URS

July 26, 2007

DOCKET
06-AFC-5
DATE JUL 26 2007
RECD. JUL 30 2007

James W. Reede, Jr., Ed.D.
Energy Facility Siting Project Manager
California Energy Commission
1516 - 9th Street
Sacramento, CA 95814

RE: Applicant Comments to the Panoche Energy Center (06-AFC-5) Preliminary Staff Assessment

Dear Dr. Reede:

Panoche Energy Center, LLC hereby submits its comments to the Preliminary Staff Assessment for the Panoche Energy Center Project (06-AFC-5) that was issued by the California Energy Commission June 2007.

The applicant's comments to the Preliminary Staff Assessment have been incorporated into the June 2007 document using track changes. This document includes only the pages that the applicant had comments/changes.

If you have any questions or concerns please do not hesitate to call me at 714-648-2759.

Sincerely,

Amanda Johnson for

Margaret M. Fitzgerald
Program Manager

CC: Jeffrey D. Byron, CEC
James D. Boyd, CEC
Paul Kramer, Jr., CEC
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PANOCHE ENERGY CENTER

APPLICANT COMMENTS TO THE PRELIMINARY STAFF ASSESSMENT

Submitted to
The California Energy Commission

Submitted by
Panoche Energy Center, LLC

July 26, 2007

With support from

URS Corporation
2020 East First Street, Suite 400
Santa Ana, CA 92705
(714) 835-6886 Fax: (714) 433-7701

Preliminary Staff Assessment

PANOCHE ENERGY CENTER

Application For Certification (06-AFC-5)
Fresno County

CALIFORNIA
ENERGY
COMMISSION

DOCKET
06-AFC-5
DATE
RECD. JUN 28 2007

STAFF REPORT

JUNE 2007
(06-AFC-5)
CEC-700-2007-011-PSA

PROOF OF SERVICE (REVISED 6/27/07) FILED WITH
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TP

PANOCHE ENERGY CENTER PROJECT
(06-AFC-5)
PRELIMINARY STAFF ASSESSMENT

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15 South, Range 13 East, on the United States Geological Survey (USGS) Quadrangle map (Figure 3.2-1). The assessor's parcel number (APN) is 027-060-78S.

The facility site will be located on a 12.8-acre site within a 128-acre parcel. The construction laydown area, including laydown and parking, consists of an 8-acre portion of the 128-acre parcel immediately south of the 12.8-acre plant site. The plant site and construction area are leased by the applicant from the property owners. The 128-acre parcel is currently in agricultural production with pomegranate trees and is subject to a Williamson Act Contract. The landowner applied for partial cancellation of the Williamson Act Contract to cover the proposed site that was approved by the Fresno County Board of Supervisors on April 24, 2007. Offsite improvements associated with the project include a new 400-foot paved, 24-foot wide access road south of West Panoche Road to the plant site, 2,400 linear feet of new gas pipeline, and a new 300-foot transmission line to tie into the Panoche Substation. A project-related activity is PG&E's planned expansion of its Panoche Substation by approximately 2.5 acres south of the existing substation boundary.

Comment [aj1]: Please refer to the attached PG&E letter dated July 12, 2007 that provides the corrected substation expansion dimensions.

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The proposed PEC site will be leased by Panoche Energy Center, LLC, and is adjacent to two existing peaking power plants and nearby the PG&E Panoche Substation. The two existing plants are known as the CalPeak Panoche and the Wellhead peaking power plants. Another power plant project, known as Starwood Midway, is proposed for construction immediately east of the PG&E Panoche Substation. The 120 MW Starwood Midway project application is being considered by the Energy Commission in a separate proceeding (06-AFC-1 0). The land surrounding these existing and proposed electric facilities is agricultural.

Project Description Figure 1 shows the regional setting and **Project Description Figure 2** shows the local setting of the proposed project.

The PEC would be a nominal 400 megawatt (MW) simple-cycle power plant consisting of four General Electric LMS100 natural gas-fired combustion turbine generators and associated equipment. The PEC is designed as a peaking facility to meet electric generation load during periods of high demand. The project is expected to have a maximum annual capacity factor of approximately 57%. Auxiliary equipment will include inlet air evaporative coolers, a step up transformer, compressed air system, control enclosures, aqueous ammonia storage tank, natural gas fuel system, water treatment system, water storage tanks, wastewater system, site stormwater drainage system, and retention pond.

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Associated equipment will include emission control systems necessary to meet the proposed emission limits using best available control technology. Stack emission NO_x in normal operation will be controlled to 2.5 parts per million, volumetric dry (ppmvd) corrected to 15% oxygen through a combination of water injection in the combustors and operation of a selective catalytic reduction (SCR) system with 19% aqueous ammonia to further reduce NOx emissions, and an oxidation catalyst to reduce the emission of carbon monoxide (CO) and volatile organic compounds (VOCs).

Project Description Figure 3 shows the general arrangement and layout of the proposed facility. **Project Description Figure 4** provides an architectural rendering of the proposed facility.

The PEC will connect to the PG&E electrical transmission system at the adjacent Panoche Substation. The connection will require approximately 300 feet of new 230 kilovolt (kV) transmission line located within the plant site and PG&E's substation. Interconnection at this substation minimizes impacts to the PG&E transmission system while providing efficient peaking power for use during peak demand as projected by PG&E.

Natural gas will be delivered to the site via a new 2,400-foot high-pressure, lateral pipeline that would connect to a PG&E high-pressure gas trunk line located east of PG&E's electrical substation. This pipeline would connect with the project on the eastern side of the site at a new gas metering station. At the plant site, the natural gas will pass through a flow-metering station, gas scrubber/filtering equipment, gas pressure control station, electric-driven booster compressors (when required), and a fuel gas heater prior to entering the combustion turbines.

Process water for the cooling towers and other non-potable water uses are proposed to be supplied to the PEC from two new groundwater wells drilled onsite into the Westside Sub-basin of the San Joaquin Valley Groundwater Basin. The confined (lower) aquifer will provide this source of groundwater.

Comment [wdj2]: PEC argues that the confined aquifer source is not hydraulically connected to the Mendota and Firebaugh well fields. In a separate argument, the use of Mendota WWTP secondary effluent is not an environmentaslly sound alternative to the PEC choice – the confined aquifer.

These wells would also supply facility showers, sinks, toilets, eye wash stations, and safety showers. Unless the applicant properly filters the water, signs would be posted to alert personnel that water drawn from these wells is not for human consumption. Potable water would be supplied to the PEC by a bottled water service.

Deleted: These wells would draw water for cooling purposes, an industrial use, from what staff has determined to be a potable-water aquifer. This lower aquifer is also used for drinking water by the cities of Mendota and Firebaugh after normal state mandated filtration and chlorination.

Process wastewater will be disposed of using a deep well injection system. The construction phase will have portable toilets with weekly servicing through pumping into tanker trucks. During the operational phase, sanitary wastes will be directed to a septic system and leach field designed to treat the sanitary flow from the administration and control building and restrooms.

PUBLIC AND AGENCY COORDINATION

On August 8, 2006, the Energy Commission Staff provided the AFC to a comprehensive list of libraries, agencies and organizations. Extensive coordination has occurred with the numerous local, state and federal agencies that have an interest in the project. Particularly, Energy Commission staff has worked with Fresno County's Planning Department and Public Works staffs, the cities of Mendota and Firebaugh, California Independent System Operator (CAISO), San Joaquin Valley Air Pollution Control District, California Air Resources Board, Central Valley Regional Water Quality Control Board, and the U.S. Environmental Protection Agency to identify and resolve issues of concern. In addition, staff has coordinated the review and analysis of the project with U.S. Fish and Wildlife Service, California Department of Fish and Game, U.S. Army

CONCLUSIONS AND RECOMMENDATIONS

The PSA is a document of the Energy Commission staff so, by its very nature, the conclusions and recommendations presented are considered staff's initial analysis of the project.

Each technical area assessment in the PSA includes a discussion of the project and the existing environmental setting; the project's conformance with laws, ordinances, regulations and standards (LORS); whether the facility can be constructed and operated safely and reliably; project specific direct and cumulative impacts; the environmental consequences of the project using the proposed mitigation measures; conclusions and recommendations; and any proposed conditions of certification under which the project should be constructed and operated, should it be approved.

In summary this PSA finds that:

- The project is in conformance with all Laws, Ordinances, Regulations and Standards (LORS) with the exception of land use consistency with the Fresno County General Plan zoning and proposed water supply consistency with State Water policy 75-58.
- Staff is unable to conclude that the proposed project is consistent with the Fresno County General Plan for industrial uses on a parcel that is zoned Exclusive Agriculture AE-20. Staff will continue to work with the Fresno County Planning staff to resolve this issue.
- The project as proposed will have insignificant direct, indirect, and cumulative environmental impacts on water resources. Staff has reviewed alternatives to the use of the confined aquifer, and has determined that there appears no other environmentally or economically feasible alternatives that would avoid or further minimize the significant impacts. The applicant has agreed, in principle, with the Westlands Water District to a water conservation enhancement plan that potentially offsets PEC's entire water use.
- With the proposed conditions of certification included in the various technical areas, the project's construction and operation impacts can be mitigated to a level less than significant.
- The San Joaquin Valley Air Pollution Control District has determined that the project complies with the appropriate rules and requirements of the District and will not contribute to the degradation of the air quality. The applicant has identified all required emissions reductions credits needed for operation of the proposed project.
- Transmission system impacts and appropriate mitigation have been fully identified at this point. When staff has the related evaluation by the CAISO, the additional information will be analyzed and discussed in the FSA.

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Comment [wdj3]: PEC is meeting with the WWD on Tuesday, July 23, 2007 with the intent of signing an MOU in support of this offset plan. PEC plans to provide the CEC Staff with an executed agreement between WWD and PEC to substantiate the water offset plan.

Deleted: not yet agreed to implementation of any of the avoidance or minimization alternatives. These impacts will be further addressed in the FSA.

PROJECT DESCRIPTION

James W. Reede, Jr., Ed.D

INTRODUCTION

On August 2, 2006, Energy Investors Fund, LLC, (Applicant) submitted an Application for Certification (AFC) to construct and operate a nominal 400 megawatt (MW), simple-cycle power plant, the Panoche Energy Center (PEC), in an unincorporated area of western Fresno County.

The applicant submitted a final AFC Supplement on November 7, 2006, and on November 8, 2006, the Energy Commission accepted the AFC (06-AFC-5) with supplemental information as complete. This determination initiated Energy Commission staff's independent analysis of the proposed project.

PURPOSE OF PROJECT

The PEC is designed as a peaking facility to meet electrical generation loads during period of high demand, which generally occur during the daytime hours, and more frequently during the summer than other times of the year. The project is expected to have a maximum annual capacity factor of no higher than 57%, depending on weather and customer demand, load growth, hydroelectric supplies, generation retirements and replacements, the level of generating unit and transmission outages, and other factors.

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The proposed project objectives are based on the terms and conditions set forth in a Power Purchase Agreement (PPA) between the applicant and Pacific Gas and Electric Company (PG&E). (PEC 2006a) These terms and conditions include:

- Power supply contract term of 20 years.
- The PEC would be constructed on a parcel of land adjacent to the PG&E Panoche Substation on West Panoche Road, Fresno County, California.
- The generating facility will include four General Electric LMS100 natural gas-fired combustion turbine generators (CTGs). The four turbines are able to ramp from zero (0) percent to 100 percent load in a fairly short time and they provide an attractive heat rate for a peaking plant.
- Each CTG will generate 100 MW net at summer design ambient conditions.
- The entire PEC is to be on-line and available for PG&E to dispatch into the grid on or before August 1, 2009.
- As an intermediate load and peaking facility, per the power purchase agreement, the plant is estimated to operate no more than 5,000 hours per year. The plant will be dispatched by PG&E in accordance with their economic dispatch procedures

PROJECT LOCATION

The project area is located in an unincorporated area of western Fresno County, adjacent to the Panoche Hills. The site is approximately 12 miles southwest of the city of Mendota, 16 miles south-southwest of the city of Firebaugh and approximately 2 miles east of Interstate 5, adjacent to the Pacific Gas & Electric (PG&E) existing Panoche Substation. The proposed site and substation are located south of West Panoche Road. The site is more specifically described as the Southwest Quarter of Section 5, Township 15 South, Range 13 East, on the United States Geological Survey (USGS) Quadrangle map (Figure 3.2-1). The assessor's parcel number (APN) is 027-060-78S.

The facility site will be located on a 12.8-acre site within a 128-acre parcel. The construction laydown area, including laydown and parking, consists of an 8-acre portion of the 128-acre parcel immediately south of the 12.8-acre plant site. The plant site and construction area are leased by the applicant from the property owners. The 128-acre parcel is currently in agricultural production with pomegranate trees and is subject to a Williamson Act Contract. The landowner applied for partial cancellation of the Williamson Act Contract to cover the proposed project site. The cancellation was approved by the Fresno County Board of Supervisors on April 24, 2007. Offsite improvements associated with the project include a new 400-foot paved, 24-foot wide access road south of West Panoche Road to the plant site, 2,400 linear feet of new gas pipeline, and a 300-foot transmission tieline into the Panoche Substation. A project-related activity is PG&E's planned expansion of its Panoche Substation by approximately 2.5 acres south of the existing substation boundary.

The proposed PEC site will be leased by Panoche Energy Center, LLC, and is adjacent to two existing peaking power plants and nearby the PG&E Panoche Substation. The two existing plants are known as the CalPeak Panoche and the Wellhead peaking power plants. Another power plant project, currently under review by the Energy Commission as 06-AFC-10, known as Starwood Midway, is proposed for construction immediately east of the PG&E Panoche Substation. The land surrounding these existing and proposed electric facilities is agricultural.

Comment [aj4]: Please refer to the attached PG&E letter dated July 12, 2007 that provides the corrected substation expansion dimensions.

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Project Description Figure 1 shows the regional setting and **Project Description Figure 2** shows the local setting of the proposed project.

POWER PLANT EQUIPMENT AND LINEAR FACILITIES

The PEC would be a nominal 400 megawatt (MW) simple-cycle power plant consisting of four General Electric LMS100 natural gas-fired combustion turbine generators and associated equipment. The PEC is designed as a peaking facility to meet electric generation load during periods of high demand. The project is expected to have a maximum annual capacity factor of approximately 57%.

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Auxiliary equipment will include inlet air foggers with evaporative coolers, a step up transformer, compressed air system, control enclosures, aqueous ammonia storage

tank, natural gas fuel system, water treatment system, water storage tanks, wastewater system, site stormwater drainage system, and retention pond.

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Associated equipment will include emission control systems necessary to meet the proposed emission limits using best available control technology. Stack emission NO_x in normal operation will be controlled to 2.5 parts per million, volumetric dry (ppmvd) corrected to 15% oxygen through a combination of water injection in the combustors and operation of a selective catalytic reduction (SCR) system with 19% aqueous ammonia to further reduce NOx emissions, and an oxidation catalyst to reduce the emission of carbon monoxide (CO) and volatile organic compounds (VOCs).

Project Description Figure 3 shows the general arrangement and layout of the proposed facility. **Project Description Figure 4** provides an architectural rendering of the proposed facility.

ELECTRIC TRANSMISSION

The PEC will connect to the PG&E electrical transmission system at the adjacent Panoche Substation. The connection will require approximately 300 feet of new 230 kilovolt (kV) transmission line located within the plant site and PG&E's substation.

NATURAL GAS SUPPLY

Natural gas will be delivered to the site via a new 2,400-foot high-pressure, lateral pipeline that would connect to a PG&E high-pressure gas trunk line located east of PG&E's electrical substation. This pipeline would connect with the project on the eastern side of the site at a new gas metering station. At the plant site, the natural gas will pass through a flow-metering station, gas scrubber/filtering equipment, gas pressure control station, electric-driven booster compressors (when required), and a fuel gas heater prior to entering the combustion turbines.

WATER SUPPLY

Process water for the cooling towers and other non-potable water uses are proposed to be supplied to the PEC from two new groundwater wells drilled onsite into the Westside Sub-basin of the San Joaquin Valley Groundwater Basin. These wells would draw water from a confined (lower) aquifer. These wells would also supply facility showers, sinks, toilets, eye wash stations, and safety showers. Signs would be posted to alert personnel that water drawn from these wells is not for human consumption. Potable water would be supplied to the PEC by a bottled water service.

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WASTEWATER DISCHARGE

Process wastewater will be disposed of using a deep well injection system. The construction phase will have portable toilets with weekly servicing. During the operational phase, sanitary wastes will be directed to a septic system and leach field designed to treat the sanitary flow from the administration and control building and restrooms.

ENVIRONMENTAL ASSESSMENT

Local – San Joaquin Valley Air Pollution Control District (SJVAPCD)	
Regulation II – Permits	This regulation sets forth the regulatory framework of the application for and issuance of construction and operation permits for new, altered and existing equipment. Included in these requirements are the federally delegated requirements for New Source Review, Title V Permits, and the Acid Rain Program. Regulation II Rule 2201 establishes the pre-construction review requirements for new, modified or relocated facilities, in conformance with the federal New Source Review regulation to ensure that these facilities do not interfere with progress in attainment of the national ambient air quality standards and that future economic growth in the San Joaquin Valley is not unnecessarily restricted. This regulation establishes Best Available Control Technology (BACT) and emission offset requirements. Regulation II, Rule 2520 defines the permit application and issuance as well as compliance requirements associated with the Title V federal permit program. Any new source which qualifies as a Title V facility must obtain a Title V permit within twelve months of starting operation modification of that source. Regulation II, Rule 2540 defines the requirements for the Acid Rain Program, including the requirement for a subject facility to obtain emission allowances for SOx emissions as well as monitoring NOx, O_2 and carbon monoxide (CO) emissions from the facility.
Regulation IV – Prohibitions	This regulation sets forth the restrictions for visible emissions, odor nuisance, various air emissions, and fuel contaminants. Regulation IV incorporates provisions of 40 CFR Part 60, Chapter I, and is applicable to all new, modified, or reconstructed sources of air pollution. Sections of this regulation apply to stationary gas turbines (Subpart KKKK). These subparts establish limits of NO_2 and SO_2 emissions from the facility as well as monitoring and test method requirements. Also specifies additional performance standards for stationary gas turbines, and specifies performance standards for stationary internal combustion engines larger than 50 brake horse power (bhp).
Regulation V – Procedures before the Hearing Board	Establishes the procedures for reporting emergencies and emergency variances.
Regulation VIII – Fugitive PM10 Prohibitions	This regulation sets forth the requirements and performance standards for the control of emissions from fugitive dust causing activities.

Comment [wdj5]: Only NOx, CO and O2 are monitored via the CEM systems.

Deleted: SOx, NOx, and carbon dioxide (CO2) emissions from¶ the facility

SETTING

The PEC site is located in an unincorporated area of western Fresno County east of the Panoche Hills and east of the San Benito County line approximately 2.2 miles east of

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Where possible, staff prefers that the recommended background concentrations come from nearby monitoring stations with similar characteristics; however no monitoring stations are located near the project site. Monitoring stations located within larger urban areas (Fresno) provide conservative estimates for background concentrations. For all pollutants, except for SO_2, the highest monitored values from the Fresno First Street monitoring station was used to determine the background concentrations. For SO_2, the 2003 monitored concentrations from the Fresno Fremont School monitoring station were used to determine the background concentrations.

The background concentrations for PM10 and PM2.5 are well above the most restrictive existing ambient air quality standards, while the background concentrations for the other pollutants are all well below the most restrictive existing ambient air quality standards.

PROJECT DESCRIPTION AND EMISSIONS

Panoche Energy Center, LLC has proposed to develop the PEC on a 12.8 acre site within a 128-acre parcel (PEC 2006a). The construction laydown area, including laydown and parking, consists of 8-acres within the 128-acre parcel. In addition, a 2.5-acre area is required for expansion of PG&E's adjacent existing substation. Access to the site will require upgrading and extending an existing access road to create a 400-foot long, 24-foot wide paved access road heading south from Davidson Avenue, approximately 400 feet south of the intersection with West Panoche Road, to the facility's main gate. Improvements will require a 50 foot access easement, widening the road surface, improving drainage, and laying gravel. The newly paved road will have two 12-foot-wide lanes with 5-foot-wide gravel shoulders and contoured drainage ditches.

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A 16-inch natural gas pipeline approximately 2,400 feet in length will be built to connect the facility to an existing PG&E high-pressure gas trunk line located east of PG&E's electrical substation. A new gas metering and associated on-site piping will be located on the eastern side of the site. Power line easements are located along the western boundary of the site and adjacent to the northeast corner of the site. Process water and non-potable water uses will be supplied to the PEC from two new groundwater wells drilled onsite into the Westside Sub-basin of the San Joaquin Valley Groundwater Basin. Potable water will supplied to the PEC by a bottled water service. Process wastewater will be disposed of using a deep well injection system. Sanitary wastes will be directed to a septic system and leach field designed to treat the sanitary flow from the administration and control building and restrooms.

CONSTRUCTION

Construction of the PEC would consist of the following: 1) Injection and production well installation (three months total); 2) clearing and grubbing, removal of pomegranate trees (one month); 3) site grading (2 months); 4) building of facility structures (10 months); 5) gas pipeline construction (one month that overlaps with building of facility structures); and 6) substation improvement (5 months that overlaps for three months with building of

AIR QUALITY Table 13
PEC Typical Commissioning Emissions

Commissioning Activities	Operation Duration	Fuel Use	NOx	CO	VOC	PM10
Each CTG	**(Hours)**	**(MMBtu/hr)**	**Emissions, lb/event**			
First Fire (Core/Sync Idle)	16	73.5	178	727	18.5	96
Synch and Check E-stop (Idle)	12	73.5	133.5	545.2	13.9	72
Additional AVR Commissioning (5% power)	12	92.8	251	363.2	8.7	72
Break-in Run (5% power)	8		167.3	242.1	5.8	48
Dynamic Commissioning of AVR and Commission Water Injection						
Load Step 1 (10% power)	4	166.1	66.8	277	21.0	24
Load Step 2 (20% power)	4	245.5	98.6	181	10.4	24
Load Step 3 (30% power)	4	319.3	128	181	10.6	24
Load Step 4 (40% power)	4	389.1	156	160	10.7	24
Load Step 5 (50% power)	4	457.4	184	132	11.3	24
Load Step 6 (60% power)	4	524.6	211	180	13.5	24
Load Step 7 (70% power)	4	590.8	237	247	16.3	24
Load Step 8 (80% power)	4	658.5	265	349	20.7	24
Load Step 9 (90% power)	4	727.9	292	516	29.5	24
Load Step 10 (100% power)	4	798.1	321	789	47.9	24
Base load AVR Commissioning (100% power)	16	798.1	2,689	4,890	239.0	96
Total (1 CTG)	104	5,915.2	5,378.2	9,779.5	477.8	624

Source: Data Response (PEC 2007a, DR 8), "Operating and stack parameters for LMS100 Commissioning".

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Air Quality Table 14 presents the applicant's worst-case short-term initial commissioning emissions which represent the emissions during the base load AVR commissioning test.

AIR QUALITY Table 14
PEC Worst-Case NOx and CO Short-Term Commissioning Emissions

Pollutant	Lbs/hr
NOx	168
CO	305.6

Source: Data Response (PEC 2007a, DR 2 and 8).

The initial commissioning modeling analysis presented in the impacts section uses these worst-case emission values.

OPERATIONAL PHASE

Equipment Description

The equipment for the proposed PEC would include the following major components (PEC 2006a):

- Four General Electric LMS100 natural gas-fired combustion turbine generators (CTGs) operating in simple cycle mode, producing approximately 100 MW of electricity each;
- The CTGs would each be equipped with water injection to the combustors for reducing production of NOx, a selective catalytic reduction (SCR) system with 19% aqueous ammonia injection to further reduce NOx emissions, and an oxidation catalyst to reduce CO emissions;
- Four compressor intercooler heat exchangers (105 MMBtu/hour);
- Combustion turbine inlet air filters;
- Four exhaust stacks (diameter of 14.5-feet and height of 90-feet);
- A continuous emission monitoring (CEM) system installed on each stack of the CTG would record concentrations of NOx, CO, and oxygen in the flue gas;
- Mechanical draft 5-cell cooling tower (27,600 gallons/minute, 3 cycles of concentration) with chemical feed system consisting of a bulk sulfuric acid storage tank and two full-capacity sulfuric acid metering pumps. The cooling tower is sized so that only 4 of the 5 cells will ever need to operate at any given time;
- 160-horsepower (hp) emergency diesel firewater pump;
- Raw water storage tank (500,000 gallons);
- Demineralized water storage tank (240,000 gallons);
- Wastewater collection tank (20,000 gallons); and
- On-site underground injection well(s) for wastewater disposal (average rate of 540,000 gallons/day or approximately 388 gallons/minute).

Comment [wdj6]: There will not be a CO2 CEM

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Facility Operation

The PEC would include four stationary, natural gas-fired combustion turbines for power production. The CTGs would generate an average of 400 MW (100 MW each) at summer design ambient conditions. Each CTG would be equipped with water injection to the combustors for reducing production of oxides of nitrogen (NOx), and a selective catalytic reduction (SCR) system that uses ammonia vapor in the presence of a catalyst to reduce the NOx concentration in the exhaust gases.

Each turbine of the PEC would operate up to 5,000 hours per year, as required by PG&E, which equates to a maximum annual capacity factor of 57% (PEC 2006a, p. 3-54). This differs from the equivalent availability factor (EAF), which considers the projected percent of energy production capacity achievable. The EAF may be defined as a

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

Verification: The project owner shall include in the MCR (1) a summary of all actions taken to maintain compliance with this condition, (2) copies of all diesel fuel purchase records, (3) a list of all heavy equipment used on site during that month, including the owner of that equipment and a letter from each owner indicating that equipment has been properly maintained, and (4) any other documentation deemed necessary by the CPM and AQCMM to verify compliance with this condition. Such information may be provided via electronic format or disk at the project owner's discretion.

AQ-SC6 The project owner shall ensure that the property, referred to as ML2, located approximately one-half mile north of the project site is vacated prior to the initiation of the start-up of the first combustion turbine unit.

Verification: The project owner shall provide a written declaration to the CPM signed by the owner/resident of the property referred to as ML2, that they have vacated the property and that no other parties are residing at that property at least 15 days prior to the initiation of start-up of the first combustion turbine unit.

Comment [wdj7]: Given that construction will take place during daylight hours and will have infrequent periods of high noise levels, PEC requests that ML2 be vacated prior to the initial CT startup, not prior to major construction.

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Deleted: well drilling and/or site grading construction activities; whichever occurs first.

AQ-SC7 The project owner shall submit to the CPM for review and approval any modification proposed by the project owner to any project air permit. The project owner shall submit to the CPM any modification to any permit proposed by the District or U.S. EPA, and any revised permit issued by the District or U.S. EPA, for the project.

Verification: The project owner shall submit any proposed air permit modification to the CPM within five working days of its submittal either by 1) the project owner to an agency, or 2) receipt of proposed modifications from an agency. The project owner shall submit all modified air permits to the CPM within 15 days of receipt.

AQ-SC8 The project owner shall provide emission reduction credits to offset the project's SOx emissions at a ratio of 1:1. These emission reductions in shall be provided in the following quarterly amounts: Q1 – 3,560 lbs; Q2 – 3,560 lbs; Q3 – 5,180 lbs; Q4 – 3,900 lbs. These offsets shall be provided using ERCs N-559-5 and/or N-591-5. Quarterly transfers from quarters 1 and 4 to quarters 2 and 3 are allowed. The project owner shall surrender these ERCs prior to first turbine fire. This condition is in addition to the District offset requirements provided in Conditions of Certification **AQ-74 through AQ-77.**

Verification: The project owner shall submit to the CPM confirmation that the appropriate quantity of SOx ERCs have been surrendered to the District at least 30 days prior to initial startup. If the CPM, in consultation with the District, approves a substitution or modification, the CPM shall file a statement of the approval with the commission docket and mail a copy of the statement to every person on the post-certification mailing list. The CPM shall maintain an updated list of approved ERCs for the project. Quarterly average fuel sulfur data from the most representative gas utility

On a quarterly basis, the project owner shall report the CO_2 and CO_2 equivalent emissions from the described emissions of CO_2, N_2O, CH_4 and SF_6 to the CPM.

Verification: Any greenhouse gas emissions that are reported by the project owner to the California Climate Action Registry or to comply with AB32 rules or pursuant to this condition shall be reported to the CPM as part of the Quarterly and the annual Air Quality Report as required in condition **AQ-SC10.**

AQ-SC10 The project owner shall submit to the CPM Quarterly Operation Reports, following the end of each calendar quarter that include operational and emissions information as necessary to demonstrate compliance with the Conditions of Certification herein. The Quarterly Operation Report will specifically note or highlight incidences of noncompliance.

Verification: The project owner shall submit the Quarterly Operation Reports to the CPM and APCO no later than 30 days following the end of each calendar quarter.

DISTRICT PRELIMINARY DETERMINATION OF COMPLIANCE CONDITIONS (SJVAPCD 2007a)

The SJVACPD permits each device separately, which causes duplication of conditions. Staff has compiled the SJVAPCD conditions to eliminate this duplication, with the gas turbine conditions being followed by the cooling tower conditions, followed by the firewater pump conditions, followed by the facility-wide conditions.

Gas Turbine Conditions

1. **SJVAPCD Permit No. Unit C-7220-1-0:** 100 MW Simple-Cycle Power Generating System #1 Consisting of a General Electric LMS100 Natural Gas-Fired Combustion Turbine Generator Served by a Selective Catalytic Reduction (SCR) System and an Oxidation Catalyst.

2. **SJVAPCD Permit No. Unit C-7220-2-0:** 100 MW Simple-Cycle Power Generating System #2 Consisting of a General Electric LMS100 Natural Gas-Fired Combustion Turbine Generator Served by a SCR System and an Oxidation Catalyst.

3. **SJVAPCD Permit No.** Unit **C-7220-3-0:** 100 MW Simple-Cycle Power Generating System #3 Consisting of a General Electric LMS100 Natural Gas-Fired Combustion Turbine Generator Served by a SCR System and an Oxidation Catalyst.

4. **SJVAPCD Permit No. Unit C-7220-4-0:** 100 MW Simple-Cycle Power Generating System #4 Consisting of a General Electric LMS100 Natural Gas-Fired Combustion Turbine Generator Served by a SCR System and an Oxidation Catalyst.

AQ-1 The owner/operator of the Panoche Energy Center (PEC) shall minimize the emissions from the gas turbine to the maximum extent possible during the commissioning period. Conditions **AQ-2** through **AQ-12** shall apply only during

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the CEC CPM as part of the monthly commissioning status report noted in the verification of Condition **AQ-7.**

AQ-6 Coincident with the steady-state operation of the SCR system and the oxidation catalyst at loads greater than 50% and after installation and tuning of the emission controls, NOx, CO, and VOC emissions from this unit shall comply with the limits specified in Condition **AQ-18.** [District Rule 2201]

Verification: The project owner shall provide NOx, CO, and VOC emissions information for steady-state operations of the SCR system at oxidation catalyst loads greater than 50% once emission controls for NOx, CO, and VOC have been installed and tuned to demonstrate compliance with this condition, and that information shall be submitted to the CEC CPM as part of the monthly commissioning status report noted in the verification of Condition **AQ-7.**

AQ-7 The project owner shall submit a plan to the District at least four weeks prior to the first firing of this unit, describing the procedures to be followed during the commissioning period. The plan shall include a description of each commissioning activity, the anticipated duration of each activity in hours, and the purpose of the activity. The activities described shall include, but not limited to, the tuning of the combustors, the installation and operation of the SCR system and the oxidation catalyst, the installation, calibration, and testing of the NOx and CO continuous emissions monitors, and any activities requiring the firing of this unit without abatement by the SCR system or oxidation catalyst. [District Rule 2201]

Verification: The project owner shall submit a single commissioning plan to the District and the CPM at least four weeks prior to the first firing of the combustion turbine, describing in detail the procedures to be followed for the turbine. The project owner shall submit, commencing one month from the time of gas turbine first fire, a monthly commissioning status report throughout the duration of the commissioning phase that demonstrates compliance with the commissioning plan and demonstrates compliance with all other substantive requirements listed in Conditions **AQ-1** through **AQ-12.** The monthly commissioning status report shall be submitted to the CPM by the 10th of each month for the previous month, for all months with turbine commissioning activities following the turbine first fire date.

AQ-8 Emission rates from the CTG, during the commissioning period, shall not exceed any of the following limits: NOx (as NO_2) - 187.00 lb/hr; PM10 – 6.00 lb/hr; CO – 309.75 lb/hr; or VOC (as methane) – 6.63 lb/hr. [District Rule 2201]

Verification: The project owner shall provide CEM-derived emissions data for NOx and CO and calculate PM10 and VOC emissions from fuel consumption and the source test results to demonstrate compliance with this condition, and that data shall be submitted to the CEC CPM as part of the monthly commissioning status report noted in the verification of Condition **AQ-7.**

Comment [wdj8]: CEMs will monitor NOx, CO and O2 only.

AQ-9 During the commissioning period, the project owner shall demonstrate NOx and CO compliance with Condition **AQ-6** through the use of properly operated and maintained continuous emissions monitors and recorders as specified in Condition **AQ-8.** The monitored parameters for this unit shall be recorded at least once every 15 minutes (excluding normal calibration periods or when the monitored source is not in operation). [District Rule 2201]

Verification: The project owner shall provide CEM data to demonstrate NOx and CO compliance with Conditions **AQ-6, AQ-8,** and **AQ-18,** and that data shall be submitted to the CEC CPM as part of the monthly commissioning phase status report noted in the verification of Condition **AQ-7.**

AQ-10 The continuous emissions monitors specified in these permit conditions shall be installed, calibrated and operational prior to the first firing of the unit. After first firing, the detection range of the CEMS shall be adjusted as necessary to accurately measure the resulting range of NOx and CO emissions concentrations. [District Rule 2201]

Verification: The project owner shall provide notification to the District and the CPM of the anticipated dates for installation, calibration and testing for the CEMS at least ten (10) days prior to installation. The project owner shall provide a report to the District and CPM for approval demonstrating compliance with CEMS calibration requirements prior to turbine first fire. The project owner shall provide ongoing calibration data in the monthly commissioning status reports (see verification of Condition **AQ-7).**

AQ-11 The total number of firing hours of a CTG unit without abatement of emissions by the SCR system and the oxidation catalyst of units C-7220-1, '2, '3, and '4 shall not exceed 800 hours total during the commissioning period. Such operation of a CTG without abatement shall be limited to discrete commissioning activities that can only be properly executed without the SCR system and the oxidation catalyst in place. Upon completion of these activities, the project owner shall provide written notice to the District and the unused balance of the 800 firing hours without abatement shall expire. Records of the commissioning hours of operation for units C-7220-1, '2, '3, and '4 shall be maintained. [District Rule 2201]

Verification: The project owner shall provide to the District and the CPM a reporting of the number of firing hours without abatement for the turbine in the monthly commissioning status reports (see verification of Condition **AQ-7).**

AQ-12 The total mass emissions of NOx, SOx, PM 10, CO, and VOC that are emitted during the commissioning period shall accrue towards the consecutive twelve month emission limits specified in Condition **AQ-27.** NOx and CO total mass emissions will be determined from CEMs data and SOx, PM10, and VOC total mass emissions will be calculated. [District Rule 2201]

Verification: The project owner shall provide CEM-derived emissions data to demonstrate NOx and CO and calculate PM10 and VOC emissions from fuel consumption and the source test results to demonstrate compliance with this condition as part of the Quarterly Operation Report **(AQ-SC10).**

AQ-13 A selective catalytic reduction (SCR) system and an oxidation catalyst shall serve the gas turbine engine. Exhaust ducting may be equipped (if required) with a fresh air inlet blower to be used to lower the exhaust temperature prior to inlet of the SCR system catalyst. The project owner shall submit SCR and oxidation catalyst design details to the District at least 30 days prior to commencement of construction. [District Rule 2201]

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

AQ-14 The project owner shall submit continuous emission monitor design, installation, and operational details to the District at least 30 days prior to commencement of construction. [District Rule 2201]

Verification: The project owner shall submit continuous emission monitor design, installation, and operational details to the APCO and the CPM 30 days prior to commencement of construction.

AQ-15 The project owner shall submit to the District, before issuance of the Permit to Operate, information correlating the NOx control system operating parameters to the associated measured NOx output. The information must be sufficient to allow the District to determine compliance with the NOx emission limits of this permit when no continuous emission monitoring data for NOx is available or when the continuous emission monitoring system is not operating properly. [District Rule 4703]

Verification: The project owner shall compile the required NOx control system and emissions data and submit the information to the CPM and the APCO before issuance of the Permit to Operate.

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AQ-16 Combustion turbine generator (CTG) and electrical generator lube oil vents shall be equipped with mist eliminators. Visible emissions from lube oil vents shall not exhibit opacity of 5% or greater, except for a period or periods not exceeding three minutes in any one hour. [District Rules 2201 and 4101]

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

AQ-17 The CTG shall be fired exclusively on PUC-regulated natural gas with a sulfur content of no greater than 1.0 grain of sulfur compounds (as S) per 100 dry scf of natural gas. [District Rule 2201 and 40 CFR 60.4330(a)(2)]

Verification: The project owner shall compile the required data on the sulfur content of the natural gas and submit the information to the CPM and the APCO in the Quarterly Operation Report **(AQ-SC10).**

AQ-18 Emission rates from the CTG, except during startup or shutdown periods, shall not exceed any of the following limits: NOx (as NO_2) – 8.03 lb/hr and 2.5 ppmvd @ 15% O_2; SOx (as SO_2) – 2.51 lb/hr; PM10 – 6.00 lb/hr; CO – 11.81 lb/hr and 6.0 ppmvd @ 15% O_2; or VOC (as methane) – 2.67 lb/hr and 2.0 ppmvd @ 15% O_2. NOx (as NO_2) emission limits are one hour rolling averages. All other pollutant emission concentration limits are based on three hour rolling averages. [District Rules 2201 and 4703 and 40 CFR 60.4320(a) & (b)]

Verification: The project owner shall submit to the CPM and APCO CTG emissions data demonstrating compliance with this condition as part of the Quarterly Operation Report **(AQ-SC10).**

AQ-19 Ammonia (NH_3) emissions shall not exceed either of the following limits: 11.90 lb/hr or 10 ppmvd @ 15% O_2 (based on a 24 hour rolling average). [District Rules 2201 and 4102]

Verification: The project owner shall submit to the CPM and APCO CTG emissions data demonstrating compliance with this condition, using approved calculation methods **(AQ-30),** as part of the Quarterly Operation Report **(AQ-SC10).**

AQ-20 During periods of startup, CTG exhaust emission rates shall not exceed any of the following limits: NOx (as NO_2) – 44.40 lb/hr, SOx – 2.51 lb/hr, PM10 6.00 lb/hr, CO - 106.60 lb/hr, or VOC - 7.60 lb/hr, based on three hour averages. [District Rules 2201]

Verification: The project owner shall submit to the CPM and APCO CTG emissions data demonstrating compliance with this condition as part of the Quarterly Operation Report **(AQ-SC10).** The project owner shall provide CEM-derived emissions data to demonstrate NOx and CO and calculate PM10 and VOC emissions from fuel consumption and the source test results to demonstrate compliance with this condition.

AQ-21 During periods of shutdown, CTG exhaust emission rates shall not exceed any of the following limits: NOx (as NO_2) – 34.29 lb/hr, SOx – 2.51 lb/hr, PM10 6.00 lb/hr, CO – 268.57 lb/hr, or VOC - 17.14 lb/hr, based on three hour averages. [District Rules 2201]

Verification: The project owner shall submit to the CPM and APCO CTG emissions data demonstrating compliance with this condition as part of the Quarterly Operation Report **(AQ-SC10).** The project owner shall provide CEM-derived emissions data to demonstrate NOx and CO and calculate PM10 and VOC emissions from fuel consumption and the source test results to demonstrate compliance with this condition.

BIOLOGICAL RESOURCES

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SUMMARY OF CONCLUSIONS

The proposed Panoche Energy Center (PEC) is located in western Fresno County within the northern population of the state threatened, and federally endangered, San Joaquin kit fox (SJKF) (*Vulpes macrotis mutica),* and within an area that has been designated by the U.S. Fish and Wildlife Service (USFWS) to be preserved for the habitat connectivity of this species. Consultation with USFWS under the federal Endangered Species is required. Implementation of the proposed Conditions of Certification presented in this Preliminary Staff Assessment will mitigate impacts to biological resources to less than significant levels. A Biological Assessment was completed by the applicant and submitted to USFWS on May 18, 2007.

INTRODUCTION

This section provides the California Energy Commission (Energy Commission) staff's preliminary analysis of potential effects to biological resources from the construction and operation of the PEC as proposed by Panoche Energy Center, LLC (applicant). This analysis addresses potential impacts to state and federally listed species, species of special concern, and other areas of critical biological concern. Information contained in this document includes a detailed description of the existing biotic environment, an analysis of potential impacts to biological resources and, where necessary, details implementation guidance to avoid, or minimize adverse effects and compensation measures to reduce potential impacts to less than significant levels. Additionally, this analysis determines compliance with applicable laws, ordinances, regulations, and standards (LORS), and identifies applicable Conditions of Certification. This analysis is based, in part, on the following gathered facts: information provided in the Application for Certification for the PEC; ongoing contact with the applicant and discussions with USFWS and California Department of Fish and Game (CDFG); and staff site visits conducted on April 21, 2006, January 19 and February 28 of 2007.

LAWS, ORDINANCES, REGULATIONS, AND STANDARDS

The applicant shall abide by the following Laws, Ordinances, Regulations, and Standards (LORS) during project construction and operation as listed in **Biological Resources Table 1.**

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BIOLOGICAL RESOURCES Table 1
Laws, Ordinances, Regulations, and Standards

Applicable Law	Description
Federal	
Endangered Species Act (Title 16, United States Code, section 1531 *et seq.;* Title 50, Code of Federal Regulations, part 17.1 *et seq.)*	Designates and provides for the protection of federally listed threatened and endangered plant and animal species, and their designated critical habitat. The administering agency is USFWS and National Marine Fisheries Service within the National Oceanic and Atmospheric Administration (NOAA).
Migratory Bird Treaty Act (Title 16, United States Code, sections 703-711)	Prohibits the take or possession of any migratory nongame bird (or any part of such migratory nongame bird), including nests with viable eggs. The administering agency is USFWS.
State	
California Endangered Species Act (Fish and Game Code, sections 2050 et seq.)	Protects California's rare, threatened, and endangered species.
California Code of Regulations (Title 14, sections 670.2 and 670.5)	Lists the plants and animals that are classified as rare, threatened, or endangered in California.
Fully Protected Species (Fish and Game Code, sections 3511, 4700, 5050, and 5515)	Designates certain species as fully protected and prohibits take of such species or their habitat. The administering agency is CDFG.
Native Plant Protection Act (Fish and Game Code, section 1900 *et seq.)*	Designates rare, threatened, and endangered plants in California, prohibits the taking of listed plants. The administering agency is CDFG.
Nest or Eggs (Fish and Game Code, section 3503)	Prohibits take, possession, or needless destruction of the nest or eggs of any bird. The administering agency is CDFG.
Migratory Birds (Fish and Game Code, section 3513)	Prohibits take or possession of any migratory nongame bird as designated in the Migratory Bird Treat Act or any part of such migratory nongame bird. The administering agency is CDFG.
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. The administering agency is CDFG.
Local	
Fresno County General Plan – Open Space and Conservation Element	Requires that proposed development projects are compatible with policies set forth in the natural resources section, which provide for the protection and enhancement of fish and wildlife species, riparian and wetland habitats and native vegetation resources.

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SETTING

REGIONAL SETTING

The proposed PEC site is located in the western portion of the San Joaquin Valley in an unincorporated area of Fresno County; approximately 50 miles west of the City of Fresno and two miles east of Interstate 5. Historically, this portion of the San Joaquin Valley contained many natural habitats that supported a variety of native plant and animal species. However, these natural environments have been largely converted to agricultural and urban land uses. Nearby natural areas, greater than four (4) miles away, are where the majority of the special-status species[2] have been recorded are predominately south and west of the project area and include Tumey Hills, Panoche Hills, Ciervo Hills, and Monocline Ridge. The nearest natural area is Tumey Hills, located almost 4.2 miles west of the proposed PEC site.

PROJECT SITE AND VICINITY DESCRIPTION

In the vicinity of the proposed project, agricultural production is the principal land use, with other mixed uses including urban areas, industrial, and commercial facilities. The proposed PEC site is located adjacent to the northwest corner of the existing Panoche Substation and two existing power plants. The PEC site (12.8 acres) and laydown area (8 acres) are located within an active pomegranate orchard. The adjacent land uses include agricultural production; comprised of active apricot and pomegranate orchards.

Existing Vegetation and Wildlife

The applicant conducted a reconnaissance-level survey of biological resources within the project area and within a 1-mile radius surrounding the project area on April 21, 2006. The survey included an inventory of common and special status plant and wildlife species observed, their habitats, and an assessment of the study area's potential to support special-status species based on habitat suitability comparisons and similarities to reported occupied habitats.

The proposed PEC site and vicinity are highly disturbed due to intensive agricultural operations, including regular herbicide applications to manage vegetation in the pomegranate orchard's understory. As a result, native plant communities are not present in the project area. Herbaceous cover, when present, is limited to weedy annuals including redstem filaree *(Erodium cicutarium),* common groundsel *(Senicio vulgaris),* foxtail chess *(Bromus madritensis),* and sow-thistle *(Sonchus sp.).* The only native plant species documented during the survey was miner's lettuce *(Claytonia perfoliata),* an understory plant that commonly occurs in orchards within the San Joaquin Valley.

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[2] For the purposes of this analysis, "special status species" include any species that has been afforded special recognition by federal, state, or local resources agencies (e.g., USFWS, CDFG, etc.) and/or resource conservation organizations (e.g., California Native Plant Society [CNPS]). The term "special-status species" excludes those avian species solely identified under Section 10 of the Migratory Bird Treaty Act (MBTA) for federal protection.

Direct observations in the project area included various non-sensitive wildlife species such as coyote *(Canis latrans),* western toad *(Bufo boreas),* and a variety of bird species typically found in disturbed/developed areas such as house finch *(Carpodacus mexicanus),* northern mocking bird *(Mimus polyglottus),* mourning dove *(Zenaida macro ura),* brown-headed cowbird *(Molothrus ater),* killdeer *(Charadrius vociferous),* European starling *(Sturnus vulgaris),* house sparrow *(Passer domesticus),* American crow *(Corvus branchyrhynchos),* cliff swallow *(Petrochelidon fulva),* and Brewer's blackbird *(Euphagus cyanocephalus).* Additional bird species identified during surveys include red-tailed hawk *(Buteo jamaicensis),* western kingbird *(Tyrannus verticalis),* American goldfinch *(Carduelis tristis),* and American pipit *(Anthus rubescens).* Agricultural lands provide foraging and breeding habitat for populations of Botta's gophers *(Thomomys bottae),* voles *(Microtus sp.),* western harvest mice *(Reithrodontomys megalotis),* and house mice *(Mus musculus).* The proposed project area is also likely utilized by California ground squirrels *(Spermophilus beecheyi).* Based on the level of disturbance in the area, the proposed PEC site is not expected to support a wide diversity of native wildlife species.

Agricultural land uses have a direct effect upon the type of wildlife species that are likely to use the study area. Croplands/orchards are generally found on fertile soils on flat or nearly flat topography that historically supported prime habitat for native species. Although agricultural fields can provide a year-round source of food for various wildlife species, agricultural activities including harvest practices, fencing, trapping, and pesticide/herbicide application can reduce the value of these lands to wildlife. However, these areas may still provide foraging habitat for migrating and resident birds, and various mammals including coyotes and foxes. Suitable habitat for denning and nesting may occur along the weedy edges of fields and irrigation canals as well as in fallow agricultural fields that are adjacent to the project site.

Wetlands were not identified within the project area. Two agricultural drainages are located immediately south of the Panoche Substation and east of Davidson Avenue. These drainages do not support vegetation and are not considered jurisdictional waters of the U.S. by the Army Corps of Engineers or CDFG. The PEC site is located roughly two (2) miles southwest of Panoche Creek and approximately three (3) miles west of the California Aqueduct. The nearest blue line stream, which originates in the Tumey Hills, is located just about two (2) miles southwest of the project area.

Special-Status Species

For the purposes of this analysis, "special status species" include any species that has been afforded special recognition by federal, state, or local resources agencies (e.g., USFWS, CDFG, etc.) and/or resource conservation organizations (e.g., California Native Plant Society [CNPS]). The term "special-status species" excludes those avian species solely identified under Section 10 of the MBTA for federal protection. **Biological Resources Table 2** identifies the special-status species that were historically present or have the potential to be present within the vicinity of the proposed project area.

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Special-status plant and wildlife species were not observed in or adjacent to the proposed project area during biological reconnaissance surveys conducted by the applicant on April 21, 2006 or subsequent site visits conducted on January 19 and February 28 of 2007. Although not observed in the proposed project area, several special-status wildlife species are known to utilize agricultural areas in the region. As a consequence, the lands within and adjacent to the PEC include low quality suitable habitat. Those special status wildlife species that have suitable habitat within the study are include but are not limited to the following: Swainson's hawk *(Buteo swainsoni),* California horned lark *(Eremophila alpestris actia),* San Joaquin kit fox (*Vulpes macrotis mutica),* burrowing owl *(Athene cunicularia),* and short-eared owl *(Asio flammeus).* These species are indicated with an asterisk in **Biological Resources Table 2.** Special-status plant species are not expected to occur in the project area. The California Natural Diversity Database (CNDDB) and California Native Plant Society (CNPS) literature search identified 12 plant species that are known to occur within the vicinity of the project area. However, there are no recorded occurrences of special-status plant species within one mile of the proposed project area. These species were determined to have little or no potential to occur on site due to the high-level of disturbance from ongoing agricultural activities and the resulting lack of suitable environmental conditions to support these species.

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BIOLOGICAL RESOURCES Table 2
Special-Status Species Historically or Potentially Occurring in the Vicinity of the Proposed PEC Site

Scientific name	Common name	Status	Habitat Type	Potential To Occur
Plants				
Atriplex vallicola	Lost Hills crownscale	CNPS List 1B	Chenopod scrub, valley and foothill grasslands, vernal pools; elevation 50-635 m	low
Cordylanthus mollis ssp. hispidus	Hispid bird's-beak	CNPS List 1B	Meadows and seeps, playas, valley and foothill grasslands (alkaline); elevation 1-155 m	low
Deinandra halliana	Hall's tarplant	CNPS List 1B	Chenopod scrub, cismontane woodland, valley and foothill grassland (clay); elevation 300-950 m	low
Delphinium recurvatum	Recurved larkspur	CNPS List 1B	Chenopod scrub, cismontane woodland, valley and foothill grassland (alkaline); elevation 3-750 m	low
Eriogonum temblorense	Temblor buckwheat	CNPS List 1B	Valley and foothill grassland (clay or sandstone); elevation 300-1000 m	low
Erodium macrophyllum	Round-leaved filaree	CNPS List 1B	Cismontane woodland, valley and foothill grassland/clay; elevation 15-1200 m	low
Layia heterotricha	Pale-yellow layia	CNPS List 1B	Cismontane woodland, pinyon-juniper woodland, valley and foothill grassland (alkaline or clay); elevation 300-1705 m	low
Layia munzii	Munz's tidy-tips	CNPS List 1B	Chenopod scrub, valley and foothill grassland (alkaline or clay); elevation 150-700 m	low
Lepidium jaredii ssp. album	Panoche pepper-grass	CNPS List 1B	Valley and foothill grassland (alluvial fans, washes); elevation 185-275 m	low
Madia radiata	Showy madia	CNPS List 1B	Cismontane woodland, valley and foothill grassland; elevation 25-900 m	low

Scientific name	Common name	Status	Habitat Type	Potential To Occur
**Buteo swainsoni*	Swainson's hawk	CT	Nests in oaks or cottonwoods in or near riparian habitats; forages in grasslands, irrigated pastures, grain fields	moderate
Coccyzus americanus occidentalis	Western yellow-billed cuckoo	FC, CE	Wide, dense riparian forests	low
Falco mexicanus	Prairie falcon	CSC	Nests in cliffs or escarpments; forages in adjacent dry, open terrain or uplands, marshes and seasonal marshes	low
Haliaeetus leucocephalus	Bald eagle	FT, CE	Nests and roosts in coniferous forests within 1 mile of water	low
**Eremophila alpestris actia*	California horned lark	CSC	Open habitats with trees and large shrubs, ground nesters	moderate
Riparia riparia	Bank swallow	CT	Nests in bluffs or banks, usually adjacent to water	low
Mammals				
Ammospermophilus nelsoni	San Joaquin antelope squirrel	CT	Arid grasslands with loamy soils and moderate shrub cover	low
Antrozous pallidus	Pallid bat	CSC	Roosts in rocky outcrops, cliffs and crevices; forages in open habitat	low
Eumops perotis californicus	Western mastiff bat	CSC	Roosts and breeds in rock crevices, may also use trees, buildings, tunnels; forages in arid to semi-arid habitats	low
Dipodomys ingens	Giant kangaroo rat	FE, CE	Restricted to flat, sparsely vegetated areas with annual grassland or shrubland habitats; requires uncultivated soils for burrowing	low
Dipodomys nitratoides exilis	Fresno kangaroo rat	FE	Alkali sink habitats; elevation 60-90 m	low
Onychomys torridus tularensis	Tulare grasshopper mouse	CSC	Grasslands, chaparral, sagebrush and bitterbrush scrub, alkali desert scrub	low
Taxidea taxus	American badger	CSC	Open areas with scattered shrubs and trees for cover, loose soil for digging	low
**Vulpes macrotis mutica*	San Joaquin kit fox	FE, CT	Native grasslands and scrublands, agriculture matrix of row crops, irrigated and non-irrigated pasture, orchards, vineyards	high

Source: (PEC 2006a, CDFG 2007, USFWS 2007, CNPS 2007)

Status Key

State Status

CE = State listed as Endangered **CT** = State listed as Threatened **CSC** = California Species of Concern

Federal Status

FE = Federally listed as Endangered **FT** = Federally listed as Threatened **FC** = Candidate for Federal listing

California Native Plant Society (CNPS) Status

CNPS List 1B = Plants rare, threatened, or endangered in California, but more common elsewhere

Potential to Occur

High = Suitable habitat is present within the proposed site; occurrence records exist for species in proximity to the site; species expected to occur on site

Moderate = Low-quality or negligible suitable habitat is present within or near the proposed site; species was not identified during reconnaissance surveys of the site; species not expected to occur

Low = Suitable habitat is not present on site; species not expected to occur

ASSESSMENT OF IMPACTS AND DISCUSSION OF MITIGATION

METHOD AND THRESHOLD FOR DETERMINING SIGNIFICANCE

Identifying the threshold for determining significance is based on the biological resources present or potentially present within the project area in consideration of the proposed project description. A proposed project would have a significant impact to biological resources, if it would:

- Have an adverse impact, either directly through take, or indirectly through habitat modification or interruption of migration corridors, on any state- or federally-listed species;
- Have an indirect or direct adverse effect on any sensitive natural community identified in federal, state or local plans, policies, or regulations;
- Interfere with the movement of any native wildlife species (resident or migratory) or with established native wildlife (resident or migratory) corridors; or
- Conflict with applicable federal, state, or local laws, ordinances, regulations and standards protecting biological resources, as listed in **Biological Resources Table 1.**

DIRECT/INDIRECT IMPACTS AND MITIGATION

According to California Environmental Quality Act (CEQA) Guidelines, direct impacts are a result of construction or operation of the project and occur at the same time and place as project activities. Indirect impacts are caused by the project, but can occur later in time or farther removed in distance from the project site, but are reasonably foreseeable and project-related. This section analyzes the potential for direct and indirect impacts of construction and operation of the proposed project to biological resources and provides mitigation, as necessary, in an effort to reduce the severity of potentially adverse effects.

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Applicant-proposed avoidance and minimization measures have been incorporated into the project description and considered part of the project in an effort to reduce impacts to biological resources. These measures are separate from the Conditions of Certification, which are proposed in addition to the project description for the purpose of mitigating significant impacts. Following is a list of applicant-proposed impact avoidance and minimization measures (PEC 2006a, page 5.6-13):

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To the maximum extent practical, in order to comply with the Migratory Bird Treaty Act and relevant sections of the CFGC (e.g., 3500 *et seq.*), no vegetation removal or other invasive ground disturbing activities shall occur during the typical avian breeding season (February 1 to August 31). If this is not practical, prior to vegetation removal or other ground disturbing activities the PEC shall have a qualified biologist[3] conduct pre-construction survey for nesting birds and raptors. Surveys shall be conducted in areas

[3] A qualified biologist is an individual with sufficient education and field experience in local California ecology and biology to adequately identify local plant and wildlife species.

within 500 feet of tower sites, laydown/staging areas, power plant sites, and access road/spur road locations. The survey shall occur not more than one week prior to initiation of vegetation removal or other invasive ground disturbing activities and any occupied passerine and/or raptor nests occurring within or adjacent to the study area will be delineated. Additional follow up surveys may be required. To the maximum extent practicable, a minimum buffer zone from occupied nests will be maintained during vegetation removal and physical ground disturbing activities. The buffer zone shall be sufficient in size to prevent nesting disruption. Once nesting has ceased, the buffer may be removed. Where biological surveys have determined that nests have been vacated after young are fledged, or that nests are not active (e.g., nest include cobwebs, lack recent sign, etc.), then the PEC may direct or oversee the removal or relocation of inactive nests to allow work to proceed. The PEC will not take or destroy nests (or eggs) of birds that are designated under federal and California State laws, Migratory Bird Treaty Act (MBTA) and CFGC Code Section (e.g., 3500 *et seq.*).

- In order to minimize trapping of common wildlife, fenced areas and trenches should be checked regularly by a biological monitor to rescue and relocate any trapped animals;
- Provide biological orientation training for workers onsite to educate them on procedures for minimizing impacts to common wildlife species and any rare occurrences of special-status species that have a low potential to occur in the project area; and
- An approved, designated biologist shall implement the above measures.

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<#>Any existing raptor nests near the project area should be removed during the non-breeding season to minimize potential for nesting in the same location the following year;¶
<#>Pre-construction survey shall be conducted for any nesting raptor species;¶

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Construction Impacts and Mitigation

The proposed project consists of various components related to the generation and transmission of electricity, including:

- **Power Plant Site.** The proposed PEC site would permanently occupy 12.8 acres within a 128-acre parcel currently used as an active pomegranate orchard. The proposed PEC is a simple-cycle power generation project consisting of four General Electric LMS 100 natural gas fired combustion turbine generators (CTGs). Each of these CTGs is capable of generating 100 megawatts (MW) for a total net generation capacity of 400 MW. Process water will be supplied via two onsite supply wells connected to a deep brackish aquifer and wastewater would be disposed of via a deep well injection system. The deep well injection system would require a Class I non-hazardous Underground Injection Control (UIC) permit from the U.S. Environmental Protection Agency (EPA).
- **Access Road.** A new 50-foot paved road would be constructed to access the site from West Panoche Road. The access road would have two 12-foot wide lanes with 5-foot wide gravel shoulders on both sides and contoured drainage ditches.
- **Laydown and Parking Area.** The construction laydown area, which includes equipment staging and parking, would be located immediately south of the proposed power plant site. The 8-acre laydown area would be within the same 128-acre parcel as the PEC and is currently an active pomegranate orchard. The temporary laydown area would be restored to agricultural use once construction is complete.

- **Electric Interconnection.** Electricity generated from the PEC would be interconnected to the PG&E transmission grid through a 230-kV switchyard via a new 300-foot overhead 230-kV transmission line to the existing PG&E Panoche Substation. The 230-kV conductors would be supported by two 65-foot tall structures with 15-foot lightning masts attached to the structure peaks. The transmission line would extend from the northeast corner of the proposed PEC site northeast to the southwest corner of the existing Panoche Substation. In order to accommodate the termination of the 230-kV transmission line at the Panoche Substation, the existing 230-kV bus must be extended beyond the southern boundary of the substation property. The proposed expansion would require approximately 320 feet by 300 feet (96,000 square feet) of additional property to be acquired by PG&E.
- **Natural Gas Pipeline.** The proposed project includes a 2,400-foot natural gas supply pipeline that would be installed underground, north of Panoche Substation along Panoche Road. Pipeline installation would require a trench approximately 18 inches wide and 48 inches deep.
- **Reconductor.** In order to mitigate a potential Category "B" emergency overload resulting from operation of the PEC, reconductor of 1 mile of the existing Wilson-Gregg 230-kV transmission line would be required. It is not anticipated that temporary impacts associated with the reconductoring would have an adverse affect on biological resources; however, this component of the proposed project would require certification by the California Public Utilities Commission, and is not analyzed further in this document.

The proposed project would result in temporary disturbance and/or permanent loss of the existing pomegranate orchard. Temporary disturbance includes short-term impacts during construction of the power plant, substation expansion, pipeline installation, and construction of a new access road. Each of these activities would cause the removal of existing vegetation and disturbance of surface soils. In addition to substation expansion and PEC installation, permanent loss of the orchard would occur where new tower or pole foundations are installed for the electrical interconnection.

Construction Impacts to Vegetation

Construction impacts to vegetation may occur in a variety of ways, including the direct removal of plants during the course of construction. As these impacts are generally localized and are primarily temporary in nature, they are not usually considered significant unless the habitat type is regionally unique or is known to support special status species. These activities would result in the disturbance of approximately 20.8 acres of land (consisting of existing orchards); an estimated 8 acres would be temporarily disturbed and approximately 12.8 acres would be permanently disturbed. However, as the project site is located entirely within an active orchard and impacts to native vegetation would not occur, these impacts would be considered less than significant and no mitigation is proposed. Construction-related impacts to the temporary laydown area would be mitigated by restoring the site to agricultural use once construction is complete.

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Construction Impacts to Wildlife

Direct loss of small mammals, reptiles, and other less mobile species could occur during project construction. This would result primarily from the use of construction vehicles and the grading of the project site and laydown areas. Fossorial species, such as small burrowing animals (lizards, snakes, and small mammals), may be harmed through the crushing of burrows, loss of refugia from predators, and direct mortality from construction activities. Construction activities and human presence can also alter or disrupt the breeding and foraging habitat for common and special status wildlife species.

Wildlife may become entrapped in open trenches during construction of the PEC or installation of the natural gas pipeline. As an impact avoidance and minimization measure, the applicant will set up fences around construction zones to prevent the entrapment of wildlife. Fenced areas and trenches would be inspected prior to construction activities each day. Additionally, staff recommends implementation of Condition of Certification **BIO-10** (Mitigation Management to Avoid Harassment or Harm) which would also require the installation of escape ramps within open trenches or covering of open trenches at night. Implementation of these measures is expected to offset adverse impacts to wildlife.

Birds may nest in the pomegranate trees or other vegetation which is proposed for removal to construct the PEC. With the exception of a few distinct species, nesting passerines and raptors are protected under the Migratory Bird Treaty Act (MTBA) and are also offered protection by CFGC, section 3500 (*et seq*). Impacts to nesting species would be considered significant without mitigation. To reduce impacts to breeding birds and ensure compliance with the MTBA and other LORS, PEC has proposed Avoidance and Minimization Measures that prohibit vegetation removal or other invasive ground disturbing activities between February 1 and August 31, if practical. Also, per the PEC, proposed avoidance and minimization measures, pre-construction surveys would be conducted to identify active and inactive nests. Additionally, staff recommends, that the pre-construction survey include nests of birds protected under the MTBA and Fish and Game Code, section 3503 (see Condition of Certification **BIO-10** (Mitigation Management to Avoid Harassment or Harm)). Implementation of these measures is expected to mitigate adverse impacts to nesting birds that may occur in the project area.

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Construction Impacts to Special-Status Species

Vegetation

Special-status plant species are not expected to occur in the project area. As previously described, literature review and species specialists consultation identified 12 plant species that are known to occur within the vicinity of the proposed project. However, there are no recorded occurrences of special-status plant species within one mile of the proposed project area and habitat suitability is generally poor within the proposed PEC site due to ongoing agricultural operations. Therefore, significant adverse impacts to special-status plant species are not expected to occur from construction of the project.

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Wildlife

Several special-status wildlife species were identified that are known to utilize agricultural habitat and thus have potential to occur in the proposed project area. These species include the short-eared owl *(Asio flammeus),* burrowing owl *(Athene cunicularia),* Swainson's hawk *(Buteo swainsoni),* California horned lark *(Eremophila alpestris actia),* and San Joaquin kit fox (SJKF) (*Vulpes macrotis mutica).* Of these, only SJKF has potential to be adversely affected by the project. Due to a lack of open habitat, the short-eared owl, burrowing owl, Swainson's hawk, and California horned lark are not expected to occur.

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Critical habitat is a formal designation under the Federal Endangered Species Act where specific areas are designated as essential to the conservation and recovery of a federally listed species. These areas may require special management consideration or protection. Critical habitat for special-status wildlife does not occur in the proposed project area (CDFG 2007).

Short-eared owl is a California Species of Concern that inhabits open fields, meadows, marshes, and prairies. The diet of this species generally consists of rodents, especially voles, other small mammals and insects. Short-eared owls may be diurnal, crepuscular or nocturnal; although hunting typically occurs at night. To catch prey, this species flies low over open fields, seizing prey with their talons (Elrich 1988). A CNDDB record documented in 1993 identified this species in non-native grassland approximately 5.75 miles southeast of the proposed project area (PEC 2006a). Due to a lack of suitable habitat, this species is not expected to occur in the proposed project area. Therefore, significant adverse impacts to short-eared owl are not expected to occur from construction of the proposed project.

Burrowing owl is a California Species of Concern that is a yearlong resident of open, dry grassland, prairie, or desert floor. Similar to the short-eared owl, this species is diurnal, crepuscular, and nocturnal and is thought to be semi-colonial. Burrowing owl is known to occur in urban areas, disturbed areas, and at the edges of agricultural fields and typically hunts from a perch or hops after prey on the ground. Due to intensive agricultural practices and lack of suitable burrow sites, nesting habitat for this species does not appear to occur in the proposed project area. Additionally, the orchard does not provide the foraging visibility typically preferred by this species. The nearest record is approximately 5 miles southwest of the proposed project (PEC 2006a). Significant adverse impacts to burrowing owl are not expected to occur from construction of the proposed project.

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Swainson's hawk is a California threatened species that requires large amounts of foraging habitat, preferably grassland or pasture habitats. Preferred prey items are voles, gophers, birds, and insects such as grasshoppers (Estep 1989). This species has adapted to the use of some croplands, including alfalfa, hay, grain, tomatoes, beets, and other row crops (Estep 1989). Crops such as cotton, corn, rice, orchards, and vineyards are not suitable due to a lack of suitable prey or the prey is unavailable to the Swainson's hawks due to crop structure. Swainson's hawks are known to occur in the region, but prefer to forage in alfalfa fields or harvested row crops where the visibility

and number of prey items is high. Regionally, these areas are the primary foraging area for locally nesting Swainson's hawks. The nearest record for Swainson's hawk was documented in 2005, 5.25 miles north of the proposed project area along the eastern embankment of the California Aqueduct (PEC 2006a). Due to a lack of suitable foraging habitat, this species is not expected to occur in the proposed project area. Therefore, significant adverse impacts to Swainson's hawk are not expected to occur from construction of the proposed project.

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California horned lark is a California Species of Concern that typically inhabits shortgrass prairies, agricultural fields, sparse brushlands, deserts and other open areas in California. This species may be locally common in grazed pastures, fallow fields and other agricultural areas. California horned lark nests consist of ground depressions and are vulnerable to destruction from agricultural equipment. Current agricultural practices at the proposed PEC site would not support nesting California horned lark. According to a 1992 CNDDB record, this species was observed approximately 9 miles southeast of the project area in a fallow agricultural field (PEC 2006a). Due to a lack of suitable habitat, this species is not expected to occur in the proposed project area. Therefore, significant adverse impacts to California horned lark are not expected to occur from construction of the proposed project.

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San Joaquin kit fox (SJKF), a California Threatened and federally Endangered species, that can utilize **agricultural** lands within the San Joaquin Valley. As illustrated in **Biological Resources Figure 1,** the proposed PEC site is within the eastern boundary of the northern core population of SJKF as designated by USFWS. Additionally, the proposed PEC site is located in an area that has been identified by USFWS to be preserved for SJKF habitat connectivity. The nearest CNDDB occurrence of SJKF is a 1999 CNDDB record from approximately 3 miles west of the study area. SJKF may travel more than 9 miles overnight during the breeding season (USFWS 1998) and there is contiguous non-irrigated agricultural habitat between the known core population and the proposed PEC site, SJKF may utilize the existing habitat within the proposed PEC site for foraging or as a migration corridor. USFWS categorizes suitable SJKF habitat according to level of quality in order to determine habitat compensation ratios: 1) natural, 2) grassland, and 3) agricultural/ruderal (Jones 2007). The agricultural/ruderal classification (lowest habitat quality classification) applies to the proposed PEC site. CDFG has determined that the proposed PEC site is not suitable for SJKF denning (PEC 2007a). However, there is the potential for impacts to SJKF conductivity habitat and movement corridors to occur during project construction and operation as a result of habitat loss.

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Loss of SJKF conductivity habitat and movement corridors would be considered significant without mitigation and requires consultation with the USFWS to develop mitigation measures and provisions for incidental take. USFWS has identified an ESA consultation process by which the applicant and USFWS enter into a Memorandum of Understanding thereby providing a federal nexus for the proposed project and triggering Section 7 consultation. The Section 7 process, including preparation of a Biological Assessment (BA) by the applicant was completed and submitted to the USFWS on May 18, 2007 and a Biological Opinion (BO) issued by USFWS is

expected in August of 2007. The BO will specify actions that are required to avoid, minimize or compensate for any potentially adverse impacts to SJKF conductivity habitat and movement corridors. In order to provide a complete analysis of potential impacts to SJKF resulting from the proposed project, a USFWS-approved BA was submitted on May 18, 2007, prior to publication of the Final Staff Assessment. Habitat compensation will also be required and USFWS has identified the Krayenhagen Hills Conservation Bank as a preferred location to purchase mitigation credits at 1.1:1 acres for permanent disturbance and 0.3:1 for temporary disturbance (Jones 2007). USFWS may require additional protective measures pursuant to the Federal ESA consultation process.

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Implementation of the following Conditions of Certification will further avoid and mitigate potentially adverse impacts to SJKF to less than significant levels: **BIO-4** (Designated Biologist and Biological Monitor Authority), **BIO-5** (Worker Environmental Awareness Program), **BIO-6** (Biological Resources Mitigation Implementation and Monitoring Plan), **BIO-8** (Federal Biological Opinion), **BIO-9** (Impact Avoidance and Minimization Features), **BIO-10** (Mitigation Management of Avoid Harassment or Harm), and **BIO-11** (Habitat Compensation). Condition of Certification **BIO-9** contains the general measures from UFSWS Standardized Recommendations for Protection of SJKF Prior to or During Ground Disturbance (1999).

General Construction Impacts

Construction activities have the potential to create a variety of temporary impacts to biological resources including:

- **Noise** (for a complete discussion of noise impacts, see the **Noise** section of this Staff Assessment). Construction activities would result in a short-term temporary increase in the ambient noise level. Such activities have the potential to disrupt the nesting, roosting, or foraging activities of local wildlife. However, the existing Wellhead and CalPeak Panoche Peaker Plants, PG&E Substation, traffic on West Panoche Road, and intensive agricultural operations in the immediate vicinity of the proposed PEC site create an elevated ambient noise level to which local wildlife species (including SJKF) have acclimated. As such, construction noise is not expected to adversely impact biological resources.

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- **Lighting** (for a complete discussion of visual resource impacts, see the **Visual Resources** section of this Staff Assessment). Since night construction would not occur (PEC 2006a, page 5.12-9), excess lighting would not significantly impact wildlife in the vicinity of the proposed PEC site. The applicant would direct lighting to avoid excessive glare and backscatter. Additionally, existing energy facilities provide an elevated ambient level of lighting to which local wildlife, including nocturnal species, have acclimated.

Operation Impacts and Mitigation

Potential impacts resulting from operation of the PEC include avian collision with and/or electrocution by the electric interconnection facilities and disturbance to wildlife due to increased noise and lighting.

Noise

Wildlife species in the vicinity of the proposed PEC are accustomed to elevated ambient noise levels as a result of the existing Wellhead and CalPeak Panoche Peaker Plants, PG&E Panoche Substation, traffic on West Panoche Road, and intensive agricultural operations. Although operation of the PEC would create additional noise, significant impacts to biological resources are not expected.

Light

Existing energy facilities adjacent to the proposed PEC site provide an elevated ambient level of lighting to which local wildlife, including nocturnal species, have acclimated. Although operation of the PEC would create additional light, significant impacts to biological resources are not expected.

Hazardous Materials

An accidental release of hazardous materials such as aqueous ammonia has the potential to negatively impact sensitive biological species if these species are found on the proposed project site or nearby. The probability of a hazardous materials spill occurring at PEC is extremely low. Staff has determined that appropriate procedures will be in place to address any disposal and/or treatment of hazardous materials on the proposed project site – more information about these standard procedures are addressed in the **Hazardous Materials** and **Waste Management** sections of this staff assessment. Due to the lack of sensitive biological resources on site or in the project vicinity and the extremely low probability of a catastrophic hazardous materials spill, staff concludes there will be no significant impact to biological resources associated with hazardous materials.

CUMULATIVE IMPACTS AND MITIGATION

Cumulative impacts are those that result from the incremental impacts of an action considered with other past, present, and reasonable foreseeable future actions. Cumulative impacts can result from individually minor, but collectively significant, actions taking place over time.

The PEC would permanently remove approximately 12.8 acres and temporarily disturb 8 acres of SJKF habitat, requiring consultation with USFWS. Consultation with the USFWS was initiated on May 18, 2007. In addition to the PEC, there are projects proposed in western Fresno County that require consultation with USFWS regarding impacts to SJKF, including habitat compensation:

- Starwood Power-Midway, LLC has submitted an application to the Energy Commission (06-AFC-1 0) for the Starwood Power-Midway Peaking Project, which is an 120 MW peaking facility located approximately 0.25 miles east of the proposed PEC site.
- The U.S. Department of Justice, Federal Bureau of Prisons is expected to complete construction of a medium-security Federal Correctional Institution requiring approximately 960 acres of primarily agricultural land (orange orchards)

near the City of Mendota, approximately 10 miles east of the proposed PEC site. The federal Biological Opinion was finalized in March 2004 (CEC 2007).

Construction and operation of these projects would adversely affect SJKF conductivity habitat and movement corridors, due to habitat destruction and fragmentation. However, consultation with USFWS including habitat compensation at a USFWS-approved mitigation bank is intended to address long-term impacts to this species and compliance with the requirements of Section 7 of the federal Endangered Species Act will mitigate cumulative impacts to SJKF.

COMPLIANCE WITH LORS

To comply with applicable LORS, specifically the federal Endangered Species Act, the applicant has initiated consultation with the USFWS for a determination under ESA Section 7. The USFWS Biological Opinion (BO) may identify additional mitigation requirements in addition to the Conditions of Certification presented in this document. The Energy Commission's certifying power supersedes that of any State of local regulatory agency (i.e., CDFG) per the Warren Alquist Act (section 25500), therefore a CDFG section 2080.1 Consistency Determination is not required by the Energy Commission. Staff has recommended mitigation measures and Conditions of Certification which, when considered together with the Biological Assessment (BA) and federal BO, will meet the requirements of the California Endangered Species Act that any impacts to listed species be minimized and fully mitigated.

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USFWS has identified an ESA consultation process by which the applicant and USFWS enter into a Memorandum-of-Understanding thereby providing a federal nexus for the proposed project and triggering Section 7 consultation. To obtain a USFWS determination, the Applicant will prepare a BA for submittal to USFWS. After reviewing the BA, USFWS may issue a BO within 135 days. The BO is expected to be issued by the USFWS in August of 2007.

NOTEWORTHY PUBLIC BENEFITS

Construction and operation of the PEC would not result in any noteworthy public benefits with regard to biological resources.

CONCLUSIONS

Without mitigation, the proposed PEC project would result in significant adverse impacts to biological resources. The proposed PEC is within the eastern boundary of the northern core SJKF population, thereby requiring federal Endangered Species Act consultation with USFWS. The Conditions of Certification proposed in this Preliminary Staff Assessment, including measures provided in the USFWS Biological Opinion, are necessary to mitigate impacts to biological resources from the proposed PEC to less than significant levels.

The applicant has prepared a BA for the USFWS (submitted on May 18, 2007) to review in preparation of a BO. Staff requires the USFWS to issue the BO to fully

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1. Advise the project owner's Construction Managers on the implementation of the biological resources Conditions of Certification;

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2. Consult on the preparation of the Biological Resources Mitigation Implementation and Monitoring Plan, to be submitted by the project owner;

3. Be available to supervise, conduct and coordinate mitigation, monitoring, and other biological resources compliance efforts, particularly in areas requiring avoidance or containing sensitive biological resources, such as special status species or their habitat;

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 (i.e. parking lots) for animals in harm's way;

6. Notify the project owner and the CPM of any non-compliance with any biological resources Condition of Certification;

7. Respond directly to inquiries of the CPM regarding biological resource issues;

8. Maintain written records of the tasks specified above and those included in the BRMIMP. Summaries of these records shall be submitted in the Monthly Compliance Report and the Annual Report; and
9. Train the Biological Monitors as appropriate, and ensure their familiarity with the BRMIMP, Worker Environmental Awareness Program (WEAP) training and all permits.

Verification: The Designated Biologist shall submit in the Monthly Compliance Report to the CPM copies of all written reports and summaries that document biological resources activities. If actions may affect biological resources during operation a Designated Biologist shall be available for monitoring and reporting. During project operation, the Designated Biologist shall submit record summaries in the Annual Compliance Report unless their duties are ceased as approved by the CPM.

Biological Monitor Qualifications

BIO-3 The project owner's CPM-approved Designated Biologist shall submit the resume, at least 3 references, and contact information of the proposed Biological Monitors to the CPM for approval. The resume shall demonstrate to the satisfaction of the CPM, the appropriate education and experience to accomplish the assigned biological resource tasks.

Biological Monitor(s) training by the Designated Biologist shall include familiarity with the Conditions of Certification and the Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP), WEAP and all permits.

Verification: The project owner shall submit the specified information to the CPM for approval at least 30 days prior to the start of any site (or related facilities) mobilization. The Designated Biologist shall submit a written statement to the CPM confirming that individual Biological Monitor(s) have been trained including the date when training was completed. If additional Biological Monitors are needed during construction, the specified information shall be submitted to the CPM for approval 10 days prior to their first day of monitoring activities.

Designated Biologist and Biological Monitor Authority

BIO-4 The project owner's Construction Manager shall act on the advice of the Designated Biologist and Biological Monitor(s) to ensure conformance with the biological resources Conditions of Certification.

If required by the Designated Biologist and Biological Monitor(s), the project owner's Construction Manager shall halt all site mobilization, ground disturbance, grading, construction, and operation activities in areas specified by the Designated Biologist.

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The Designated Biologist shall:

1. Require a halt to all activities in any area when determined that there would be an unauthorized adverse impact to biological resources if the activities continued;
2. Inform the project owner and the Construction Manager when to resume activities; and
3. Notify the CPM if there is a halt of any activities, and advise the CPM of any corrective actions that have been taken, or will be instituted, as a result of the work stoppage.

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If the Designated Biologist is unavailable for direct consultation, the Biological Monitor shall act on behalf of the Designated Biologist.

Verification: The project owner shall ensure that the Designated Biologist or Biological Monitor notifies the CPM immediately (and no later than the following morning of the incident, or Monday morning in the case of a weekend) of any non-compliance or a halt of any site mobilization, ground disturbance, grading, construction, and operation activities. The project owner shall notify the CPM of the circumstances and actions being taken to resolve the problem.

Whenever corrective action is taken by the project owner, a determination of success or failure will be made by the CPM within five working days after receipt of notice that

11. Duration for each type of monitoring and a description of monitoring methodologies and frequency;

12. Performance standards to be used to help decide if/when proposed mitigation is or is not successful;

13. All performance standards and remedial measures to be implemented if performance standards are not met;

14. A preliminary discussion of biological resources related facility closure measures;

15. Restoration and revegetation plan;

16. A process for proposing plan modifications to the CPM and appropriate agencies for review and approval; and

17. A copy of all biological resources related permits obtained.

Verification: The project owner shall provide the specified document at least 60 days prior to start of any site (or related facilities) mobilization.

The CPM, in consultation with the USFWS and any other appropriate agencies, will determine the BRMIMP's acceptability within 45 days of receipt. If there are any permits that have not yet been received when the BRM IMP is first submitted, these permits shall be submitted to the CPM and the USFWS within five (5) days of their receipt and the BRMIMP shall be revised or supplemented to reflect the permit condition within 10 days of their receipt by the project owner. Ten days prior to site and related facilities mobilization the revised BRMIMP shall be resubmitted to the CPM.

The project owner shall notify the CPM no less than five working days before implementing any modifications to the approved BRM IMP to obtain CPM approval. Any changes to the approved BRM IMP must also be approved by the CPM and submitted to the USFWS to ensure no conflicts exist.

Implementation of BRM IMP measures will be reported in the Monthly Compliance Reports by the Designated Biologist (i.e. survey results, construction activities that were monitored, species observed). Within thirty (30) days after completion of project construction, the project owner shall provide to the CPM, for review and approval, a written construction closure report identifying which items of the BRMIMP have been completed, a summary of all modifications to mitigation measures made during the project's site mobilization, ground disturbance, grading, and construction phases, and which mitigation and monitoring items are still outstanding.

Closure Plan Measures

BIO-7 The project owner shall incorporate into the permanent or unexpected permanent closure plan and the BRM IMP, measures that address the local biological resources.

The planned permanent or unexpected permanent closure plan shall address the following biological resources related mitigation measures:

1. Removal of transmission conductors when they are no longer used and useful;

2. Removal of all power plant site facilities and related facilities;

3. Measures to restore wildlife habitat to promote the re-establishment of plant and wildlife species to pre-construction conditions; and

4. Revegetation of the plant site and other disturbed areas utilizing appropriate seed mixture.

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Verification: Draft permanent or unexpected closure measures shall be made part of the BRMIMP. At least 12 months prior to commencement of closure activities, the project owner shall address all biological resources related issues associated with facility closure, and provide final measures, in a Biological Resources Element. The Biological Resources Element shall be incorporated into the Facility Closure Plan and include a complete discussion of the local biological resources and proposed facility closure mitigation measures.

Federal Biological Opinion

BIO-8 The project owner shall provide a copy of the final 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 BRM IMP.

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.

Impact Avoidance Mitigation Features

BIO-9 Any time the project owner modifies or finalizes the project design they shall incorporate all feasible measures that avoid or minimize impacts to the local biological resources, including:

1. Design, install and maintain transmission line poles, access roads, pulling sites, and storage and parking areas to avoid identified sensitive resources;

2. Design, install and maintain transmission lines and all electrical components in accordance with the APLIC *Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 2006* to reduce the likelihood of electrocutions of large birds; and

3. Eliminate any California Exotic Pest Plants of Concern (CalEPPC) List A species from landscaping plans.

Deleted: ;

Verification: All mitigation measures and their implementation methods shall be included in the BRMIMP. Implementation of the measures will be reported in the Monthly Compliance Reports by the Designated Biologist. Within thirty (30) days after completion of project construction, the project owner shall provide to the CPM, for review and approval, a written construction termination report identifying how measures have been completed.

Deleted: <#>Prescribe a road sealant that is non-toxic to wildlife and plants; and¶
<#>Design, install, and maintain facility lighting to prevent side casting of light towards wildlife habitat;¶

Mitigation Management to Avoid Harassment or Harm

BIO-10 The project owner shall implement the following measures to manage their construction site, and related facilities, in a manner to avoid or minimize impacts to the local biological resources. Some of the following measures were adopted from USFWS "Standardized Recommendations for Protection of SJKF Prior to or During Ground Disturbance" (1999).

1. Install temporary fencing and provide wildlife escape ramps for construction areas that contain steep walled holes or trenches if outside of an approved, permanent exclusionary fence. The temporary fence shall be hardware cloth or similar materials that are approved by USFWS. Before such holes or trenches are filled, they should be thoroughly inspected for trapped animals by the Designated Biologist or Biological Monitor;

2. Make certain all food-related trash is disposed of in closed containers and removed at least once a week from the project site;

3. Prohibit feeding of wildlife by staff and subcontractors;

4. Prohibit non-security related firearms or weapons from being brought to the site;

5. Prohibit pets from being brought to the site;

6. Report all inadvertent deaths of special status species to the appropriate project representative. Injured animals shall be reported to CDFG and the project owner shall follow instructions that are provided by CDFG. The Sacramento USFWS Office shall be notified in writing within three working days of the accidental death or injury to a SJKF during project related activities. Contact USFWS and CDFG for specific notification procedures;

Deleted: sensitive

7. Minimize use of rodenticides and herbicides in the project area and prohibit the use of chemicals and pesticides known to cause harm to amphibians. If rodent control must be conducted, zinc phosphide or an equivalent product shall be used;

8. Project-related vehicles shall observe a 20-mph speed limit in all project areas, except on county roads and State and Federal highways; this is particularly important at night when kit foxes are most active. Off-road traffic outside of designated project areas is prohibited.

9. Project owner shall conduct pre-construction surveys for nesting birds if construction and tree removal activities are scheduled to occur during the breeding season for raptors and other migratory birds *February 01 through August 31). Surveys shall be conducted in areas within 500 feet of tower sites, laydown/staging areas, power plant sites, and access road/spur road locations. Project owner shall be responsible for designating a qualified biologist who can conduct pre-construction surveys and monitoring for nests and breeding birds. If nests or breeding birds are found during the survey, a disturbance-free buffer shall be established in coordination with CDFG.

Verification: All mitigation measures and their implementation methods shall be included in the BRMIMP. Implementation of the measures will be reported in the Monthly Compliance Reports by the Designated Biologist. Within thirty (30) days after completion of project construction, the project owner shall provide to the CPM, for review and approval, a written construction termination report identifying how measures have been completed.

Habitat Compensation

BIO-1 1 The project owner shall provide habitat compensation for temporary and permanent impacts to San Joaquin Kit Fox at a location and amount approved by USFWS.

Verification: No less than 30 days prior to the start of any site or related facilities mobilization activities, the project owner shall submit written verification to the CPM and USFWS that the transaction for habitat compensation has occurred.

REFERENCES

Avian Powerline Interaction Committee (APLIC). 1996. *Suggested Practices for Raptor Protection on Powerlines: The State of the Art in 1996.* Edison Electric Institute/Raptor Research Foundation. Washington, D.C.

Avian Powerline Interaction Committee (APLIC). 2006. *Suggested Practices for Raptor Protection on Powerlines: The State of the Art in 2006.* Edison Electric Institute, APLIC, and the California Energy Commission. Washington, D.C and Sacramento, California.

Brown, W. M. 1993. Avian collisions with utility structures: Biological perspectives. *In:* Proceedings: avian interactions with utility structures. Intern. Workshop, Miami, FL. Sponsored by APLIC and EPRI.

California Department of Fish and Game (CDFG). 2007. California Natural Diversity Database. Search of the Chaney Ranch, Chou net Ranch, Hammonds Ranch, Broadview Farms, Firebaugh, Coit Ranch, Levis, Monocline Ridge, and Tumey Hills 7.5 minute USGS quadrangles. Accessed March 2007.

CEC 2007. California Energy Commission/ C. McFarlin (tn: 39539). Final Impact Statement for Fresno County; also docketed to 06-AFC-5 03/07/2007 Rec'd

Panoche Substation);

- The reconductoring of one mile of the Wilson-Gregg 230-kV line in Madera County would be accomplished primarily through the use of a helicopter, with a landing location, materials storage, and staging area at the Gregg Substation. Some ground vehicle activity would be necessary, as well, but this would entail vehicles driving in the existing orchards or on existing dirt access roads, with application of rock possibly necessary in some areas, depending on the soil conditions, to improve traction (PEC 2007d: Data Response 67 Rev). This would not result in foreseeable significant impacts to buried archaeological resources;
- The upgrading of the terminal equipment at the Gregg Substation to accommodate the ampacity rating of the new conductors would not be a significant impact because the substation was not recommended as a significant cultural resource (PEC 2007d: Data Response 66 Rev; DRP 523 for the Wilson-Gregg Transmission Line);
- The up to 16-inch-diameter, 2,400-foot-long underground natural gas pipeline would be laid in an open trench, which would be four feet deep and 18 inches wide, excavated into mostly undisturbed native soils (PEC 2006a: p. 3-40; Data Response 29 Rev). Installation of this pipeline could directly impact possible buried archaeological resources, unidentified at this time, to the extent of the area and depth of the trench excavation;
- Two wells would be drilled on-site to obtain groundwater for all water needs at the proposed plant except for human consumption (PEC 2006a: pp. 3-13 to 3-17). Drilling wells and excavating water piping trenches through either or both imported fill and natural undisturbed soils could directly impact possible buried archaeological resources, unidentified at this time, to the extent of the area and depth of the well and trench excavations; and
- Six Class I non-hazardous deep injection wells would be drilled to a depth of 5,000 feet below the present ground surface for the disposal of all wastewater except for that resulting from domestic/sanitary uses, which would be sent to a septic tank and leach field (PEC 2006a: pp. 3-18 to 3-19). Drilling wells and excavating water piping trenches through either or both imported fill and natural undisturbed soils could directly impact buried archaeological resources, unidentified at this time, to the extent of the area and depth of the well and trench excavations.

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In recognition of the possibility that prehistoric archaeological deposits could be encountered during construction, CEQA advises a lead agency to make provisions for archaeological resources unexpectedly encountered during construction, and the project owner may be required to train workers to recognize cultural resources, fund mitigation, and delay construction in the area of the find (Public Resources Code, section 21083.2; California Code of Regulations, Title 14, sections 15064.5(f) and 15126.4(b)). Consequently, staff recommends that procedures for identifying, evaluating, and possibly mitigating impacts to newly discovered archaeological resources be put into place by means of Conditions of Certification to reduce those impacts to a less than significant level.

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. Instruction that the CRS, alternate CRS, and CRMs have the authority to halt construction in the area of a Discovery to an extent sufficient to ensure that the resource is protected from further impacts, as determined by the CRS;

4. Instruction that employees are to halt work on their own in the vicinity of a potential cultural resources Discovery and shall contact their supervisor and the CRS or CRM, and that redirection of work would be determined by the construction supervisor and the CRS;

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; and

7. A sticker that shall be placed on hard hats indicating that environmental training has been completed.

No preconstruction site mobilization, construction ground disturbance, construction grading, boring and trenching, or construction, shall occur prior to implementation of the WEAP program, unless specifically approved by the CPM.

Verification:

1. At least 30 days prior to the beginning of pre-construction site mobilization, the CRS shall provide the training program draft text and graphics and the informational brochure to the CPM for review and approval, and the CPM will provide to the project owner a WEAP Training Acknowledgement form for each WEAP-trained worker to sign.

2. On a monthly basis, the project owner shall provide in the Monthly Compliance Report (MCR) the WEAP Training Acknowledgement forms 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 project owner shall ensure that the CRS, alternate CRS, or CRMs shall monitor initial construction ground disturbance; construction grading, boring, and trenching; and linear facilities, and ground disturbance at laydown areas or other ancillary areas, to ensure there are no impacts to undiscovered resources and to ensure that known resources are not impacted in an unanticipated manner (Discovery). Specifically, an archaeologist shall monitor the initial tree removal and soil stripping at the proposed plant site; the excavation of all foundation holes; and the excavation of the trenches for the natural gas pipeline, the process water pipelines, and the wastewater

Comment [aj9]: EIF does not agree that the rigorous employment of cultural resource specialist prescribed here is warranted given the nature and historic use of the site

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pipelines.

An archaeological monitoring for this project shall be the archaeological monitoring of all earth-moving activities on the construction site, or along the linear facility routes, or at the soil disposal site for as long as the activities are ongoing.

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Deleted: Full-time archaeological monitoring shall require one monitor per active earthmoving machine working in archaeologically sensitive areas, as determined by the CRS in consultation with the CPM.

In the event that the CRS determines that the current level of monitoring is not appropriate in certain locations, a letter or e-mail detailing the justification for changing the level of monitoring shall be provided to the CPM for review and approval prior to any change in the level of monitoring.

The research design in the CRMMP shall govern the collection, treatment, retention/disposal, and curation of any archaeological materials encountered.

On forms provided by the CPM, CRMs shall keep a daily log of any monitoring and other cultural resources activities and any instances of non-compliance with the Conditions and/or applicable LORS. Copies of the daily logs shall be provided to the CPM by the CRS as directed by the CPM. The CRS shall use these logs to compile a monthly summary report on the progress or status of cultural resources-related activities. If there are no monitoring activities, the summary report shall specify why monitoring has been suspended. The CRS, at his or her discretion, or at the request of the CPM, may informally discuss cultural resources monitoring and mitigation activities with Energy Commission technical staff (Staff).

Cultural resources monitoring activities are the responsibility of the CRS. Any interference with monitoring activities, removal of a monitor from duties assigned by the CRS, or direction to a monitor to relocate monitoring activities by anyone other than the CRS shall be considered non-compliance with these Conditions.

Upon becoming aware of the situation, the CRS and/or the project owner shall notify the CPM by telephone or e-mail within 24 hours of any incidents of non-compliance with the Conditions and/or applicable LORS. The CRS shall also recommend corrective action to resolve the problem or achieve compliance with the Conditions. When the issue is resolved, the CRS shall write a report describing the issue, the resolution of the issue, and the effectiveness of the resolution measures. This report shall be provided in the next MCR for the review of the CPM.

A Native American monitor shall be obtained to monitor ground disturbance in areas where Native American artifacts are 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 is being monitored.

Verification:

1. At least 30 days prior to the start of preconstruction site mobilization, construction ground disturbance, construction grading, boring and trenching, and construction, the CPM will provide to the CRS reproducible copies of forms to be used as daily monitoring logs.

2. If a Discovery is made, the CRS shall provide a statement that "a cultural resource over 50 years of age was discovered" to the CPM as an email or in some other form acceptable to the CPM, within 24 hours of discovery

3. On a monthly basis, while monitoring is on-going, the project owner shall include in each MCR a copy of the monthly summary report of cultural resources-related monitoring prepared by the CRS. Copies of daily logs shall be retained by the project owner and made available for audit by the CPM.

4. At least 24 hours prior to implementing a proposed change in monitoring level, documentation justifying the change shall be submitted to the CPM for review and approval.

Comment [wdj10]: PEC believes that such level of negative declaration is not warranted. PEC suggests that the daily log and monthly report to the CPM is sufficient for compliance demonstration and cultural resource preservation.

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CUL-7 The project owner shall grant authority to halt construction to the CRS, alternate CRS, and the CRMs in the event of a Discovery. Redirection of ground disturbance shall be accomplished under the direction of the construction supervisor in consultation with the CRS.

In the event cultural resources over 50 years of age or, if younger, considered exceptionally significant are found, or impacts to such resources can be anticipated, construction shall be halted or redirected in the immediate vicinity of the Discovery sufficient to ensure that the resource is protected from further impacts. The halting or redirection of construction shall remain in effect until the CRS has visited the Discovery, and all of the following have occurred:

1. The CRS has notified the project owner, and the CPM has been notified within 24 hours of the Discovery, or by Monday morning if the cultural resources Discovery occurs between 8:00 AM on Friday and 8:00 AM on Sunday morning, including a description of the Discovery (or changes in character or attributes), the action taken (i.e. work stoppage or redirection), a recommendation of eligibility, and recommendations for mitigation of any cultural resources Discoveries, whether or not a determination of significance has been made.

2. The CRS has completed field notes, measurements, and photography for a DPR 523 primary form. The "Description" entry of the DPR 523 form shall include a recommendation on the significance of the find. The project owner shall submit completed forms to the CPM.

3. The CRS, the project owner, and the CPM have conferred, and the CPM has concurred with the recommended eligibility of the Discovery and

LAWS, ORDINANCES, REGULATION, AND STANDARDS

The following federal, State, and local laws, ordinances, regulations, and standards (LORS) apply to the protection of public health and hazardous materials management. Staff's analysis examines the project's compliance with these requirements.

HAZARDOUS MATERIALS MANAGEMENT Table 1
Laws, Ordinances, Regulations, and Standards (LORS)

Applicable Law	Description
Federal	
The Superfund Amendments and Reauthorization Act of 1986 (42USC§9601 et seq.)	Contains the Emergency Planning and Community Right To Know Act (also known as SARA Title III)
Clean Air Act (CAA) of 1990 (42 USC 7401 et seq.as amended)	Establishes a nationwide emergency planning and response program and imposes reporting requirements for businesses which store, handle, or produce significant quantities of extremely hazardous materials.
The CAA section on Risk Management Plans (42 USC §112(r)	Requires the states to implement a comprehensive system to inform local agencies and the public when a significant quantity of such materials is stored or handled at a facility. The requirements of both SARA Title III and the CAA are reflected in the California Health and Safety Code, section 25531, et seq.
49 Code of Federal Regulations Parts 172-800 (49 CFR 172-800)	U.S. Department of Transportation (U.S. DOT) requirement that suppliers of hazardous materials prepare and implement security plans.
49 CFR Part 1572, Subparts A and B	Requires suppliers of hazardous materials to ensure that all their hazardous materials drivers are in compliance with personnel background security checks.
The Clean Water Act (CWA) (40 CFR 112)	Aims to prevent the discharge or threat of discharge of oil into navigable waters or adjoining shorelines. Requires a written Spill Prevention, Control, and Countermeasures (SPCC) plan to be prepared for facilities that store oil that my leak into navigable waters.
49 CFR Part 190	Outlines gas pipeline safety program procedures.
49 CFR Part 191	Addresses transportation of Natural and Other Gas by Pipeline: Annual Reports, Incident Reports, and Safety-Related Condition Reports, requires operators of pipeline systems to notify the U.S. Department of Transportation of any reportable incident by telephone and then submit a written report within 30 days.

TERRAIN CHARACTERISTICS

The location of elevated terrain is often an important factor to be considered in assessing potential exposure. An emission plume resulting from an accidental release may impact high elevations before impacting lower elevations. The site's topography gently slopes at a downhill 1% grade to the southeast. The average elevation for the site is about 420 feet above mean sea level. The surface is composed of sands, silts, and clays (PEC 2006a, Section 3.3.1).

LOCATION OF EXPOSED POPULATIONS AND SENSITIVE RECEPTORS

The general population includes many sensitive subgroups that may be at greater risk from exposure to emitted pollutants. These sensitive subgroups include the very young, the elderly, and those with existing illnesses. In addition, the location of the population in the area surrounding a project site may have a large bearing on health risk. Section 5.15.2.3.4 of the AFC states there are no locations such as hospitals, schools or day care centers where significant number of sensitive individuals are typically present within 0.3 miles of the site. At the time of COD, no residences will be located within 0.3 miles of the site.

Deleted: The only residence is 0.25 miles from the power plant site and all others are well beyond the toxic endpoint zone.

ASSESSMENT OF IMPACTS AND DISCUSSION OF MITIGATION

METHOD FOR DETERMINING SIGNIFICANCE

Staff reviewed and assessed the potential for the transportation, handling, and use of hazardous materials to impact the surrounding community. All chemicals and natural gas were evaluated. Staff's analysis addresses potential impacts on all members of the population including the young, the elderly, and people with existing medical conditions that may make them more sensitive to the adverse effects of hazardous materials. In order to accomplish this goal, staff utilizes the most current acceptable public health exposure levels (both acute and chronic) set to protect the public from the effects of an accidental chemical release.

In order to assess the potential for released hazardous materials to travel off-site and affect the public, staff analyzed several aspects of the proposed use of these materials at the facility. Staff recognizes that some hazardous materials must be used at power plants. Therefore, staff conducted its analysis by examining the choice and amount of chemicals to be used, the manner in which the applicant will use the chemicals, the manner it will be transported to the facility and transferred to facility storage tanks, and the way the applicant plans to store the materials on-site.

Staff reviewed the applicant's proposed engineering controls and administrative controls concerning hazardous materials usage. Engineering controls are those physical or mechanical systems, such as storage tanks or automatic shut-off valves, that can prevent a spill of hazardous material from occurring or which can limit the spill to a small amount or confine it to a small area. Administrative controls are those rules and

tanker, which meets or exceeds the specifications described by these regulations.

To address the issue of accident rates, staff reviewed the technical and scientific literature on hazardous materials transportation (including tanker trucks) accident rates in the United States and California. Staff relied on six references and three federal government databases to assess the risks of a hazardous materials transportation accident.

Staff used the data from the Davies and Lees (1992) article which references the 1990 Harwood et al. study, to determine that the frequency of release for transportation of hazardous materials in the U.S. is between 0.06 and 0.19 releases per million miles traveled on well designed roads and highways. Based on the Aqueous Ammonia usage of 300 lbs per day, one full tanker truck load (6,000 gallons) will be transported and delivered every 150 days or 5 months to replenish and maintain the onsite Aqueous Ammonia tank (20,000 gallon capacity) reserves. The tanker truck delivery will travel approximately 2 miles from Interstate-5 to the facility on local roads.

Deleted: The maximum usage of aqueous ammonia each year of operation of the proposed PEC will require up to 30 tanker truck deliveries of aqueous ammonia per year each delivering about 6,500 gallons. Each tanker truck delivery will travel approximately 2 miles from Interstate-5 to the facility on local roads.

This would result in about 60 miles of delivery tanker truck travel in the project area per year (with a full load). Staff believes that the risk over this distance is insignificant. Data from the U.S. DOT show that the actual risk of a fatality over the past five years from all modes of hazardous material transportation (rail, air, boat, and truck) is approximately 0.1 in one million per mile.

In addition, staff calculated the risk of an accident associated with aqueous ammonia delivery from the freeway to the facility. Results show the risk of a significant spill to be 0.20 in one million for one trip and a risk of 12 in a million per year for 30 deliveries. This risk was calculated using accident rates on various types of roads (urban, one lane and two-lane) with distances traveled on each type of road computed separately. This is an extremely conservative model that does not include the low probability of many other factors such as dispersion of released material that affect the risk of impact. However, even these conservative results show the risk of a transportation impacts are insignificant.

Staff therefore believes the risk of public exposure to significant concentrations of aqueous ammonia during transportation to the facility are insignificant because of the remote possibility of accidental release of a sufficient quantity to present a danger to the public combined with the already diluted concentration of the aqueous ammonia being transported. The transportation of similar volumes of hazardous materials on the nation's highways is not unique nor an infrequent occurrence. Staff's analysis of the transportation of aqueous ammonia to the proposed facility (along with data from the U.S. DOT) demonstrates that the risk of accident and exposure is less than significant.

Based on the environmental mobility, toxicity, quantities present at the site and frequency of delivery, it is staff's opinion that aqueous ammonia poses the predominate risk associated with hazardous materials transportation and use at the proposed facility due to its relative potential for higher exposure as compared to the other materials. Because the risks associated with ammonia are insignificant, and the risks associated

Verification: At least sixty (60) days prior to the first delivery of aqueous ammonia to the facility, the project owner shall provide a safety management plan as described above to the CPM for review and approval.

HAZ-4 The aqueous ammonia storage facility shall be designed to either the ASME Pressure Vessel Code and ANSI K61 .6 or to API 620. In either case, the storage tank shall be protected by a secondary containment basin capable of holding 125% 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 for review and approval.

Verification: At least sixty (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 ensure that no flammable material is stored within 50 feet of the sulfuric acid tank.

Verification: At least sixty (60) days prior to the 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 flammable materials to the CPM.

HAZ-6 The project owner shall direct all vendors delivering aqueous ammonia to the site to use only tanker truck transport vehicles that meet or exceed the specifications of U.S. DOT Code MC-307.

Verification: At least sixty (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-7 The project owner shall direct all vendors delivering any hazardous material to the site to use only the route approved by the CPM (from I-5, proceed east on West Panoche Road, and south to the PEC access road. Staff believes this is a reasonable route to access the site since it is the shortest and most direct route from I-5). The project owner shall submit any desired change to the approved delivery route to the CPM for review and approval.

Comment [aj11]: CEC - this is the correct route. The text that was replaced did not apply to the PEC project.

Deleted: from Interstate-710, west along Bandini Boulevard, south on Downey Street, west on Fruitland Avenue, then south on Boyle Avenue to the PEC plant site

Verification: At least sixty (60) days prior to receipt of any hazardous materials on site, the project owner shall submit copies of the required transportation route limitation direction to the CPM for review and approval.

HAZ-8 At least 30 days prior to commencing construction, a site-specific Construction Site Security Plan for the construction phase shall be prepared and submittted to the CPM for review and approval. The

Hazardous Materials
Appendix C
Proposed On-site Inventory of Hazardous Materials

TABLE 5.15-1
HAZARDOUS MATERIALS AND WASTES USAGE AND STORAGE DURING CONSTRUCTION

Material	Purpose	Usage/Day	Max Stored	Storage Type
Acetylene	Welding	As needed	270 cf	Cylinder
Argon	Welding	As needed	270 cf	Cylinder
Diesel fuel oil	Emergency generator	As needed	2,000 gal	Tank, UL C.S.
Lubricating oil	Lubricating equipment parts	As needed		Drum
Oxygen — gaseous	Welding operation	As needed	275 cf	Cylinder
Paint	Painting	25 gallons	100 gal	Can
Sodium hydroxide	Spill neutralization	As needed	2 gal	Carboy

1 All numbers are approximate. cf = cubic feet or gal = gallon(s)

TABLE 5.15-2
HAZARDOUS MATERIALS AND WASTES USAGE AND STORAGE DURING OPERATIONS

Material	Purpose	Usage/Day	Max Stored	Storage Type
Acetylene	Welding	As needed	270 cf	Cylinder
Aqueous ammonia ([19%] NH4 (OH))	NOx emissions control	300 lbs/day	20,000 gal	Aboveground tank
Acid (Sulfuric or HCL)	Cooling tower pH control		5,000 gal	Aboveground tank
Argon	Welding	As needed	270 cf	Cylinder
Cleaning Chemicals Detergents and	Miscellaneous cleaning	As needed	20 gal	Manufacturer containers
Diesel Fuel Oil	Emergency generator	As needed	2,000 gal	Tank
Dispertant	Prevent particulate settlement on cooling tower basin deposit	As needed	200 gal	Aboveground container
Hydraulic Oil	Power transmission medium in hydraulically operated equipment	As needed	500 gal	55-gallon drums
Laboratory Reagents	Miscellaneous lab work	As needed	20 gal liquid, 100 lbs solid	Manufacturers containers
Lubricating Oil	Bearing and sleeves lubrication	As needed	24,000	Lubricating sumps of turbines and 55-gallon drums
Mineral Transformer Insulating Oil	Provides overheating and insulation protection for transformers	As needed	60,000 gal	Transformers
Nitrogen	Transformers	As needed	275 cf	Cylinder
Scale/Corrosion Inhibitor	Prevent scale and corrosion in tower circulation water lines cooling	As needed	200 gal	Aboveground container
Sodium hypochlorite	Biocide for condenser cooling water system water treatment	As needed	5,000 gal	Aboveground storage tank, plastic
Sulfuric acid for station	Electrical/ctrl. Bldg., Combustion turbine, miscellaneous	As needed	100 gal	Battery

1 All numbers are approximate. cf = cubic feet or gal = gallon(s).

LAND USE

Amanda Stennick

SUMMARY OF CONCLUSIONS

Staff cannot conclude that the Panoche Energy Center (PEC) is consistent with the Fresno County General Plan Agriculture and Land Use Element because power plants are not expressly listed as a permitted or conditional use under that designation and Fresno County has not provided sufficient information that would demonstrate how the PEC is substantially similar in character and intensity to such uses listed in Table LU-3. Staff also cannot conclude the PEC is consistent with the AE-20 zoning designation because power plants are not expressly listed as a permitted or conditional use in that zone and Fresno County has not provided complete information in its Site Plan Review (SPR) analysis to determine whether the project would be consistent with the intent and purpose of the AE-20 zone.

Staff used the California Agricultural Land Evaluation and Site Assessment (LESA) model to assess the loss of 22.5 acres of prime agricultural land (12.8-acre project site, 8 acres laydown area (temporary), and 2.5-acre PG&E substation expansion) and concluded the PEC's impact to agriculture to be significant. To mitigate for the loss of prime farmland, condition of certification **LAND-1** requires the applicant to pay a fee to an agricultural land trust to purchase 15 acres of prime farmland. With staff's recommended conditions of certification, the potential significant adverse environmental impacts of the PEC will be mitigated to a level below significance pursuant to the California Environmental Quality Act (CEQA).

Comment [wdj12]: for A General Plan Conformity Application has been filed with the County to allow the Department of Public Works an opportunity to describe how the PEC conmforms with the County General Plan and AE-20 zoning. This application was filed on July 18th. The County expects to issue its conformity analysis by August 15th. PEC believes that the County will provide arguments to further support the finding that the PEC conforms with County General Plan and zoning ordenance.

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Comment [aj13]: Please refer to the attached PG&E letter dated July 12, 2007 that provides the corrected substation expansion dimensions.

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INTRODUCTION

The land use analysis of the PEC Application for Certification (06-AFC-5) focuses on the project's consistency with land use plans, ordinances, and policies, and the project's compatibility with existing and planned land uses. In this case the land use analysis also focuses on the project's consistency with the Williamson Act. In general, a power plant and its related facilities have the potential to create land use impacts if they create unmitigated noise, dust, public health hazard or nuisance, traffic, or visual impacts. These individual resource areas are discussed in separate sections of this document. A power plant would also create a significant impact if it converts prime or unique farmland or farmland of statewide importance to non-agricultural uses.

designation is AE-20 (Exclusive Agriculture with a 20-acre minimum parcel size). The site is currently planted in pomegranates, as is the adjacent eight-acre laydown area.

The zoning and general plan land use designations within one mile of the subject parcel are AE-20 and Agriculture, respectively. The project site and most of the surrounding area are mapped Prime Farmland by the California Department of Conservation's Farmland Mapping and Monitoring Program (FMMP). **Land Use Figure 1** shows the general plan designations and **Land Use Figure 2** shows the zoning for the site and within one mile of the site. Other than agriculture, farm residences, and related buildings, land uses in the immediate vicinity of the proposed project include the PG&E Panoche Substation, the CalPeak Peaker Plant, and the Wellhead Power Generation facility.

As stated in the AFC and the PEC substation expansion letter (docketed May 7, 2007), there is limited land within the existing PG&E Panoche Substation so PG&E will expand the substation (located on APN 027-060-61 SU) to interconnect to the PEC site. A lot line adjustment will be filed by PG&E to accommodate the expansion. All substation expansion work will be performed by PG&E. The expansion would total 108,750 square feet, or about 2.5 acres. The conversion of this 2.5 acres to a nonagricultural use is discussed under the heading **CONVERSION OF PRIME FARMLAND.** Other offsite improvements required by the PEC would include 2,400 linear feet of gas pipeline and a 300-foot transmission line to tie into the PG&E Panoche Substation.

Comment [aj14]: Please refer to the attached PG&E letter dated July 12, 2007 that provides the corrected substation expansion dimensions.

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ASSESSMENT OF IMPACTS AND DISCUSSION OF MITIGATION

METHOD AND THRESHOLD FOR DETERMINING SIGNIFICANCE

Significance criteria are based on the CEQA Guidelines and on performance standards or thresholds adopted by responsible agencies. An impact may be considered significant if the project results in:

- 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;
- disruption or division of the physical arrangement of the established community;
- conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on the maps pursuant to the Farmland Mapping and Monitoring Program of the California Department of Conservation (i.e., a department within the California Resources Agency), to non-agricultural uses;
- 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 nonagricultural use;
- unmitigated noise, dust, public health hazard or nuisance, traffic, or visual impacts, or when it precludes or unduly restricts existing or planned future uses.

As part of its staff report, Fresno County had to address Finding no. 2, which asks whether the cancellation "is not likely to result in the removal of adjacent lands from agricultural use." In its response, Fresno County did not state that the cancellation of the 12.8 acres would require the cancellation of an additional 2.5 acres to accommodate the expansion of the PG&E Panoche Substation. Staff discusses the removal of the adjacent 2.5 acres from agricultural use under the heading **CONVERSION OF PRIME FARMLAND.**

Comment [aj15]: Please refer to the attached PG&E letter dated July 12, 2007 that provides the corrected substation expansion dimensions.

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The Board's approval action and the findings are necessary to conclude that the cancellation of the Williamson Act contract has lawfully occurred, thereby permitting the power generation facility to be considered for this site. In addition to the Board's approval, cancellation requires the issuance of a Final Certificate of Cancellation of the Williamson Act contract. According to Fresno County staff, the Final Certificate of Cancellation will be recorded when the following conditions of approval for the cancellation have been met.

1. Payment in full of the cancellation fee.

2. Unless the cancellation fee is paid or a Certificate of Cancellation of Contract is issued within one year from the date of the recording of this certificate, the cancellation fee shall be recomputed as of the date of notice by the landowner to the Board of Supervisors required by Government Code Section 51283.4.

3. The landowner shall obtain all permits necessary to commence this project.

As shown by condition no. 3, the Certificate of Cancellation of Contract will not be recorded until all permits, including the Energy Commission's license are issued. Please refer to **Land Use APPENDIX 2** for a copy of the Board of Supervisors' Resolution #07-203 and the Certificate of Tentative Cancellation. Interested parties would have up to 180 days to challenge the final cancellation.

Comment [aj16]: CEC – Please clarify when the 180 day period would begin.

Fresno County General Plan

The Fresno County General Plan, adopted in 2000, contains an evaluation of existing conditions and provides long-term goals and policies to guide growth and development in the county for the next 15 to 25 years. The general plan is implemented by the county through its zoning, subdivision ordinances, specific plans, growth management policies, planned development districts, development agreements, development review, code enforcement, land use database, capital improvement programs, environmental review procedures, building and housing codes, and redevelopment plans. The general plan land use designation for the site is Agriculture.

Fresno County General Plan **Goal LU-A** states that the county shall promote the long-term conservation of productive and potentially productive agricultural lands and to accommodate agricultural-support services and agriculturally-related activities that support the viability of agriculture and further the county's economic development goals.

The applicable land use policies from Fresno County's General Plan Agriculture and

Based on Fresno County's SPR analysis of the proposed project, Energy Commission staff cannot conclude that the SPR satisfies Fresno County's unclassified use permit process. An SPR normally, but for the Energy Commission's exclusive jurisdiction merely ensures the project's compliance with the development standards in the AE-20 zone. For these reasons and those discussed above, staff cannot conclude that the PEC would be consistent with the AE-20 zone designation.

DISRUPT OR DIVIDE AN ESTABLISHED COMMUNITY

While the proposed project is located in an area dominated by agriculture, there are three existing energy uses within one-half mile of the proposed PEC: the Wellhead Peaker Plant; the CalPeak Peaker Plant; and the PG&E Substation. The two peaker plants (both under 50 MW) were approved by Fresno County within the last few years. Another proposed energy facility, the Starwood Midway Energy Project (06-AFC-7) is currently under Energy Commission review and would be located north of the existing electrical generating uses and PG&E Substation on the same 128-acre parcel as the PEC. Given the existing cluster of energy/industrial uses, development of the proposed site as an energy/industrial use would continue the trend toward industrial development in the immediate area. Because of the established pattern of energy/industrial uses, the proposed project would not result in a physical division or disruption of the established agricultural community. No new physical barriers would be created by the project and no existing roadways or pathways would be blocked that would be considered detrimental to agricultural use.

CONVERSION OF PRIME FARMLAND

The 12.8-acre project site and 8-acre laydown area consist of prime, irrigated soils planted in a mature pomegranate orchard. According to section 5.4 of the AFC, the project site has been irrigated for many years. The 8-acre laydown area will be replanted in pomegranates after project construction. Therefore, staff does not consider the temporary use of this acreage for a laydown area to be a significant impact to agriculture.

State CEQA Guidelines Appendix G provides direction to lead agencies when determining whether impacts to agricultural resources are significant environmental effects. Appendix G states that lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment (LESA) model prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. The LESA model provides an approach for rating the relative quality of land resources based upon specific measurable features. The California LESA model is composed of six different factors: two Land Evaluation factors based upon measures of soil resource quality; and four Site Assessment factors that provide measures of a given project's size, water resource availability, surrounding agricultural lands, and surrounding protected resource lands.

Staff used the LESA model to determine whether the project's conversion of the 12.8 acres would be significant. Because staff considers the conversion of the 2.5 acres for the Panoche Substation expansion an indirect impact of the project, staff included that

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Staff has insufficient information for reaching an agreement with the DOC's conclusions about the project's consistency with Fresno County's General Plan land use policies. Also, the DOC's letter does not address the direct loss of prime farmland. Staff's analysis concluded that the conversion of this farmland to a non-agricultural use would result in a significant impact requiring mitigation. Therefore, staff proposes condition of certification **LAND-1,** which would require the project owner to mitigate for the loss of prime farmland at a one-to-one ratio. Staff believes that with the adoption of this condition, the impact to farmland will be reduced to less than significant.

Fresno County submitted to the Energy Commission their Agricultural Land Conservation Committee Staff Report Agenda Item No. 3, April, 4, 2007 on the proposed Williamson Act cancellation for the 12.8 acres of prime farmland (see **Land Use Appendix 2** for the full text). In its staff report, Fresno County makes a recommendation of approval to the Board of Supervisors for the cancellation of the 12.8 acres.

Staff has insufficient information for concurrence with Fresno County's conclusions that support its statement that "...the cancellation is for an alternative use that is consistent with the provisions of the County General Plan." The County, in its staff report recognizes that its "...General Plan allows for development of certain non-agricultural uses in areas designated for Agriculture." However, staff believes the County does not provide an adequate discussion of the proposed power plant's consistency with the provisions and intent of the Agriculture land use designation or provide a discussion as to how the County allows for such nonagricultural uses as a power plant in areas designated Agriculture.

Fresno County's May 2, 2007 letter (docketed May 7, 2007) to Energy Commission staff is discussed under the section **Fresno County General Plan.**

CONCLUSIONS

Energy Commission staff cannot conclude that the PEC complies with all applicable LORS. The following conclusions summarize staff's analysis.

- **Fresno County General Plan Agriculture and Land Use Element –** staff cannot conclude that the PEC is consistent with the Agriculture land use designation because power plants are not expressly listed as a permitted or conditional use under that designation and Fresno County has not provided sufficient information that would demonstrate how the PEC is substantially similar in character and intensity to such uses listed Table LU-3.
- **Fresno County Zoning Ordinance -** staff cannot conclude that the PEC is consistent with the AE-20 zoning designation because power plants are not expressly listed as a permitted or conditional use in that zone and Fresno County has not provided sufficient information in its SPR analysis to determine whether the project would be consistent with the intent and purpose of the AE-20 zone.
- **Williamson Act –** Fresno County's 180-day appeal period for the cancellation

Comment [wdj17]: As described in the comment in the Summary above, Staff's judgement on PEC's conformity with the General Plan and AE-20 zoning is subject to change once additional information from Fresno County is reviewed.

began once the County issues the Tentative Certificate of Cancellation, which was on April 24, 2007. In the most recent siting case (Tesla) the Commission certified the project while the appeal

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period was still in effect. In the Tesla case as in the PEC, Alameda County conditioned its tentative approval of the cancellation upon Commission certification of the project.

- **Subdivision Map Act –** staff is satisfied that the applicant's submittal of its site plan to Fresno County for the county's SPR complies with the exemption provision of the Subdivision Map Act.

Because staff's analysis can arguably show how the proposed project does not conform to the Fresno County General Plan Agriculture and Land Use Element and is not consistent with the AE-20 zone designation, staff suggests that the applicant work with Fresno County to resolve the issue of conformity prior to the publication of the Final Staff Assessment (FSA). In seeking resolution of local LORS, the applicant may want to ask Fresno County to address the four items from Policy LU-A.3 in the Fresno County Agriculture and Land Use Element and the four findings required for granting an unclassified conditional use permit in the AE-20 zone.

Comment [aj18]: As described above, PEC submitted a General Plan Conformity Application to Fresno County on July 18, 2007. PEC expects a formal communication from the County by August 15, 2007.

Policy LU-A.3 in the Fresno County Agriculture and Land Use Element

- The use shall provide a needed service to the surrounding agricultural area which cannot be provided more efficiently within urban areas or which requires location in a non-urban area because of unusual site requirements or operational characteristics;
- The use should not be sited on productive agricultural lands if less productive land is available in the vicinity;
- The operational or physical characteristics of the use shall not have a detrimental impact on water resources or the use or management of surrounding properties within at least 1/4-mile radius; and
- A probable workforce should be located nearby or be readily available.

Findings required for granting an unclassified conditional use permit in the AE-20 zone.

- That the site of the proposed use is adequate in size and shape to accommodate the use including all yards, spaces, walls, fences, parking, loading, landscaping, and other features required by the use.
- That the site for the proposed use relates to streets and highways adequate in width and pavement type to carry the quantity and kind of traffic generated by the proposed use.
- That the proposed use will have no adverse effect on abutting property and surrounding neighborhood or the permitted use thereof.
- That the proposed use is consistent with the Fresno County General Plan.

Staff is satisfied that as conditioned, the proposed PEC would not have a significant adverse affect on the environmental justice population living within the project's six-mile radius. The project would convert 15 acres of prime soil to a non-agricultural use. Staff's

Should the Energy Commission certify the project, staff recommends that the Energy Commission adopt the following conditions of certification.

PROPOSED CONDITION OF CERTIFICATION

LAND-1 The project owner shall mitigate for the loss of 15 acres of prime farmland at a one-to-one ratio.

Verification: The project owner shall provide a mitigation fee payment to a Fresno County agricultural land trust or a statewide agricultural land trust at least 30 days prior to the start of construction. The fee payment will be determined by an independent appraisal conducted on available, suitable, farmland property. The agricultural land trust will procure an independent appraiser to conduct the appraisal. Upon appraisal, a Letter of Intent will be prepared by the agricultural land trust and signed by the property owner. The project owner shall provide a mitigation fee payment, as determined by the appraisal process, to the agricultural land trust. Fifteen acres of prime farmland and/or easements shall be purchased within two years of start of construction as compensation for the 15 acres of prime farmland to be converted by the PEC. The land managed by the trust will be located in Fresno County (if feasible) and will be farmed in perpetuity. The project owner shall provide to the CPM updates in the Annual Compliance Report on the status of farmland/easement purchase(s).

Comment [aj19]:

Deleted: The fee payment will be determined by Fresno County and the project owner a

Deleted: nd set forth in a prepared Farmlands Mitigation Agreement (FMA), also determined between the project owner and Fresno County

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LAND-2 The project owner shall design and construct the project to the applicable development standards in Sections 816.5 and 843 of the Fresno County Ordinance Code.

1. Any access gate shall be setback a minimum of 20 feet (or the length of the longest vehicle to initially enter the site from the edge of the ultimate road rig ht-of -way.
2. The number of parking spaces required as part of this project shall be one space for every permanent employee, one space for each sales person, and one space for each company vehicle for a total of 6 spaces.
3. Each lot shall comply with Section 843 on front and side yards.

Verification: At least sixty (60) days prior to the start of construction the project owner shall submit to the Compliance Project Manager (CPM) written documentation including evidence of review by Fresno County that the project conforms to the standards in Sections 816.5 and 843 of the Fresno County Ordinance Code.

Comment [aj20]: CEC – Please clarify where these development standards came from. They appear to be project specific and are not specifically listed in Section 816.5 or 843 as stated above.

Deleted: have a front yard of not less than 35 feet extending across the full width of the lot; each lot shall have a side yard on each side of not less than 20 feet.

LAND-3 The project owner shall provide a copy of Fresno County's Final Certificate of Cancellation of Contract from Agriculture Preserve No. 367.

Verification: At least 60 days prior to construction, the project owner shall submit to the CPM a copy of Fresno County's Final Certificate of Cancellation of Contract from Agriculture Preserve No. 367.

DIRECT IMPACTS AND MITIGATION

Noise impacts associated with the project can be created by short-term construction activities, and by normal long-term operation of the power plant.

Construction Impacts and Mitigation

Construction noise is usually considered a temporary phenomenon. Construction of the PEC is expected to be typical of other power plants in terms of schedule, equipment used, and other types of activities.

Compliance with LORS

Construction of an industrial facility such as a power plant is typically noisier than permissible under usual noise ordinances. In order to allow the construction of new facilities, construction noise during certain hours of the day is commonly exempt from enforcement by local ordinances.

The applicant has not predicted construction noise levels at the noise-sensitive receptors. Therefore, staff uses reference sound levels from typical construction equipment to estimate the project construction noise levels at the noise monitoring locations. Sound levels of typical construction equipment range from approximately 65 dBA to 95 dBA at 50 feet from the source, with an average of 89 dBA at 50 feet during the noisiest activities. Staff uses 89 dBA at 50 feet as the reference noise level for conventional construction noise. Based on this, staff has calculated the project estimated construction noise levels at the three noise monitoring locations; they are summarized here in **Noise Table 4.**

NOISE Table 4
Predicted Construction Noise Levels

Receptor/Distance	Highest Estimated Construction Noise Level (dBA) [1]	Measured Existing Ambient, Average Daytime L_{eq} (dBA) [2]	Cumulative	Change
ML1/1,900 feet	57	63	64	+1
ML2/800 feet	64	46	64	+18
ML3/3,300 feet	53	55	57	+2

Sources: [1] Average of noise level from conventional construction equipment during noisiest activities, and staff's calculations
[2] PEC 2006a, AFC Tables 5.12-2, 5.12-3; and staff's calculations

The applicable local noise LORS do not limit the loudness of construction noise, but staff compares the projected noise levels to the ambient. Since construction noise typically varies continually with time, it is most appropriately measured by, and

Comment [aj21]: The data presented in Table 4 compares the "Highest Estimated Construction Noise Level" with the "Measured Existing Ambient Average Daytime L_{eq}." This comparison is not applicable as it compares the highest estimated noise levels with a one-hour measurement sample without consideration for construction equipment utilization factors or variance of the data sample. Given these limitations, it is virtually certain that the actual construction related noise increase will be much less than 18 dBA and may, in fact, be reduced to an insignificant change.
It is the intent of the applicant to relocate the residents at ML2 prior to the start of construction; however, given the inherent limitations of the analysis, the options available to the residents (NOISE-2), the fluid nature of construction in a twelve acre area, and the short-term nature of the construction activity, the applicant prefers that a requirement to relocate residents at ML2 prior to the start of construction activity not be included as a condition.

nature and construction activities will occur during daytime hours. Staff thus concludes that project construction will create less than significant adverse impacts at these receptors. To ensure this, staff proposes Conditions of Certification **NOISE-1** and **NOISE-2,** which would establish a Noise Complaint Process to resolve any complaints regarding construction noise, and Condition of Certification **NOISE-7** which would limit construction activities to daytime hours.

Linear Facilities

New off-site linear facilities would include 2,400 feet of gas pipeline, a 300-foot transmission line to tie into the Panoche Substation, and an expansion of the Panoche Substation by approximately 2.5 acres south of the existing substation boundary (PEC 2006a, AFC §§ 1.2.1, 3.7.1.2, 3.11.3.1, 3.11.7.1).

Comment [aj22]: Please refer to the attached PG&E letter dated July 12, 2007 that provides the corrected substation expansion dimensions.

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Construction of linear facilities typically moves along at a rapid pace, thus not subjecting any one receptor to noise impacts for more than two or three days. Further, the Noise Ordinance of the Fresno County Code limits the hours of construction to daytime hours. The Applicant has committed to complying with this requirement (PEC 2006a, AFC § 5.12.2.2). To ensure compliance with these limitations, staff proposes Condition of Certification **NOISE-7.**

Vibration

The only construction operation likely to produce vibration that could be perceived off-site would be pile driving. It is anticipated that up to ten (10) test piles will be done as part of pre-construction and further geotechnical work with additional pilings to be done during the construction period.

Deleted: driving will not be required for construction of the PEC. Therefore no vibration impacts are expected.

Worker Effects

The applicant has acknowledged the need to protect construction workers from noise hazards, and has recognized those applicable LORS that would protect construction workers (PEC 2006a, AFC Table 5.12-6; §§ 5.12.4.1, 5.12.4.2). To ensure that construction workers are, in fact, adequately protected, staff has proposed Condition of Certification **NOISE-3.**

Operation Impacts and Mitigation

The primary noise sources of the PEC include the gas turbine generators, gas turbine air inlets, exhaust stacks, wet cooling tower, natural gas fuel compressors, electrical transformers, selective catalytic reduction (SCR) duct walls, and various pumps and fans. Staff compares the projected project noise with applicable LORS, in this case, the Noise Ordinance of the Fresno County Code (County 2006b). In addition, staff evaluates any increase in noise levels at sensitive receptors due to the project in order to identify any significant adverse impacts.

The applicant's proposed noise mitigation measures include the following (based on the updated noise modeling performed in May 2007 and assuming the relocation of ML1 and ML2):

Deleted: PEC 2006a, AFC § 5.12.2.1.2; PEC 2007d, Data Responses 69 and 70; URS 2007a, E-mail from Maggie Fitzgerald

- Silencers (for air inlet surfaces);
- generator weather enclosures;
- a 17-foot high barrier adjacent to the fuel gas compressors and recycle gas fin fan coolers; and

In addition, the applicant has proposed to avoid the creation of annoying tonal (pure-tone) noises by balancing the noise emissions of various power plant features during plant design.

Deleted: <#>fuel gas compressor enclosure;¶
exhaust stack silencing

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Deleted: combustion turbine generators

Deleted: <#>other noise abatement modifications to supplied equipment.¶

Compliance with LORS

The applicant performed noise modeling to determine the project's noise impacts on sensitive receptors (PEC 2006a, AFC § 5.12.2.1.2; Table 5.12-5). Project operating noise as predicted in the AFC would be 51 dBA at monitoring location ML1 (the 5-Plex northeast of the project site), 58 dBA at monitoring location ML2 (the residential receptor north of the project site), and 40 dBA at monitoring location ML3 (the single-family residential receptor northeast of the project site). As later predicted in an e-mail from the applicant sent to staff on April 24, 2007 (URS 2007a), the project's operating noise would be 49 dBA at ML1 and 42 dBA at ML3. The applicant states that these new predictions are based on a revised noise modeling that generated more accurate and specific results than those reported in the AFC (URS 2007a). Therefore, staff uses these new values to evaluate the project's noise impacts at the above identified noise-sensitive receptors.

For residential receptors staff compares nighttime levels, when people are sleeping and more likely to be bothered by excessive noise. As explained above, the Noise Ordinance of the Fresno County Code (County 2006b) establishes the noise limits shown in **Noise Table 2** above. Staff uses the lowest of these limits, or 45 dBA $_{L50,}$ to evaluate the project's noise impact at the above receptors.

The predicted project noise level at ML1, or 49 dBA, when combined with the average ambient noise level of the four quietest consecutive hours of the nighttime at this location, or 44 dBA L_{50} (see **Noise Table 3),** would result in 50 dBA $_{L50.}$ This is 5 dBA above the LORS limit of 45 dBA L_{50} and thus violates the County code. Starwood Power-Midway, LLC recently filed an Application for Certification (06-AFC-10) with the Energy Commission to construct and operate the Starwood Power Project (SPP). The center of the project site would be approximately 460 feet from ML1. The SPP applicant has signed an agreement with the landowner of the 5-Plex at ML1 to relocate the current residents (URS 2006a, AFC § 5.12.5.2). As such, the 5-Plex would no longer be used for residential land use. Conversely, the applicant (the PEC applicant) has stated that if the SPP does not implement its agreement and ML1 remains a residential property, the applicant would be able to demonstrate compliance with the 45 dBA L_{50} limit (PEC 2007a, Data Response 41). In the AFC, the applicant states that it is assessing technically feasible noise mitigation measures to accomplish this goal. It also states that efforts are currently ongoing to obtain confirmation from equipment manufacturers and noise control vendors on additional mitigation measures that can be

shall submit an updated Noise Complaint Resolution Form when the mitigation is implemented.

NOISE-3 The project owner shall submit to the CPM for review and approval a noise control program. The noise control program shall be 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 noise control program. The project owner shall make the program available to Cal-OS HA upon request.

NOISE RESTRICTIONS

NOISE-4 If ML1 is not relocated, the project design and implementation shall include appropriate noise mitigation measures adequate to ensure that operation of the project will not cause noise levels due to plant operation plus ambient, during the four quietest consecutive hours of the nighttime, to exceed an average of 45 dBA L_{50} measured near monitoring locations ML1 (approximately 1,900 feet northeast of the center of the project site) and ML3 (43405 West Panoche Road). If the residents living in the 5-Plex (near ML1) are relocated to a new location within one mile of the project site, the project shall ensure that its operations will not cause noise level due to plant operation plus ambient, during the four quietest consecutive hours of the nighttime, to exceed an average of 45 dBA L_{50} measured near the new location.

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No new pure-tone components may be caused by the project. No single piece of equipment shall be allowed to stand out as a source of noise that draws legitimate complaints.

A. When the project first achieves a sustained output of 90 percent or greater of rated capacity, the project owner shall conduct a 25-hour community noise survey at monitoring location ML1 or at a closer location acceptable to the CPM. If the residents at ML1 are relocated to a new location within one mile of the project site, the project owner shall conduct this survey near that location, at a location acceptable to the CPM. This survey during power plant operation shall also include measurement of one-third octave band sound pressure levels to ensure that no new pure-tone noise components have been caused by the project.

B. If, during the operating life of the project, the 5-Plex near monitoring location ML1 is converted back to a residential land use and becomes occupied with any residents, the project owner shall repeat this survey at ML1 or at a closer location acceptable to the CPM.

C. During the period of the first survey, the project owner shall conduct a short-term survey of noise at monitoring location ML3, or at a closer

Comment [aj23]: PEC is concerned with Noise-4B and Noise-5A which requires follow-up sound level measurements (and possible noise mitigation) if the 5-plex at ML1 and the residences at ML2 revert to a residence during the operating life of the project. Retrofit mitigation is likely to be costly for a situation that may be out of the client's control. The Fresno County General Plan and Noise Ordinance will ensure compatible future land uses at these locations.

location acceptable to the CPM. The short-term noise measurements shall be conducted during every hour of the nighttime hours, from 10 p.m. to 7 a.m., during the period of the survey.

D. The measurement of power plant noise for the purposes of demonstrating compliance with this condition of certification may alternatively be made at a location, acceptable to the CPM, closer to the plant (e.g., 400 feet from the plant boundary) and this measured level then mathematically extrapolated to determine the plant noise contribution at the affected residence. The character of the plant noise shall be evaluated at the affected receptor locations to determine the presence of pure tones or other dominant sources of plant noise.

E. If the results from any of the above noise surveys indicate that the power plant noise level plus ambient $_{(L50)}$ at the affected receptor sites exceeds the above value during the above specified time periods, mitigation measures shall be implemented to reduce noise to a level of compliance with this limit.

F. If the results from the noise survey indicate that pure tones are present, mitigation measures shall be implemented to eliminate the pure tones.

Verification: The first survey shall take place within 30 days of the project first achieving a sustained output of 90 percent or greater of rated capacity. If the second survey (the repeated survey at ML1) is needed (as described above), it shall take place prior to the 5-Plex being reoccupied. Within 15 days after completing each of the above surveys, the project owner shall submit a summary report of the survey to the CPM. Included in the survey report will be a description of any additional mitigation measures necessary to achieve compliance with the above listed noise limit, and a schedule, subject to CPM approval, for implementing these measures. When these measures are in place, the project owner shall repeat the noise survey.

Within 15 days of completion of the new survey (conducted after implementation of the above mitigation measures), the project owner shall submit to the CPM a summary report of this new noise survey, performed as described above and showing compliance with this condition.

NOISE-5 Prior to start of initial startup of the first combustion turbine, the project owner shall relocate the residents on the property at ML2 to the location specified in the signed agreement between the applicant and the landowner of the property at ML2. The project design and implementation shall include appropriate noise mitigation measures adequate to ensure that operation of the project will not cause noise levels due to plant operation plus ambient, during the four quietest consecutive hours of the nighttime, to exceed an average of 45 dBA L_{50} measured near this new location.

Deleted: construction activities

No new pure-tone components may be caused by the project. No single piece of equipment shall be allowed to stand out as a source of noise that draws legitimate complaints.

A. When the project first achieves a sustained output of 90 percent or greater of rated capacity, the project owner shall conduct a short-term survey of noise at this new location or at a closer location acceptable to the CPM. The short-term noise measurements shall be conducted during every hour of the nighttime hours, from 10 p.m. to 7 a.m., during the period of the survey. If, during the operating life of the project, any of the buildings at monitoring location ML2 are converted back to residential land use and become occupied with any residents, the project owner shall repeat this survey at ML2 or at a closer location acceptable to the CPM.

   The character of the plant noise shall be evaluated at the affected receptor locations to determine the presence of pure tones or other dominant sources of plant noise.

B. If the results from any of the above noise surveys indicate that the power plant noise level plus ambient $_{(L50)}$ at the affected receptor sites exceeds the above value during the above specified time period, mitigation measures shall be implemented to reduce noise to a level of compliance with this limit.

C. If the results from the noise surveys indicate that pure tones are present, mitigation measures shall be implemented to eliminate the pure tones.

Comment [aj24]: PEC is concerned with Noise-4B and Noise-5A which requires follow-up sound level measurements (and possible noise mitigation) if the 5-plex at ML1 and the residences at ML2 revert to a residence during the operating life of the project. Retrofit mitigation is likely to be costly for a situation that may be out of the client's control. The Fresno County General Plan and Noise Ordinance will ensure compatible future land uses at these locations.

Verification: Prior to ground disturbance, the project owner shall transmit to the CPM a statement, signed by the project owner's project manager, stating that the residents on the property at ML2 have been relocated, and describing the new location and its distance to the project site.

The first noise survey shall take place within 30 days of the project first achieving a sustained output of 90 percent or greater of rated capacity. If the second survey is needed (as described above) it shall take place prior to the building(s) at ML2 being reoccupied. Within 15 days after completing each of the surveys, the project owner shall submit a summary report of the survey to the CPM. Included in the survey report will be a description of any additional mitigation measures necessary to achieve compliance with the above listed noise limit, and a schedule, subject to CPM approval, for implementing these measures. When these measures are in place, the project owner shall repeat the noise survey.

Within 15 days of completion of the new survey (conducted after implementation of the above mitigation measures), the project owner shall submit to the CPM a summary report of this new noise survey, performed as described above and showing compliance with this condition.

NOISE-6 Following the project first achieving a sustained output of 90 percent or greater of rated capacity, the project owner shall conduct an occupational noise survey to identify the noise hazardous areas in the facility.

The survey shall be conducted by a qualified person in accordance with the

provisions of Title 8, California Code of Regulations, sections 5095-5099 (Article 105) and Title 29, Code of Federal Regulations, section 1910.95. The survey results shall be used to determine the magnitude of employee noise exposure.

The project owner shall prepare a report of the survey results and, if necessary, identify proposed mitigation measures that will be employed to comply with the applicable California and federal regulations.

Verification: Within 30 days after completing the survey, the project owner shall submit the noise survey report to the CPM. The project owner shall make the report available to OSHA and Cal-OSHA upon request.

CONSTRUCTION TIME RESTRICTIONS

NOISE-7 Heavy equipment operation and noisy construction work relating to any project features shall be restricted to the times delineated below, unless a special permit has been issued by the County of Fresno:

Comment [k25]: Note that no "special permit" was found listed in the County LORS

Any day except Saturdays and Sundays	6 a.m. to 9 p.m.
Saturdays and Sundays	7 a.m. to 5 p.m.

Haul trucks and other engine-powered equipment shall be equipped with adequate mufflers. Haul trucks shall be operated in accordance with posted speed limits. Truck engine exhaust brake use shall be limited to emergencies.

Verification: Prior to 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.

CONCLUSIONS

Estimated gross public benefits from the PEC include increases in property and sales taxes, employment, and income for Fresno County. For example, there are estimated to be an average of 178 direct project-related construction jobs for the thirteen months of construction. The PEC is estimated to have total capital costs of $250 million to $300 million. The PEC construction payroll is estimated at $27 million for thirteen months and the operation payroll is $1 million annually. Property taxes are estimated at $3.5 million for the first year (2009) for a project life of 20 years. The construction-related sales and use tax is extimated to be $4 million. The estimated total sales and use tax during construction is $119,620 and during operation the total sales tax is $77,358 annually over the life of the project. An estimated $1-$2 million would be spent locally for materials and equipment during construction, and an additional $15 million would be spent annually for the operations and maintenance budget.

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Staff concludes that construction and operation of the PEC would not cause a significant direct or cumulative adverse socioeconomic impact on the study area's housing, schools, law enforcement, emergency services, hospitals, and utilities. Hence, there are no socioeconomic environmental justice issues related to this project.

With the proposed condition of certification the project would be consistent with applicable LORS.

Finally, the following **SOCIOECONOMICS Table 3** provides a summary of socioeconomic data and information from this analysis, with emphasis on economic benefits of the PEC.

SOIL & WATER RESOURCES

Somer Goulet M.S.E.L. and Richard Anderson

SUMMARY OF CONCLUSIONS

Based on its assessment of the proposed Panoche Energy Center (PEC) project, staff makes the following findings:

- Potential adverse impacts caused by erosion and stormwater flows during construction and operation would be mitigated with the development and implementation of an effective Storm Water Pollution Prevention Plan and a Drainage, Erosion and Sedimentation Control Plan;
- The proposed water supply for the project is not consistent with state water use or conservation policies;
- Potential adverse impacts from the processing of wastewater or the use and storage of hazardous materials would be avoided with the adoption and implementation of an effective Hazardous Materials Management Program and Storm Water Pollution Prevention Plan; and
- With the exception of the proposed water supply, which staff has determined is a unmitigated significant environmental impact, the proposed project would comply with all applicable federal, state and local laws, ordinances, regulations and standards with the adoption of the recommended conditions of certification.

Comment [k26]: PEC does not agree with this finding

Comment [k27]: PEC does not agree with this finding

INTRODUCTION

This section of the Preliminary Staff Assessment (PSA) analyzes the potential effects on soil and water resources by the Panoche Energy Center (PEC) simple-cycle power generation project. This analysis specifically focuses on the potential for PEC to:

- cause accelerated wind or water erosion and sedimentation;
- exacerbate flood condition in the vicinity of the project;
- adversely affect surface or groundwater supplies;
- degrade surface or groundwater quality; and
- comply with all applicable laws, ordinances, regulations and standards (LORS).

LAWS, ORDINANCES, REGULATIONS AND STANDARDS

SOIL AND WATER RESOURCES Table 1
Laws, Ordinances, Regulations, and Standards (LORS)

Applicable Law	Descri ption
Federal	
Clean Water Act (CWA) (33 USC Section 1251 et seq.)	The CWA requires states to set standards to protect, maintain, and restore water quality through the regulation of point source and certain non point source discharges to surface water. This includes regulation of storm water discharges during construction and operation of a facility normally addressed through a general National Pollutant Discharge Elimination System (NPDES) permit.
CWA Section 401	Section 401 of the CWA requires that any activity that may result in a discharge into a water body must be certified by the Regional Water Quality Control Board (RWQCB)
CWA Section 404	Section 404 of the CWA authorizes the U.S. Army Corps of Engineers (ACOE) to regulate the discharge of dredged or fill material to the waters of the U.S. and adjacent wetlands. The ACOE issues site specific or general (Nationwide) permits for such discharges.
Resource Conservation and Recovery Act (RCRA) (40 CFR Part 260, et seq.)	RCRA seeks to prevent surface and groundwater contamination, sets guidelines for determining hazardous wastes, and identifies proper methods for handling and disposing of those wastes.
State	
California Constitution, Article X, Section 2	The State Constitution requires that the water resources of the state be put to beneficial use to the fullest extent possible and states that the waste, unreasonable use or unreasonable method of use of water is prohibited.
Porter Cologne Water Quality Control Act (PCWQCA) (Water Code §13000 et seq.)	PCWQCA requires the State Water Resources Control Board (SWRCB) and the nine RWQCBs to adopt water quality criteria to protect state waters. These standards are typically applied to the proposed project through the Waste Discharge Requirements (WDRs) permit. These regulations require that the RWQCB issue Waste Discharge Requirements specifying conditions regarding the construction, operation, monitoring and closure of waste disposal sites, including injection wells and evaporation ponds for waste disposal. In addition, the PCWQCA assigns the RWQCB the authority to designate beneficial uses of the water resources of the State.
California Water Code (CWC) Section 13550	CWC Section 13550 requires the use of reclaimed water for industrial purposes subject to reclaimed water being available and meeting certain conditions such as the quality and quantity of the reclaimed water are suitable for the use, the cost is reasonable, and the use is not detrimental to public health.
California Water Code (CWC) Section 13552.6	CWC Section 13552.6 prohibits the use of domestic water for cooling towers if suitable recycled water is available.

The California Safe Drinking Water and Toxic Enforcement Act (California Health & Safety Code §25249.5 et seq.)	The California Safe Drinking Water and Toxic Enforcement Act prohibit actions contaminating drinking water with chemicals known to cause cancer or possessing reproductive toxicity.
Recycling Act of 1991 (Water Code § 13575 et esq.)	The Water Recycling Act of 1991 encourages the use of recycled water for certain uses and establishes standards for the development and implementation of recycled water programs.
California Code of Regulations, Title 22	Under Title 22 of the California Code of Regulations, the California Department of Health Services (DHS) reviews and approves wastewater treatment systems to ensure they meet tertiary treatment standards allowing use of reclaimed water for industrial processes such as steam production and cooling water.
Warren-Alquist Act Public Resources Code Section 25500 et seq.	The California Energy Commission has the exclusive authority to certify the construction and operation of thermal electric power plants 50 megawatts (MW) or larger. The Energy Commission certification is in lieu of any permit required by state, regional, or local agencies, and federal agencies to the extent permitted by federal law (Pub. Resources Code, §25500). The Energy Commission must review power plant AFCs to assess potential environmental and public health and safety impacts, potential measures to mitigate those impacts (Pub. Resources Code, §255 19), and compliance with applicable governmental laws and standards (Pub. Resources Code, §25523 (d)).
Energy Commission Integrated Energy Policy Report (IEPR) 2003	Consistent with State Water Resources Control Board Policy 75-58 and the Warren–Alquist Act, the Energy Commission will approve the use of fresh water for cooling purposes by power plants it licenses only where alternative water supply sources and alternative cooling technologies are shown to be "environmentally undesirable" or "economically unsound". These policies are specific to steam-electric power generating facilities.
State Water Resources Control Board Policies (SWRCB), Policy 75-58 & Policy 88-63	The principal policy of the SWRCB that addresses the specific siting of steam-electric power generating facilities is the Water Quality Control Policy on the Use and Disposal of Inland Waters Used for Power Plant Cooling (adopted by the Board on June 19, 1976, by Resolution 75-58). This policy states that use of fresh inland waters should only be used for power plant cooling if other sources or other methods of cooling would be environmentally undesirable or economically unsound. Resolution 75-58 defines brackish waters as "all waters with a salinity range of 1,000 to 30,000 mg/l. Policy 88-63 defines suitability of usage. The total dissolved solids must exceed 3,000 mg/L for it to not be considered suitable, or potentially suitable, for municipal or domestic water supply.

PROJECT, SITE, AND VICINITY DESCRIPTION

The applicant proposes to build a simple-cycle electric generation project consisting of 4 natural gas-fired combustion turbine generators (CTGs). Each CTG unit would have the capability to generate 100 megawatts MW with a net generating capacity of 400 MW. The proposed PEC would utilize the inter-cooled gas turbine system developed especially for the needs of the power generation industry. The PEC will not incorporate a thermal cycle that employs the steam-water system as the thermodynamic medium. As such, PEC is not a "steam electric" power plant."

Existing use on the proposed site is a pomegranate orchard. Surrounding uses in the general area are mostly agricultural. Adjacent to the site to the east is the Wellhead Power Peaking Plant and the CalPeak Power Peaking Plant. Adjacent to the CalPeak Power Peaking Plant is the proposed site for the Starwood-Midway, LLC (Starwood) power plant which is also under Energy Commission review (06-AFC-1 0). Approximately two miles to the west of the proposed site is Interstate 5. Additionally, within the vicinity of the proposed PEC there is a proposed Federal Correctional Institution near the city of Mendota, the Mendota Federal Medium-Security Prison.

The PEC project would include the following: a cooling tower to provide cooling for the intercooler and lube oil coolers connected to each of the facility's four LMS100 CTGs, de-mineralized water system utilizing trailer-mounted exchangers that will be regenerated offsite; reverse osmosis (RO) system; 240,000 gallon de-mineralized water storage tank; 500,000 gallon raw water/firewater storage tank; deep well injection system; and an infiltration basin sized to capture 85% of the annual storm water runoff from the industrial areas.

Additional equipment proposed for the PEC include inlet air filters with evaporative coolers, turbine compressor section inter-cooler, mechanical draft cooling tower, circulating water pumps, water treatment equipment, natural gas compressors, generator step-up, and auxiliary transformers.

Several new linear facilities would be required for the proposed PEC. Please refer to AFC Project Description for detailed explanation of the proposed project. The proposed project's linear features are:

- 400 - foot new paved access road south of West Panoche Road;
- 2,400 linear feet of new gas pipeline to connect to the PEC; and
- 300 feet of new transmission line to tie into the existing PG&E Panoche Substation which PG&E is planning to expand by 2.5 acres southward.

Comment [aj28]: Please refer to the attached PG&E letter dated July 12, 2007 that provides the corrected substation expansion dimensions.

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SOILS

The proposed PEC site is currently a pomegranate orchard and has been designated by the California Department of Conservation as Farmland of Statewide Importance.

Primary Soil Name	Parent Material	Natural drainage class	Surface Runoff	Slowest Permeability	Water Capacity	Present Flooding
Pasochanet sandy loam	Alluvium derived from calcareous sedimentary rock	Moderately well drained	Medium	Slow	About 8.4 inches (High)	Very rare
Kimberlina sandy loam	Alluvium derived from calcareous sedimentary rock	Well drained	Negligible	Moderately rapid	About 7.1 inches (High)	Very rare

Source: http://websoilsurvey.nrcs.usda.gov/app

GROUNDWATER

Comment [aj29]: CEC – Please refer to attached Technical Memo in regards to PEC water use.

The proposed PEC site is located within the aquifer system of the Central Valley of California. The Central Valley is composed of three main hydrographic sub-basins. The northernmost sub-basin is the Sacramento Valley and is drained by the Sacramento River. The San Joaquin Valley, making up the southern two-thirds of the Central Valley is divided into two sub-basins: the San Joaquin Basin drained principally by the San Joaquin River, and the Tulare Basin, an enclosed basin with no outlet to the ocean. The PEC site is located in the San Joaquin Basin.

Groundwater has been and is a large portion of the water supply for the San Joaquin Valley for both irrigation and domestic uses. Extensive groundwater pumping in the San Joaquin Valley since the turn of the century has resulted in widespread land subsidence. Subsidence began in the late 1800's as groundwater was pumped for irrigation and more than 5,000 square miles have subsided by more than one foot, with local areas of subsidence of greater than 20 feet (USGS, 1991). Land subsidence due to groundwater withdrawal is caused by compaction of clay units within the aquifer system as the hydraulic head declines and water is released from the clays into the aquifer system. Over pumping of groundwater in the Central Valley has played a part in levee instability of the Delta causing increased water salinity. Even though subsidence has slowed considerably since the late 1970s, significant increases in groundwater pumping and lowering of water levels could cause subsidence to resume (USGS, 1989; USGS, 1991).

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Comment [aj30]: CEC – please see subsidence discussion on page 5.2-7 of this PSA "Although the applicant is proposing to pump ground water, the affected aquifer is relatively deep and waste water will be disposed of using deep well injection. As a result, staff has determined that there is no significant potential for subsidence due to ground water withdrawal at the proposed PEC."

Comment [drc]: AFC section referenced is not applicable. Historic subsidence was caused from pumping from the confined aquifer – same aquifer that PEC will draw from. Deep injection of wastes will have no impact. See draft Groundwater position paper.

The aquifer system of the San Joaquin-Tulare basins is contained in the southern two-thirds of the Central Valley aquifer system. The aquifer system is made up of Post-Eocene continental rocks and deposits, which contain most of the fresh water in the valley (USGS, 2007). The PEC project proposes to drill two production wells into the confined aquifer to provide a maximum of an annual average of 1,154 acre-feet per year, of process water. The San Joaquin Valley is currently experiencing drought conditions and reduced Delta outflow triggering increased agricultural pumping. The PEC's use of groundwater could increase the likelihood of subsidence to resume. Additionally, the City of Mendota and other nearby communities use well water from the lower levels of the semi-confined aquifer for their domestic water supply after state mandated filtration

and treatment. With the additional consumption of confined aquifer groundwater from the PEC, there could be no impact on lower semi-confined aquifer groundwater supply. The additional pumpage of confined aquifer groundwater would not impact the quality of the lower semi-confined aquifer groundwater or the quantity of groundwater available in the semi-confined aquifer used by the cities. As the lower levels of the semi-confined aquifer groundwater is considered fresh inland waters for municipal well water supply by Mendota and other nearby communities, the PEC will not use groundwater from this aquifer.

Groundwater quality in the San Joaquin Valley is generally good in the deeper semi-confined and confined aquifers (Freeman 2007). The shallow aquifers in the semi-confined zone, however, generally have poor water quality with high dissolved solids, chloride, and sulfate concentrations (USGS 1989). Additionally, pesticides and fertilizers that have been applied to the land have leached into the shallow upper semi-confined aquifers via irrigation water. According to the April 24, 2007, Water Quality Evaluation conducted by the PEC (PEC 2007h), the confined aquifer groundwater (which the PEC project proposes to use) presents high sodium hazard and is generally unsuitable for continuous use as a sole source of water supply for domestic, municipal, and/or agricultural uses. However, as noted above, the Cities of Mendota and Firebaugh rely on the upper semi-confined aquifer groundwater as their municipal drinking water source after state mandated filtration and treatment. It has been stated by the City of Mendota engineer and documented in several reports that the lower semi-confined aquifer groundwater is the area's last supply of good quality water (Giersch, 2007). The Mendota and Firebaugh city staffs raised concerns that competing uses of the semi-confined aquifer groundwater would have a negative effect on municipal drinking water supplies. The PEC does not propose to use groundwater from the semi-confined aquifer. Rather, PEC proposes to use the confined aquifer, thereby not effecting Mendota and Firebaugh's use of the semi-confined aquifer. The technical basis for this is described in PEC [JASON's} tech memo dated July 19, 2007. .

The PEC project is in the Westlands Water District. Since its inception, the Westlands Water District has been faced with shallow groundwater drainage problems over an area of up to 200,000 acres. The federal Bureau of Reclamation (USBR) was obligated to remedy these problems. Following passage of the Central Valley Project (CVP) Improvement Act, USBR initiated a land retirement program in which drainage-impacted lands were purchased and taken out of irrigated production. As of 2006, nearly 100,000 acres have been retired. Additionally, in 2004, the Westlands Water District transferred approximately 600 acres of retired drainage-impaired and non-irrigable lands within the District to the Federal Bureau of Prisons for construction of the Mendota Federal Medium-Security Prison in exchange for annual rights to the Central Valley Project water appurtenant to all the lands being acquired by the prison within the prison's approximately 960 acre site (WWD 2004). The USBR recently released a San Luis Drainage Features Reevaluation Report and Environmental Impact Statement (EIS) in which it recommended land retirement in lieu of providing drainage service. Ultimately the total acreage retired in the Westlands Water District may reach 200,000 acres or more, reducing total annual District water demand by up to 500,000 acre-feet per year. As a part of the land retirement program, CVP contract

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water supplies associated with the retired land will remain with Westlands Water District.

SURFACE WATER HYDROLOGY

The largest streambed in the PEC project area is Panoche Creek, which is located approximately two miles northwest of the project site. Site elevation is approximately 420 feet above mean sea level and slopes gently down to the northeast at approximately 1% grade. In addition to Panoche Creek, the CVP is distributed through the Westlands Water District, and provides surface water to the Central Valley. Due to agriculture groundwater pumping and reclamation activities, the ground water in the Central Valley experienced land subsidence starting back in the late 1800's (USGS 2000). The land subsidence was, in part, one of the reasons for the CVP to be built. The CVP was built in order to address the problem of over pumping groundwater by agricultural practices which left a rapidly diminishing supply of groundwater. The CVP provides irrigation, municipal and industrial, recreation, power, flood control, and water quality benefits to the area. However, addressing water supply issues, the Westlands Water District Board of Directors determined in 2006, that no new non-agricultural service connections to the CVP were to be authorized (WWD 2006).

WATER USES

Peak water usage associated with the PEC project would include 1,647,000 gpd of cooling tower makeup, 534,000 gpd of de-mineralizer system, 62,000 gpd of evaporation cooler makeup, and 7,000 gpd of plant service water. The average annual water use of the proposed project, operating at 5,000 hours per year, would be 1,154 acre – feet per year. The PEC project proposes to use well water from the confined aquifer that is located below the Corcoran Clay ("E"-Clay) formation. Although the groundwater in the confined aquifer has high TDS concentrations, it is still considered fresh inland waters. If the PEC were to use the confined aquifer groundwater as makeup water, a portion of the confined aquifer groundwater would go through a RO and demineralization process in order to reduce the total solids before being injected into the CTG for nitrogen oxides control.

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Raw water from the production wells would be treated to meet federal, state, and local requirements for safe water use. Additionally, drinking water would be supplied by a bottled water purveyor.

The following table details the daily and annual water flow rates.

SOIL AND WATER RESOURCES Table 3
Daily and Annual Water Flow Rates

	Maximum Daily (1 000's gal/day)	Average Daily (1 000's gal/day)	Average Annual (1 000's acre ft/yr)
Production Well Supply			
Cooling Tower Makeup	1,647	1,238	793
Demineralizer System	534	511	328
Evaporative Cooler Makeup	62	14	9
Plant Service Water	7	7	5
Total Process Water	2,250	1,770	1,135
Wastewater Injection			
Cooling Tower Blowdown	514	388	248
RO System Rejects	133	128	82
Evaporative Cooler Blowdown	31	7	4
Plant Drains	14	14	9
Intercooler Condensation	448	3	2
Total	740	540	345
Water Well (Safety Use Only)	0.375	0.250	0.280
Septic System (Sanitary Drains Only)	0.375	0.250	0.280

PEC AFC Table 5.5-5.

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WATER QUALITY

The PEC project proposes to use confined aquifer groundwater. The following table identifies expected groundwater quality based on characteristics of a private well close to the proposed project site. This confined aquifer well draws water at a rate of 4.4 cubic feet per second.

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SOIL AND WATER RESOURCES Table 4
Quality of Water Supply

Constituent	Concentration
Arsenic	.011 ppm
Boron	1.8 ppm
Chloride	47 ppm
E.C.	1300 um/cm
Sulfate	420 ppm
TDS	820 – 1100 ppm
Rate	4.4 cfs

Russ Freeman; Westlands Water District.

The main water use for the PEC project is to provide cooling for the simple cycle combustion generation technology. The two on-site production wells are proposed to supply approximately 2,250,000 gpd of process water under peak daily load. The process water has a total dissolved solid (TDS) of approximately 820 - 1100 ppm (PEC 2007h). In addition to cooling, the confined aquifer water would be used for fire

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protection water, plant service water, cooling tower makeup, combustion turbine generator (CTG) NOx injection (after treatment) and combustion turbine inlet air evaporative cooler makeup (partly from treated water).

PROCESS AND SANITARY WASTEWATER

The proposed PEC facility would use a deep well injection system for wastewater disposal. Wastewater would be collected in the wastewater collection tank(s) and conveyed by a six-inch-diameter pipeline to be injected into new disposal wells located on-site. The PEC applied for U.S. Environmental Protection Agency (EPA) permits for 6 Class I Non-hazardous Deep Wells. The proposed deep injection disposal wells will be located approximately two (2) miles south of the abandoned Cheney Gas Well Field. Underground Injection Control Class 1 Permits and Waste Discharge Requirements would be required. The PEC is expected to generate process wastewater that will require disposal at an average generation rate of 503,000 gpd or approximately 350 gallons per minute (gpm).

The proposed zone of groundwater injection beneath the site is within the Eocene sands (Laguna and Cima) that extend from approximately 4,800 to 5,600 feet beneath the site. The sands are overlain by a laterally extensive, 900+ feet-thick shale sequence known as the Kreyenhagen Formation. This relatively impervious shale sequence acts as a confining zone that prohibits the vertical migration of high saline groundwater within the Eocene sands up to shallower lower saline groundwater. There is no known faulting within the area of the proposed injection that might affect the integrity of the Kreyenhagen Formation (PEC 2007f). The proposed injection zone would provide more than adequate storage for 30+ years of continuous operation with no potential impact to local groundwater supplies (PEC 2007f).

The PEC industrial wastewater discharge from the plant would consist of cooling tower blowdown, RO rejects, evaporative cooler blowdown, and water effluent from the oil-water separator. The wastewater from the equipment would be collected in the plant's wastewater collection tanks (cooling tower washwater drain tank and a blowdown tank) and injected into the deep wells.

The following table is the PEC proposed estimated wastewater volumes to be injected into the wells.

SOIL AND WATER RESOURCES Table 5
Estimated Waste Water Volumes

Waste Stream	Daily Average	Daily Maximum
Cooling Tower Blowdown	430,000 gpd	537,500 gpd
Floor Drains	58,000 gpd	72,500 gpd
Demineralization Wastes	15,000 gpd	18,500 gpd
Total Injection Well	503,000 gpd	628,500 gpd

PEC AFC Table 5.5-12.

Sanitary wastes from the administration and control building and other restrooms located on site would be disposed of in a septic system and leach field. The septic tank and leach field would be located directly south of the administration and control building. Under Fresno County ordinances, septic tanks and leach fields are only permitted when there is no sewer system available within 100 feet of the site. The applicant would be required to obtain approval of its project plan for the septic tank and leach field from the Fresno County Department of Health and Safety.

STORM WATER

The proposed PEC project is on the edge of the Federal Emergency Management Agency (FEMA) special flood hazard area (Zone A) inundated by the 100-year flood with no base flood elevation. Fresno County Ordinance Title 15 requires that projects within the hazard zone be raised to ensure that, in the event of a 100-year storm, the site and equipment is not subjected to any flood damage. PEC has proposed to locate all structures outside of the 100-year flood plain area. As such, no areas within the 100-year flood plain will be filled or built upon.

Deleted: The site would be raised in conformance with the Fresno County Ordinance Title 15, Flood Hazard areas as needed.

Stormwater from the portions of the proposed project site containing industrial activities would be conveyed by overland flow and swales to an infiltration basin located at the southeast corner of the proposed site. The infiltration basin would be sized to capture 85% of the annual stormwater runoff from the industrial areas of the proposed site. Additionally, the infiltration basin is proposed to also manage peak stormwater runoff during the 100-year 24-hour storm event. Stormwater from the areas not containing industrial activities would run off the site as sheet flow. All non-industrial stormwater runoff from parking areas, switchyards, administration buildings and open spaces would run off as sheet flow.

ASSESSMENT OF IMPACTS AND DISCUSSION OF MITIGATION

METHOD AND THRESHOLD FOR DETERMINING SIGNIFICANCE

This project was analyzed to determine if it complies with LORS and meets the standards found in relevant documents such as the California State Water Resources Control Board, "Water Quality Control Policy on the Use and Disposal of Inland Waters Used for Powerplant Cooling" ("Resolution 75-58"), and the California Environmental Quality Act (CEQA) Guidelines, Appendix G-VIII, Hydrology and Water Quality paragraph items (a) and (b). The threshold of significance is based upon the ability of the project to be built and operated without violating erosion, sedimentation, flood, surface or groundwater quality, water use (supply) or wastewater discharge standards. Energy Commission staff considers LORS inconsistency to be a significant impact pursuant to CEQA.

The Federal and State LORS and State and Local Policies presented in **Soil & Water Resources Table 1** was used to determine the threshold of significance and project consistency with state water policy. For those impacts that exceed the published standards or do not conform to the established practices, mitigation has been proposed

by staff to reduce or eliminate the impact. Responsible or co-lead (CEQA/National Environmental Policy Act - NEPA) agencies (or those with an advisory or trustee capacity), particularly those with discretionary approval over various aspects of the project will be consulted as required. For example, the local Regional Water Quality Control Board has extensive expertise and LORS responsibility for soil and water issues under their jurisdiction. Where it is necessary for the project to conform to legally enforceable LORS or other regulatory requirements in which the purpose is to define an allowable level of impact or activity, such requirements may be used if they are determined by staff to be adequate as thresholds of significance.

The application of Best Management Practices (BMP) will be required to manage stormwater related drainage, erosion, and sedimentation issues during the construction and operational of the PEC. The BMPs will be developed, implemented, monitored, maintained, and modified or changed as appropriate construction/operational plans and procedures are completed. The BMPs are formulated to prevent the occurrence of significant impacts based on specific thresholds. Staff has recommended and proposed Conditions of Certification specifically prescribing BMPs and procedures where necessary.

The methods used to analyze impacts and determine thresholds of significance for any impact are, in many cases, particular to the situation and reflect a site-specific approach for each project component and each impact. While all projects will likely have impacts, the goal is to limit any impacts to an insignificant or acceptable level, or to avoid them, if possible. Such a determination will rely on science, technology, expert opinion, and best professional judgment to determine what the level of change to the baseline or preexisting conditions should be allowed.

The available scientific, technical, or other appropriate literature was considered in the analysis and determination of significant impacts. Project-specific studies or assessments were reviewed, as necessary, in order to establish thresholds, adequately estimate the project's impacts, and develop appropriate mitigation.

Staff's analysis relies on estimates and information provided by the applicant regarding the construction and operation of the PEC project. Determination of potential impacts and recommended mitigation are the direct result of PEC related information and estimates.

DIRECT AND INDIRECT IMPACTS AND MITIGATION

Erosion Control and Stormwater Management

Construction and operation impacts for erosion and stormwater must be addressed to avoid potential adverse impacts to water quality and soil resources. Accelerated wind and water-induced erosion may result from earth moving activities associated with construction of the proposed project. Alteration of the soil structure leaves soil particles vulnerable to detachment and removal by wind or water. Soil erosion may result in the loss of topsoil and can increase the sediment load in surface receiving waters

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With the implementation of Conditions of Certification **SOIL & WATER 1-3**, staff concludes that the PEC project would mitigate any potential adverse impacts caused by erosion or storm water discharge during construction and operation of the project.

Water Use

PEC proposes to obtain groundwater from the confined aquifer by drilling two new on-site production wells. The confined aquifer groundwater is expected to have total dissolved solids content of approximately 820-1100 mg/L (URS 2007h). PEC would circulate, treat, and control the groundwater in order to achieve approximately 3.2 cycles of concentration. The wastewater would be disposed of via deep well injection. The EPA would permit these injection wells and no significant environmental impacts are expected as a result of the wells.

Staff evaluated the potential impact of PEC water use on existing water users. The perennial yield of groundwater in the sub-basin is approximately 200,000 acre-feet (WWD 2006). The maximum annual groundwater demand from the PEC would be approximately 1,154 acre-feet year (AFC 5.5-21). In 2005, Westlands Water District pumped a total of 1,090,000 acre-feet of groundwater and would have pumped more if the District and its water users had not transferred in other surface water supplies (WWD 2006). If pumping in the Westside Sub-basin exceeds 200,000 acre-feet per year, the PEC would contribute approximately 0.5% to the reduction in supply of groundwater levels. The lowering of groundwater levels could contribute to an adverse impact of resuming land subsidence in the Central Valley as well as diminishing the quality and quantity of semi-confined aquifer groundwater for municipal, domestic, and agricultural uses. PEC maintains that no other users would be affected by their use of the confined aquifer groundwater. As the City of Mendota and the City of Firebaugh are primary users of the lower aquifer groundwater which the cities filter and treat according to state health mandates and provide to residents as a potable supply they will not be impacted by the use of the confined aquifer by the PEC. Additionally, there are proposed housing developments in those communities, related to the new prison in Mendota that would most likely utilize the lower levels of semi-confined aquifer groundwater, as well.

The California State Water Resources Control Board Resolution No. 75-58, states that inland waters, such as the confined aquifer groundwater proposed for use by the PEC, should be the lowest priority water supply considered for steam-electric powerplant cooling in (SWRCB Res. No. 75-58). Therefore, the proposed use of the confined aquifer groundwater by the PEC is consistent with state LORS and Energy Commission staff considers LORS consistency combined with appropriate use of fresh inland water to be an insignificant environmental impact pursuant to CEQA.

Staff recommends the adoption of the following conditions that address mitigation measures designed to ensure that any semi-confined aquifer groundwater impacts are at less than significant levels.

Comment [aj31]: CEC – please refer to attached Technical Memo in regards to water use

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Comment [k32]: The discussion in the AFC of groundwater conditions as they relate to the Westland Subbasin, San Joaquin Valley basin and the Westland Water District is unclear. This has lead to considerable confusion in the PSA. Please see PEC's technical memo entitled "Groundwater Impacts" dated July 19, 2007 that provides more details on the Westside Sub-basin and the lack of PEC's confined aquifer use impacts on semi-confined aquifers.

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Comment [aj33]: CEC – Please refer to subsidence discussion on page 5.2-7in the Geology and Paleontology section of this PSA.

"Although the applicant is proposing to pump ground water, the affected aquifer is relatively deep and waste water will be disposed of using deep well injection. As a result, staff has determined that there is no significant potential for subsidence due to ground water withdrawal at the proposed PEC."

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Condition of Certification **SOIL & WATER-7** requires the project owner to not use semi-confined aquifer groundwater for fire protection, plant service water, cooling tower makeup, combustion turbine NOx injection, combustion turbine inlet air evaporative cooler makeup, and CTG injection/RO system. The confined aquifer groundwater that PEC proposes for water supply will not significantly impact other water users, including Mendota and Firebaugh drinking water wells.

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Comment [k34]: Please see PEC's technical memo entitled "Groundwater Impacts" dated July 19, 2007 that provides more details on the Westside Sub-basin and the lack of PEC's confined aquifer use impacts on semi-confined aquifers.

Required Energy Commission Findings

In order for PEC to use groundwater, the Energy Commission must find that the proposed use complies with LORS and applicable water policies.

LORS and water policies applicable to this project stem from, among other things, Article X, Section 2 of the California Constitution, which declares that "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 or unreasonable method of use of water be prevented…" In order to better define what "unreasonable use" means in terms of power plant cooling, the State Water Resources Control Board (SWRCB) issued Resolution 75-58, "Water Quality Control Policy on the Use and Disposal of Inland Waters Used for Powerplant Cooling" ("Resolution 75-58"). It sets forth, in priority order, a list of preferable water sources for powerplant cooling. This list, in priority order, is as follows: (1) wastewater being discharged to the ocean, (2) ocean, (3) brackish water from natural sources or irrigation return flow, (4) inland wastewaters of low TDS, and (5) other inland waters. Based on Resolution 75-58, the Energy Commission's Integrated Energy Policy Report, 2003 ("IEPR") specifies that "the Energy Commission will approve the use of fresh water for cooling purposes by power plants which it licenses only where alternative water supply sources and alternative cooling technologies are shown to be 'environmentally undesirable' or 'economically unsound.'"

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Water Source is Considered Fresh Inland Water

The examination of alternative water supplies and technologies is triggered under the state's water policy when a "steam electric" power plant proposes to use "fresh water" (IEPR Water Policy 2003 p. 41). The IEPR itself does not define what constitutes fresh water. Resolution 75-58, upon which the IEPR water policy is based, defines fresh inland waters as "those inland waters which are suitable for use as a source of domestic, municipal, or agricultural water supply…" (State Water Resources Control Board Resolution 75-58, p. 3.) Thus, fresh water is not given a narrow definition but is broadly defined by how it is used, evincing an intent to be as inclusive as possible. City engineers for both Mendota and Firebaugh confirm that the lower semi-confined aquifer groundwater in question is being used for domestic municipal supply, and it is also currently being used when needed for agricultural irrigation in the area. The Westlands Water District is one of the largest agricultural water delivery agencies in the nation, providing water to 600 family-owned farms in the Central Valley. However, even with contractual entitlements for the CVP, there is insufficient water to irrigate the entire District; thus, groundwater pumping is still required (WWD 2006). The groundwater

Comment [k35]: Please see PEC's technical memo s regarding groundwater impacts

proposed to be used by PEC clearly meets the definition of fresh inland water under Resolution 75-58.

Additionally, this groundwater qualifies as drinking water under SWRCB Resolution 88-63, "Adoption of Policy Entitled 'Sources of Drinking Water.'" The resolution states that "all surface and ground waters of the State are considered to be suitable, or potentially suitable, for municipal or domestic water supply" unless certain specified exceptions apply. One exception that is applicable is where the water has a total dissolved solids ("TDS") level of at least 3,000 mg/l and is not reasonably expected by the Regional Water Quality Control Boards to supply a public water system (Resolution 88-63). The groundwater proposed to be used by PEC has a TDS criteria level of 820-1,100 mg/l (PEC 2007h). The groundwater does not meet the SWRCB Resolution 88 – 63 of a TDS level equal to or greater than 3,000 mg/l.

Another indication of the suitability of this water as a domestic source is its compliance with the Drinking Water Standards found in Title 23 of the California Code of Regulations. The confined aquifer groundwater proposed for use by PEC is equivalent to the secondary maximum contaminant level (MCL) for TDS (and well below the short-term limit of 1500 mg/l) (Cal. Code Regs., tit. 23, §§64431, 64449). Secondary MCLs are aesthetics based and intended to protect odor, taste and appearance. Exceeding these levels does not restrict the use of this water for drinking.

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Another issue related to the SWRCB Resolution No. 75-58 is the declaration by the applicant that the confined aquifer groundwater is "brackish" water, therefore, its use of the confined aquifer groundwater is reasonable according to the principles of the SWRCB Resolution 75-58 (Principle 1). Despite the applicant's contention, staff has concluded that the groundwater does not meet the definition of brackish water which generally has a high TDS level including dissolved salts, thus giving the water a high salinity content. Resolution 75-58 defines brackish waters as "all waters with a salinity range of 1,000 to 30,000 mg/l ***and*** a chloride concentration range of 250 to 12,000 mg/l." Based on data from PEC's wells, the groundwater proposed to be pumped by PEC ranges from 820 to 1100 mg/l TDS and the most recent chloride levels are around 47 mg/l. These low chloride levels do not cross the threshold required to deem the water brackish and the low TDS levels are at the very bottom of the TDS range. Based on this data, staff does not consider the groundwater to be pumped by PEC as brackish water.

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Although the confined aquifer groundwater is not by definition brackish, even if it were, nothing in Resolution 75-58 or elsewhere indicates that the definitions are mutually exclusive. To the contrary, under Resolution 88-63, water that would meet Resolution 75-58's definition of brackish is still deemed suitable for agricultural supply, and is thus considered fresh water under Resolution 75-58's definition.

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Resolution 75-58 is clearly intended to broadly protect beneficial uses of the State's water resources. In this vein SWRCB states that "in considering issuance of a permit or license to appropriate water for powerplant cooling, the Board will consider the reasonableness of the proposed water use when compared with other present and

future needs for the water source and when viewed in the context of alternative water sources that could be used for the purpose" (Resolution 75-58, pgs. 5 & 6). Thus, the Energy Commission must consider not just whether the groundwater meets the strict definition of brackish, but the reasonableness of allowing PEC to use confined aquifer groundwater when such water is needed for municipal and domestic water supply as well as for agricultural activities. Moreover, a source of lower quality water (3000 TDS) is available from the semi-confined aquifer, which may be a reasonable alternative to the confined aquifer groundwater.

Alternative Water Supply

Dry Cooling

Process and Sanitary Wastewater

PEC has applied to the Environmental Protection Agency (EPA) for an Underground Injection Control (U IC) permit to drill and use underground injection wells for disposal of wastewater. The EPA has accepted the application as complete and in discussions with staff has indicated a high likelihood of issuance prior to the proposed start of construction. This method of wastewater disposal complies with the zero liquid discharge off-site goals of the Energy Commission's 2003 IEPR and various other state water policies. Staff finds this disposal method acceptable and includes Condition of Certification **SOIL & WATER-6**, which requires the UIC permit prior to site mobilization.

Sanitary waste disposal will be via a septic system and leach field and must comply with Fresno County Department of Public Works and Planning requirements (Condition of Certification **SOIL & WATER-5**).

CUMULATIVE IMPACTS AND MITIGATION

Cumulative impacts consist of impacts that are created as a result of the proposed project in combination with impacts from other past, present and reasonably foreseeable future projects. Cumulative impacts can result from individually minor, but collectively significant, actions taking place over time.

Temporary and permanent disturbances associated with construction of the proposed project would cause accelerated wind and water induced erosion. However, staff has concluded that the implementation of proposed mitigation measures, the SWPPP and DESCP would ensure that the proposed project would not contribute significantly to cumulative erosion and sedimentation impacts.

Wastewater streams would be eliminated by the use of the deep well injection. No wastewater-related cumulative impacts are expected.

The PEC proposes to use groundwater (1,154 acre-ft per year) from the confined aquifer for industrial and cooling water uses. In addition to PEC, there are several other

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Comment [k36]: CEC – See attached Alternative Water Supply Technical Memo

Comment [k37]: CEC – See attached Alternative Water Supply Technical Memo

Deleted: As discussed above, the Energy Commission may not approve the use of fresh water where alternative water supply sources or alternative cooling technologies are economically feasible and would not be environmentally undesirable. As an alternative to the lower aquifer groundwater, staff has identified the upper aquifer groundwater as a possible alternative to the proposed use of the lower aquifer groundwater. The upper aquifer groundwater is a reasonable alternative to the lower aquifer groundwater for the PEC because it is higher in TDS, salinity and chloride concentrations, which by definition, constitutes "brackish" water. Additionally, the upper aquifer groundwater is not considered "fresh inland water" within the meaning of Resolution 75-58 because it is not a suitable source of domestic, municipal, or agricultural water supply due to the high TDS and salinity levels. Therefore, the upper aquifer groundwater is a potential alternative to the applicant's proposed use of fresh water. Moreover, the use of the upper aquifer groundwater would not cumulatively impact municipal water supplies as the upper aquifer is not considered suitable for domestic or municipal water supply, and is not ideal for agricultural use due to the salinity. Additionally, the relatively minimal PEC groundwater pumping from the upper aquifer is unlikely to have a quantitatively adverse impact on land subsidence. The applic ... [1]

Deleted: In addition to an alternative water supply, state water policy requires the investigation of alternative cooling technologies. Dry cooling is one such technology that has been used in several powe ... [2]

Comment [k38]: The injection well will be permitted by USEPA. The Regional Board will not issue WDRs for the injection well.

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projects that are proposed in western Fresno County. These include the proposed Starwood Power Plant, the U.S. Department of Justice, Federal Bureau of Prisons, Medium Security Prison, prison employee-related housing developments of approximately 300 units, a housing development of 400 units recently approved, increases for agricultural pumping activities due to decreased Delta outflow, drought, and domestic groundwater supply increases in the Cities of Mendota and Firebaugh, none of which will diminish the availability of groundwater in the confined aquifer to the PEC project. The proposed Starwood would use semi-confined aquifer groundwater as its water source, while the prison and housing developments would use treated semi-confined aquifer groundwater supplied by the City of Mendota. The anticipated maximum daily consumption of semi-confined aquifer groundwater by Starwood is approximately 144,000 gallons a day, while the anticipated daily consumption of semi-confined aquifer groundwater by the prison is 650,000 gallons a day.

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California's Governor declared a drought emergency in adjoining Kings County on June 23, 2007, due to low water tables, limited precipitation, and crop damage due to drought conditions. The westernmost portions of Kings County are part of the Westlands Water District and share the semi-confined aquifer that the PEC does not propose to use. Kings County was granted a drought designation by the US Department of Agriculture on May 9, 2007 (Governor, 2007). Kern County Water Agency officials issued an emergency declaration on June 13, 2007, in response to losing two-thirds of the water they receive from Delta outflows and drought conditions. The Kern County Board of Supervisors declared a State of Emergency on June 25, 2007, due to water shortages.

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The PEC proposed groundwater usage, in combination with the proposed groundwater usage by the prison, current drought-related increases for agricultural pumping activities, severe decreases (65%) in Delta outflow of surface water deliveries, and the increases of groundwater usage by the cities, would be a significant cumulative impact on existing groundwater water supplies. Therefore, staff is proposing that Condition of Certification **SOIL & WATER–7** be applied to PEC to prohibit the use of lower semi-confined aquifer groundwater to avoid this impact.

With the implementation of additional Conditions of Certification **SOIL & WATER-7 through 10**, staff concludes that the PEC project would mitigate or eliminate any potential adverse impacts caused by water use during construction and operation of the project.

COMPLIANCE WITH LORS

CLEAN WATER ACT

Staff has determined that the PEC project would satisfy the requirements of the General National Pollutant Discharge Elimination System (NPDES) Permit with the adoption of conditions of certification SOIL & WATER-1 and 3, which requires the development and implementation of a SWPPP for construction and industrial activity.

CALIFORNIA CONSTITUTION, ARTICLE X, SECTION 2

The State Constitution requires that the water resources of the state be put to beneficial use to the fullest extent possible and states that the waste, unreasonable use or unreasonable method of use of water is prohibited. Staff concludes that the PEC complies with the terms of the California Constitution, Article X, Section 2 regarding water supply.

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PORTER-COLOGNE WATER QUALITY CONTROL ACT

Staff has concluded that the PEC project will satisfy the requirements of the Porter-Cologne Water Quality Control Act if the project is constructed and operated as proposed, as wastewater would not leave the project site. Therefore, staff has determined that PEC would be consistent with terms of the Porter-Cologne Water Quality Control Act.

SWRCB POLICY 75-58

SWRCB Policy 75-58 states that fresh inland waters should only be used for steam-electric power plant cooling if other sources or other methods of cooling would be environmentally undesirable or economically unsound. Staff finds that the confined aquifer groundwater, by definition, is fresh inland waters; however, as the PEC does not propose to use of the confined aquifer groundwater for steam-electric power plant cooling, SWRCB Policy 75-58 does not apply.

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The SWRCB policy also calls for water availability studies for projects to be constructed in the Central Valley to consider potential impacts of Delta outflow, groundwater pumping and water quality objectives. The San Joaquin Valley is currently experiencing drought conditions and reduced Delta outflows which have triggered increased agricultural pumping. The PEC's use of groundwater combined with primary uses (i.e., increased agricultural pumping and municipal supply) could increase the likelihood of subsidence to resume. The proposed use of the confined aquifer groundwater would not have a significant environmental effect by its contribution to overpumping of one of the few remaining western San Joaquin Valley, fresh inland water aquifers (Giersch, 2007). Commission staff concurs with the significance of this environmental impact.

Comment [aj39]: CEC – Please refer to subsidence discussion on page 5.2-7in the Geology and Paleontology section of this PSA.

"Although the applicant is proposing to pump ground water, the affected aquifer is relatively deep and waste water will be disposed of using deep well injection. As a result, staff has determined that there is no significant potential for subsidence due to ground water withdrawal at the proposed PEC."

WARREN-ALQUIST ACT

The project proposes to use fresh inland groundwater with a maximum usage of 1,154 acre-feet of confined aquifer groundwater per year. The Warren-Alquist Act promotes all feasible means of water conservation. The proposed project could conserve water through design features that have not been proposed by the applicant, such as using dry-cooling. Water conservation technology, reclaimed water, and lower quality semi-confined aquifer groundwater are alternative options that are available. However, the project owner does not propose to use either option due to project site limitations, schedule limitations, power delivery contracts,reliability (especially during peak demand conditions) , energy conservation considerations and higher costs, which staff believes may be overstated. Therefore, staff cannot conclude that the PEC, as proposed, complies with the Warren-Alquist Act.

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Comment [k40]: PEC does not agree with Staff's findings.

ENERGY COMMISSION - INTEGRATED ENERGY POLICY REPORT: POWER PLANT WATER USE & WASTEWATER DISCHARGE POLICY

The California Energy Commission, under legislative mandate specified in the 2003 Integrated Energy Policy Report (IEPR), will approve the use of fresh water for cooling purposes by power plants it licenses only where alternative water supply sources and alternative cooling technologies are shown to be "environmentally undesirable" or "economically unsound". Staff believes that the PEC project as proposed does comply with this policy.

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RESPONSE TO AGENCY AND PUBLIC COMMENTS

Staff has received comments from the Cities of Mendota and Firebaugh relating to the proposed water supply and its impact on their municipal water supplies and the availability of reclaimed water from the Mendota sewage plant. It has been determined that perceived impacts on municipal water supplies were based on confusion regarding which aquifer is proposed for use by the PEC. The municipal supply is provided by the lower levels of the semi-confined aquifer which is located above the Corcoran clay aquatard. The PEC proposes to use the confined aquifer which is located below the Corcoran clay aquatard. As the Corcoran clay prevents communication between the semi-confined and confined aquifers, there will be no impacts on municipal water supplies or other users of the semi-confined aquifer by use of the confined aquifer by the PEC.

Comment [k41]: PEC has determined that perceived impacts on municipal water supplies were based on confusion regarding which aquifer is proposed for use by the PEC. The municipal supply is provided by the lower levels of the semi-confined aquifer which is located above the Corcoran clay aquatard. The PEC proposes to use the confined aquifer which is located below the Corcoran clay aquatard. As the Corcoran clay prevents communication between the semi-confined and confined aquifers, there will be no impacts on municipal water supplies or other users of the semi-confined aquifer by use of the confined aquifer by the PEC. Please refer to attached Tech Memo for further details that support PEC's position.

CONCLUSIONS

Based on its assessment of the proposed PEC project, staff makes the following findings:

- Potential adverse impacts caused by erosion and stormwater flows during construction and operation would be mitigated with the development and implementation of an effective Storm Water Pollution Prevention Plan and a Drainage, Erosion and Sedimentation Control Plan;
- The proposed water supply for the project is not consistent with state water policy regarding use of fresh inland waters for power plant cooling or the Warren-Alquist Act regarding water conservation;
- Potential adverse impacts from the processing of wastewater or the use and storage of hazardous materials would be avoided with the adoption and implementation of an effective Hazardous Materials Management Program and Storm Water Pollution Prevention Plan; and

Comment [k42]: PEC disagrees with Staff's assessment.

Based on these findings, staff concludes that PEC would result in unmitigated project-specific and cumulatively significant adverse environmental impacts to soil or water resources. As proposed the PEC would not comply with all applicable LORS.

Comment [k43]: PEC disagrees with Staff's conclusion.

The primary issue identified by staff in this assessment is the proposed use of fresh inland groundwater from the confined aquifer for the PEC. This use is inconsistent with state water policies. Staff believes the applicant has several alternatives. These alternatives are:

1. using low quality water from the semi-confined aquifer;

2. using wastewater from the City of Mendota; or

using dry-cooling, thereby significantly reducing the amount of water needed. Staff intends to continue to work with PEC to resolve the water supply issues.

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Comment [k44]: PEC disagrees with Staff's conclusion.

PROPOSED CONDITIONS OF CERTIFICATION

SOIL & WATER-1: The project owner shall comply with the requirements of the General National Pollutant Discharge Elimination System (NPDES) Permit for Discharges of Storm Water Associated with Construction Activity. The project owner shall develop and implement a Storm Water Pollution Prevention Plan for the construction of the entire PEC project (Construction SWPPP).

Verification: The project owner shall submit copies to the Compliance Project Manager (CPM) of all correspondence between the project owner and the Regional Water Quality Control Board (RWQCB) regarding the General NPDES permit for the Discharge of Storm Water Associated with Construction Activities within 10 days of its receipt (when the project owner receives correspondence from the RWQCB) or within 10 days of its mailing (when the project owner sends correspondence to the RWQCB). This information shall include copies of the Notice of Intent sent to the State Water Resources Control Board, and the Notice of Termination for the project.

SOIL & WATER-2: Prior to site mobilization, the project owner shall obtain CPM approval for a site-specific Drainage, Erosion and Sedimentation Control Plan (DESCP) that ensures protection of water quality and soil resources of the project site and all linear facilities for both the construction and operations phases of the project. This plan shall address appropriate methods and actions, both temporary and permanent, for the protection of water quality and soil resources, demonstrate no increase in off-site flooding potential, include a stormwater retention basin to capture any stormwater potentially leaving the site, meet local requirements, and identify all monitoring and maintenance activities. The DESCP shall contain the following elements:

- **Vicinity Map –** A map shall be provided indicating the location of all project elements with depictions of all significant geographic features to include watercourses, washes, irrigation and drainage canals, and sensitive areas.
- **Site Delineation –** The PEC site and all project elements shall be delineated showing boundary lines of all construction areas and the location of all existing and proposed structures, pipelines, roads, and

SOIL & WATER-6: The project owner shall provide the CPM with evidence of Waste Discharge Requirements (WDR) from the RWQCB and a Class 1 Non-hazardous UIC permit for four injection wells issued by U. S. Environmental Protection Agency (EPA) prior to any site mobilization activities. The project owner must comply with the specific conditions regarding the construction and operation of the injection wells including the water quality requirements for wastewater, sampling, analysis, and monitoring for the deep injection wells.

Verification: Thirty days prior to site mobilization, the project owner will obtain and submit to the CPM a copy of final WDRs issued by the RWQCB and the final approval of the UIC Class 1 Permit issued by USEPA Region IX for the construction and operation of the deep injection well. Changes to the design, construction or operation of the deep injection wells permitted by the WDRs and UIC Class 1 Permit during either construction or operation will be noticed in writing to the CPM, RWQCB and USEPA Region IX. During the life of the project, the Project Owner will provide the CPM with the annual monitoring report summary required by the WDRs and UIC Class 1 Permit, and will fully explain violations, exceedances, enforcement actions or corrective actions. The project owner will notify the CPM in writing of changes to the WDRs or UIC Class 1 Permit that are instituted by either the Applicant, RWQCB or USEPA Region IX, including permit renewals.

The following Conditions of Certification may be modified or eliminated depending on what water supply or cooling option is approved. Staff has also included a Water Conservation Off-Set Plan (WCOP) Condition of Certification.

SOIL & WATER-7: Water used for the PEC shall be from the confined aquifer groundwater, nor shall the water supply for the PEC significantly impact other water users.

Comment [k45]: Addressed in attached **Technical Memo** regarding groundwater use

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Verification: The project owner, in the annual compliance report, shall provide a water-accounting summary for PEC that states the source and quantity of water used on a monthly basis in units of gallons per minute and on an annual basis in units of acre-feet. If the amount of water that is to be used by PEC will exceed 2,250,000 gallons a day or 1,154 Acre-feet per year during any annual reporting period, the project owner shall provide a written request and explanation for the anticipated water-use increase to the CPM sixty (60) days prior to the date when the water-use limit is expected to be exceeded. If the project owner can demonstrate that the requested increase is necessary and is not caused by wasteful practices or malfunctions in the water processing systems, the CPM shall approve an up to one-year increase in the water-use limit for the period requested.

SOIL & WATER-8: If the project owner uses semi-confined aquifer groundwater, he/she shall conduct well tests in each of the new project wells to determine the drawdown-discharge characteristics of each well. Each well shall be tested separately. The project owner shall also conduct an aquifer test in the project area of each groundwater sub-basin from which groundwater is produced using the new wells to determine the site-specific

Comment [aj46]: No use of semi-confined aquifer. See attached **Technical Memos**

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aquifer parameters of transmissivity and storativity for each sub-basin. The aquifer test(s) will use one of the new wells as the pumping well and the other new well in that sub-basin as the observation wells. The test period shall be long enough to produce stable, measurable drawdown in the observation wells.

Verification: The result of the well tests will be provided to the CPM sixty days prior to the start of operation. Thirty days prior to conducting the well or aquifer testing, the project owner will submit to the CPM a work plan for well and aquifer testing for review and approval. Following approval of the work plan by the CPM, the project owner will conduct well tests on each of the new project wells and will conduct an aquifer test on the groundwater sub-basin from which groundwater is produced. All tests will be in accordance with the protocols established in the work plan. Sixty days following completion of the well and aquifer tests, the project owner shall submit to the CPM a Well and Aquifer Test report for review and approval. The report will include all of the data collected during the testing, include the analyses of data, and describe the results of testing, the drawdown-discharge characteristics of each of the new project wells, and the calculated values for transmissivity and storativity for the project area for each groundwater sub-basin from which groundwater is produced. The report shall include a description of the results of the test, the test procedure, the raw data and the calculation of aquifer parameters. All impacts to other water users will be fully mitigated. The mitigation to be determined by the CPM prior to the start of operation.

SOIL & WATER-9: If the project owner uses confined aquifer aquifer groundwater, he/she shall measure and record static, non-pumping groundwater levels in the onsite project wells on a monthly basis for the first six months following project start up, and thereafter on a quarterly basis.

Comment [k47]: CEC - The PEC will be using the confined aquifer for water supply, not the semi-confined (upper) aquifer as described in the PSA.

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Verification: The project owner shall include a summary report of the ground water levels in the annual compliance report that will be submitted to the CPM and to the Westlands Water District and/or the Cities of Mendota and Firebaugh.

SOIL & WATER-10: The project owner will provide the results of annual chemical analyses of groundwater from at least one of the project wells for the groundwater sub-basin from which water is pumped. The analytes will include primary and secondary general minerals and physical parameters, volatile organic compounds, and semi-volatile organic compounds. If a comparison of analyses from one sampling period to the next indicates that there is a significant increase in the concentration of one or more of the chemical compounds in the groundwater, the need for additional pretreatment of water will be reassessed. The need for pretreatment of groundwater prior to use by the project will be based on incompatibility with the WDRs or deep injection well permit, exceedances of air emissions standards, worker safety standards, or standards of exposure of downwind receptors.

- Provide for appropriate bonding or other assurances to ensure that any damage to West Panoche Road due to construction activity will be remedied by the project owner; and
- Reconstruction of portions of West Panoche Road that are damaged by project construction due to oversize or overweight construction vehicles.

Verification: At least 60 days prior to the start of site mobilization, the project owner shall submit a mitigation plan focused on restoring West Panoche Road to its pre-project condition to the Fresno County Public Works and Planning Department for review and comment, and to the CPM for review and approval.

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Within 90 days following the completion of construction, the project owner shall provide photo/videotape documentation to the Fresno County Planning Department, and the CPM that the damaged sections of West Panoche Road have been restored to their pre-project condition.

REFERENCES

Aspen 2007a. E-mail from Will Walters, Aspen Environmental Group, to James Adams, California Energy Commission, on January 8, 2007.

Aspen 2007b. E-mail from Will Walters to James Adams on March 26, 2007.

Caltrans 2007. Personal communication between Joe Espinoza, Region 6-Fresno, and James Adams on January 15, 2007.

CEC 2007a. E-mail from Che McFarlin, California Energy Commission, to James Adams on May 7, 2007.

CEC 2007y. Report of conversation by Che McFarlin, California Energy Commission, regarding status of federal correctional institution under construction near Mendota on March 5, 2007.

Fresno County 2000. Fresno County General Plan, Transportation and Circulation Element, dated October 2000.

Fresno County 2007. Personal communication between Brian Erickson, Fresno County Fire Department, and James Adams on May 3, 2007.

Mendota Unified School District 2006. Personal communication between Ralph Mesa and James Adams on December 14, 2006.

Mendota Unified School District 2007. Personal communication between Ralph Mesa and James Adams on May 29, 2007.

NAVAIR Ranges 2007. E-mail from Anthony Parisi, Head, Sustainability Office, to James Bartridge, California Energy Commission, on January 29, 2007.

Prior to commercial operation, the project owner shall notify the CPM that the lighting has been installed and is ready for inspection. If after inspection the CPM notifies the project owner that modifications to the lighting are needed, within 30 days of receiving that notification the project owner shall implement the modifications and notify the CPM that the modifications have been completed and are ready for inspection.

Within 10 days of receiving a lighting complaint, the project owner shall provide the CPM with a complaint resolution form report as specified in the Compliance General Conditions including a proposal to resolve the complaint, and a schedule for implementation. A copy of the complaint resolution form report shall be submitted to the CPM within 30 days of complaint resolution.

Plume Formation

VIS-4 The project owner shall ensure that the cooling tower is designed and operated as presented to the Energy Commission during the licensing of the PEC project.

The cooling tower shall be designed and operated so that that the exhaust air flow rate per heat rejection rate (1) will not be less than 11.1 kilograms per second per megawatt when the ambient conditions are 16.8 degrees F and 60% relative humidity, (2) will not be less than 14.6 kilograms per second per megawatt when the ambient conditions are 63.3 degrees F and 60% relative humidity, and (3) will not be less than 12.5 kilograms per second per megawatt when the ambient conditions are 114 degrees F and 60% relative humidity. The project owner shall provide a cooling tower fogging frequency curve from the cooling tower manufacturer for this project's final cooling tower design.

Verification: At least 90 days prior to ordering the cooling towers, the project owner shall provide to the CPM for review the final design specifications of the cooling tower to confirm that design mass flow rates for the cooling tower cells meet these requirements. The project owner shall not order the cooling tower until notified by the CPM that this design requirement has been satisfied.

Comment [aj48]: Bibb comment #21

Comment [aj49]: The last two paragraphs of this verification were removed because they direct the operator to provide annual documentation to show the cooling tower has been operated consistent with the stated airflow requirements. It is not clear what would constitute this documentation. The project engineers have stated that airflow rates for the multiple cooling tower cells are not and could not reasonably be monitored, and it is not clear how compliance would be judged for ambient conditions other than the three specific ones listed in the first part of the condition. Thus, the applicant would have no reasonable way to provide ongoing confirmation of the cooling tower airflow rate, which makes the rest of the proposed Verification requirements unworkable, including monitoring.

Deleted: The project owner shall provide written documentation in each Annual Compliance Report to demonstrate that the cooling towers have consistently been operated within the above-specified design parameters, except as necessary to prevent damage to the cooling tower. If determined to be necessary to ensure operational compliance, based on legitimate complaints received or other physical evidence of potential non-compliant operation, the project owner shall monitor the cooling tower operating parameters in a manner and for a period as specified by the CPM. For each period that the cooling tower operation monitoring is required, the project owner shall provide to the CPM the cooling tower operating data within 30 days of the end of the monitoring period. The project owner shall include with this operating data an analysis of compliance and shall provide proposed remedial actions if compliance cannot be demonstrated.¶ The CPM will determine potential non-compliant operation through a comparison of the ambient conditions during the period(s) of complaint and the expected plume occurrence based on the manufacturer's plume fogging frequency curve, which will be provided by the project owner as a requirement of this condition. Additionally, if photographic evidence of extremely large plumes (plume length or height greater than 1,000 feet) is provided for ambient conditions that are close to the fogging/no fogging line of the fogging frequency curve, potential non-compliant operation can be ... [3]

ENGINEERING ASSESSMENT

preparing and developing the site. Staff concludes that the project, including its linear facilities, would most likely comply with all applicable site preparation LORS, and proposes Conditions of Certification (see below and the **Geology and Paleontology** section of this document) to ensure compliance.

MAJOR STRUCTURES, SYSTEMS AND EQUIPMENT

Major structures, systems and equipment are defined as those structures and associated components or equipment that are necessary for power production and are costly or time consuming to repair or replace, that are used for the storage, containment, or handling of hazardous or toxic materials, or may become potential health and safety hazards if not constructed according to the applicable engineering LORS. Major structures and equipment will be identified through compliance with proposed Condition of Certification ***GEN-2*** (below).

The AFC contains lists of the civil, structural, mechanical and electrical design criteria that demonstrate the likelihood of compliance with applicable engineering LORS, and that staff believes are essential to ensuring that the project is designed in a manner that protects public health and safety.

The project shall be designed and constructed to the 2001 edition of the California Building Standards Code (CBSC) (also known as Title 24, California Code of Regulations), which encompasses the California Building Code (CBC), California Building Standards Administrative Code, California Electrical Code, California Mechanical Code, California Plumbing Code, California Energy Code, California Fire Code, California Code for Building Conservation, California Reference Standards Code, and other applicable codes and standards in effect at the time design and construction of the project actually commences. Major equipment was ordered in 2006, subject to the 2001 CBSC. This equipment is in conformance with the code that was in effect at that time it was ordered. PEC will be unable to redesign this equipment retroactively.

Deleted: In the event the initial designs are submitted to the Chief Building Official (CBO) for review and approval when the successor to the 2001 CBSC is in effect, the 2001 CBSC provisions, identified herein, shall be replaced with the applicable successor provisions.

Certain structures in a power plant may be required, under the CBC, to undergo dynamic lateral force (structural) analysis; others may be designed using the simpler static analysis procedure. In order to ensure that structures are analyzed using the appropriate lateral force procedure, staff has included Condition of Certification **STRUC-1** (below), which in part, requires review and approval by the CBO of the project owner's proposed lateral force procedures prior to the start of construction.

PROJECT QUALITY PROCEDURES

The AFC (PEC 2006a, § 3.11.8) describes a project Quality Program that will be used on the PEC project to maximize confidence that systems and components will be designed, fabricated, stored, transported, installed and tested in accordance with the technical codes and standards appropriate for a power plant. Compliance with design requirements will be verified through an appropriate program of inspections and audits. Employment of this quality assurance/quality control (QA/QC) program would ensure that the project is actually designed, procured, fabricated, and installed as contemplated in this analysis.

changes that result from the CBO's subsequent plan review and approval process.The PEC is under extreme schedule constraints to have plant on line by August 1, 2009. This requires plant construction to start in January 2008. Major equipment for the project was ordered in 2006 and 2007 because of the long lead-time required for delivery to stay on schedule. PEC proposed to work in a cooperative manor with the CBO to expedite all design review to maintain the project schedule.

FACILITY CLOSURE

The removal of a facility from service, or decommissioning, as a result of the project reaching the end of its useful life, may range from "mothballing" to removal of all equipment and appurtenant facilities and restoration of the site. Future conditions that may affect the decommissioning decision are largely unknown at this time.

In order to assure that decommissioning of the facility will be completed in a manner that is environmentally sound, safe and will protect public health and safety, the applicant shall submit a decommissioning plan to the Energy Commission for review and approval prior to the commencement of decommissioning. The plan shall include a discussion of:

- proposed decommissioning activities for the project and all appurtenant facilities constructed as part of the project;
- all applicable LORS, local/regional plans and the conformance of the proposed decommissioning activities to the applicable LORS and local/regional plans;
- the activities necessary to restore the site if the plan requires removal of all equipment and appurtenant facilities; and
- decommissioning alternatives, other than complete site restoration.

The above requirements should serve as adequate protection, even in the unlikely event of project abandonment. Staff has proposed general conditions (see **General Conditions**) to ensure that these measures are included in the Facility Closure plan.

CONCLUSIONS

1. The laws, ordinances, regulations and standards (LORS) identified in the AFC and supporting documents are those applicable to the project.

2. Staff has evaluated the proposed engineering LORS, design criteria and design methods in the record, and concludes that the design, construction and eventual closure of the project are likely to comply with applicable engineering LORS.

3. The Conditions of Certification proposed will ensure that the proposed facilities are designed and constructed in accordance with applicable engineering LORS. This will occur through the use of design review, plan checking and field inspections, which are to be performed by the CBO or other Energy Commission delegate. Staff will audit the CBO to ensure satisfactory performance.

4. Whereas future conditions that may affect decommissioning are largely unknown at this time, it can reasonably be concluded that if the project owner submits a decommissioning plan as required in the **General Conditions** portion of this document prior to the commencement of decommissioning, the decommissioning procedure is likely to occur in compliance with all applicable engineering LORS.

Energy Commission staff recommends that:

1. The Conditions of Certification proposed herein be adopted to ensure that the project is designed and constructed to assure public health and safety, and to ensure compliance with all applicable engineering LORS;

2. The project be designed and built to the 2001 CBSC (or successor standard, if such is in effect when the initial project engineering designs are submitted for review). Major equipment for the project was ordered in 2006 and 2007 because of the long lead-time required for delivery to stay on schedule (In-service date of August 1, 2009). and

3. The CBO shall review the final designs, conduct plan checking and perform field inspections during construction. Energy Commission staff shall audit and monitor the CBO to ensure satisfactory performance.

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Deleted: The PEC is under extreme schedule constraints to have plant on line by August 1, 2009. This requires plant construction to start in January 2008.

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CONDITIONS OF CERTIFICATION

GEN-1 The project owner shall design, construct and inspect the project in accordance with the 2001 California Building Standards Code (CBSC) (also known as Title 24, California Code of Regulations), which encompasses the California Building Code (CBC), California Building Standards Administrative Code, California Electrical Code, California Mechanical Code, California Plumbing Code, California Energy Code, California Fire Code, California Code for Building Conservation, California Reference Standards Code, and all other applicable engineering LORS in effect at the time initial design plans are submitted to the CBO for review and approval. (The CBSC in effect is that edition that has been adopted by the California Building Standards Commission and published at least 180 days previously.) The project owner shall insure that all the provisions of the above applicable codes be enforced during any construction, addition, alteration, moving, demolition, repair, or maintenance of the completed facility [2001 CBC, Section 101.3, Scope]. All transmission facilities (lines, switchyards, switching stations and substations) are handled in Conditions of Certification in the **Transmission System Engineering** section of this document.

In the event that the initial engineering designs are submitted to the CBO when a successor to the 2001 CBSC is in effect, the 2001 CBSC provisions identified herein shall be replaced with the applicable successor provisions. However, the PEC is under extreme schedule constraints to have plant on line by August 1, 2009. This requires plant construction to start in January

2008. Major equipment for the project was ordered in 2006 and 2007 because of the long lead-time required for delivery to stay on schedule. PEC proposed to work in a cooperative manor with the CBO to expedite all design review to maintain the project schedule. Where, in any specific case, different sections of the code specify different materials, methods of construction or other requirements, the most restrictive shall govern. Where there is a conflict between a general requirement and a specific requirement, the specific requirement shall govern.

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

Verification: Within 30 days after receipt of the Certificate of Occupancy, the project owner shall submit to the Compliance Project Manager (CPM) a statement of verification, signed by the responsible design engineer, attesting that all designs, construction, installation and inspection requirements of the applicable LORS and the Energy Commission's Decision have been met in the area of facility design. The project owner shall provide the CPM a copy of the Certificate of Occupancy within 30 days of receipt from the CBO [2001 CBC, Section 109 – Certificate of Occupancy].

Once the Certificate of Occupancy has been issued, the project owner shall inform the CPM at least 30 days prior to any construction, addition, alteration, moving, demolition, repair, or maintenance to be performed on any portion(s) of the completed facility which may require CBO approval for the purpose of complying with the above stated codes. The CPM will then determine the necessity of CBO approval on the work to be performed.

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

Verification: At least 60 days (or project owner and CBO approved alternative timeframe) prior to the start of rough grading, the project owner shall submit to the CBO and to the CPM the schedule, the Master Drawing List and the Master Specifications List of documents to be submitted to the CBO for review and approval. These documents shall be the pertinent design documents for the major structures and equipment listed in **Facility Design Table 2** below. Major structures and equipment shall be added to or deleted from the table only with CPM approval. The project owner shall provide schedule updates in the Monthly Compliance Report.

GEOLOGY AND PALENTOLOGY Table 1
Laws, Ordinances, Regulations, and Standards (LORS)

Applicable Law	Description
Federal:	The proposed PEC is not located on federal land. There are no federal LORS for geologic hazards and resources for this site.
State:	
Division 15 of the Public Resources Code, Section 25527	The Warren-Alquist Act requires the California Energy Commission (CEC) to "give the greatest consideration to the need for protecting areas of critical environmental concern, including, but not limited to, unique and irreplaceable scientific, scenic, and educational wildlife habitats; unique historical archaeological, and cultural site…" With respect to paleontologic resources, the CEC relies on the following guidelines from the Society for Vertebrate Paleontology (SVP).
Society for Vertebrate Paleontology (SVP), 1995	The "Measures for Assessment and Mitigation of Adverse Impacts to Non-Renewable Paleontological Resources: Standard Procedures" is a set of procedures and standards for assessing and mitigating impacts to vertebrate paleontological resources. The measures were adopted in October 1995 by the Society for Vertebrate Paleontology, a national organization of professional scientists.
California Building Standards Code (CBSC), 2001 (Particularly, Part 2, California Building Code (CBC)	The CBC includes a series of standards that are used in project investigation, design, and construction (including grading and erosion control)
Local:	None

SETTING

The proposed PEC site is a 12.8-acre site within a 128-acre parcel in western Fresno County, California. The site is located on the south side of West Panoche Road, approximately 2 miles east of the intersection of West Panoche Road with Interstate Highway 5. The site is presently occupied by a pomegranate orchard. The proposed project is to consist of four, natural-gas-fired turbine generators producing a total of 400 MW. Ancillary facilities include a 300-foot electrical transmission line to the Panoche Substation to the northeast; 400-foot access road south of West Panoche Road to the plant site; a 2,400-foot new gas pipeline; and expansion of the existing Panoche Substation by approximately 2.5 acres to the south.

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Comment [aj50]: Please refer to the attached PG&E letter dated July 12, 2007 that provides the corrected substation expansion dimensions.

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PROJECT SITE DESCRIPTION

The site is generally underlain by alluvium of the Panoche fan, which consists of poorly to moderately sorted, subangular to subrounded gravels, sands, silts, and clays complexly interbedded in lenses of varying thickness (PEC, 2006a). The site is located within an area mapped as Quaternary age alluvium composed of clay and sand.

Exploration at the site (PEC, 2006a) extended to a maximum depth of 1,510 feet below existing grade and encountered a thin surficial layer of artificial fill overlying recent alluvium characterized by complexly interbedded lenses of sands with varying silt content, silts, and clays. The sand soils were generally classified as slightly moist to moist, and very loose to medium dense. The silts and clays were generally classified as moist and medium stiff to very stiff.

Comment [aj51]: Based on January 5,2007 Monitoring Well Installation Report

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Ground water was not encountered to the depths explored (65 feet).

ASSESSMENT OF IMPACTS AND DISCUSSION OF MITIGATION

There are two types of impacts considered in this section. The first are geologic hazards, which could impact proper functioning of the proposed facility. The second considers potential impacts the proposed facility could have on existing geologic, mineralogic, and paleontologic resources in the area.

METHOD AND THRESHOLD FOR DETERMINING SIGNIFICANCE

No federal LORS with respect to geologic hazards and geologic and mineralogic resources apply to this project. The CBSC and CBC (2001) provide geotechnical and geological investigation and design guidelines, which engineers must adhere to when designing a proposed facility. As a result, the criteria used to assess geologic hazard impact significance includes evaluating each potential hazard in relation to being able to adequately design and construct the proposed facility. Geologic hazards to be considered include faulting and seismicity, liquefaction, dynamic compaction, hydrocompaction, subsidence, expansive soils, landslides, tsunamis and seiches.

The California Environmental Quality Act (CEQA) 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.

With respect to impacts the proposed facility may have on existing geologic and mineralogic resources, geologic and mineral resource maps for the surrounding area have been reviewed, in addition to any site-specific information provided by the

POWER PLANT EFFICIENCY

Steve Baker

SUMMARY OF CONCLUSIONS

The project, if constructed and operated as proposed, would generate a nominal 400 MW of peaking electric power at an overall project fuel efficiency of 40.7 percent lower heating value (LHV) at maximum full load. While it will consume substantial amounts of energy, it will do so in the most efficient manner practicable. It will not create significant adverse effects on energy supplies or resources, will not require additional sources of energy supply, and will not consume energy in a wasteful or inefficient manner. No energy standards apply to the project. Staff therefore concludes that the project would present no significant adverse impacts upon energy resources.

INTRODUCTION

The Energy Commission makes findings as to whether energy use by the Panoche Energy Center Project (PEC) will result in significant adverse impacts on the environment, as defined in the California Environmental Quality Act (CEQA). If the Energy Commission finds that the PEC's consumption of energy would create a significant adverse impact, it must determine whether there are any feasible mitigation measures that could eliminate or minimize the impacts. In this analysis, staff addresses the issue of inefficient and unnecessary consumption of energy.

In order to support the Energy Commission's findings, this analysis will:

- examine whether the facility will likely present any adverse impacts upon energy resources;
- examine whether these adverse impacts are significant; and if so,
- examine whether feasible mitigation measures exist that would eliminate the adverse impacts, or reduce them to a level of insignificance.

LAWS, ORDINANCES, REGULATIONS AND STANDARDS

No Federal, State or local/county laws, ordinances, regulations and standards (LORS) apply to the efficiency of this project.

SETTING

Panoche Energy Center, LLC (PEC) proposes to construct and operate the 400 MW (nominal net output) simple cycle PEC, providing flexible peaking and intermediate power and ancillary services to Pacific Gas and Electric Company (PG&E) as dispatched by PG&E (PEC 2006a, AFC §§ 1.1, 1.2.2, 3.4.1, 3.9.2.1, 3.11.4). The project will consist of four General Electric (GE) LMS100 gas turbine generators and ancillary equipment. The applicant intends for the project to operate at a maximum annual

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produce a percentage of the full power at optimum efficiency, rather than operating a single, larger machine at a less efficient part load output.

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The applicant intends for this facility to operate in peaking duty at a maximum annual capacity factor up to 57 percent for the four combustion turbines (PEC 2006a, AFC §§ 1.2.2, 3.4.1, 3.4.4.2, 3.11.4). This is equivalent to each machine running no more than 5,000 hours per year.

Equipment Selection

Modern gas turbines embody the most fuel-efficient electric generating technology available today. The PEC will employ three GE LMS100 gas turbine generators, the newest and most efficient such machine available (PEC 2006a, AFC §§ 1.1, 1.2.2, 3.1, 3.4.1, 3.4.4.2, 3.4.6; Figs. 3.4-4, 3.4-5, 3.4-6). This model of the LMS100[3] is nominally rated at 98.8 MW at a fuel efficiency of 45.1 percent (GTW 2006). The PEC will actually produce 400.2 MW (100.05 MW per machine) at a site rated fuel efficiency of 40.7 percent LHV, based on average annual weather conditions (63.3°F) (PEC 2006a, AFC Figure 3.4-5). This site rating differs from nominal figures due to site specific ambient conditions (altitude and temperature), power losses from parasitic loads, and reduced system output due to flow losses caused by the inlet air cooling system and the SCR unit installed on the exhaust of each turbine.

Efficiency of Alternatives to the Project

Alternative Generating Technologies

Alternative generating technologies for the PEC are considered in the AFC (PEC 2006a, AFC §§ 2.3, 4.3, 4.4). Fossil fuels (coal and oil), nuclear, geothermal, biomass and solar power were all considered. Solar is not dispatchable, so is incapable of producing the ancillary services[4] needed. Coal and oil are too highly polluting to be viable in California. Geothermal is not available at the PEC site, and biomass presents problems with availability. Staff agrees with the applicant that only natural gas-burning technologies are feasible for this project.

Natural Gas-Burning Technologies

Fuel consumption is one of the most important economic factors in selecting an electric generator; fuel typically accounts for over two-thirds of the total operating costs of a fossil-fired power plant (Power 1994). Under a competitive power market system, where operating costs are critical in determining the competitiveness and profitability of a power plant, the plant owner is thus strongly motivated to purchase fuel-efficient machinery.

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[3] The PEC will employ LMS100PA machines with single annular combustors equipped with water injection for NOx control.

[4] PEC proposes to offer peaking and intermediate power service, including flexible output (from 50 to 400 MW), rapid start and automatic generation control.

CUMULATIVE IMPACTS

Two nearby projects have been identified that could potentially combine with the PEC to create cumulative impacts on natural gas resources. One is a minor modification to the existing CalPeak Power Panoche No. 2 power plant. PEC considers it unlikely that this minor modification could affect natural gas consumption at the plant, and staff agrees. The other project is the Starwood Power Project, a 120 MW peaking power plant to be built adjacent to the PG&E Panoche substation. Starwood is also the result of a PG&E RFO contract, and like Panoche, it will be supplied with natural gas from the PG&E system. The PG&E natural gas supply system is adequate to supply both the PEC project and the Starwood project. Were this not true, PG&E would not have committed to supply these projects with gas.

NOTEWORTHY PUBLIC BENEFITS

The applicant proposes to provide flexible peaking and intermediate power and ancillary services, such as automatic generation control, during periods of high demand (typically hot summer days) (PEC 2006a, AFC §§ 1.1, 1.2.2, 3.4.1, 3.9.2.1, 3.11.4). By doing so in this most fuel-efficient manner, i.e., employing the most modern peaking gas turbine generators available, the PEC will provide a benefit to the electric consumers of California.

CONCLUSIONS

The project, if constructed and operated as proposed, would generate a nominal 400 MW of peaking and intermediate electric power at an overall project fuel efficiency of 45 percent LHV at maximum full load. While it will consume substantial amounts of energy, it will do so in the most efficient manner practicable. It will not create significant adverse effects on energy supplies or resources, will not require additional sources of energy supply, and will not consume energy in a wasteful or inefficient manner. No energy standards apply to the project. Staff therefore concludes that the project would present no significant adverse impacts upon energy resources. No cumulative impacts on energy resources are likely.

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PROPOSED CONDITIONS OF CERTIFICATION

No conditions of certification are proposed.

COMPLIANCE WITH LORS

The SIS indicates that the project interconnection would comply with NERC/WECC planning standards and California ISO reliability criteria. The applicant will design, build and operate the proposed 230 kV overhead transmission line. The proposed modifications to the Panoche Substation would be done by PG&E. Staff concludes that with implementation of the proposed conditions of certification, the project will meet the requirements and standards of all applicable LORS.

CONCLUSIONS AND RECOMMENDATIONS

The proposed Panoche Energy Center outlet transmission lines and termination are acceptable and would comply with all applicable LORS. The PEC interconnection to the grid would require additional new downstream transmission facilities other than those proposed by the applicant needing CEQA review.

- The SIS indicates that the one-mile long Wilson-Gregg 230 kV line requires reconductoring. The applicant must provide a general analysis, sufficient to meet the CEQA requirements for indirect project impacts, of the reconductoring.
- The other adverse transmission system impacts can be mitigated by installation of Special Protection Schemes, operating procedures, disconnect switches and replacement of breakers. These upgrades will mitigate the incremental overloads caused by the PEC, along with all other pre-project overloads caused by projects in the generation interconnection queue.
- The proposed interconnecting facilities between the new Combustion Turbine Generators and the PG&E Panoche Substation including the step-up transformers and the 230 kV overhead transmission line and terminations are adequate in accordance with good utility practices and are acceptable to staff according to engineering LORS.

CONDITIONS OF CERTIFICATION FOR TSE

TSE-1 The project owner shall furnish to the Compliance Project Manager (CPM) and to the Chief Building Official (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 of the transmission and interconnection facilities, the project owner shall submit the schedule, a Master Drawing List, and a Master Specifications List to the CBO and to the CPM. The

BASIC OBJECTIVES OF THE PROJECT

After studying the Applicant's Application for Certification (AFC), Energy Commission staff has determined the PEC project's objectives to be:

- Development of a project to meet the contractual terms of the Pacific Gas & Electric, Power Purchase agreement dated March 28, 2006.
- Meet various vendor requirements necessary for power generation and environment control equipment guarantees.
- A project that could obtain all required permits due to a lack of significant adverse environmental impacts.
- A site that is located near an existing substation and transmission line.
- A project that will provide a fair return on the project investment.
- A project that will be sufficiently attractive to the investment community so that the required construction funds can be obtained at reasonable rates.

PROJECT DESCRIPTION AND SETTING

A more complete description of the project and its setting is in the **Project Description** section of this Preliminary Staff Assessment (PSA).

POWER PLANT

The project area is located in an unincorporated area of western Fresno County, adjacent to the Panoche Hills. The site is approximately 12 miles southwest of the city of Mendota, 16 miles south-southwest of the city of Firebaugh and approximately 2 miles east of Interstate 5, adjacent to the Pacific Gas & Electric (PG&E) existing Panoche Substation. The proposed site and substation are located south of West Panoche Road. The site is more specifically described as the Southwest Quarter of Section 5, Township 15 South, Range 13 East, on the United States Geological Survey (USGS) Quadrangle map. The assessor's parcel number (APN) is 027-060-78S.

The facility site will be located on a 12.8-acre site within a 128-acre parcel. The construction laydown area, including laydown and parking, consists of an 8-acre portion of the 128-acre parcel immediately south of the 12.8-acre plant site. The plant site and construction area are leased by the applicant from the property owners. The 128-acre parcel is currently in agricultural production with pomegranate trees. Proposed offsite improvements associated with the project include a new 400-foot paved, 24-foot wide access road south of West Panoche Road to the plant site, 2,400 linear feet of new gas pipeline, and a new 300-foot transmission line to tie into the Panoche Substation. A project-related activity is PG&E's planned expansion of its Panoche Substation by approximately 2.5 acres south of the existing substation boundary.

Comment [aj52]: Please refer to the attached PG&E letter dated July 12, 2007 that provides the corrected substation expansion dimensions.

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See **Project Description Figure 1** for a map of the location of the proposed project site and related facilities.

POWER PLANT EQUIPMENT AND LINEAR FACILITIES

The PEC would be a nominal 400 megawatt (MW) simple-cycle power plant consisting of four General Electric LMS100 natural gas-fired combustion turbine generators and associated equipment. The PEC is designed as a peaking facility to meet electric generation load during periods of high demand. The project is expected to have a maximum annual capacity factor of approximately 57% equivalent to 5,000 operating hours.

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Auxiliary equipment will include inlet air foggers with evaporative coolers, a step up transformer, compressed air system, control enclosures, aqueous ammonia storage tank, natural gas fuel system, water treatment system, water storage tanks, wastewater system, site stormwater drainage system, and a lined evaporation pond.

Associated equipment will include emission control systems necessary to meet the proposed emission limits using best available control technology. Stack emission NO_x in normal operation will be controlled to 2.5 parts per million, volumetric dry (ppmvd) corrected to 15% oxygen through a combination of water injection in the combustors and operation of a selective catalytic reduction (SCR) system with 19% aqueous ammonia to further reduce NOx emissions, and an oxidation catalyst to reduce the emission of carbon monoxide (CO) and volatile organic compounds (VOCs).

Project Description Figure 3 shows the general arrangement and layout of the proposed facility. **Project Description Figure 4** provides an architectural rendering of the proposed facility.

TRANSMISSION LINE

The PEC will connect to the PG&E electrical transmission system at the adjacent Panoche Substation. The connection will require approximately 300 feet of new 230 kilovolt (kV) transmission line located within the plant site and PG&E's substation. The transmission interconnection requires a 2.5 acre substation expansion to be constructed concurrent with proposed project construction. Interconnection at this substation minimizes impacts to the PG&E transmission system while providing efficient peaking power for use during peak demand periods as projected by PG&E.

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WATER SUPPLY

Process water for the cooling towers and other non-potable water uses are proposed to be supplied to the PEC from two new groundwater wells drilled onsite into the Westside Sub-basin of the San Joaquin Valley Groundwater Basin. These wells would draw water for process and cooling purposes.

Comment [wdj53]: PEC has studied the Mendota and Firebaugh dringing well groundwater characteristics and believes that the citry draw from an unconfined (upper) aquifer that is not hydraulically connected to the confined aquifer (lower) aquifer that PEC plans to use. Therefore, reference to the city wells is not relavent here.

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These wells would also supply facility showers, sinks, toilets, eye wash stations, and safety showers. Unless the applicant properly filters the water, signs would be posted to alert personnel that water drawn from these wells is not for human consumption. Potable water would supplied to the PEC by a bottled water service.