on factors related to the height of the structure, the slope of an imaginary surface from the end of nearby runways to the top of the structure, and the length of the runway involved. Such notification allows the FAA to ensure that all structures are located to avoid the aviation hazards of concern.
- FAA Advisory Circular (AC) No. 70/460-2H, "Proposed Construction and or Alteration of Objects that May Affect the Navigation Space." This circular informs each proponent of a project that could pose an aviation hazard of the need to file the "Notice of Proposed Construction or Alteration" (Form 7640) with the FAA.
- FAA AC No. 70/460-1G, "Obstruction Marking and Lighting." This circular 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

Transmission line-related radio-frequency interference is one of the indirect effects of line operation as produced by the physical interactions of line electric fields. Since electric fields are unable to penetrate most materials including the soil, such interference and other electric field effects are not associated with underground lines. The level of any such interference usually depends on the magnitude of the electric fields involved. Because of this, the potential for such impacts could be assessed from field strength estimates obtained for the line. The following regulations are intended to ensure that such lines are located away from areas of potential interference and that any interference is mitigated whenever it occurs.

FEDERAL

Federal Communications Commission (FCC) regulations in Title 47 CFR, Section 15.25. Provisions of these regulations prohibit operation of any devices

producing force fields, which interfere with radio communications, even if (as with transmission lines) such devices are not intentionally designed to produce radio-frequency energy. Such interference is due to the radio noise produced by the action of the electric fields on the surface of the energized conductor. The process involved is known as corona discharge but is referred to as spark gap electric discharge when it occurs within gaps between the conductor and insulators or metal fittings. When generated, such noise manifests itself as perceivable interference with radio or television signal reception or interference with other forms of radio communication. Since the level of interference depends on factors such as line voltage, distance from the line to the receiving device, orientation of the antenna, signal level, line configuration and weather conditions, maximum interference levels are not specified as design criteria for modern transmission lines. The FCC requires each line operator to mitigate all complaints about interference on a case-specific basis.

STATE

General Order 52 (GO-52), California Public Utilities Commission (CPUC). Provisions of this order govern the construction and operation of power and communications lines and specifically deal with measures to prevent or mitigate inductive interference. Such interference is produced by the electric field induced by the line in the antenna of a radio signal receiver.

Several design and maintenance options are available for minimizing these electric field-related impacts. When incorporated into the line design and operation, such measures also serve to reduce the line-related audible noise discussed below.

AUDIBLE NOISE

Industry Standards

There are no design-specific federal regulations that limit the audible noise from transmission lines. As with radio noise, such noise is limited instead through design, construction or maintenance practices established from industry research and experience as effective, without significant impacts on line safety, efficiency, maintainability, and reliability. All modern overhead high-voltage lines are designed to assure compliance. As with radio-frequency noise, such audible noise usually results from the action of the electric field at the surface of the line conductor and could be perceived as a characteristic crackling, frying, or hissing sound, or hum, especially in wet weather. Since the noise level depends on the strength of the line electric field, the potential for perception can be assessed from estimates of the field strengths expected during operation. Such noise is usually generated during rainfall, but mainly from overhead lines of 345 kV or higher. It is, therefore, not generally expected at significant levels from those of less than 345 kV as proposed for TPP. Research by the Electric Power Research Institute (EPRI 1982) has validated this by showing the fair-weather

audible noise from modern transmission lines to be generally indistinguishable from background noise at the edge of a 100-ft right-of-way.

NUISANCE SHOCKS

Industry Standards

There are no design-specific federal regulations to limit nuisance shocks in the transmission line environment. For modern overhead high-voltage lines, such shocks are effectively minimized through grounding procedures specified in the National Electrical Safety Code (NESC) and the joint guidelines of the American National Standards Institute (ANSI) and the Institute of Electrical and Electronics Engineers (IEEE). Nuisance shocks are caused by current flow at levels generally incapable of causing significant physiological harm. They result mostly from direct contact with metal objects electrically charged by fields from the energized line. Such electric charges are induced in different ways by the line electric and magnetic fields. As with the proposed overhead lines, the applicant would be responsible in all cases for ensuring compliance with these grounding-related practices within the right-of-way.

FIRE HAZARDS

The fire hazards addressed through the following regulations are those that could be caused by sparks from conductors of overhead lines, or that could result from direct contact between the line and nearby trees and other combustible objects.

State

- General Order 95 (GO-95), CPUC. “Rules for Overhead Electric Line Construction” specify tree-trimming criteria to minimize the potential for power line-related fires.
- Title 14, California Code of Regulations, Section 1250. “Fire Prevention Standards for Electric Utilities” specify utility-related measures for fire prevention.

HAZARDOUS SHOCKS

The hazardous shocks addressed by the following regulations and standards are those that could result from direct or indirect contact between an individual and the energized line whether overhead or underground. Such shocks are capable of serious physiological harm or death and remain a driving force in the design and operation of transmission and other high-voltage lines.

State

- GO-95, CPUC. “Rules for Overhead Line Construction” specify uniform statewide requirements for overhead line construction regarding ground clearance, grounding, maintenance and inspection. Implementing these requirements ensures the safety of the general public and line workers.

- Title 8, California Code of Regulations, Sections 2700 through 2974. "High Voltage Electric Safety Orders" establish essential requirements and minimum standards for safely installing, operating, working around, and maintaining electrical installations and equipment

Industrial Standards

No design-specific federal regulations have been established to prevent hazardous shocks from overhead power lines. Safety is assured within the industry from compliance with the requirements in the National Electrical Safety Code, Part 2: Safety Rules for Overhead Lines. These provisions specify the minimum national safe operating clearances applicable in areas where the line might be accessible to the public. They are intended to minimize the potential for direct or indirect contact with the energized line.

ELECTRIC AND MAGNETIC FIELD (EMF) EXPOSURE

The possibility of deleterious health effects from electric and magnetic field exposure has increased public concern in recent years about living near high-voltage lines. Both fields occur together whenever electricity flows, hence the general practice of describing exposure to them together as EMF exposure. The available evidence as evaluated by CPUC, other regulatory agencies, and staff, has not established that such fields pose a significant health hazard to exposed humans. However, staff considers it important, as does the CPUC, to note that while such a hazard has not been established from the available evidence, the same evidence does not serve as proof of a definite lack of a hazard. Staff, therefore considers it appropriate, in light of present uncertainty, to recommend reduction of such fields as feasible without affecting safety, efficiency, reliability, and maintainability.

While there is considerable uncertainty about EMF health effects, the following facts have been established from the available information and have been used to establish existing policies:

- Any exposure-related health risk to the exposed individual will likely be small.
- The most biologically significant patterns (e.g., high-level, short-term versus low-level, long-term) of exposures have not been established.
- Most health concerns are about the magnetic field.
- The measures employed for such field reduction can affect line safety, reliability, efficiency, and maintainability, depending on the type and extent of such measures.

State

In California, the CPUC (which regulates the installation and operation of high-voltage lines in California) has determined that only no-cost or low-cost measures are presently justified in any effort to reduce power line fields below levels existing before the present health concern arose. The CPUC has further

determined that such reduction should be made only in connection with new or modified lines. It requires each utility within its jurisdiction to establish EMF-reducing measures and incorporate such measures into the designs for all new or upgraded power lines and related facilities within their respective service areas. The CPUC further established specific limits on the resources to be used in each case for field reduction. Such limitations were intended by the CPUC to apply to the cost of any redesign to reduce field strength or relocation to reduce exposure. Utilities not within the jurisdiction of the CPUC voluntarily comply with these CPUC requirements. This CPUC policy resulted from assessments made to implement CPUC Decision 93-11-013.

In keeping with this CPUC policy, staff requires a showing that each proposed overhead line would be designed according to the EMF-reducing design guidelines applicable to the utility service area involved. These field-reducing measures can impact line operation if applied without appropriate regard for environmental and other local issues bearing on safety, reliability, efficiency, and maintainability. Therefore, it is up to each applicant to ensure that such measures are applied in ways that prevent significant impacts on line operation and safety. The extent of such applications would be reflected by the ground-level field strengths as measured during operation. When estimated or measured for lines of similar voltage and current-carrying capacity, such field strength values can be used by staff and other regulatory agencies to assess the effectiveness of the applied reduction measures. These field strengths can be estimated for any given design using established procedures. Estimates are specified for a height of one meter above the ground, in units of kilovolts per meter (kV/m), for the electric field, and milligauss (mG) for the companion magnetic field. Their magnitude depends on line voltage (in the case of electric fields), the geometry of the support structures, degree of cancellation from nearby conductors, distance between conductors and, in the case of magnetic fields, amount of current in the line.

Since each new line in California is currently required by the CPUC to be designed according to the EMF-reducing guidelines of the electric utility in the service area involved, its fields are required under this CPUC policy to be similar to fields from similar lines in that service area. Designing the proposed TPP lines according to existing PG&E field strength-reducing guidelines would constitute compliance with the CPUC requirements for line field management.

Industrial Standards

There are no health-based federal regulations or industry codes specifying environmental limits on the strengths of fields from power lines. However, the federal government continues to conduct and encourage research necessary for an appropriate policy on the EMF health issue.

In the face of the present uncertainty, several states have opted for design-driven regulations ensuring that fields from new lines are generally similar to those from existing lines. Some states (such as Florida, Minnesota, New Jersey, New York,

and Montana) have set specific environmental limits on one or both fields in this regard. These limits are, however, not based on any specific health effects. Most regulatory agencies believe, as does staff, that health-based limits are inappropriate at this time, and that the present knowledge of the issue does not justify any retrofit of existing lines.

Before the present health-based concern developed, measures to reduce field effects from power line operations were mostly aimed at the electric field component whose effects can manifest themselves as the previously noted radio noise, audible noise, and nuisance shocks. The present focus is on the magnetic field because only it can penetrate soil, building and other materials to potentially produce the types of health impacts at the root of the present concern. As one focuses on the strong magnetic fields from the more visible overhead transmission and other high-voltage power lines, staff considers it important for perspective, to note that an individual in a home could be exposed for short periods to much stronger fields while using some common household appliances such as hair dryers, electric shavers, and electric tooth brushes (National Institute of Environmental Health Services and the U.S Department of Energy, 1995). Scientists have not established which of these types of exposures would be more biologically meaningful in the individual. Staff notes such exposure differences only to show that high-level magnetic field exposures regularly occur in areas other than around high-voltage power lines.

TRAFFIC AND TRANSPORTATION

FEDERAL

The federal government addresses transportation of goods and materials in Title 49, Code of Federal Regulations:

- Title 49, Code of Federal Regulations, sections 171-177, governs the transportation of hazardous materials, the types of materials defined as hazardous, and the marking of the transportation vehicles.
- Title 49, Code of Federal Regulations, sections 350-399, and Appendices A-G, Federal Motor Carrier Safety Regulations, addresses safety considerations for the transport of goods, materials, and substances over public highways.

STATE

The California Vehicle Code and the Streets and Highways Code contain requirements applicable to the licensing of drivers and vehicles, the transportation of hazardous materials and rights-of-way. The California Health and Safety Code addresses the transportation of hazardous materials. Specific provisions include:

- California Vehicle Code, section 353 defines hazardous materials. California Vehicle Code, sections 31303-31309, regulates the highway transportation of hazardous materials, the routes used, and restrictions thereon;
- California Vehicle Code, sections 31600-31620, regulates the transportation of explosive materials;
- California Vehicle Code, sections 32000-32053, regulates the licensing of carriers of hazardous materials and includes noticing requirements;
- California Vehicle Code, sections 32100-32109, establishes special requirements for the transportation of inhalation hazards and poisonous gases;
- California Vehicle Code, sections 34000-34121, establishes special requirements for the transportation of flammable and combustible liquids over public roads and highways;
- California Vehicle Code, 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 which are used for the transportation of hazardous materials;
- California Health and Safety Code, sections 25160 et seq., addresses the safe transport of hazardous materials;

- California Vehicle Code, sections 2500-2505 authorizes the issuance of licenses by the Commissioner of the California Highway Patrol for the transportation of hazardous materials including explosives;
- California Vehicle Code, sections 13369, 15275, and 15278 address the licensing of drivers and the classifications of licenses required for the operation of particular types of vehicles. In addition, it requires the possession of certificates permitting the operation of vehicles transporting hazardous materials;
- California Streets and Highways Code, sections 117 and 660-72, and California Vehicle Code sections 35780 et seq., require permits for the transportation of oversized loads on county roads;
- California Street and Highways Code, sections 660, 670, 1450, 1460 et seq., 1470, and 1480 regulates right-of-way encroachment and the granting of permits for encroachments on state and county roads.
- All construction within the public right-of-way will need to comply with the "Manual of Traffic Controls for Construction and Maintenance of Work Zones" (Caltrans, 1996).

Local

Since the project site is near the Alameda County/San Joaquin County border, the standards and regulations in both jurisdictions are relevant.

Alameda County

The Alameda County Congestion Management Agency (ACCMA) oversees preparation and implementation of the Countywide Transportation Plan (CTP). The CTP outlines planned transportation facilities and funding requirements throughout Alameda County. The Metropolitan Transportation Commission (MTC), through the Regional Transportation Plan (RTP) process, allocates and distributes federal and state transportation funds to Bay Area cities and counties, including Alameda County. The RTP also includes the expenditure of local funds by local agencies.

East County Area Plan

Alameda County has also prepared the East County Area Plan, which includes a Transportation Element. A primary goal of the Transportation Element is to create and maintain a balanced, multi-modal transportation system that provides for the efficient and safe movement of people, goods, and services. For this portion of Alameda County, the applicable Level of Service standard is LOS C or better. Roads in Alameda County have a normal weight limit of 14,000 pounds.

San Joaquin County

San Joaquin County General Plan

The San Joaquin County General Plan provides overall policy direction for roadways in the unincorporated portion of San Joaquin County in the vicinity of the project site. The applicable Level of Service standard is LOS C or better. Roads in San Joaquin County have a normal weight limit of 14,000 pounds, and there are no other posted weight limits on affected area roadways.

City of Tracy

City of Tracy Urban Management Plan/General Plan (UMP) Circulation Element

The UMP/General Plan is a long range planning document guiding development in and around the City of Tracy. Its Circulation Element addresses the goals and standards for current and future traffic flow and the planned network of roads in the Tracy area. UMP/General Plan Action CI 2.3.1 establishes a Level of Service Standard of LOS C or better for streets within the city limits.

TRANSMISSION SYSTEM ENGINEERING

California Public Utilities Commission (CPUC) General Order 95 (GO-95), “Rules for Overhead Electric Line Construction,” formulates uniform requirements for construction of overhead lines. Compliance with this order ensures adequate service and safety to persons engaged in the construction, maintenance and operation or use of overhead electric lines and to the public in general.

California Public Utilities Commission (CPUC) General Order 128(GO-128), “Rules for Construction of Underground Electric Supply and Communications Systems,” formulates uniform requirements and minimum standards to be used for underground supply systems to ensure adequate service and safety to persons engaged in the construction, maintenance and operation, or use, of underground electric lines, and to the public in general.

The National Electric Safety Code, 1999 provides electrical, mechanical, civil and structural requirements for overhead electric line construction and operation. The Western Electricity Coordinating Council (WECC) Planning Standards are merged with the North American Electric Reliability Council (NERC) Planning Standards and provide the system performance standards used in assessing the reliability of the interconnected system. Certain aspects of the NERC/WECC standards are either more stringent or more specific than the NERC standards alone. These standards provide planning for electric systems so as to withstand the more probable forced and maintenance outage system contingencies at projected customer demand and anticipated electricity transfer levels, while continuing to operate reliably within equipment and electric system thermal, voltage and stability limits. These standards include the reliability criteria for system adequacy and security, system modeling data requirements, system protection and control, and system restoration. Analysis of the WECC system is based to a large degree on Section I.A of the standards, “NERC and WECC Planning Standards with Table I and WECC Disturbance-Performance Table” and on Section I.D, “NERC and WECC Standards for Voltage support and Reactive Power”. These standards require that the results of power flow and stability simulations verify defined performance levels. Performance levels are defined by specifying the allowable variations in thermal loading, voltage and frequency, and loss of load that may occur on systems during various disturbances. Performance levels range from no significant adverse effects inside and outside a system area during a minor disturbance (loss of load or a single transmission element out of service) to a level that seeks to prevent system cascading and the subsequent blackout of islanded areas during a major disturbance (such as loss of multiple 500 kV lines along a common right of way, and/or multiple generators). While controlled loss of generation or load or system separation is permitted in certain circumstances, their uncontrolled loss is not permitted (WECC 2001).

NERC Planning Standards provide national policies, standards, principles and guidelines to assure the adequacy and security of the electric transmission system. The NERC planning standards provide for system performance levels under normal and contingency conditions. With regard to power flow and stability simulations, while these Planning Standards are similar to WECC Standards, certain aspects of the WECC standards are either more stringent or more specific than the NERC standards for Transmission System Contingency Performance. The NERC planning standards apply to interconnected systems and to individual service areas (NERC 1998).

Cal-ISO Planning Standards also provide standards, and guidelines to assure the adequacy, security and reliability in the planning of the Cal-ISO transmission grid facilities. The Cal-ISO Planning Standards incorporate the merged NERC and WECC Planning Standards. With regard to power flow and stability simulations, the Cal-ISO Planning Standards are similar to WECC and the NERC Planning Standards for Transmission System Contingency Performance. However, the Cal-ISO Standards also provide some additional requirements that are not found in the WECC or NERC Planning Standards. The Cal-ISO Standards apply to all participating transmission owners 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 (Cal-ISO 2002a).

VISUAL RESOURCES

FEDERAL

The proposed project is located on private land. Therefore, the project is not subject to federal regulations pertaining to visual resources.

STATE

The project site and surrounding area are on private land. Interstate 580 is in the project vicinity and is officially designated a state scenic highway (State Scenic Highways Web Site: www.dot.ca.gov/hq/LandArch), however, the project would not be visible from this highway due to distance (greater than 1.2 miles) and topography. Highway 205 in the project vicinity (approximately 1.2 miles away) is not officially designated as, nor is it eligible for State Scenic Highway status. State LORS would not apply to the project with respect to visual resources.

LOCAL

The proposed generating facility site, transmission line alignments, and the water pipeline route are located in unincorporated areas of Alameda County. The gas supply pipeline route is partially located in Alameda County and San Joaquin County. Therefore, the proposed project would be subject to any local LORS pertaining to the protection and maintenance of visual resources in Alameda and San Joaquin Counties.

The Alameda County Board of Supervisors adopted the East County Area Plan (ECAP), a portion of the Alameda County General Plan, in 1994. In November of 2000 the Alameda County voters approved Measure “D”, which required amendment of the ECAP to include additional policies that address growth issues in the east County. The ECAP, as amended, contains goals, policies and programs pertaining to sensitive viewsheds, and lists major visually-sensitive ridgelines (Alameda County 1994; Policy 106, p. 30 and Policy 106A) and prominent visual features (Alameda County 1994; Policy 111, page 31. The proposed site for the TPP is not near any of the listed visually sensitive areas. Other pertinent policies are described in **Visual Resources Table 3** in the Compliance with LORS.

The Scenic Route Element of the Alameda County General Plan was adopted in May of 1966 and amended in 1994. This element identifies types of scenic routes – Scenic Freeways and Expressways, Scenic Thoroughfares, and Scenic Rural-Recreation Routes. The Element does not however, identify specific routes as scenic, but provides guidance for the identification and preservation of scenic routes in the county.

The San Joaquin County General Plan 2010 was adopted in July of 1992. Visual objectives and policies are provided in chapters on Community Organization and Development Pattern, Public Facilities, Open Space, and Air Quality.

Sixteen LORS applicable to the TPP project were identified in the Alameda County East County Area Plan, and the Alameda County Scenic Route Element of the General Plan. The San Joaquin County General Plan contains a total of six LORS that are applicable to the proposed project.

WASTE MANAGEMENT

FEDERAL

Resource Conservation and Recovery Act (42 U.S.C. § 6922)

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.

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.

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 seq. (Generator Standards)

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 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.

LOCAL

The Alameda County Waste Management Authority has the responsibility for administration and enforcement of the California Integrated Waste Management Act for non-hazardous solid waste at the proposed energy center. The Alameda County Environmental Health Department must issue a Consolidated Hazardous Materials Permit (which includes hazardous waste).

WORKER SAFETY AND FIRE PROTECTION

FEDERAL

In December 1970 Congress enacted Public Law 91-596, the Federal Occupational Safety and Health Act of 1970. This Act mandates safety requirements in the workplace and is found in Title 29 of the United States Code, § 651 (29 U.S.C. §§ 651 through 678). Implementing regulations are codified at Title 29 of the Code of Federal Regulations, under General Industry Standards §§ 1910.1 - 1910.1500 and clearly 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. Most of the general industry safety and health standards now in force under this OSH Act represent a compilation of materials from existing federal standards and national consensus standards. These include standards from the voluntary membership organizations of the American National Standards Institute (ANSI) and the National Fire Protection Association (NFPA) which publishes the National Fire Codes.

The purpose of the Occupational Safety and Health Act is to "assure 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). The Federal Department of Labor promulgates and enforces safety and health standards that are applicable to all businesses affecting interstate commerce. The Department of Labor established the Occupational Safety and Health Administration (OSHA) in 1971 to discharge the responsibilities assigned by the OSH Act.

Applicable Federal requirements include:

- 29 U.S. Code § 651 et seq. (Occupational Safety and Health Act of 1970);
- 29 CFR §1910.1 - 1910.1500 (Occupational Safety and Health Administration Safety and Health Regulations);
- 29 CFR §1952.170 – 1952.175 (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 – 1910.1500).

STATE

California passed the Occupational Safety and Health Act of 1973 ("Cal/OSHA") as published in the California Labor Code § 6300. Regulations promulgated as a result of the Act are codified at Title 8 of the California Code of Regulations, beginning with §337-560 and continuing with §1514 - 8568. The California Labor Code requires that the Cal/OSHA Standards Board adopt standards at least as effective as the federal standards (Labor Code § 142.3(a)) and thus all Cal/OSHA health and safety standards meet or exceed the Federal

requirements. Hence, California obtained federal approval of its State health and safety regulations, in lieu of the federal requirements published at 29 CFR §1910.1 - 1910.1500). The Federal Secretary of Labor, however, continually oversees California's program and will enforce any federal standard for which the State has not adopted a Cal/OSHA counterpart.

The State of California Department of Industrial Relations is charged with responsibility for administering the Cal/OSHA plan. The Department of Industrial Relations is further split into six divisions to oversee, among other activities: industrial accidents, occupational safety and health, labor standards enforcement, statistics and research, and the State Compensation Insurance Fund (workers compensation).

Employers are responsible for informing their employees about workplace hazards, potential exposure and the work environment (Labor Code § 6408). Cal/OSHA's principal tool in ensuring that workers and the public are informed is the Hazard Communication standard first adopted in 1981 (8 CCR §5194). This regulation was promulgated in response to California's Hazardous Substances Information and Training Act of 1980. It was later revised to mirror the Federal Hazard Communication Standard (29 CFR §1910.1200) which established on the federal level an employee's "right to know" about chemical hazards in the workplace, but added the provision of applicability to public sector employers. A major component of this regulation is the required provision of Material Safety Data Sheets (MSDSs) to workers. MSDSs provide information on the identity, toxicity, and precautions to take when using or handling hazardous materials in the workplace.

Finally, 8 CCR §3203 requires that employers establish and maintain a written Injury and Illness Prevention Program to identify workplace hazards and communicate them to its employees through a formal employee-training program.

Applicable State requirements include:

- 8 CCR §339 - List of hazardous chemicals relating to the Hazardous Substance Information and Training Act;
- 8 CCR §337, et seq. Cal/OSHA regulations;
- 24 CCR § 3, et seq. - incorporates the current addition of the Uniform Building Code;
- Health and Safety Code § 25500, et seq. - Risk Management Plan requirements for threshold quantity of listed acutely hazardous materials at the facility;
- Health and Safety Code § 25500 - 25541 - Hazardous Material Business Plan detailing emergency response plans for hazardous materials emergency at the facility.

LOCAL

The California Building Standards Code published at Title 24 of the California Code of Regulations § 3 et seq is comprised of eleven parts containing the building design and construction requirements relating to fire and life safety and structural safety. The Building Standards Code includes the electrical, mechanical, energy, and fire codes applicable to the project. Local planning/building & safety departments enforce the California Uniform Building Code.

National Fire Protection Association (NFPA) standards are published in the California Fire Code. The fire code contains general provisions for fire safety, including but not restricted to: 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 is published at Part 9 of Title 24 (H&S Code §18901 et seq.).

Similarly, the Uniform Fire Code (UFC) Standards, a companion publication to the California Fire Code, contains standards of the American Society for Testing and Materials and the 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 Alameda County Fire Department (ACFD) adopted the 1998 Uniform Fire Code at the time it was published. The Alameda County Fire Department administers the UFC.

Applicable local (or locally enforced) requirements include:

- 1998 Edition of California Fire Code and all applicable NFPA standards (24 CCR Part 9);
- California Building Code Title 24, California Code of Regulations (24 CCR § 3, et seq.).
- Uniform Fire Code, 1998

Appendix B

Proof of Service List

BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION OF THE STATE OF CALIFORNIA

APPLICATION FOR CERTIFICATION FOR THE TESLA POWER PROJECT **BY FLORIDA POWER AND LIGHT**	**DOCKET NO. 01-AFC-21** **(AFC ACCEPTED 01/09/02)** **PROOF OF SERVICE** **(Revised 10/09/03)**

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 the following:

DOCKET UNIT

Send the original signed document plus the required 12 copies to the address below:

CALIFORNIA ENERGY COMMISSION
DOCKET UNIT, MS-4
Attn: Docket No. 00-AFC-21
1516 Ninth Street
Sacramento, CA 95814-5512
docket@energy.state.ca.us

* * * *

In addition to the documents sent to the Commission Docket Unit, also send individual copies of any documents to:

APPLICANT

Midway Power, LLC.
Attn: Derrel A. Grant, Jr.
Attn: Scott Busa
Florida Power & Light
700 Universe Blvd.
Juno Beach, FL 33408-0420
derrel_grant@fpl.com
sbusa@fpl.com

COUNSEL FOR APPLICANT

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SarveyBob@aol.com

Californians for Renewable Energy (CARE)
Attn: Michael Boyd
5439 Soquel Drive
Soquel, CA 95073
MichaelBoyd@sbcglobal.net

Revisions to POS List, i.e. updates, additions and/or deletions.

San Joaquin Valley Air Pollution
Control District
Attn: Seyed Sadredin
Director of Permit Services
4230 Kiernan Avenue, Suite 130
Modesto, CA 95356-9322
Seyed.Sadredin@valleyair.org

INTERESTED AGENCIES

Central Valley Regional Water Quality
Control Board
Attn: Michael Kummer
3443 Routier Road, Suite A
Sacramento, CA 95827-3098
kummerm@rb5s.swrcb.ca.gov

Bay Area Air Quality Management District
Attn: Dennis Jang
939 Ellis Street
San Francisco, CA 94109
djang@baaqmd.gov

Alameda County Community Development
Agency, Planning Department
Attn: Bruce H. Jensen, Planner
399 Elmhurst Street, Room 136
Hayward, CA 94544
Bruce.Jensen@acgov.org

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

_____
[signature]

* * * *

INTERNAL DISTRIBUTION LIST

FOR YOUR INFORMATION ONLY! Parties **DO NOT** mail to the following individuals. The Energy Commission Docket Unit will internally distribute documents filed in this case to the following:

JOHN L. GEESMAN
Commissioner & Presiding Member
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ARTHUR ROSENFELD
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Revisions to POS List, i.e. updates, additions and/or deletions.

Appendix C

Exhibit List

BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION OF THE STATE OF CALIFORNIA

APPLICATION FOR CERTIFICATION FOR THE **TESLA POWER PROJECT** **BY FLORIDA POWER AND LIGHT**	**DOCKET NO. 01-AFC-21** DATA ADEQUATE JANUARY 9, 2002

TENTATIVE EXHIBIT LIST

EXHIBIT 1 Application for Certification for the Tesla Power Project, by Midway Power, LLC, dated October 2001. Docketed October 10, 2001. Sponsored by Applicant, and received into evidence on September 18, 2003.

EXHIBIT 2 Data Adequacy Responses by Applicant, dated December 2001. Docketed January 2, 2002. Sponsored by Applicant, and received into evidence on September 18, 2003.

EXHIBIT 3 Responses to First Set of CEC Data Requests, dated March 8, 2002. Docketed March 8, 2002. Sponsored by Applicant, and received into evidence on September 18, 2003.

EXHIBIT 4 Responses to Second Set of CEC Data Requests, dated May 17, 2002 and July 2002. Docketed July 11, 2002. Sponsored by Applicant, and received into evidence on September 18, 2003.

EXHIBIT 5 Responses to Third Set of CEC Data Requests, dated August 23, 2002. Docketed August 23, 2002. Sponsored by Applicant, and received into evidence on September 18, 2003.

EXHIBIT 6 Supplemental Responses to Third Set of CEC Data Requests, dated October 31, 2002. Docketed October 31, 2002. Sponsored by Applicant, and received into evidence on September 18, 2003.

EXHIBIT 7 System Impact/Facilities Study, dated December 20, 2001. Docketed May 22, 2002. Sponsored by Applicant, and received into evidence on September 10, 2003.

EXHIBIT 8 Supplemental System Impact Study, dated May 10, 2002. Docketed May 22, 2002. Sponsored by Applicant, and received into evidence on September 10, 2003.

EXHIBIT 9 Supplemental System Impact Study, dated June 20, 2002. Docketed September 8, 2003. Sponsored by Applicant, and received into evidence on September 10, 2003.

EXHIBIT 10 Supplemental System Impact Study, dated August 30, 2002. Docketed October 3, 2003. Sponsored by Applicant, and received into evidence on September 10, 2003.

EXHIBIT 11 Supplemental System Impact Study, dated October 4, 2002. Docketed October 3, 2003. Sponsored by Applicant, and received into evidence on September 10, 2003.

EXHIBIT 12 Supplemental System Impact Study, dated December 6, 2002. Docketed September 8, 2003. Sponsored by Applicant, and received into evidence on September 10, 2003.

EXHIBIT 13 Cal-ISO Final Interconnection Approval Letter, from Jeffrey Miller, Cal-ISO, to Doug Daniels, PG&E, dated February 18, 2003. Docketed February 20, 2003. Sponsored by Applicant, and received into evidence on September 10, 2003.

EXHIBIT 14 Draft Biological Mitigation Proposal, dated January 29, 2003. Docketed January 29, 2003. Sponsored by Applicant, and received into evidence on September 11, 2003.

EXHIBIT 14A Draft Habitat Management Plan dated September 2003, sponsored by Applicant, and received into evidence on September 11, 2003.

EXHIBIT 15 Final EIR Buena Vista/Rosedale-Rio Bravo Water Banking and Recovery Program, dated September 2002. Docketed November 15, 2002. Sponsored by Applicant, and received into evidence on September 11, 2003.

EXHIBIT 16 Letter to Mr. Adolph Martinelli, Alameda County Community Development Agency, from Scott Galati, Grattan & Galati, Regarding Request for Partial Cancellation of the Williamson Act Contract, dated July 30, 2002. Docketed July 30, 2002. Sponsored by Applicant, and received into evidence on September 11, 2003.

EXHIBIT 17 Alameda County Staff Report Concerning Partial Cancellation of the Williamson Act, dated January 2, 2003. Docketed September 3, 2003.

Sponsored by Applicant, and received into evidence on September 11, 2003.

EXHIBIT 18 Letter from Department of Conservation to Alameda County Community Development Agency, Concerning Partial Cancellation of the Williamson Act Contract, dated January 24, 2003. Docketed January 29, 2003. Sponsored by Applicant, and received into evidence on September 11, 2003.

EXHIBIT 19 Alameda County Staff Report Concerning Partial Cancellation of the Williamson Act, dated January 31, 2003. Docketed September 3, 2003. Sponsored by Applicant, and received into evidence on September 11, 2003.

EXHIBIT 20 Alameda County Staff Report, dated March 18, 2003. Docketed September 3, 2003. Sponsored by Applicant, and received into evidence on September 11, 2003.

EXHIBIT 21 Alameda County Board Resolution Number R-2003-322 Granting the Tentative Partial Cancellation of Williamson Act Contract, dated February 6, 2003. Docketed September 3, 2003. Sponsored by Applicant, and received into evidence on September 11, 2003.

EXHIBIT 22 Air Quality Mitigation Agreement between the San Joaquin Valley Air Pollution Control District and Midway Power, LLC, Approved by Governing Board on May 16, 2002. Docketed June 5, 2002. Sponsored by Applicant, and received into evidence on September 18, 2003.

EXHIBIT 23 BAAQMD's Final Determination of Compliance (FDOC) for Tesla Power Project, Application 3506, dated February 27, 2003. Docketed March 4, 2003. Sponsored by Applicant, and received into evidence on September 18, 2003.

EXHIBIT 24 FDOC Errata, dated May 2, 2003. Docketed May 2, 2003. Sponsored by Applicant, and received into evidence on September 18, 2003.

EXHIBIT 25 BAAQMD Permit Evaluation and Emission Calculations for Altamont Landfill ERC, dated February 10, 2003. Docketed September 3, 2003. Sponsored by Applicant, and received into evidence on September 18, 2003.

EXHIBIT 25A Letter from William Norton, Air Pollution Control Officer for BAAQMD to Commission Staff, Terrence O'Brien, dated March 19, 2003. Docketed March 24, 2003. Sponsored by Applicant, and received into evidence on ----------

EXHIBIT 26 White Paper relating to DWR reliability, dated November 15, 2002. Docketed September 3, 2003. Sponsored by Applicant, and received into evidence on September 12, 2003.

EXHIBIT 27 Engineering Report, Tesla Power Project North-Reach User Impacts, dated March 2003. Docketed September 3, 2003. Sponsored by Applicant, and received into evidence on September 12, 2003.

EXHIBIT 28 Map of Water Conveyance Facilities, dated March 2003. Docketed September 3, 2003. Sponsored by Applicant, and received into evidence on September 12, 2003.

EXHIBIT 29 Letter from DWR to CEC concerning White Paper, dated November 26, 2002. Docketed September 3, 2003. Sponsored by Applicant, and received into evidence on September 12, 2003.

EXHIBIT 30 Letter from Vincent Wong, Alameda County Flood Control and Water Conservation District to Jack Caswell, CEC, Regarding Water Supply, dated August 27, 2003. Docketed August 29, 2003. Sponsored by Applicant, and received into evidence on September 12, 2003.

EXHIBIT 31 Testimony of Scott Busa and Duane McCloud – Project Purpose and Description. Dated and docketed August 29, 2003. Sponsored by Applicant, and received into evidence on September 10, 2003.

EXHIBIT 32 Testimony of Zoran Rausavljevich and Duane McCloud – Facility Design, Power Plant Reliability and Efficiency. Dated and docketed August 29, 2003. Sponsored by Applicant, and received into evidence on September 10, 2003.

EXHIBIT 33 Testimony of Steve Mavis – Transmission System Engineering. Dated and docketed August 29, 2003. Sponsored by Applicant, and received into evidence on September 10, 2003.

EXHIBIT 34 Testimony of Dwight Mudry – Transmission Line Safety and Nuisance. Dated and docketed August 29, 2003. Sponsored by Applicant, and received into evidence on September 10, 2003.

EXHIBIT 35 Testimony of Tom Stewart and David Dirkin – Geological and Paleontological Resources. Dated and docketed August 29, 2003. Sponsored by Applicant, and received into evidence on September 10, 2003.

EXHIBIT 36 Testimony of Andrew Gorman and Stuart Reeve – Cultural Resources. Dated and docketed August 29, 2003. Sponsored by Applicant, and received into evidence on September 10, 2003.

EXHIBIT 37 Testimony of Lida Moussavian and Duane McCloud – Hazardous Materials. Dated and docketed August 29, 2003. Sponsored by Applicant, and received into evidence on September 10, 2003.

EXHIBIT 38 Testimony of Lida Moussavian – Waste Management. Dated and docketed August 29, 2003. Sponsored by Applicant, and received into evidence on September 10, 2003.

EXHIBIT 39 Testimony of Dwight Mudry – Visual Resources. Dated and docketed August 29, 2003. Sponsored by Applicant, and received into evidence on September 10, 2003.

EXHIBIT 40 Testimony of Thomas Adams – Noise and Vibration. Dated and docketed August 29, 2003. Sponsored by Applicant, and received into evidence on September 10, 2003.

EXHIBIT 41 Testimony of Dwight Mudry, Scott Busa and Zoran Rausavljevich – Traffic and Transportation. Dated and docketed August 29, 2003. Sponsored by Applicant, and received into evidence on September 12, 2003.

EXHIBIT 42 Testimony of Scott Busa – Compliance. Dated and docketed August 29, 2003. Sponsored by Applicant, and received into evidence on September 10, 2003.

EXHIBIT 43 Testimony of Dwight Mudry, Scott Busa and Zoran Rausavljevich – Alternatives. Dated and docketed August 29, 2003. Sponsored by Applicant, and received into evidence on September 10, 2003.

EXHIBIT 44 Testimony of Lida Moussavian and Scott Busa – Worker Safety and Fire Protection. Dated and docketed August 29, 2003. Sponsored by Applicant, and received into evidence on September 10, 2003.

EXHIBIT 45 Testimony of Amanda Johnson, Chris Hansmeyer, David Osias, David Jones, and Duane McCloud – Soil and Water Resources. Dated and docketed August 29, 2003. Sponsored by Applicant, and received into evidence on September 12, 2003.

EXHIBIT 46 Testimony of Dwight Mudry – Biological Resources. Dated and docketed August 29, 2003. Sponsored by Applicant, and received into evidence on September 11, 2003.

EXHIBIT 47 Testimony of David Stein – Air Quality. Dated and docketed August 29, 2003. Sponsored by Applicant, and received into evidence on September 18, 2003.

EXHIBIT 48 Testimony of David Stein – Public Health. Dated and docketed August 29, 2003. Sponsored by Applicant, and received into evidence on September 18, 2003.

EXHIBIT 49 Testimony of Dwight Mudry and Scott Busa - Socioeconomics. Dated and docketed August 29, 2003. Sponsored by Applicant, and received into evidence on September 18, 2003.

EXHIBIT 50 Testimony of Dwight Mudry and Scott Busa – Land Use. Dated and docketed August 29, 2003. Sponsored by Applicant, and received into evidence on September 11, 2003.

EXHIBIT 51 Final Staff Assessment, Tesla Power Project, docketed April 8, 2003. Sponsored by Staff, and received into evidence on September 18, 2003.

EXHIBIT 52 First Staff Addendum to the Final Staff Assessment Addendum Reclaimed Water Supply Pipeline, Tesla Power Project, docketed July 18, 2003. Sponsored by Staff, and received into evidence on September 18, 2003.

EXHIBIT 53 Second Addendum to the Staff's Final Staff Assessment, Tesla Final Staff Assessment Addendum #2 Pre-hearing Conference Response, dated and docketed August 29, 2003. Sponsored by Staff, and received into evidence on September 18, 2003.

EXHIBIT 54 Staff's Supplemental Sponsored Testimony and Rebuttal Testimony, dated September 5, 2003. Docketed September 5, 2003. Sponsored by Staff, and received into evidence on September 18, 2003.

EXHIBIT 55A Prepared Testimony of Steven G. Bayley, City of Tracy, dated and docketed on September 5, 2003. Sponsored by Staff, and received into evidence on September 12, 2003.

EXHIBIT 55B Prepared Testimony of Susan P. Jones, U.S. Fish and Wildlife Service, dated and docketed on September 5, 2003. Sponsored by Staff, and received into evidence on September 18, 2003.

EXHIBIT 56 Staff Responses to Sarvey Air Quality Data Requests, dated and docketed on March 4, 2003. Sponsored by Staff, and received into evidence on September 18, 2003.

EXHIBIT 57 Data Request No. 1 from Intervener Robert Sarvey, dated on February 16, 2003. Docketed on February 18,, 2003. Sponsored by Staff. ***Same as Exhibit 81.***

EXHIBIT 58 Status of the Buena Vista Lake Shrew (Sorex ornatus relictus). Report prepared for the US Bureau of Reclamation Status of the Buena Vista Lake Shrew-Final Report in Partial Fulfillment of the Central Valley Project Improvement Act Section 3406(B)(1), dated October 29, 2001. Docketed December 26, 2001. Sponsored jointly by Staff and Applicant, and received into evidence on September 18, 2003.

EXHIBIT 59 Letter to Jan C. Knight, U.S. Fish and Wildlife Service, from the United States Environmental Protection Agency, Request for Formal Consultation under section 7 of the Federal Endangered Species Act for the Proposed Tesla Power Plant Project, dated February 21, 2002. Docketed February 28, 2003. Sponsored by Staff, and received into evidence on September 18, 2003.

EXHIBIT 60 Letter to Gerardo C. Rios, USEPA, from the United States Department of the Interior Fish and Wild Life Service subject: Receipt of Formal Consultation for the Proposed Tesla Power Plant. Dated March 1, 2002, and docketed March 2, 2002. Sponsored by Staff, and received into evidence on September 18, 2003.

EXHIBIT 61 Tesla Power Plant Biological Assessment prepared by Foster Wheeler Environment Corporation. Dated December 2001 and docketed March 28, 2002. Sponsored by Applicant, and received into evidence on September 18, 2003.

EXHIBIT 62 E-mail, dated July 1, 2002, from Nancy Pau to Andrea Erichsen CEC, and Susan P. Jones re: Meeting Notes from June 28, 2002. Docketed on July 2, 2002. Sponsored by Staff and received into evidence on September 18, 2003.

EXHIBIT 63 Letter to Jack Caswell, CEC, from United States Department of the Interior, Fish and Wildlife Service, re Water Supply for the Tesla Power Plant, dated August 25, 2003 and docketed August 29, 2003. Sponsored by Staff, and received into evidence on September 18, 2003.

EXHIBIT 64A Letter from CEC to Adolph Martinelli, Alameda County Community Development Agency, re Proposed Tesla Power Plant Consistency with Alameda County General Plan and Williamson Act Contract, dated February 4, 2002, and docketed on February 5, 2002. Sponsored by Staff, and received into evidence on September 11, 2003.

EXHIBIT 64B Letter from Alameda County (Martinelli) in response to CEC staff (Haussler), re Consistency with General Plan and Williamson Act Contract. Dated and docketed April 30, 2002. Sponsored by Staff, and received into evidence on September 11, 2003.

EXHIBIT 64C Letter from Grattan & Galati (Galati) to Alameda County (Martinelli), re Request for Williamson Act Rescission and Creation of Agricultural Conservation Easement, dated May 20, 2002, and docketed June 18, 2002. Sponsored by Staff, and received into evidence on September 11, 2003.

EXHIBIT 64D Letter to Mr. Adolph Martinelli, Alameda County Community Development Agency, from Scott Galati, Grattan & Galati, Regarding Request for Partial Cancellation of the Williamson Act Contract, dated and docketed July 30, 2002. Sponsored by Staff. ***Same as Exhibit 16***.

EXHIBIT 64E Letter from Stroup, Bakerink, and McCusker, to California Department of Conservation, re Request by Midway Power LLC., Partial Cancellation of Land Conservation Contract, dated January 27, 2003. Sponsored by Staff, and received into evidence on September 11, 2003.

EXHIBIT 64F Alameda County Board Resolution Number R-2003-322 Granting the Tentative Partial Cancellation of Williamson Act Contract, dated February 6, 2003. Docketed September 3, 2003. Sponsored by Staff. ***Same as Exhibit 21***.

EXHIBIT 64G Letter dated September 3, 2003, from Alameda County Development Agency to Eileen Allen, CEC, re Tentative Findings Related to hypothetical Conditional Use Permit for the Proposed Tesla Power Plant. Dated September 3, 2003, and docketed September 4, 2003. Sponsored by Staff, and received into evidence on September 11, 2003.

EXHIBIT 65 Letter from the City of Tracy to Scott Busa, Manager, Florida Power and Light re: Recycled Water for the Tesla Power Project. Dated January 28, 2003, docketed on January 30, 2003. Sponsored by Staff, and received into evidence on September 12, 2003.

EXHIBIT 66 Tracy Waste Water Treatment Plant Expansion Final Environmental Impact Report. Dated September 2002 and docketed September 8, 2003. Sponsored by Staff, and received into evidence on September 12, 2003.

EXHIBIT 67A Websites - Reports reviewed by CEC staff for water analysis.
Bulletin 160-98: California Water Plan, November 1998
<http://rubicon.water.ca.gov/pdfs/b16098fulldoc.pdf>.

California Water Plan Update 2003.
<http://www.waterplan.water.ca.gov/b160/indexb160.html>.

State Water Project Delivery Reliability Report: News Release (8/20/02).
<http://wwwowe.water.ca.gov/newsreleases/2002/08-20-02swpdelivery.doc>.

Sponsored by Staff. ***Included in Exhibit 51.***

EXHIBIT 67B Colorado River Board of California
California's Colorado River Water Use Plan
<http://www.crb.ca.gov/CalifPlan%20May%2011%20Draft.pdf>.
Sponsored by Staff. ***Included in Exhibit 51.***

EXHIBIT 67C EPA US Climate Action Report (U.S. Department of State, May 2002)
<http://www.epa.gov/globalwarming/publications/car/>.
Sponsored by Staff. ***Included in Exhibit 51.***

EXHIBIT 67D USBR 2003 Water Order Approvals dated December 27, 2002.
<http://www.lc.usbr.gov/pao/2003orders/pressrelease.pdf>.
Sponsored by Staff. ***Included in Exhibit 51.***

EXHIBIT 67E Knowles and Cayan Potential effects of global warming on the Sacramento/San Joaquin watershed and the San Francisco estuary.
<http://tenaya.ucsd.edu/~knowles/papers/knowles_GRL1.pdf>.
Sponsored by Staff. ***Included in Exhibit 51.***

EXHIBIT 68 Alameda County Fire Department's Comments on the Revised PMPD dated June 2, 2003. Docketed on June 2, 2003 in the East Altamont Energy Center file (01-AFC-4). Sponsored by Staff, and received into evidence on September 10, 2003.

EXHIBIT 69 Declaration of Donna Jordan, Grid Planning Engineer for Cal-ISO, dated and docketed September 8, 2003. Sponsored by Staff, and received into evidence on September 10, 2003.

EXHIBIT 70 Letter from Contra Costa Water District to Jack Caswell, CEC Staff, re recycled water, dated August 27, 2003. Docketed August 29, 2003. Sponsored by Intervenor Sarvey, and received into evidence on September 12, 2003.

EXHIBIT 71A Letter from the City of Tracy to the CEC, Statement of Concern re GWF, Tesla and Calpine Energy Plants, dated September 9, 2002. Docketed August 29, 2003. Sponsored by Intervenor Sarvey, and received into evidence on September 18, 2003.

EXHIBIT 71B Letter from the City of Tracy to the CEC, Request for Mitigation, dated July 10, 2003, and docketed August 29, 2003. Sponsored by Intervenor Sarvey, and received into evidence on September 18, 2003.

EXHIBIT 71C Letter from MHCSD to CEC requesting Mitigation for Service Impacts, re East Altamont Energy Center (01-AFC-4), dated December 14, 2001,

and docketed August 29, 2003. Sponsored by Intervenor Sarvey, and received into evidence on September 18, 2003.

EXHIBIT 71D Letter from Tracy Fire Dept. to CEC re "Mutual Aid Agreement does not cover Energy Plants", dated September 30, 2002. Docketed August 29, 2003. Sponsored by Intervenor Sarvey, and received into evidence on September 18, 2003.

EXHIBIT 71E Letter from Tracy Fire Dept. to the CEC, Response to Proposed Decision on the EAEC, dated February 20, 2003. Docketed August 29, 2003. Sponsored by Intervenor Sarvey. ***Objection sustained and not received.***

EXHIBIT 71F Newspaper article from the Stockton Record, "Sleepy Roads Fall Victim to Choking Traffic" dated June 21, 2003. Docketed August 29, 2003. Sponsored by Intervenor Sarvey, and received into evidence on September 18, 2003.

EXHIBIT 72A Newspaper article from the Miami Herald "FPL Workers Put Out Transformer Fire, Dania Beach" dated April 9, 2000. Docketed August 29, 2003. Sponsored by Intervenor Sarvey. ***Objection sustained and not received.***

EXHIBIT 72B Newspaper article "Leak Causes FPL Plant Blast", dated September 10, 2002. Docketed on August 29, 2003. Sponsored by Intervenor Sarvey. ***Objection sustained and not received.***

EXHIBIT 72C Newspaper Articles, Palm Beach Post, "FPL Probe Obviously Didn't go Far Enough" dated March 4, 2002, and "FPL Fumbles Again," dated March 3, 2002. Docketed August 29, 2003. Sponsored by Intervenor Sarvey. ***Objection sustained and not received.***

EXHIBIT 72D Newspaper Articles Sun Sentivile "Judges Order FPL to Pay $10 Million in Lawsuit Related to Power Outage" dated May 23, 2002. Docketed August 29, 2003. Sponsored by Intervenor Sarvey. ***Objection sustained and not received.***

EXHIBIT 72E Newspaper Article Sun Sentinel "U.S. Says Plotters Aimed at FPL" dated May 18,, 2002. Docketed August 29, 2003. Sponsored by Intervenor Sarvey. ***Objection sustained and not received.***

EXHIBIT 73A Newspaper Article S.F. Chronicle "Gas Explosion Sends Up Fireball at Fairfield Plant" dated October 18, 2002. Docketed August 29, 2003. Sponsored by Intervenor Sarvey. ***Objection sustained and not received.***

EXHIBIT 73B Newspaper Article S. F. Chronicle "Calpine Contractor Dies in Geothermal Blast" dated July 22, 2003. Docketed August 29, 2003. Sponsored by Intervenor Sarvey. ***Objection sustained and not received.***

EXHIBIT 74A Sierra Club Resolution Opposing Midway Tesla Power Plant, dated February 10, 2003. Docketed August 29, 2003. Sponsored by Intervenor Sarvey, and received into evidence on September 11, 2003.

EXHIBIT 74B Resolution Opposing the East Altamont Energy Center Sierra Club, dated October 14, 2002. Docketed August 29, 2003. Sponsored by Intervenor Sarvey, and received into evidence on September 11, 2003.

EXHIBIT 75A Measure D "Save Agriculture and Open Space Initiative," dated October 7, 2000. Docketed August 29, 2003. Sponsored by Intervenor Sarvey, and received into evidence on September 11, 2003.

EXHIBIT 75B Declaration, Testimony, and Qualifications of Richard A. Schneider on the topic of Land Use and Measure D policies, dated August 28, 2003. Docketed August 29, 2003. Sponsored by Intervener Sarvey, and received into evidence on September 11, 2003.

EXHIBIT 76 Report of Conversation of RWQCB John Kessler, dated July 10, 2002. Docketed July 15, 2003. Sponsored by Intervenor Sarvey and received into evidence on September 18, 2003.

EXHIBIT 77 Letter to Paul Richins, CEC, from Michael Aceituno, NMFS Support Recycled Water, dated May 23, 2003. Docketed June 2, 2003. Sponsored by Intervenor Sarvey, and received into evidence on September 12, 2003.

EXHIBIT 78 Letter from Contra Costa Water District to Jack Caswell, CEC, dated March 13, 2003. Docketed March 14, 2003. Sponsored by Intervenor Sarvey, and received into evidence on September 18, 2003.

EXHIBIT 79A Email from Janice Gan California Dept. of Fish and Game to Andrea Erichsen, re recycled water route, dated June 11, 2003. Docketed June 11, 2003. Sponsored by Intervenor Sarvey, and received into evidence on September 18, 2003.

EXHIBIT 79B Letter to Jack Caswell, CEC, from United States Department of the Interior, Fish and Wildlife Service, re Water Supply for the Tesla Power Plant, dated August 25, 2003 and docketed August 29, 2003. Sponsored by Intervenor Sarvey. ***Same as Exhibit 63.***

EXHIBIT 80 Letter from Sue Orloff to Andrea Erichsen, CEC Staff, dated September 30, 2002. Docketed 8/29/03. Sponsored by Intervenor Sarvey, and received into evidence on September 11, 2003.

EXHIBIT 81 Data Request by Intervenor Sarvey, dated February 16, 2003. Docketed February 17, 2003. Sponsored by Intervenor Sarvey, and received into evidence on September 18, 2003.

EXHIBIT 82 Motion to Compel response to Data Request, dated April 3, 2003. Docketed April 4, 2003. Sponsored by Intervenor Sarvey, and received into evidence on September 18, 2003.

EXHIBIT 83 Letter from Assemblymember Barbara Matthews to Chairman William Keese, CEC, dated October 11, 2002. Docketed August 29, 2003. Sponsored by Intervenor Sarvey, and received into evidence on September 18, 2003.

EXHIBIT 84 Newspaper Article Tracy Press "Good, Bad News About Plant Emissions," quotes of Matt Haber, dated June 13, 2003. Docketed August 29, 2003. Sponsored by Intervenor Sarvey. ***Objection sustained and not received.***

EXHIBIT 85 Letter from the SJVUAPCD to City of Tracy, Tracy Hills Specific Plan Environmental Impact, dated March 24, 1997. Docketed August 29, 2003. Sponsored by Intervenor Sarvey. ***Objection sustained and not received.***

EXHIBIT 86 Letter from the SJVUAPCD to City of Tracy, Emission Summary, and Isopleth, dated June 5, 2002. Docketed August 29, 2003. Sponsored by Intervenor Sarvey. ***Objection sustained and not received.***.

EXHIBIT 87 Letter from SJVUAPCD to City of Tracy, South Schulte Specific Plan Environmental Impact, dated May 14, 1997, and Isopleth. Docketed August 29, 2003. Sponsored by Intervenor Sarvey. ***Objection sustained and not received.***

EXHIBIT 88 Mountain House Emission Summary from Mountain House EIR, dated September 1, 1994, and Isopleth. Docketed August 29, 2003. Sponsored by Intervenor Sarvey. ***Objection sustained and not received.***

EXHIBIT 89 CEC Staff FSA on East Altamont Energy Center (01-AFC-4). Docketed August 29, 2003. Sponsored by Intervenor Sarvey. ***Objection sustained and not received.***

EXHIBIT 90 PM_{10} and Ozone Violations San Joaquin Valley from 2002 Almanac. Docketed August 29, 2003. Sponsored by Intevenor Sarvey and received into evidence on September 18, 2003.

EXHIBIT 91 Federal PM_{10} Design Values (SJVUAPCD) Draft PM_{10} Attainment Plan 2002. Docketed August 29, 2003. Sponsored by Intervenor Sarvey, and received into evidence on September 18, 2003.

EXHIBIT 92 Pm_{10} Annual Arithmetic Average (SJVUAPCD) PM_{10} Plan 2002. Docketed August 29, 2003. Sponsored by Intervenor Sarvey and received into evidence on September 18, 2003.

EXHIBIT 93 Letter from David Stein to BAAQMD, "Tesla Power Project-Revisions to 24-Hour Average PM_{10} Emission Rates, dated May 2, 2003. Docketed May 6, 2003. Sponsored by Intervenor Sarvey, and received into evidence on September 18, 2003. ***[Pending filing of entire document.]***

EXHIBIT 94 Letter from David Stein to BAAQMD "Tesla Power Project," dated October 31, 2002. Docketed on October 31, 2003. Sponsored by Intervenor Sarvey, and received into evidence on September 18, 2003.

EXHIBIT 95 Memo from John Seitz EPA to Dave Howekamp Pre 1990 ERCs, dated August 24, 1994. Docketed August 29, 2003. Sponsored by Intervenor Sarvey and received into evidence on September 18, 2003.

EXHIBIT 96 CARB Memo to Pollution Control Officers on Road Paving Credits, dated June 16, 2000. Docketed March 26, 2002. (Included in Ex. 51, Air Quality section.) Sponsored by Intervenor Sarvey. ***Same as Exhibit 51.***

EXHIBIT 97 Air Quality Mitigation Agreement between the San Joaquin Valley Air Pollution Control District and Midway Power, LLC Approved by Governing Board on May 16, 2002. Docketed June 5, 2002. Sponsored by Intervenor Sarvey. ***Same as Exhibit 22.***

EXHIBIT 98 Massachusetts Dept. of Environmental Protection (DEP) News, article downloaded from the internet entitled "FPL Energy Systems Delayed Notification to DEP," dated March 1, 2001. Not docketed. Sponsored by Intervenor Sarvey. ***Objection sustained and not received.***

EXHIBIT 99 U. S. Environmental Protection Agency Enforcement & Compliance History Online downloaded from the internet entitled "Detailed Facility Report" re compliance history of FPL power plant facilities, downloaded September 8, 2003. Not docketed. ***Objection sustained and not received.***

EXHIBIT 100 Binder entitled Cumulative Air Quality Studies, PM10 Cumulative Impacts, dated September 18, 2003, Compiled by Intervenor Sarvey. Sponsored by Intervenor Sarvey and received into the record on September 18, 2003.

EXHIBIT 101 Show Cause Concerning Gaming And/Or Anomalous Market Behavior against FP&L Energy in FERC Docket No. EL03-155-000 (103 FERC 61,345) re Compliance with LORS, dated June 25, 2003. Included in CARE's Prehearing Conference Statement docketed July 22, 2003. Sponsored by Intervenor Boyd. ***Objection sustained and not received.***

EXHIBIT 102 Testimony and Declaration of Intervenor Robert Sarvey re Air Quality, Hazardous Materials Management, Fire Protection, and Worker Safety, dated August 4, 2003. Docketed September 3, 2003. Sponsored by Intervenor Boyd, and received into evidence on September 18, 2003.

EXHIBIT 103 Expert Testimony and Declaration of K. Shawn Smallwood PhD. Re Biological Resources, dated August 29, 2003. Docketed September 3, 2003. Sponsored by Intervenor Boyd, and received into evidence on September 11, 2003.

EXHIBIT 104 Expert Testimony and Declaration of Bill Powers re dry cooling technology, dated September 1, 2003. Docketed September 3, 2003. Sponsored by Intervenor Boyd, and received into evidence on September 11, 2003.

EXHIBIT 105 Page 4 of the draft 2003 PM10 Plan of the San Joaquin Unified Valley Air Pollution Control District. Docketed September 19, 2003. Sponsored by Intervenor Sarvey and received into evidence on September 18, 2003.

EXHIBIT 106 California Air Resources Board's (CARB) "Highest 4 Daily PM10 Measurements, downloaded from CARB website on September 17, 2003. Docketed September 19, 2003. Sponsored by Intervenor Sarvey, and received into the record on September 18, 2003.

EXHIBIT 107 San Joaquin Valley Unified Air Pollution Control District "Notice to Comply", to Posdef Power Company, dated November 12, 2002. Docketed September 19, 2003. Sponsored by Intervenor Sarvey, and received into the record on September 18, 2003.

EXHIBIT 108 Intervenor Sarvey's Supplemental Testimony on Staff's Conditions of Certification, dated December 31, 2003. Docketed December 31, 2003. Sponsored by Intervenor Sarvey and received into evidence on ----------

EXHIBITS 109-119 intentionally left blank

EXHIBIT 120 Testimony of Steve Baker, Power Plant Efficiency and Gas Supply, dated September 9, 2003. Docketed September 10, 2003. Sponsored by Staff, and received into evidence on September 10, 2003.

EXHIBIT 121 City of Tracy Resolution 2002-488 Supporting Use of Recycled Water for the Tesla Power Project, dated December 3, 2002. Docketed July 22, 2003 as part of Staff's Prehearing Conference Statement. Sponsored by Staff, and received into the record on September 12, 2003.

EXHIBIT 122 City of Tracy Staff Report 10.B - Discussion of Recycled Water Agreement for Tesla Power Project, dated January 21, 2003. Docketed July 22, 2003 as part of Staff's Prehearing Conference Statement. Sponsored by Staff, and received into the record on September 12, 2003.

EXHIBIT 123 CEC Staff's Revised Air Quality Conditions on Construction Mitigation, dated September 18, 2003. Docketed September ---, 2003. Sponsored by Staff, and received into evidence on September 18, 2003.

EXHIBIT 124 CEC Staff Testimony in Response to Committee Questions, dated November 3, 2003. Docketed November 3, 2003. Sponsored by Staff, and received into evidence on ----------.

EXHIBIT 125 Testimony of Donna Jordan, Grid Planning Engineer, Cal-ISO, re: Transmission System Reliability, dated May 5, 2003. Docketed May 7, 2003. Sponsored by Staff, and received into evidence on ----------.

EXHIBITS 126 Staff's Amended Response to December 16, 2003, Committee Order; Final Staff Assessment and Addendums (sic) Air Quality Conditions of Certification, dated January 12, 2004. Docketed January 12, 2004. Sponsored by Staff, and received into evidence on ----------

EXHIBIT 127 Letter from U.S. EPA, Gerardo Rios, to BAAQMD, Ellen Garvey, Air Pollution Control Officer, dated November 7, 2002. Docketed December 1, 2003. Sponsored by Staff, and received into evidence on----------

EXHIBITS 128-150 intentionally left blank

EXHIBIT 151 Status of the Buena Vista Lake Shrew (Sorex ornatus relictus). Report prepared for the US Bureau of Reclamation Status of the Buena Vista Lake Shrew-Final Report in Partial Fulfillment of the Central Valley Project Improvement Act Section 3406(B)(1), dated October 29, 2001. Docketed December 26, 2001. Sponsored by Applicant. ***Same as Exhibit 58.***

EXHIBIT 152 Letter from Applicant's attorneys Chris Hansmeyer, Allen Matkins, to Fred Diaz, City of Tracy, regarding Recycled Water for the Tesla Power Plant, dated February 6, 2003. Docketed September 5, 2003. Sponsored by Applicant, and received into evidence on September 12, 2003.

EXHIBIT 153 Letter from Applicant's attorneys Chris Hansmeyer, Allen Matkins, to Fred Diaz, City of Tracy, regarding Recycled Water for the Tesla Power Plant, dated March 26, 2003. Docketed September 5, 2003. Sponsored by Applicant, and received into evidence on September 12, 2003.

EXHIBIT 154 Table prepared by Applicant's attorneys David Osias and Allen Matkins regarding negotiations for recycled water for the Tesla Power Plant, dated May 21, 2003. Docketed September 5, 2003. Sponsored by Applicant, and received into evidence on September 12, 2003.

EXHIBIT 155 Rebuttal Testimony of Dwight Mudry -- Biological Resources, dated September 5, 2003. Docketed September 5, 2003. Sponsored by Applicant, and received into evidence on September 11, 2003.

EXHIBIT 156 Rebuttal Testimony of Dwight Mudry, Zoran Rausavljevich, and Scott Busa --Traffic and Transportation, dated September 5, 2003. Docketed September 5, 2003. Sponsored by Applicant, and received into evidence on September 12, 2003.

EXHIBIT 157 Buena Vista/Rosedale-Rio Bravo Water Banking and Recovery Program, Powerpoint presentation, dated September 11, 2003. Docketed September 19, 2003. Sponsored by Applicant, and received into evidence on September 11, 2003.

EXHIBIT 157A Abbreviated Version of Buena Vista/Rosedale-Rio Bravo Water Banking and Recovery Program, Powerpoint presentation, dated September 18, 2003. Sponsored by Applicant, and received into evidence on September 18, 2003.

EXHIBIT 158 Letter from the Buena Vista Water Storage District to Susan Jones, U.S. Fish and Wildlife Service, re the Buena Vista shrew, dated September 10, 2003. Docketed September 15, 2003. Sponsored by Applicant, and received into evidence on September 18, 2003.

EXHIBIT 159 Letter from Dennis Jang, Bay Area Air Quality Management District to CEC Hearing Officer, re compliance with Public Resources Code § 25523(d)(2), dated September 17, 2003. Docketed September 19, 2003. Sponsored by Applicant, and received into evidence on September 18, 2003.

EXHIBIT 160 Draft Agreement for Water Supply Service between the Alameda County Flood Control and Water Conservation District – Zone 7 and Midway Power LLC, dated January 17, 2003. Docketed September 19, 2003. Sponsored by Applicant, and received into evidence on September 18, 2003.

EXHIBIT 161 Draft Agreement by and between the Rosedale-Rio Bravo Water Storage District, the Buena Vista Water Storage District, and Midway, LLC, dated March 20, 2003. Docketed September 19, 2003. Sponsored by Applicant, and received into evidence on September 18, 2003.

EXHIBIT 162 Letter from FPL to Nick Pinhey, Director of Public Works for City of Tracy, re offer of $600,000 for local air quality enhancement programs, dated April 14, 2003. Docketed April 16, 2003. Sponsored by Applicant, and received into evidence on September 18, 2003.

EXHIBIT 163 Supplemental Air Quality Testimony of David Stein, dated October 27, 2003. Docketed October 30, 2003. Sponsored by Applicant, and received into evidence on ----------.

EXHIBIT 164 Letter from U.S. Dept. of the Interior Fish and Wildlife Service, Wayne White, Field Supervisor, to Jack Caswell, CEC, re Clarification of USFWS Testimony re Water Supply for the TPP, dated September 25, 2003. Docketed October 9, 2003. Sponsored by Applicant, and received into evidence on ----------.

EXHIBIT 165 Letter from Buena Vista Water Storage District to U.S. Dept. of the Interior Fish and Wildlife Service re Buena Vista/Rosedale-Rio Bravo Banking and Recovery Program, dated November 3, 2003. Docketed November 6, 2003. Sponsored by Applicant, and received into evidence on ----------

EXHIBIT 166 Draft Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP), dated December 16, 2002. Docketed December 17, 2002. Sponsored by Applicant, and received into evidence on ----------

EXHIBIT 167 Applicant's Supplemental Socioeconomics Testimony of Scott Busa, dated December 30, 2003. Docketed December 31, 2003. Sponsored by Applicant, and received into evidence on ----------

EXHIBIT 168 Letter from U.S. Fish and Wildlife Service, Chris Nagano, to Martin Milobar, Buena Vista Water Storage District, dated January 26, 2004. Docketed February 5, 2004. Sponsored by Applicant, and received into evidence on ----------