ENERGY COMMISSION DECISION

APPLICATION FOR CERTIFICATION FOR THE

SUTTER POWER PLANT PROJECT

DOCKET NO. 97-AFC-2

APRIL 1999

CALIFORNIA ENERGY COMMISSION

Gray Davis, Governor

P800-99-010

PRESIDING MEMBER'S PROPOSED DECISION

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SUTTER POWER PLANT PROJECT

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CALIFORNIA ENERGY COMMISSION

Gray Davis, Governor

CALIFORNIA ENERGY COMMISSION

Sutter Power Plant Project Committee

Michal C. Moore, *Presiding Member*

William J. Keese, *Associate Member*

Gary Fay, *Hearing Officer*

Stanley Valkosky, *Chief Hearing Officer*

HEARING OFFICERS OFFICE

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EXECUTIVE SUMMARY

This Commission Decision (Decision) contains the recommendations of the Energy Commission's designated Committee on whether the Commission should approve the application for the Sutter Power Plant Project (SPP). Based on the Committee's independent evaluation of the evidence presented at public hearings, the Commission has found that with the implementation of all mitigation measures and the more than 165 Conditions of Certification contained in this document, the SPP will not impose a significant adverse impact on the environment. It has also found that the project is in conformance with Commission electricity demand requirements and that the project meets all applicable laws, ordinances, regulations and standards. The Commission therefore approves the Application for Certification (AFC) for the project.

Calpine Corporation (Calpine) proposes to construct, own and operate the SPP, a 500 megawatt (MW) natural gas fueled, combined cycle, electric generation facility. The SPP will be located adjacent to Calpine's existing Greenleaf Unit 1, a 49.5 MW natural gas fueled cogeneration power plant. The site is located approximately seven miles southwest of Yuba City, on South Township Road near the intersection with Best Road. The SPP will comprise approximately 16 acres of Calpine's existing 77-acre parcel.

Additional project facilities include a 4 mile, 230 kilovolt (kV), overhead electric transmission line that would be built from the plant to a new switching station near the Sutter Bypass, and a new 14.9 mile natural gas pipeline that will be constructed to provide fuel for the project.[1] Dry-cooling technology will eliminate the need for large quantities of cooling water and an on-site well will provide potable water for the project. Sanitary waste will be treated by an on-site sewage treatment system. All other waste generated in the operation of the plant and any effluent will be treated and removed from the site, thus resulting in a "zero discharge" facility.

The SPP and related facilities such as the electric transmission line, switching station and natural gas line are under Energy Commission jurisdiction. (Pub. Resources Code,

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[1] The electric transmission switching station is referred to in this document as the "Sutter Bypass Switching Station" or the "O'Banion south switching station." It is to be distinguished from the electrical switchyard located at the power plant site.

§§ 25500 et seq.) When issuing a license, the Energy Commission acts as lead state agency (Pub. Resources Code, § 25519(c)) under the California Environmental Quality Act (Pub. Resources Code, §§ 21000 et seq.), and its process is functionally equivalent to the preparation of an environmental impact report. (Pub. Resources Code, § 21080.5.)

The project is also under the jurisdiction of the Western Area Power Administration (Western) because it will interconnect with Western's transmission system. Western operates and maintains an extensive, integrated and complex high-voltage power transmission system to deliver reliable electric power to most of the western half of the United States. As a major transmission owner, Western provides access to its transmission system when feasible, providing there is sufficient capacity. The agency has determined that this project will help to support and improve area transmission reliability by increasing voltage support for the Sacramento region.

During the CEC siting process the Energy Commission and Western have worked closely together to ensure a thorough environmental review of the project in the most efficient manner possible. As the lead *federal* agency for the project and for any transmission interconnection of the SPP, Western must carry out federal environmental impact analysis similar to that done by the Energy Commission. Therefore, the staffs of Western and the Energy Commission agreed to combine their processes for environmental review of the SPP. Through their coordinated efforts, the two agencies assured that all elements of both the federal and the state environmental review requirements were addressed in the Final Staff Assessment / Draft Environmental Impact Statement. The combined document, released on October 22, 1998, expedited this coordinated review process and provided a more cohesive public comment period.

The Energy Commission has also maintained a close working relationship with Sutter County officials. Sutter County staff and officials have participated in all workshops and hearings. Furthermore, Sutter County staff made use of the environmental review from the Energy Commission's process in preparing its recommendation to the Sutter County Planning Commission. On November 12, 1998, the county Community Services Department submitted a report to the Sutter County Planning Commission which recommended approval of Calpine's request to amend the General Plan land use designation on the 77 acre parcel proposed for the SPP site from Ag-20 and Ag-80 to

Industrial and to change the zoning district of the property from AG to M-2PD.[2] On December 2, 1998, the Planning Commission considered the Calpine applications and recommended to the Sutter County Board of Supervisors that it deny both applications because they were inconsistent with the General Plan. Calpine appealed the amendment and rezoning request to the Board of Supervisors, and on March 30, 1999, the Board voted to approve Calpine's request for a General Plan amendment and rezoning.[3]

The Commission staff also consulted all other affected federal, state, regional, and local governmental agencies as part of the review process.

In addition, the Commission received valuable input from two active intervenors in the process. California Unions for Reliable Energy (CURE), is a coalition of unions whose members build, operate and maintain power plants. CURE's participation focused on potential air and water quality environmental impacts and potential socioeconomic benefits of the project. Once its environmental concerns were addressed, through the addition to the project of major air and water quality mitigation measures, CURE supported the project. The Yuba-Sutter Farm Bureau also intervened. While many local farmers participated actively throughout the process, it was not until late in the evidentiary hearings that the Farm Bureau sought formal intervention in order to better represent growers who live near the plant site. The Farm Bureau's primary areas of concern involved: land-use, visual resources, air quality, biological resources, socioeconomic issues, transmission lines, and project alternatives. Farm Bureau representatives generally opposed the project and cross-examined other parties' witnesses. In addition, they presented a witness on the harmful effects the project transmission line would have on nearby cropdusting operations.[4]

By the time of the evidentiary hearings, the Commission's siting process had incorporated numerous mitigation measures which in the view of the Applicant, the Commission staff, Western, Sutter County Staff, and CURE, reduced significant impacts

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[2] General Plan Amendment No. 97-04 and Rezone No. 97-07.

[3] The Board also adopted a "Ferrying Charge Condition" which requires Calpine to reimburse farmers for certain cropdusting expenses related to the project's relocation of a cropduster airstrip.

[4] Due to contrasting opinions of the project within the Sutter County farm community, the President of the Yuba-Sutter Farm Bureau moved to withdraw its intervention in the case on 3/26/99.

of the project to insignificant levels. One exception was the Commission staff position that, even after including all possible mitigation measures, the project would still impose significant impacts upon visual resources. However, after weighing the evidence, the Committee found the Commission staff's position on significant visual impacts to be unpersuasive. Like staff, the Farm Bureau believed the project will impose significant visual impacts. Once the Farm Bureau intervened, they raised numerous other objections to the project.

Ken Corbin, the Air Pollution Control Official for the Feather River Air Quality Management Distinct (FRAQMD), introduced the Final Determination of Compliance (DOC) submitted by the air district. He noted that the district had worked with the Energy Commission staff, the Air Resources Board and with the U.S. Environmental Protection Agency for several months in order to craft a determination of compliance which would meet all of the district's requirements. FRAQMD issued its DOC on November 13, 1998, and received very few comments. Mr. Corbin approved of the Conditions of Certification proposed in the Commission staff testimony. He also testified that the Applicant had proposed a complete offset package and that the Applicant's designated emission reduction credits (ERC) would all be available prior to any final Decision by the Commission. Mr. Corbin addressed the amount of ERCs that would be available to the county for future development after the SPP uses its required increment. He noted that, "...if those [ERCs] were all made available to another applicant, there would be sufficient credits for another project of this [SPP] size."

The Committee's analysis of land use impacts for the Sutter Power Project focused on two main issues: 1) the conformity of the project with local land use plans, ordinances and policies; and, 2) the potential of the proposed project to have direct, indirect, and cumulative land use conflicts with existing and planned uses. As noted, the site did not conform with local land use plans. However,this was corrected when Sutter County approved a zoning change from AG (agricultural) to M-2 PD (General Industrial Combining Planned Development District) and a general plan amendment from Agriculture 80-acre minimum to Industrial.

The Commission addressed the likely direct, indirect, and cumulative impacts on land use which could occur if the project is constructed and operated. The record demonstrates that the SPP will not have significant direct impacts on local land uses. The 77 acre parcel for the proposed project is not now in agricultural use and has not

been since 1984. While the switching station proposed on the south side of O'Banion Road may displace some agriculture, the evidence shows that no more than two acres would be lost. The project transmission line is unlikely to directly impact agriculture. Even if preferred easements along existing rights-of-way are not available, the worst case direct impacts to local farming are still insignificant. Direct impacts to affected crop duster landing strips will be fully mitigated by relocating the strips.

Indirect land use impacts include the affects of the transmission line on agricultural operations, including crop dusting and ground equipment use. The evidence demonstrates that by undergrounding the existing 12 kV line on O'Banion Road, by using steel tubular rather than lattice-style towers, and by locating the transmission line along existing roads and out of the fields, the line's indirect impacts will be mitigated to an insignificant level.

The Commission staff witness on biological resources testified that the project is not inconsistent with the primary use of the Sutter National Wildlife Refuge. Furthermore, both the Commission biologist and the California Department of Fish and Game have evaluated the potential impacts of the project on wildlife and in particular impacts to special status species. Both have found that the project's mitigation measures will reduce impacts to insignificant levels. Therefore, we have found that the project will not have a significant adverse effect on local wildlife habitat land uses such as the Sutter National Wildlife Refuge.

Nor is the SPP likely to impose significant cumulative effects on land use. As indicated above, individual impacts to agriculture will be mitigated to insignificant levels. The cumulative effect of adding these resultant impacts to the land use impacts of the Greenleaf 1 plant do not create a significant cumulative impact. Furthermore, it appears to the Committee that local concerns about the SPP being a "key way" for further industrial development in the area are misplaced. As demonstrated by various witnesses, the proposed project lacks the kinds of linkages to other industrial and commercial uses that would make the area attractive to those uses.

The record establishes that the proposed project has been designed, and redesigned, to minimize visual impacts. Calpine has proposed a number of its own measures and has agreed to additional mitigation measures recommended by the Commission staff. The plant itself will have controlled lighting and will be surrounded by a landscaped berm.

Plant structures will be painted in dull, low contrast colors and dry cooling will eliminate any visible steam plume. Transmission line impact mitigation measures, including the dulling of reflective metal surfaces, placement to avoid view obstruction at residences, and the use of non-specular conductors will reduce visual impacts to the maximum extent feasible.

In addition, both Commission staff and Calpine have put considerable effort into examining additional mitigation measures which ultimately proved not to be feasible.[5] The record establishes that a number of feasible mitigation measures have been included to reduce visual impacts while others have been analyzed and rejected as infeasible. The Conditions of Certification impose all feasible mitigation capable of reducing the visual impacts of the project.

Yet even with the imposition of the mitigation measures contained in the Conditions of Certification, the transmission line will likely intrude upon views of the Sutter Buttes from the residence at 3936 O'Banion Road, near the intersection of O'Banion Road. A small number of additional residences will have their views of the Sutter Buttes impacted to a lesser degree. The transmission line will also intrude upon the views of the Sutter Buttes for north-bound drivers on South Township Road. Yet the evidence shows that north-bound drivers on South Township Road are relatively few in number.

We conclude that the project has been designed to be as visually unobtrusive as possible and that it will not create any significant adverse visual impacts as defined under the California Environmental Quality Act.

The potential impacts of the project on local biological resources was also closely examined. Calpine's decision to change from wet cooling towers to a dry air condenser substantially reduced the potential for biological impacts from the SPP. This change: 1) eliminates impacts to aquatic biota from wastewater discharge in the field drains and Sutter Bypass; 2) eliminates impacts to the wetlands and surrounding vegetation from cooling tower drift; and 3) reduces the potential for avian collisions with the project's stacks. The evidence also established the amount of habitat affected by the project and

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[5] An example of this is the proposal for undergrounding the power plant's 230 kV transmission line. All of the alternatives which might reduce the visual impacts of the transmission line are discussed in the section on Transmission System Engineering.

the amount of compensatory habitat required from the Applicant to mitigate the habitat lost.

Habitat mitigation for the Swainson's hawk has been determined by wildlife experts who are charged with protecting such habitat. The Commission has properly relied upon their determination that adequate compensatory habitat is being provided by Calpine. Likewise, we rely on expert biologists to recommend mitigation measures which will significantly reduce bird mortality from collision with transmission line conductors. While the project's transmission line is likely to result in some bird deaths, the evidence demonstrates that the losses will not be significant.

We conclude that the Sutter Power Plant will not result in any significant adverse impacts to biological resources, and is consistent with the primary land use of the Sutter National Wildlife Refuge.

The Committee has also determined that the project will not impose any significant erosion or sedimentation impacts. Furthermore, with its design change to dry cooling and to retain floodwaters on site, the project will not impose significant adverse impacts upon the local water supply, wastewater discharge systems, or upon local drainage or flooding.

Regarding the protection of cultural resources, the Applicant, staff from Western, and from the Commission have all recommended Conditions of Certification that would ensure the mitigation of impacts if previously unknown cultural resources are encountered during project construction. Critical to the success of any mitigation efforts is the selection of a qualified professional cultural resources specialist. The Conditions of Certification require that Western and the Commission staff review the qualifications and approve of the professional archaeologist designated by the project owner. In addition, Commission staff has proposed contingency mitigation measures which are to be implemented if sensitive cultural resources are encountered in any area affected by the project, during pre-construction site preparation or in such activities as coring, boring, augering, excavation, and trenching during project construction. A six-point cultural resource monitoring program is proposed for use in the natural river levee zone.

The Committee has also determined that the SPP can be added to the existing electrical transmission system without causing reliability problems. In fact, the project improves area reliability. It also meets all relevant design criteria. While the possibility of undergrounding the project's 230 kV transmission line was explored, it proved to be infeasible. Ultimately, the Township-O'Banion Road transmission line route poses the fewest environmental impacts among the feasible alternatives.

Finally, this document represents the Committee's independent and careful analysis of the evidentiary record of the proceeding as well as all testimony filed by the various parties and all closing briefs and comments. With the notable exception of the general plan amendment and rezone, the Committee has determined that the SPP has met the many tests which the law provides for such a project, including the mitigation of potential environmental impacts and conformance with the demand for electricity identified by the Commission. These tests are detailed in this document.

Therefore, we conclude that if Calpine can meet the remaining requirement, the SPP will impose no significant impact on the environment and will comply with all applicable laws, ordinances, regulations and standards.

II. INTRODUCTION

This document is the Commission's Final Decision (Decision).[6] It contains the Commission's determinations that the Application for Certification (AFC) for the Sutter Power Plant project (SPP) should be approved and includes the findings and conclusions required by law. The Decision is based exclusively upon the evidentiary record established at the hearings on the application. The document contains the Commission's reasons supporting its decision and references to portions of the record which support the Commission's findings and conclusions.[7]

This Decision contains an introduction which describes the project and the environmental review process. It is followed by an analysis of the project, presented on a subject-by-subject basis, with each section containing a summary of the evidence, in some cases a summary of public comments, the applicable findings and conclusions, and finally the Conditions of Certification which apply to that subject area.

A Committee Conference held to receive comments on the Presiding Member's Proposed Decision was scheduled for February 11, 1999, at the Yuba City Veteran's Memorial Building After the close of the comment period, the PMPD was revised to reflect comments received in the docket and at the comment hearing. A Revised PMPD, including a proposed Commission Adoption Order was issued on March 2, 1999. After 15 days, the Commission approved the documents at a regularly scheduled business meeting of the full Commission held on April 14, 1999.

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[6] The requirements for the Presiding Members proposed Decision are set forth in the Commission's regulations, Title 20, California Code of Regulations, sections 1749 through 1754. Requirements for the Revised PMPD are found in Title 20, California Code of Regulations, sections 1753. The Final Decision is described in Section 1755.

[7] References to the evidentiary record, which appear in parentheses following the referenced material, may include an exhibit number and/or a reference to the date and page number of the reporter's transcript e.g., (Ex. 2, p. 55; 11/16/98 RT 123). Where the reference is to an *evening* evidentiary hearing, the evening transcript reference will include a "p.m." notation e.g., (11/16/98 p.m. RT 123).

A. PROJECT OBJECTIVE AND DESCRIPTION

The Calpine Corporation's (Calpine) stated objective for developing the Sutter Power Project (SPP) is to sell electric power to a mix of retail and wholesale customers in the newly deregulated electricity market. (Ex. 4, p. 1-1, 1-5 and 5-1.)

Calpine thus proposes to construct and operate the SPP, a 500 megawatt (MW) natural gas fueled, combined cycle, electric generation facility, at a site adjacent to its existing Greenleaf 1 power plant. The latter is a 49 MW natural gas fueled cogeneration facility. The site is located approximately seven miles southwest of Yuba City, on South Township Road near the intersection with Best Road. The land dedicated for the facility will comprise approximately 16 acres of Calpine's existing 77-acre parcel (Sutter County Assessor's Parcel Number 21-230-25). [See maps on Figs. 1 and 2.]

The proposed facility will use two 170 MW gas turbine/generators exhausting into two heat recovery steam generators (HRSG). Steam generated in the two HRSGs will power a 160 MW steam turbine/generator. Air pollutants in the gas turbine exhaust will be controlled using selective catalytic reduction (SCR) technology. (See plant layout in Fig. 5.)

A new 4 mile 230-kilovolt kV overhead electric transmission line is proposed to be built from a new switchyard at the plant site to an additional new switching station on the south side of O'Banion Road near the Sutter Bypass which will interconnect to the Western Area Power Administration's (Western) 230-kV electric transmission system. (Fig. 4.)

A new 14.9 mile natural gas pipeline is proposed for construction to provide fuel for the project. The 16 inch diameter gas pipeline will connect to Pacific Gas and Electric's (PG&E) Line 302, an interstate natural gas supply line located to the west of the SPP site, in Sutter County. The interconnection will occur at the existing Sacramento River drip station. The Sacramento River drip station will be expanded by about 5,000 square feet to accommodate a new dehydrator. Across the Sacramento River in Colusa County, approximately 8,000 feet of four inch diameter line will be added along with a new dehydrator which will be installed at the Poundstone drip station on Line 302. As a result of these changes in the gas collection and distribution system, the dehydrator at Oswald Road will be removed and the site restored and returned to the landowner.

Water requirements will be met by an on-site well system that will be developed as part of the project. Sanitary waste will be treated by an on-site sewage treatment system.

As a result of the analysis in the Preliminary Staff Assessment[8] and the concerns raised by intervenors and the public, Sutter County staff, U.S. Fish and Wildlife Service and other interested parties, Calpine has proposed the mitigation package summarized below:

a) The Sutter Power Plant will utilize a 100% dry cooling design that will reduce groundwater use by over 95% from the original proposal of 3,000 gallons per minute to a revised annual average of less than 140 gallons per minute.

b) The dry cooled plant will be a zero effluent discharge facility and not discharge any process fluids into drainage canals in the area.

c) Calpine will change the transmission line route to proceed south along South Township and then west on O'Banion Road to a new switching station site on the south side of O'Banion Road near the Sutter Bypass. This route is about 4.0 miles long.

d) Calpine proposes to further reduce emissions from the plant to 2.5 parts per million (ppm) nitrogen oxide (NO_x) averaged over one hour.

Construction of the SPP, from site preparation to commercial operation is expected to take 22 to 24 months. Construction is planned to begin in early 1999 and be completed late in the year 2000. Full scale commercial operation is expected by the end of 2000 or early 2001. There will be a peak work force of approximately 256 workers, with an average work force over the entire construction period of 150 personnel. The total construction payroll is estimated at $20 million. The capital cost of the project is estimated at about $250 to $285 million. Calpine will employee 20 full-time plant

[8] Sutter Power Project, Preliminary Staff Assessment Filed Jointly by the California Energy Commission and Western Area Power Administration. (July 1, 1998).

operators and technicians once the plant is complete. The annual payroll for their employees is estimated to be $1 million.

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PROJECT DESCRIPTION: Figure 1
Regional Setting [FSA p. 7]

PROJECT DESCRIPTION: Figure 2

Local Setting

[AFC Fig. 1.1-1]

ARTIST RENDERING OF SPP PROJECT: Figure 3
[AFC Fig. 1.1-3]

SPP Proposed Transmission Line Route and Natural Gas Pipeline Route: Figure 4 [AFC p. 2.2]

PROJECT DESCRIPTION: Site Arrangement: Figure 5

PROJECT DESCRIPTION: Figure 6
Proposed Transmission Tower
[Exhibit 46]

B. CALIFORNIA ENERGY COMMISSION SITE CERTIFICATION PROCESS

The Energy Commission has the exclusive authority to certify the construction and operation of thermal electric power plants 50 megawatts or larger and all related facilities. The Commission's site certification process provides a thorough and timely review and analysis of all aspects of a proposed project. The process is designed to allow a license on a project to be issued within a specified period of time and the license is in lieu of other state and local permits. During the process a comprehensive examination is conducted of the project's potential economic, public health and safety, reliability, engineering, and environmental ramifications.

In addition, the Commission's process allows for and encourages public participation so that members of the public may become involved either informally or on a more formal level with the same legal rights and duties as the project developers. The process is characterized as an "open planning process" and it provides for public participation at every stage of the proceeding.

The process begins when an applicant files its Application for Certification (AFC). The Commission must determine that the application contains sufficient data to allow the Commission and other agencies to begin a review. Once an application is found to be "data adequate", the Commission appoints a committee of two Commissioners to manage the siting process, which includes holding hearings taking evidence and eventually proposing a decision for the full Commission to consider. After data adequacy is determined the formal review process begins with a phase known as "discovery", during which local agencies work closely with Commission staff to identify issues, request data from the applicant and, if necessary, develop recommendations for mitigation measures. Other independent parties, known as "intervenors" may also use this phase to make data requests of the applicant. During this phase, the Commission staff will sponsor numerous public workshops at which intervenors, agency representatives, and members of the public meet with the Commission staff and the applicant to discuss, clarify, and negotiate issues in the case. Following the discovery phase the Commission staff publishes its independent analysis of the project, with its recommendations to the Committee. The document is called the Staff Assessment.

The Committee conducts a pre-hearing conference to identify issues and to determine the positions of the respective parties. Information from the pre-hearing conference forms the basis for a Committee Hearing Order which schedules and organizes the evidentiary hearings. At the evidentiary hearings all parties are able to present previously-filed testimony, under oath or affirmation, which is subject to cross-examination by other parties and members of the Committee. Time for public comment is provided at each hearing. In this way the Committee establishes a full, fair and impartial evidentiary record on which its proposed decision must be based.

The Committee's recommendation to the Commission is issued in the form of the *Presiding Member's Proposed Decision* and is available for a 30-day comment period before the Committee revises the document, issues it for an additional 15-day comment period, and submits it to the full Commission for a final Decision on the application. The sequence of these events is set forth in AFC Siting Process Figure 1, which follows.

The relationship among the various participants in a siting case is shown in AFC Siting Process Figure 2. The Commission and Committee serve as fact-finder and decision-maker. The parties, which include the Applicant, Commission staff, and any intervenors, are all independent and of equal legal status. They are subject to an *ex parte* rule which prohibits them from communicating on substantive matters with Committee members, their staffs, and the hearing officer, except for communications which are on the public record. A hearing officer is appointed to provide legal assistance to the Committee in each case. The Public Adviser assists members of the public and intervenors with their understanding of and participation in the Commission's siting process. This is illustrated in AFC Siting Process Figure 2.

AFC Permitting Process: Figure 1

AFC Permitting Process: Figure 2

C. SUTTER POWERPLANT PROJECT AFC REVIEW

This project presented the Commission with a number of new opportunities to apply its process to the unique aspects of the Sutter Power Plant Project application. The SPP is the first merchant[9] plant to reach final licensing consideration by the Commission since legislation "restructuring" the traditional electric utilities provided for increased competition in generation and transmission.[10]

While the Committee has reviewed evidence and comments from a wide range of participants -the Applicant, Commission staff, intervenors, public agencies and members of the public - the Committee has nevertheless independently examined all technical areas, regardless of the level of controversy or agreement attached to the subject. Even where parties have reached agreements or stipulations regarding certain matters, the Committee has independently examined each subject area to ensure that the project will comply with the standards established by applicable federal, state and local policies.

1. Agency Coordination.

a. Joint Federal-State Review

In order to establish a transmission line connection for the SPP, Calpine requested interconnection of the proposed SPP to Western's Keswick-Elverta and Olinda-Eleverta double-circuit 230 kV for generation in the fourth quarter of the year 2000.

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[9] The Commission has defined a merchant plant as "a plant owned neither by a utility nor by an affiliate selling to its affiliated utility." (*1994 Electricity Report*, p. 134.) Merchant plants have also been referred to as "plants for which investors, not ratepayers, bear financial risk.

[10] Assembly Bill 1890.

As a major transmission owner, Western provides access to its transmission system when
feasible, providing there is sufficient capacity. Western has determined that this project will help to support and improve area transmission reliability by increasing voltage support for the Sacramento region. (Ex. 42, Trans. Syst. Eng., p. 2.)

As to the lead federal agency for any transmission interconnection of the SPP, Western must carry out federal environmental impact analysis similar to that done by the Energy Commission. Therefore, the staffs of Western and the Energy Commission agreed to combine their processes for environmental review of the SPP. Through their coordinated effort, Western and the Commission staff assured that all elements of both the federal and the state environmental review requirements were addressed in the Final Staff Assessment / Draft Environmental Impact Statement. (FSA / Draft EIS; Ex. 2.) The combined document, released on October 22, 1998, expedited this process and provided a more cohesive public comment period.

Western's purpose for joining in this review of the SPP is to respond to Calpine's request for an interconnection with Western's transmission system and to address: (1) the environmental impact of the proposed project; (2) any adverse environmental affects that cannot be avoided should the proposal be implemented; (3) alternatives to the proposed project; (4) the relationship between local short-term uses of the environment and the maintenance and enhancement of long-term productivity; and (5) any irreversible and irretrievable commitment of resources that would be caused by the proposed project. Western and the CEC participated jointly in creating a Preliminary Staff Assessment, released on July 1, 1998, and a Final Staff Assessment / Draft Environmental Impact Statement (FSA / Draft EIS), released on October 22, 1998.[11] These combined documents expedited the process and provided a more cohesive public comment period.

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[11] The analyses contained in the FSA / Draft EIS were prepared in accordance with PRC sections 25500 et seq.; the California Code of Regulations (CCR), Title 20, Sections 12001 et seq.; the California Environmental Quality Act (PRC, §§ 21000 et seq.) and its guidelines (14 CCR, §§ 15000 et seq.); and the National Environmental Policy Act (NEPA) (42 USC, 4371 et seq.) and its implementing regulations (40 CFR, §§ 1500 et seq.); and the Department of Energy NEPA Implementing Procedures and Guidelines (10 CFR, 1021). Western released its Final EIS on April 13, 1999.

Western also participated jointly in the CEC's evidentiary hearings, using the hearings as an opportunity to receive further public comment on the project. While these efforts to streamline our two processes were for the most part successful, Western issued its Final EIS and its Record of Decision as separate documents from the Commission's decisional documents as a result of a parallel process that concluded after the CEC process.[12]

b. Cooperative State-County Process.

In addition to coordinating with Western, the Commission has worked closely with Sutter County throughout the process. Since the SPP site is currently zoned for agricultural uses, a change in zoning and a general plan amendment for the entire 77-acre parcel will be required for the SPP to comply with the Sutter County General Plan and zoning requirements. Calpine has applied to Sutter County for these changes. Sutter County staff and officials have participated in all workshops and hearings and have provided valuable assistance to our process.

At the local level, on November 12, 1998, Sutter County Community Services Department submitted a report to the Sutter County Planning Commission which recommended approval of Calpine's request to amend the General Plan land use designation on the 77 acre parcel proposed for the SPP site from Ag-20 and Ag-80 to Industrial and to change the zoning district of the property from AG to M-2PD.[13] On December 2, 1998, the Sutter County Planning Commission considered the Calpine applications and recommended to the Sutter County Board of Supervisors that it deny both applications because they were inconsistent with the General Plan. Calpine appealed their amendment and rezoning request to the Board of Supervisors who granted the appeal on March 30, 1999, approving Calpine's request.

c. Other Agency Relations.

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[12] In a letter dated November 30, 1998, Western's Regional Manager, Jerry W. Toenyes noted that while the PMPD is a pre-decisional document, a Final EIS is a response to comments on the Draft EIS. The two documents serve a different purpose and Western must prepare its Final EIS and ROD separately from the CEC process.

[13] General Plan Amendment No. 97-04 and Rezone No. 97-07.

The Energy Commission staff have also closely coordinated the review and analysis of the project with U.S. Fish and Wildlife Service, U. S. Environmental Protection Agency, Department of Fish and Game, Department of Water Resources, U.S. Army Corp of Engineers, Sutter National Wildlife Refuge, National Marine Fisheries Service, Central Valley Regional Water Quality Board, Yuba City, California Urban Water Agency, Contra Costa Water District, Sacramento Municipal Utility District (SMUD), California Public Utilities Commission (CPUC), California Independent System Operator, Pacific Gas and Electric (PG&E), City of Roseville, City of Lodi, Electricity Oversight Board, Northern California Power Agency, California Unions for Reliable Energy, the U.S. Environmental Protection Agency, California Air Resources Board, Feather River Air Quality Management District, the Native American Heritage Commission, the State Historic Preservation Office and the residents of the community.

2. Procedural History.

The enabling statute (Pub. Resources Code, §§ 25500 et seq.) and its implementing regulations (20 Cal. Code of Regs., §§ 1701, et seq.) direct the Commission to conduct a public process in determining whether to license a thermal power plant. The major procedural events occurring in the present case are summarized below.

On April 25, 1997, Calpine filed a "Request for Jurisdictional Determination" asking the Commission to decide whether the Sutter Power Project should be exempt from the Notice of Intention (NOI) requirements of Public Resources Code section 25502. Following due consideration of the matter, the Commission determined, on June 25, 1997, that the Sutter project is the result of a negotiation within the meaning of Public Resources Code section 25540.6(a)(1) and is therefore exempt from NOI requirements under Public Resources Code section 25502.

Calpine filed its Application for Certification (AFC) at the Commission on December 15, 1997. The AFC was accepted as complete for filing on January 21, 1999, at which time the review process began. On March 3, 1998, the Committee conducted an informational hearing in Yuba City and a public visit to the project site. The following months involved the discovery phase of the proceeding, with the Commission staff and

other parties submitting data requests to the Applicant and receiving replies. During this time the Committee monitored these activities through monthly status reports.

Beginning early in the process various entities petitioned to intervene in the proceeding. These included California Unions for Reliable Energy (CURE) on January 27, 1998; High Desert Power Project, LLC on March 18, 1998; Sacramento Municipal Utility District (SMUD) on March 26, 1998; and finally, Yuba-Sutter Farm Bureau on November 13, 1998. CURE and Yuba-Sutter Farm Bureau were active participants in the case.

Staff released its Preliminary Staff Assessment in conjunction with Western on July 1, 1998, and conducted a series of public workshops to receive comments and public input on the document and other aspects of the case. In fact, at least nine different staff-sponsored workshops were held in Yuba City to ensure that members of the public were informed and were able to participate in the Commission's process. In addition, the Committee held a status conference on July 13, 1998, and a prehearing conference on September 19, 1998, both in Yuba City.

On October 8, 1998, Calpine filed a major mitigation package which replaced its cooling towers with dry cooling technology. This reduced groundwater use by 95 percent and resulted in a project with zero effluent discharge from the site. The package also proposed plant emissions reduction to 2.5 parts per million for nitrogen oxide (NOx). Staff and Western released their joint Final Staff Assessment / Draft Environmental Impact Statement (FSA / DEIS) on October 19, 1998, and evidentiary hearings began on November 2, 1998.[14]

To specifically identify their many areas of agreement, Staff and Applicant stipulated in writing on October 26, 1998, that they concurred on Conditions of Certification in most subject areas. The only disputed areas between Staff and Applicant were the significance of project-related visual impacts, the relative environmental merits of the

[14] The Committee conducted four days of evidentiary hearings in Yuba City on November, 2, 10, 16 and December 1, 1998. Most hearings included extensive evening sessions to accommodate local farmers who were still involved with harvest activities.

"no project" alternative, and certain air quality matters.[15] The air quality issues were resolved by the date of the hearing on that subject. While the Committee taking evidence is not bound by the parties' agreements, such stipulations are helpful in allowing the Committee to focus its attention on issues and conduct the evidentiary hearings in the most efficient manner. No other parties to the proceeding entered into stipulations.

Closing briefs were submitted by the parties on or before December 11, 1998.
On January 20, 1999, the Committee issued the Presiding Member's Proposed Decision which contained the Committee's recommendation on whether the AFC for the project should be approved and including the findings and conclusions required by law. During the required 30-day comment period on the document, the Committee held a conference in Yuba City on February 11, 1999, so that local residents could more conveniently comment on the document. At that time Applicant announced its intent to substitute certain new emission reduction credits (ERCs) for those previously proposed as mitigation for project air emissions. The Committee scheduled receipt of the new information for an evidentiary hearing on March 10, 1999.

On February 22, 1999, Intervenor Yuba-Sutter Farm Bureau filed a Motion to Reopen the Evidentiary Record, requesting that it be allowed to offer testimony of its witness on project-related impacts to local cropdusting. On February 22nd the Committee granted the motion and the Farm Bureau filed the testimony of Paul Wagner on March 1st. On March 3rd, Calpine filed its Motion to Strike the testimony. At the March 10th hearing, the Committee heard argument on the Motion to Strike, denied the motion, and heard the testimony of the Farm Bureau's witness as well as rebuttal testimony from the Applicant's witnesses. The testimony is discussed further in the section on Transmission Line Safety and Nuisance, under Aviation Safety. At the hearing of March 10, 1999, the Committee also received into evidence Applicant's package of substitute ERCs.

During the 30-day comment period on the Presiding Member's Proposed Decision, the Committee received and considered numerous written and oral comments on the

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[15] The Staff / Applicant stipulations also included "clean-up" issues comprised of minor matters which were unresolved at the time of the stipulation. These were all resolved prior to the close of the evidentiary hearings.

document from the parties in the case and from the general public.[16] Following the close of the comment period, the Committee prepared a Revised Presiding Member's Proposed Decision, which was issued on March 2, 1999.

The full Commission granted approval of the Revised Presiding Member's Proposed Decision, along with Committee amendments, at the Business Meeting of March 17, 1999.

That document was relied upon by the Sutter County Board of Supervisors who, on March 30, 1999, approved a General Plan amendment and rezoning for the project parcel. On April 14, 1999, the full Commission took official notice of Sutter County's amendment and rezoning, found that the project complied with all applicable laws, ordinances, regulations, and standards, and granted certification for the construction and operation of the Sutter Power Plant project.

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[16] Comments from the public were primarily in opposition to the project, particularly objecting to the effect they fear the transmission line will have on local farming. Those submitting written comments on the PMPD during the comment period included: Jerome Burk, Marilyn Jean Kenyon, Pat Luther, Darrell J. Dettling, Karen Dettling, and local cropdusters Charlie Onstott, Robert Stickel, and Stephen L. Armstrong.

III. DEMAND CONFORMANCE REQUIREMENTS

Before the Commission may license a power plant, Public Resources Code section 25524 (a) requires that the Commission determine that a facility is in conformity with the 12-year forecast of statewide and service area electric power demands adopted in the applicable Electricity Report. The criteria governing this determination are contained in the 1996 Electricity Report (***ER 96***), and are most succinctly described on page 72 of that document:

> "In sum, the *ER 96* need criterion is this: during the period when ***ER 96*** is applicable, proposed power plants shall be found in conformance with the Integrated Assessment of Need (IAN) as long as the total number of megawatts permitted does not exceed 6,737."

The Sutter project is the first under *ER 96*, to reach the Presiding Member's Proposed Decision milestone. The 500 megawatt (MW) capacity does not approach the 6,737 MW limit, and it therefore complies with the applicable demand conformance criteria. (11/16/98 RT 9-10.)

Commission staff witness Jim Hoffsis explained how the test for need conformance applied by the Energy Commission has evolved over the years in response to changes in the electric service industry:

> Because of the regulatory compact or the regulatory scheme [in place in the mid-1970s], it was highly likely that the cost of new power plants would be passed through to captive ratepayers, and [one should] recall also at the time that ratepayers, electric customers, had no choice of where to get electric power except their utility. In that sort of era, because the consequences, both economic and environmental, of building a new power plant were so potentially onerous, that the need for new power plants and their economic consequences were very rigorously scrutinized by government entities like the CEC. (11/16/98 RT 12:9-20.)

He contrasted that situation to the current one in which power plants are more quickly built, more efficient, and no longer built by monopoly regulated utilities:

> We now have a situation where [the] power plant developer is shouldering all of the financial risk. Ratepayers are not going to be harmed if the plant developer misjudged and suffers adverse financial consequences. (11/16/98 RT 13:2-6.)

He concluded by stating that "the ratepayer protection function of need determination is no longer required." (11/16/98 RT 13.) However, the need test must still be applied.

FINDINGS AND CONCLUSION

Based on the weight of the evidence of record, the Commission finds:

1. *ER 96* was adopted by the Commission on November 5, 1997. The Sutter Power Project was found data adequate on January 21, 1998. Therefore, *ER 96* is the *Electricity Report* adopted most recently prior to the project's acceptance and the need conformance criteria of *ER 96* apply to this project.

2. The Sutter Power Plant meets the demand conformance criteria contained in *ER 96*. The certification of the project would not cause the number of megawatts permitted in this case, and any others previously approved by the Commission under *ER 96*, to exceed 6,737.

The Commission therefore concludes that the Sutter Power Plant is in conformance with the Integrated Assessment of Need as contained in Public Resources Code section 25309(b).

IV. ENVIRONMENTAL ASSESSMENT

A. AIR QUALITY

The Commission must analyze the potential air quality impacts resulting from criteria air pollutant emissions created by the construction and operation of the proposed project. Criteria air pollutants are those for which a state or federal standard has been established. They include nitrogen dioxide (NO2), oxides of sulfur (SOx), carbon monoxide (CO), ozone (O3) and its precursors (NOx and VOC), volatile organic compounds (VOC), particulate matter less than 10 microns in diameter (PM10) and its precursors (NOx, VOC, SOx) and lead (Pb). The Committee received evidence on the potential air quality impacts associated with the SPP, on whether it could conform with all applicable air quality laws, ordinances, regulations and standards (LORS), and on the adequacy of proposed mitigation measures. Evidence was submitted by the Applicant, the Commission staff, and by the Feather River Air Quality Management District (FRAQMD).

Setting. Ambient air quality monitoring data collected in the Sutter area between 1993 and 1996 reveal that ozone and PM10 are the air pollutants of the greatest concern in the Sutter County area. The highest one hour ozone concentrations exceed the California Ambient Air Quality Standards (CAAQS) during all four years. The highest twenty four hour concentrations for PM10 also exceed the CAAQS during that period.[17]

The data collected in this proceeding show that the number of days in violation of the state 24-hour average concentration of PM10 standard varies from 1991 through 1996. There is no clear trend or indication that PM10 air quality is improving, though the data suggest that most of the violations occur during the Fall. The data collected in the Sutter County area are limited to the three air monitoring stations located in Yuba City, Sutter Buttes, and Pleasant Grove. Commission staff concluded that the state ozone standard is violated mostly during the summer months. (Ex. 2, p. 87.)

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[17] Highest 24-hour concentrations for PM10 measured at the Yuba City monitoring station were 82 ug/m3 in 1996, 128 ug/m^3 in 1995, 154 ug/m^3 in 1994, 74ug/m^3 in 1993. The CAAQS for California is 50 ug/m^3. (Ex. 2, p. 88.)

Staff witness Magdy Badr explained that Sutter County is divided into north and south air quality regions with a dividing line at Subaco Road, approximately 7.1 miles south of the SPP site. For air quality planning purposes and based on the populations in the area, the federal Environmental Protection Agency (EPA) established that the southern portion of Sutter County is part of the Sacramento Air Quality Maintenance Area (SAQMA). The attainment status of Sutter County for different air pollutants is presented in AIR QUALITY Table 1 below. (Ex. 2, p. 91.)

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AIR QUALITY Table 1

Attainment Status Of Sutter County

Pollutant	Federal Attainment Status	California Attainment Status
NOx	Attainment/Unclassified	Attainment/Unclassified
CO	Attainment/Unclassified	Attainment/Unclassified
SO2	Attainment/Unclassified	Attainment/Unclassified
Ozone-Northern Portion	No Status	Nonattainment
Ozone-Southern Portion	Serious Nonattainment	Serious Nonattainment
PM10	Attainment	Moderate Nonattainment
Lead	Attainment/Unclassified	Attainment/Unclassified

Source: Exhibit 4, p. 8.1-12.

Project Emissions. During the project construction period, air emissions will be generated from the exhaust of heavy construction equipment, such as water trucks, rollers, excavators, graders, tractors, air compressors, forklifts, dozers, and scrapers; fugitive dust will be generated from activities such as cleaning, grading, and preparation of the site as well as from the construction of the transmission lines and gas line. (12/1/98 RT 8.)

The construction of the proposed natural gas line, drip stations, natural gas dehydrators, switching station, on-site switchyard, and transmission lines will generate short-term air emissions in the form of fugitive dust and vehicle emissions. The pipeline route requires a total of 13 miles of trenching for a 16-inch diameter pipe. The pipeline route is shown in PROJECT DESCRIPTION: Figures 2 and 4. The trench is expected to be 2.5 to 3 feet wide and 6 to 7 feet deep. The natural gas line requires two new dehydrator units, one to be located at the Sacramento Drip Station in Sutter County, and the other at Poundstone Drip Station in Colusa County. Both drip stations will be permitted, owned and operated by PG&E.
The electrical transmission line will require the installation of approximately 32 poles. Each pole will be supported by a 3.5 feet in diameter and 12 feet deep hole for concrete

foundation. In addition, the switchyard site will be excavated to a depth of two feet to allow for the installation of the ground grid and conduits. (Ex. 2, p. 93.)

The project will also emit criteria pollutants during operation. Air emissions will be generated from the dehydrators and the major components of the SPP project. Air pollutants will also be generated from operating the major project components. The SPP will utilize two combustion turbines. Calpine examined more than one turbine type and chose the Westinghouse 501FC turbines for the SPP project. Each turbine will be equipped with a duct burner and a heat recovery steam generator (HRSG).

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AIR QUALITY Table 2

Maximum Hourly Emissions (lb/hour) Using Westinghouse Turbine

Pollutant	CTG(2)	Duct Burner(3)	Steam Injection	Hot Start-up	Cold Start-up (4)	Shutdown
NOx	16.8	1.4	0.9	170	175	12.1
CO	16.7	3.4	14.2	902	838	12.6
VOC	1.5	2.0	0.01	1.1	1.1	1.1
SO2	3.7	0.005	0.31	2.7	2.7	2.7
PM10	9.0	2.5	0.0	9.0	9.0	9.0

(1) No emissions associated with cooling towers.

(2) All air emissions are calculated based on CTG operation at 20F and 100 percent load rate.

(3) Duct burner emissions are calculated based on firing 170 MMBtu/Hr (HHV) of natural gas.

(4) Cold start-up emission levels represent one hour.

Source: Exhibit 43, p. 22.

AIR QUALITY Table 3 presents the maximum annual emissions, as estimated by Calpine using the above assumptions. The air emission levels assume maximum hourly operation of the project per year.

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AIR QUALITY Table 3

Annual Emissions Using Westinghouse Turbine (Tons/Year)

	CTG	D.B.	Steam Injct.	Hot Start-up	Cold Start-up(1)	Shutdown	Total Emission Per CTG	Calpine(2) Annual SPP Emissions
Hrs/Yr.	8,110	5,460	2,000	250	100	300		
NOx	65.9	3.7	0.9	21.2	8.7	1.8	102	205.86
CO	61.6	9.3	14.2	113	41.9	1.9	242	483.18
VOC	5.9	5.6	0.01	0.1	0.1	0.2	11.9	24.41
SO2	14.6	0.01	0.3	0.3	0.1	0.4	15.7	31.5
PM10	36.5	6.8	0.0	1.1	0.5	1.4	46.2	92.5

(1) Cold start-up emissions are based on 50 annual start-ups, each for 2 hours.

(2) Calpine (Calpine Corporation). 1998(j). Response to data requests 64 and 66 with additions to 63, 67 and 68. These emission levels include Dehydrators, valves and flanges emissions.

Source: California Energy Commission Staff assumptions and calculations of annual emissions.

Staff determined that, based on the modeling analysis of the operation of the combined cycle facility, the worst case emission scenario will result from operating the CTG during cold start-up for one hour and the duct burner at 100 percent load. The SCREEN model was used initially to evaluate the NO2, CO and SO2 emissions impacts. More refined modeling was needed to accurately evaluate the impacts. The ISC model was used for the refined analysis. (Ex. 2, p. 103.)

The air pollution impacts from the project added to the ambient background levels of pollutants were much lower than the most stringent standards for these pollutants, as shown in AIR QUALITY Table 4.

In evaluating PM10 impacts from the project, Calpine included the two CTGs, duct burners, and steam injection emissions. Since the project's PM10 impacts will likely contribute to existing violations of the state 24 hour standard, the ISC model was used

to refine the analysis and better evaluate the PM10 impacts. The project impacts were added to the ambient background and calculated as a percent of the National or California standards. As shown in AIR QUALITY Table 4 which follows, project emissions will violate both the 24 hour and annual PM10 standards. (*Id.*)

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AIR QUALITY Table 4
SPP Nonreactive Pollutant
Ambient Air Quality ISC Modeling Results

Pollutant	Averaging Period	Project Impact (_g/m3)	Background (_g/m3)	Total Impact (_g/m3)	Limiting Standard (_g/m3)	Type of Standard	Percent of Standard (%)
NO2(1)	1-hour	241.2	150.4	391.6	470	CAAQS	83
	Annual	0.26	31.96	32.2	100	NAAQS	32
PM10(1)	24-hours	0.55	154	154.55	50	CAAQS	309
	Annual	0.097	36.7	36.8	30	CAAQS	123
PM2.5(1)	24-hours	0.55	154	154.55	65	NAAQS	238
	Annual	0.097	36.7	36.8	15	NAAQS	245
CO(1)	1-hour	1243	11.4	1254	23,000	CAAQS	6
	8-hours	305.2	8.3	314	10,000	CAAQS	3
SO2	3-hours	1.3	26.1	27.4	1,300	NAAQS	2
	24-hours	0.6	7.83	7.89	365	NAAQS	8
	Annual	0.1	0.0 (3)	0.1	80	NAAQS	0.1

1. The project emissions include emissions during start-up.
2. Background data is based on Yuba City monitoring station.
3. No representative ambient data available within the region.

Source:

Calpine (Calpine Corporation). 1997. Pages 8.1-33-35, November 2,1998.

Mitigation. Commission staff witness Magdy Badr also evaluated the measures that Calpine is proposing to mitigate the project's air pollutant emissions impacts from the construction of the power plant, transmission line, and gas pipeline. Construction activities will occur over a two-year period. The fugitive dust emissions from the construction of the project, switchyard and transmission line will be controlled as described in the measures listed below:

1. Areas of excavated or disturbed soils where construction activities have ceased for more than 15 days will be covered, or treated with a dust suppressant compound (such as magnesium chloride).

2. The beds of trucks will be covered when hauling excavated soils which have the potential to generate fugitive dust.

3. The construction area and scheduled activities will be limited to minimize disturbance.

4. Before trucks leave the site, their tires will be rinsed so they will not track soil off-site.

5. A maximum speed limit of 15 miles per hour will be posted on site.

6. Construction activities that create significant amounts of fugitive dust will be discontinued when wind speeds are greater than 20 mph.

The emissions from the construction equipment will be minimized through the proper maintenance of the construction equipment to meet the applicable equipment emission standards.

The project will also generate air emissions during operation. These emissions include oxides of nitrogen (NOx), carbon dioxide (CO), particulates (known as PM10), volatile organic compounds (VOC), and oxides of sulphur (SOx). These are all criteria pollutants. (12/1/98 RT 9.) The project will provide emission reduction offsets or ERCs to mitigate these emissions. The rate of offset includes 165 percent of project NOx, 122 percent of emission offsets for VOC, and 120 percent of project emissions of PM10. Air

district rules require local offset ratios at 1.2 to 1. Mr. Badr explained that an additional reason for offsets greater than 100 percent is that not all emission offsets are coming from the local area. Therefore, to be able to use offsets from a different air district, the Applicant must provide ERCs at a greater ratio than for local offsets. (12/1/98 RT 9-10.)

The project's air pollutant emission impacts which occur during power plant operation will be mitigated through a combination of the use of natural gas as the sole fuel, the use of air pollution control equipment, and the provision of offsets. Calpine will use a CTG with dry-low NOx combustors, combined with an SCR system which uses ammonia injection to further reduce the NOx emissions. The Applicant also proposes to use a CO oxidation catalyst to reduce CO emissions to 4 ppm (15 percent O2). Air pollutant emission levels will be monitored through the use of a continuous emission monitoring system. (Ex. 43, pp. 17-18.)

NOx emissions from the facility will be controlled through the use of dry low NOx combustors in the CTGs and the use of SCR as a post-combustion emission control. The turbines will be equipped with a number of dry low-NOx combustors to ensure optimal uniform temperature distribution in the primary air zone. A reduction in NOx emissions is also achieved by raising the mean air/fuel ratio. The dry-low NOx burner produces emissions as low as 25 ppm when natural gas is burned before entering the SCR. (Ex. 43, p. 29.)

Calpine's proposed SCR system will control NOx emission levels to 2.5 ppm corrected @ 15 percent O2. SCR is a process that chemically reduces NOx with ammonia (NH3) over a catalyst in the presence of oxygen (O_2). The process is termed selective because the NH_3 reducing agent preferentially reacts with NOx rather than O2 to form N_2 in the presence of excess O_2 at temperatures in the range of 400 to 750 ^oF. If the temperature is lower than 400^oF, the ammonia reaction rate is low, and therefore, NH_3 emissions (called ammonia slip) will increase. (*Id.*).

Combustion turbines inherently generate low CO and reactive organic gases (ROG) emissions. High combustion temperatures, fuel/air mixing, and the excess air inherent in the CTG's combustion process favor complete combustion of fossil fuels. Calpine will install an oxidation catalyst downstream from the CTGs and the duct burners to reduce CO emissions. The oxidation catalyst is expected to reduce ROG emissions by five percent for this project. (Ex. 43, p. 30.)

Particulate emissions (PM_{10}) will be controlled by inlet air filtering for the combined cycle CTG and HRSG unit. In addition, Calpine proposes to use a dry cooling tower which has no PM10 emissions associated with its operation, and is the best control technology available. (*Id.*)

To fully mitigate the facility's potential emission increases, Calpine has entered option contracts for the emission reduction credits (ERCs) shown in Air Quality Table 5. The ERCs will be purchased from the bank of offsets maintained by the FRAQMD with the exception of offsets from Spreckles Sugar, banked with the Yolo-Solano Air Quality Management District (YSAQMD). Some of the offsets are replacement ERCs for those originally proposed. The possibility of such replacement was anticipated and provided for in the wording of Condition of Certification AQ-42. The replacement ERCs also render unnecessary offsets which Calpine had intended to acquire through the paving of roads. Thus road paving, of which some local residents disapproved, has been eliminated as a mitigation measure.

However, some of the replacement ERCs would not be available unless FRAQMD adopted a rule change, on March 15, 1999.[18] Since the rule change was adopted, Applicant will use the ERCs shown in Table 5. FRAQMD Officer Ken Corbin testified at the evidentiary hearing on March 10, 1999, that sufficient offsets are available in the district's offset bank for the Applicant to purchase alternative ERCs if needed.

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[18] The proposed rule change is identical to the wording of Sacramento Metropolitan Air Quality Management District Rule 202 and Yolo-Solano AQMD Rule 3.7, both of which have previously been approved by the California Air Resources Board and by the U.S. Environmental Protection Agency.

The Commission staff concluded that, assuming the implementation of the recommended Conditions of Certification, including the conditions contained in the FDOC, the SPP will meet all applicable air quality requirements and will not cause any significant air quality impacts. (12/1/98 RT 10.)

Ken Corbin, the Air Pollution Control Official for the Feather River Air Quality Management Distinct testified in support of the Final Determination of Compliance submitted by the air district and identified as exhibit 44. (12/1/98 RT 30.) He noted that the district had worked with the Energy Commission staff, the Air Resources Board and with the U.S. Environmental Protection Agency for several months in order to craft a determination of compliance which would meet all of the district's requirements. FRAQMD issued its Determination of Compliance on November 13, 1998, and received very few comments. Mr. Corbin agreed to the conditions proposed in the Commission staff testimony. (12/1/98 RT 16-17.) He testified that the Applicant had proposed a complete offset package and that the ERCs would all be available prior to any final Decision by the Commission. (12/1/98 RT 19.) Counsel for the Applicant asked Mr. Corbin to comment on the amount of emission offset credits that would be available to the county for future development after the SPP uses its required increment. In responding, Mr. Corbin reviewed the amount of ERC currently in the emissions offset credit bank, and adjusted for other known projects. He concluded, "...if those [ERCs] were all made available to another applicant, there would be sufficient credits for another project of this [SPP] size." (12/1/98 RT 21:4-8.)

Applicant's air quality witness, Jerry Salamy, testified that he had reviewed and heard the testimony of both the Staff and the air district and agreed with their conclusions. (12/1/98 RT 29.)

At the March 10, 1999 evidentiary hearing, FRAQMD Air Pollution Control Officer, Ken Corbin, testified that Calpine's package of replacement ERCs comprises a complete offset package which would be available as required by law. He further noted that even if the proposed air district rule change is not approved, sufficient ERCs exist in the district bank to fully offset the Sutter project.

<u>Public Comment</u>. Intervenor Brad Foster and local grower, Mike Shannon, expressed their concern that PM10 measurements were taken during a particularly dusty time of

year with high traffic flows on the measured roads due to rice harvest trucks. They fear that averaging such figures would give an artificially high baseline reading even if seasonally adjusted, and would result in the Applicant paving fewer miles of county roads as mitigation for PM10 impacts. (12/1/98 RT 14, 31.) Mr. Salamy responded that PM10 measurements were taken in the Fall simply because that was the time that the consultant was available to do so. He added that the equations used for PM10 mitigation calculations do not simply assume constant PM10 levels all year, but rather adjust for the rainy season when the amount of fine particulates is reduced. (12/1/98 RT 33.) Jim Akin expressed his concern about any additional pollution sources locating in Sutter County. (12/1/98 RT 34.) Cookie Amarel, who lives and farms near the project site, asked if operation of the SPP would result in a reduction in the amount of local rice burning allowed. Mr. Corbin responded that the SPP would have no effect on whether or not rice burning is allowed. (12/1/98 RT 45.)

Commission Discussion

The Applicant's ERC package as revised at the March 10, 1999 evidentiary hearing will meet applicable laws and fully mitigate the emissions from the Sutter project. In addition, the package eliminates the need for the paving of local roads and any concerns attending that mitigation measure.

After reviewing the testimony and the Final Determination of compliance filed by the Feather River Air Quality Management District, we determine the evidence to be undisputed that the SPP will meet all air quality requirements applicable to the project and will offset project emissions as required by district rules.

FINDINGS AND CONCLUSION

Based on the weight of the evidence of record, the Commission finds:

1. The SPP is located in the Feather River Air Quality Management District (FRAQMD).

2. The FRAQMD is in attainment for NOx. CO, SO2, lead, and federal attainment for PM10.

3. The FRAQMD is a non-attainment area for ozone, and PM10 (California attainment status

4. Operation of the SPP project will result in air emissions oxides of nitrogen (NOx), carbon dioxide (CO), volatile organic compounds (VOC), sulfur dioxide (SO2), and fine particulate matter (PM10).

5. The emissions from the SPP will, unless offset, contribute to existing violations of applicable ambient air quality standards in Sutter County for ozone and PM10.

6. The Air Pollution Control Officer for the Feather River Air Quality Management District has certified that complete emission offsets for criteria pollutants emitted by the SPP have been identified and will be obtained by the Applicant prior to the Commission's licensing of the project.

7. The SPP will obtain emission reduction credits from the FRAQMD and from the Yolo-Solano Air Quality Management District (YSAQMD).

8. The Air Pollution Control Officer for the Feather River Air Quality Management District has determined that with the exception of sulfur oxides, the SPP's use of offset credits comprises a small percentage of the total emission inventory in the Feather River Air Quality Management District.

9. The Air Pollution control Officer for the Feather River Air Quality Management District has determined that, based on the available emission reduction credits (ERC) presently in the district's ERC bank, the balance remaining after subtracting those used for the SPP would reflect sufficient credits to offset another project the size of the SPP.

10. The project Applicant has submitted letters of intent, option contracts, memorandum of understanding and emission reductions credit certificates to the FRAQMD for the required emission reduction credits to satisfy the FRAQMD air quality requirements.

11. The Conditions of Certification, below, include all conditions placed upon the project by the Feather River Air Quality Management District in its November 13, 1998, Final Determination of Compliance.

12. With the Conditions of Certification specified below, the SPP project will be constructed and operated in compliance with all applicable laws, ordinances, regulations and standards identified in the pertinent portion of APPENDIX A of this Decision.

We therefore conclude that the SPP project will comply with all federal, state and local air quality requirements and will not impose a significant adverse impact on air quality.

CONDITIONS OF CERTIFICATION

AQ-1 As part of the requirements for Condition SOIL&WATER-3 for the preparation of a grading and erosion control plan for the project site, the project owner shall include and identify in that plan the following:

- the location of all paved roads, parking and laydown areas;
- the location of all roads, parking areas and laydown areas that are surfaced with gravel;
- the location of all roads, parking areas and laydown areas that are treated with magnesium chloride dust suppressant or equivalent; and
- the location of all dirt storage piles

Verification: At least 30 calendar days prior to the start of grading on the project site, the project owner shall submit for review and approval to the Commission Compliance Project Manager (CPM) in writing, and with construction drawings, a City/County of Sutter-approved erosion and sediment control plan. This plan shall include the delineation of the control measures discussed above for all roads, parking areas and laydown areas, and the location of all dirt storage piles.

AQ-2 The project owner shall perform the following mitigation measures during the construction phase of the project:

a. The areas of disturbance within the construction site shall be watered so that they are visibly wet, twice or more daily, as necessary. This condition shall not apply on rainy days when precipitation exceeds 0.1 inch.

b. Any graded areas where construction ceases shall be treated with a magnesium chloride (or equivalent) dust suppressant within fifteen days, or sooner if windy conditions create visible dust beyond the project site boundary.

c. Magnesium chloride (or equivalent) dust suppressant or fabric covers shall be applied to any dirt storage pile within three days after the pile is formed, or sooner if windy conditions create visible dust beyond the project site boundary.

d. Prior to entering public roadways, all truck tires shall be visually inspected and, if found to be dirty, cleaned of dirt using water spraying or methods of equivalent effectiveness, subject to CPM approval.

e. At least 500 yards from construction site entrances, public roadways shall be cleaned on a weekly basis, or when there are visible dirt tracks on the public roadways, by either mechanical sweeping or water flushing.

f. A speed limit sign shall be posted at the entrance of the construction site, to limit vehicle speed to no more than 15 miles per hour on unpaved areas.

g. All construction equipment shall be properly maintained to detect and prevent mechanical problems that may cause excess emissions.

h. No construction equipment shall be kept idling when not in use for more than 30 minutes.

Verification: The project owner shall maintain a daily log of water truck activities, including the number of gallons of water used to reduce the dust at the construction sites. A log or record of the frequency of public road cleaning shall also be maintained. These logs and records shall be available for inspection by the CPM during the

construction period. The project owner shall identify, in the monthly construction reports, the area(s) that the project owner shall cover or treat with dust suppressants. The project owner shall make the construction site available to the District staff and the CPM for inspection and monitoring.

AQ-3 Prior to the start of construction (defined as any construction-related vegetation clearance, ground disturbance and preparation, and site excavation and soil remediation activities), the project owner shall provide the CPM with the following information: the name, telephone number, resume, and indication of availability of the on-site Environmental Coordinator.

Protocol: The resume shall include appropriate education and / or experience in environmental management or coordination such as monitoring hazardous waste site remediation, experience as an inspector with an air pollution control district, or experience as an environmental health and safety project manager.

The CPM will review the qualifications of, and must approve in writing, the project owner's designated Environmental Coordinator prior to the start of construction.

Verification: At least 30 days prior to the start of construction, the project owner shall submit to the CPM for review and written approval the information required above.

AQ-4 The on-site Environmental Coordinator shall be on-site every work day during site preparation.

Duties: The on-site Environmental Coordinator shall inspect and ensure that all fugitive dust mitigation measures during the site preparation phase of construction are properly implemented including, but not limited to, the mitigation measures specified in Condition AQ-2. The primary responsibility of the Environmental Coordinator is to insure that no fugitive dust emissions are being emitted beyond the property line under control by the project owner.

Verification: See verification for Condition AQ-5.

AQ-5 The on-site Environmental Coordinator will exercise the authority to halt any on-site activity, temporarily stop activities, or direct activities to proceed under a modification of the mitigation requirements of Condition AQ-2, if, in the opinion of the Environmental Coordinator, the project owner is not complying with the requirements of Condition AQ-2 or fugitive dust emissions are noticed beyond the project boundary.

Verification: The Environmental Coordinator will prepare a daily report of construction activities and appropriate fugitive dust mitigation measures employed by the project owner. A summary of the daily reports shall be included in the monthly compliance report to the CPM. If any complaints by the public are received, or if the project owner does not agree to comply with instructions given by the Environmental Coordinator, or if any other fugitive dust issue, in the judgment of the Environmental Coordinator, needs to be brought to the attention of the CPM, the Environmental Coordinator shall contact the CPM immediately.

AQ-6 For all utility trenching activities, the project owner shall implement the following control measures if necessary to prevent fugitive dust emissions:

a. To top layer of soil shall be pre-wetted prior to excavation;
b. Travel surfaces shall be wetted with the use of a water truck; and
c. All exposed soil areas shall be wetted by the use of hose spraying.

Verification: District staff and the CPM may inspect utility trenching sites at any time to monitor compliance for this Condition.

AQ-7 The facility shall not discharge from any source whatsoever such quantities of air contaminants or other materials that cause a public nuisance. (District General ATC Permit Condition a).

Verification: As part of the semiannual Air Quality Reports (as required by AQ-43), the project owner shall include the date and time when any accidental release of air contaminants or other materials occur. The Air Quality Report shall also include the reason for the accidental release and measures taken to correct it.

AQ-8 The facility shall not emit particulate emissions from any single source which exceed an opacity equal to or greater than twenty percent (20%) for a period aggregating more than three (3) minutes in any one (1) hour, excluding uncombined water vapor. (District General ATC Permit Condition b).

Verification: As part of the semiannual Air Quality Reports (as required by AQ-43), the project owner shall include an explanation and the date, time, and duration of any violation of this Condition.

AQ-9 The facility shall not discharge into the atmosphere from any source particulate matter in excess of 0.3 grains per cubic foot of gas at standard conditions. When the source involves a combustion process, the concentration must be calculated to 12 per cent carbon dioxide (CO 2). (District General ATC Permit Condition c).

Verification: As part of the annual Air Quality Reports, the project owner shall submit to the District and CPM the annual source test and specify the level of particulate matter in grains per cubic foot of gas at standard conditions.

AQ-10 The facility shall not discharge in any one hour from any source whatsoever fumes in total quantities in excess of the amounts as prescribed for and shown in District's Rule 3.3 Table of Allowable Rate of Emission Based on Process Weight Rate. (District General ATC Permit Condition d).

Verification: As part of the semiannual Air Quality Reports (as required by AQ-43), the project owner shall indicate the date, time, and duration of any violation of this Condition.

AQ-11 The facility shall not discharge into the atmosphere, from any single source of emission whatsoever, any sulfur oxides in excess of 0.2 percent by volume (2,000 ppm) collectively calculated as sulfur dioxide (SO_2). (District General ATC Permit Condition e).

Verification: As part of the annual Air Quality Reports, the project owner shall submit to the District and CPM the annual source test and specify the level of sulfur oxides in percent by volume of gas at standard conditions.

AQ-12 Project owner shall not build, erect, install, or use any article, machine, equipment or other contrivance to conceal an emission which would otherwise constitute a violation of the Health and Safety Code of the State of California or of these Rules and Regulations. (FRAQMD General ATC Permit Condition f).

Verification: Refer to AQ-34 through AQ-36. The project owner shall obtain approval from the District and the CPM prior to installing any new equipment that results in releasing air contaminants.

AQ-13 Project owner shall take every reasonable precaution not to cause or allow the emissions of fugitive dust from being airborne beyond the property line from which the emission originates, from any construction, handling or storage activity, or any wrecking, excavation, grading, clearing of land or solid waste disposal operation. Reasonable precautions shall include, but are not limited to: use, where possible, of water or chemicals for control of dust in the demolition of existing buildings or structures, construction operations, construction of roadways, or the clearing of land; application of asphalt, oil, water, or suitable chemical on dirt roads, material stockpiles, and other surfaces which can give rise to airborne dusts; other means approved by the Air Pollution Control Officer. (FRAQMD General ATC Permit Condition g).

Verification: Refer to conditions AQ-1 through AQ-6.

AQ-14 In the case of shut-down or re-start of air pollution equipment for necessary scheduled maintenance, the intent to shut down such equipment shall be reported to the Air Pollution Control Officer at least twenty-four (24) hours prior to the planned shutdown. Such prior notice may include, but is not limited to, the following:

a. Identification of the specific equipment to be taken out of service as well as its location and permit number;

b. The expected length of time that the air pollution control equipment will be out of service;

c. The nature and quantity of emissions of air contaminants likely to occur during the shut-down period;

d. Measures such as the use of off-shift labor and equipment that will be taken to

e. The reasons that it would be impossible or impractical to shut down the source operation during the maintenance period. (FRAQMD General ATC Permit Condition h).

Verification: As part of the semiannual Air Quality Report (as required by AQ-43), the project owner shall include the dates of the equipment maintenance schedule including when each piece of equipment will be shut-down and when it will start-up.

AQ-15 In the event that any emission source, air pollution control equipment, or related facility breaks down in such a manner which may cause the emission of air contaminants in violation of any permit condition or applicable rules or regulations, other than as exempted herein, the licensee shall immediately notify the Air Pollution Control Officer of such failure or breakdown and subsequently provide a written statement giving all pertinent facts, including the estimated duration of the breakdown. The Air Pollution Control Officer shall be notified when the condition causing the failure or breakdown has been corrected and the equipment is again in operation. (FRAQMD General ATC Permit Condition i).

Verification: As part of the semiannual Air Quality Report (as required by AQ-43), the project owner shall include the date and duration of all equipment breakdowns, the cause of the breakdown, how it was corrected, and the measures that will be used to prevent the problem from occurring again.

AQ-16 Project owner shall submit an application for a Federal Operating Permit Title-V within 12 months after operational startup. (FRAQMD General ATC Permit Condition j).

Verification: The project owner shall submit to the CPM a copy of the report at the time of filing with the District.

AQ-17 Project owner shall prepare and submit to the District a Toxic Hot Spots emission inventory by the first month of August following the first full calendar year of facility operational history. (FRAQMD General ATC Permit Condition k).

Verification: As part of the semiannual Air Quality Report (as required by AQ-43), the project owner shall submit to the District and the CPM an inventory of all Toxic Hot Spots emissions.

AQ-18 A PSD permit must be obtained from the USEPA before commencement of facility operations. (FRAQMD General ATC Permit Condition l).

Verification: At least 90 days prior to commencement of facility operations, the project owner shall submit to the CPM a copy of the PSD permit from the US EPA.

AQ-19 The equipment is subject to the federal NSPS codified at 40 CFR Part 60, Subparts A (General Provisions), Db (Standards of Performance for Industrial-Commercial-Institutional Steam Generating Systems), and GG (Standards of Performance for Stationary Gas Turbines), Compliance with all applicable provisions of these regulations is required. (FRAQMD General ATC Permit Condition m).

Verification: As part of the first semi-annual Air Quality Report, the project owner shall submit to the District and CPM a copy of a statement of compliance with the above federal applicable provisions and regulations.

AQ-20 Project owner shall meet the provisions of the Federal Acid Rain Program Title-IV by filing an Acid Rain permit 24 months before operational startup and by certifying CEMS for NOx and O_2 within 90 days after operational startup. (FRAQMD General ATC Permit Condition n).

Verification: The project owner shall provide the District and the CPM with a copy of the Acid Rain permit within 90 days after the permit is approved. Refer to AQ-33 for verification.

AQ-21 Project owner shall file an RMP with the Sutter County office in charge of the prevention of accidental releases prior to operational startup. (FRAQM General ATC Permit Condition o).

Verification: Refer to Hazardous Materials condition and verification HazMat-2.

AQ-22 The Authority To Construct (ATC) is not transferable from one location to another, or from one person to another without the written approval of the APCO. (FRAQMD General ATC Permit Condition p).

Verification: At least sixty days in advance, the project owner shall notify, in writing, the District and the CPM of any intended transfer of ownership or location and obtain written approval prior to any transfer.

AQ-23 District personnel shall be allowed access to the plant site and pertinent records at all reasonable times for the purposes of inspections, surveys, collecting samples, obtaining data, reviewing and copying air contaminant emission records and otherwise conducting all necessary functions related to this permit. (FRAQMD General ATC Permit Condition q).

Verification: During site inspection, the project owner/operator shall make the plant logs available to the District, California Air Resources Board (CARB), and Commission staff.

AQ-24 Project owner shall maintain a copy of all District permits at the facility. (FRAQMD General ATC Permit Condition r).

Verification: During site inspection, the project owner/operator shall make all plant permits available to the District, California Air Resources Board (CARB), and Commission staff.

AQ-25 Combustion turbine exhaust stacks shall exhaust at a height of 145 feet and the maximum diameter shall not exceed 18 feet. (FRAQMD General ATC Permit Condition s).

Verification: The project owner/operator shall make the site available for inspection to the District, California Air Resources Board (CARB), and Commission staff.

AQ-26 Project owner shall submit to the District and the Energy Commission ERC option contracts or final signed contracts for the project's ERC liability, except for PM10, as listed in condition AQ-42 prior to the Energy Commission's Final Decision on the project. (FRAQMD General ATC Permit Condition t).

Verification: At least 10 days prior to the Commission adoption of the final decision on the project, the Project owner shall have provided copies of all option contracts or signed contracts required by this Condition.

AQ-27 Calpine has produced evidence indicating that it has an enforceable right to ERCs located in another District. These ERCs cannot be used until the District Board adopts an approving resolution and enters into an MOU with the other District. The District intends to act on the resolution and MOU as soon as practicable after CEC completes an environmental analysis document and the criteria in Section 15253, Subdivision (b) of the CEQA Guidelines are met. (FRAQMD General ATC Permit Condition v.)

Verification: At least 30 days prior to the start of construction, Project owner shall provide a copy of the signed MOU to the CPM.

AQ-28 Project owner may substitute interpollutant offsets of VOCs (ROCs) for NOx at a 2.0 to 1.0 interpollutant offset ratio pursuant to Rule 10.1, Section E.2, d. (FRAQMD General ATC Permit Condition w).

Verification: The project owner shall submit to the District and the CPM a copy of the offsets calculations that satisfy AQ-42 if it chooses to use the interpollutant substitution offset ratio specified in this Condition.

AQ-29 The facility shall exclusively use California PUC pipeline quality natural gas as fuel. The fuel gas total sulfur and heat content will be determined and reported to the District by collecting and analyzing a sample on a monthly basis or by providing monthly certification of the natural gas total sulfur and/or heat

content issued by the natural gas distributor. (FRAQMD General ATC Permit Condition x).

Verification: As part of the semi-annual Air Quality Report (as required by AQ-43), the project owner shall submit to the District and CPM a copy of the natural gas analysis or certification issued by the natural gas distributor to satisfy this Condition.

AQ-30 All basic and control equipment is to be operated and maintained in accordance with vendors' recommended practices and procedures. (FRAQMD General ATC Permit Condition y).

Verification: Refer to AQ-14 verification.

AQ-31 The maximum heat input allowed to each permitted internal and external combustion emissions unit, expressed in MMBtu units on a High Heating Value basis (HHV), shall not exceed the limits indicated in the table below: (FRAQMD specific ATC Permit Condition a).

Emission Unit	**MMBtu/hour**	**MMBtu/day (1)**	**MMBtu/year (2)**
CTG-1	1,900	45,600	16,644,000
CTG-2	1,900	45,600	16,644,000
Duct Burners-1	170	4,080	928,200
Duct Burners-2	170	4,080	928,200

(1) Based on 24 hour-day

(2) Based on 365 days/year

Verification: As part of the semi-annual Air Quality Reports (as required by AQ-43), the project owner shall document the date and time when the hourly fuel consumption exceeds the hourly limits included in this Condition. The reports shall include a summary of hourly and daily fuel consumption in MMBtu [high heating value (HHV)] for all the cases indicated in the table above. The January Air Quality Report shall also

include information on the amount of fuel consumed, in MMBtu (HHV), in the prior calendar year.

AQ-32 The following definitions and limitations shall apply: (FRAQMD specific ATC Permit Condition b).

(1) Startups are defined as the time period commencing with the introduction of fuel flow to the gas turbine and ending when the NOx concentrations do not exceed 2.5 ppmvd at 15% O2 averaged over 1-hour.

(2) Cold Startups are those that occur after the CTG has not been in operation for more than 72 hours.

(3) For each CTG, the Cold Startup shall not exceed 180 consecutive minutes.

(4) Hot Startups are startups that are not Cold Startups.

(5) The maximum allowable NOx emissions for Hot and Cold Startups from each CTG shall not exceed 519 lb / day.

(6) For each CTG, the Hot Startup shall not exceed 60 consecutive minutes.

(7) Shutdowns are defined as the time period commencing with a 15 minute period during which the 15 minute average NOx concentrations exceed 2.5 ppmvd at 15% O_2 and ending when the fuel flow to the gas turbine is discontinued.

(8) For each CTG, the Shutdown shall not exceed 60 consecutive minutes.

(9) The maximum duration of Cold Startups per CTG shall be 150 hours per year and 39 hours per calendar quarter.

(10) The maximum duration of Hot Startups per CTG shall be 250 hours per year, and 63 hours per calendar quarter.

(11) The maximum duration of Shutdowns per CTG shall be 300 hours per year, and 76 hours per calendar quarter.
(12) Compliance with the above yearly limits shall be calculated based on a rolling 12 month average.

(13) All emissions during startups and shutdowns shall be included in all calculations of daily and annual mass emissions required by this permit.

(14) For each CTG the maximum number of Duct Burner hours of operation shall not exceed 5,460 per calendar year.

(15) For each CTG the maximum number of Power Augmentation Steam Injection hours shall not exceed 2,000 per calendar year.

(16) For each CTG the maximum hourly emission rates (lbs / hr) (for a cold startup not to exceed 120 minutes of uncontrolled emissions) are given in the table below averaged over any rolling three hour period, except for the NOx emission rate, which will be averaged over one hour period:

Pollutant	**CTG**	**CTG + Duct Burner**	**CTG + Duct Burner + Steam Injection**	**CTG + Steam Injection**	**Hot Start-up**	**Cold Start-up**	**Shut-down**
NOx	16.8	18.2	19.1	17.7	170	175	12.1
CO	16.7	20.1	34.3	30.9	902	838	12.6
VOC	1.5	3.5	3.51	1.51	1.1	1.1	1.1
SO2	3.7	3.71	4.02	4.01	2.7	2.7	2.7
PM10	9.0	11.5	11.5	9.0	9.0	9.0	9.0

(17) For maximum project daily emissions (lbs / day) are given in the table below:

	Total Emission Per CTG	Calpine Maximum SPP Daily Emissions
NOx	909	1817
CO	3264	6528
VOC	79	158
SO2	90	179
PM10	271	541

(18) The maximum quarterly emissions for the facility are given in the table below:

	January-March lb/quarter	April-June lb/quarter	July-Sept. lb/quarter	October-December lb/quarter
NOx	102,500	102,500	102,500	102,500
CO	241,600	241,600	241,600	241,600
VOC	11,850	11,850	11,850	11,850
SO2	15,750	15,750	15,750	15,750
PM10	46,200	46,200	46,200	46,200

(19) The maximum annual calendar year emissions (tons/year) for the facility are given in the table below:

	Total Emission Per CTG	Calpine Annual SPP Emission
NOx	102	205.86
CO	242	483.18
VOC	11.9	24.41
SO2	15.7	31.5
PM10	46.2	92.5

Verification: As part of the semi-annual Air Quality Report (as required by AQ-43), the project owner shall provide all data required in this Condition. In the semi-annual Air Quality Reports (as required by AQ-43), the project owner shall indicate the date, time, and duration of any violation to the NO x, and VOC limits presented in this Condition. The project owner shall include in the semi-annual Air Quality Reports (as required by AQ-43) daily and annual emissions as required in this Condition.

AQ-33 BACT Emission Limits:

The BACT emission limits (including duct burner emissions) specified in Conditions (a), (b), (c), (d), and (e) apply under all operating load rates except during CTG startups and shutdowns, as defined in Condition AQ-33. (FRAQMD specific ATC Permit Condition c).

(a) NOx emission concentrations shall be limited to 2.5 ppmvd @ 15% O2 on a 1 hour rolling average (based on readings taken at 15 minute intervals) and with a maximum of 10 ppmvd ammonia slip.

(b) CO emission concentrations shall be limited to 4.0 ppmvd @ 15% O2, on a calendar day average.

(c) VOC emission concentrations shall be limited to 1 ppmvd @ 15% O2, on a calendar day average.

(d) PM10 emissions shall be limited to 11.5 pounds per hour, on a calendar day average.

(e) SO2 emission concentrations shall be limited to 1 ppmvd @ 15% O2, on a calendar day average.

Verification: At least sixty (60) days before conducting a source test, the project owner shall submit to the District and the CPM for their review, a detailed performance annual source test procedure designed to satisfy the requirements of this Condition. The project owner shall incorporate the District's and Commission's comments on or modifications to the procedure if any are received. The project owner shall also notify the District and the CPM within seven (7) working days before the project begins initial operation and / or plans to conduct source tests as required by this Condition. All source test results shall be submitted to the CPM and District within 30 days of the date of the tests.

AQ-34 Each CTG set exhaust vent stack shall be equipped with NOx and % oxygen (O2) CEMs in order to analyze and record exhaust gas flow rate and concentrations. CO, PM10, SO2, and VOC emissions shall be monitored by the

CEMs, using source test derived algorithms as indicated in AQ-36 below. In the event that test results show that CO emission limits are exceeded, the APCO may require CEMs for recording concentrations of CO.

(a) The NOx CEMs shall have the capability of recording NOx concentrations during all operating conditions, including startups and shutdowns.

(b) Relative accuracy testing shall be performed on the CEMs on a semi-annual basis or as required by the Acid Rain permit provisions in Title 40, CFR, Part 75, Appendix B. (FRAQMD specific ATC Permit Condition d).

Verification: At least one hundred and twenty (120) days before initial operation, the project owner shall submit to the District and the CPM a continuous emissions monitoring procedure. Within sixty (60) days of receipt of the procedure, the District and the CPM will advise the project owner of the acceptability of the procedure. Based on the results of the source test identified in AQ-36, the District and CPM may require CEMs for recording concentrations of CO.

AQ-35 Within ninety days after the start of commercial operation of the SPP, source testing shall be performed to determine the mass emission rates and concentrations of NOx, CO, VOC, and SO2 emissions at four different steady-state CTG load rates over the expected operating range of either combustion turbine, as required by 40 CFR 60.335.c (2). The source testing will be used to determine compliance with the permitted emission limits indicated in Specific ATC Permit Conditions AQ-33 and AQ-34. Source testing shall be conducted to determine PM10 mass emissions and concentrations while the CTG is operating at 100 percent load with and without the duct burners, firing at the maximum rated capacity or 170 MMBtu/hr (HHV), whichever is greater.

(a) The source testing results shall be used to develop predictive emission algorithms to estimate mass emission rates for CO, VOC, and SO2, and PM10 emissions.

(b) Source testing to determine the mass emission rates and concentrations of NOx shall be conducted annually after the initial source test indicated in a) above.

(c) Source testing to determine the mass emission rates and concentrations of CO, VOC, SO2 and PM10 shall be conducted annually. The Air Pollution Control Officer may waive annual source testing requirements if prior test results indicate an adequate compliance margin has been maintained. (FRAQMD specific ATC Permit Condition e).

Verification: At least sixty (60) days before the start of commercial operation of the project, the project owner shall submit to the District and the CPM for review a detailed performance test procedure necessary to comply with this Condition. The project owner shall incorporate the District and CPM's comments on or modifications to the procedure. At least sixty (60) days prior to any subsequent annual compliance source tests, the project owner shall submit to the District and the CPM for review any proposed changes to the original source test procedure. The project owner shall incorporate the District's and CPM's comments on or modifications to the annual source test procedure.

The project owner shall also notify the District and the CPM within seven (7) working days before the project begins initial operation and/or plans to conduct source testing as required by this Condition. Source test results shall be submitted to the District and the CPM within 30 days of the date of the tests.

AQ-36 Source tests to determine ammonia slip shall be conducted within ninety days after commercial operation of the SPP and thereafter as required by the APCO. (FRAQMD specific ATC Permit Condition f).

Verification: Please refer to AQ-36 verification.

AQ-37 The maximum allowable ammonia injection rate to each of the SCR systems shall be 25 pounds per hour under normal operating condition. This injection rate may be adjusted based on source tests results. (FRAQMD specific ATC Permit Condition g).

Verification: Please refer to AQ-34 verification.

AQ-38 Within ninety days after beginning commercial operation of the SPP, cold startup, hot startup, and shutdown source tests shall be conducted to determine the emissions of CO and NOx. The APCO may approve the use of the NOx CEMS readings in lieu of source testing if annual Relative Accuracy Testing Audits (RATA) testing is provided. (FRAQMD specific ATC Permit Condition h).

Verification: Within ninety days after the start of commercial operation of the project, the project owner shall submit to the District and the CPM for review a detailed performance source test procedure designed to satisfy the requirements of this Condition. The project owner shall incorporate the District's and Commission's comments on or modifications to the procedure. The project owner shall also notify the District and the CPM within seven (7) working days before the project begins commercial operation and/or plans to conduct source test as required by this Condition. Source test results shall be submitted to the District within 30 days of the date of the tests.

AQ-39 Records and logs of all data generated by CEMS and algorithms shall be maintained for a period of five (5) years. (FRAQMD specific ATC Permit Condition i).

Verification: During site inspection, the project owner shall make all data generated by the CEMS and algorithm, and included in the plant logs for a period of five years, available to the District, California Air Resources Board (CARB), and the Commission staff.

AQ-40 The project owner shall provide calendar quarterly reports to the District in a format determined in consultation with the District. The calendar quarterly reports shall include the following: CEMS and predictive algorithm emissions data; CTG and duct burner fuel use and operating hours; power augmentation steam injection rates and hours of operation; ammonia injection rates; emission control systems and CEMS hours of operation including the time, date, duration, and reason for any malfunctions of these systems; the number of hot startups, cold startups, and shutdowns; and the electrical and steam production rates. These data shall be averaged on a daily basis, except where required to

demonstrate compliance with an emission limitation. (FRAQMD specific ATC Permit Condition j).

Verification: Within 30 days of the end of the calendar quarter, the project owner shall provide to the District and CPM the data required in this Condition.

AQ-41 Prior to the start of construction, the SPP facility must provide ERC certificates for NOx, ROC, and PM10, as indicated in the table below. The ERC sources are Atlantic Oil Company, Ranch A, Ranch B, Ranch C, Ranch D, Ranch E, Spreckles Sugar Company, Tri Union, and Rosboro Lumber. Alternative sources of offsets may be used if they meet the criteria applied to these sources and are approved by the District and CPM. (FRAQMD specific ATC Permit Condition k).

Verification: At least 30 days prior to the start of construction, the project owner must submit a copy of the required ERC certificates to the CPM and the District.

AQ-42 The project owner must file a semi-annual air quality report with the CPM documenting the information required by these conditions and verifications.

Verification: The semi-annual Air Quality report (as required by AQ-43) must be submitted to the CPM within 30 days of the end of the 6 month reporting period.

	January-March (pounds)	**April-June (pounds)**	**July-September (pounds)**	**October-December (pounds)**	**Total ERCs& Offsets**	
					Total Pounds	**Total Tons**
Required NOx	106,950	106,950	106,950	106,950	427,800	213.9
Required VOC	69,300	69,300	69,300	69,300	277,200	138.6
Required PM10	66,000	66,000	66,000	66,000	264,000	132.0
These ERCs have not been discounted to reflect the appropriate offset distance ratio calculations.						

B. PUBLIC HEALTH

The evidentiary analysis of this topic is to determine if emissions from the SPP will have the potential to cause significant adverse public health impacts or to violate standards for public health protection. The analysis supplements work performed under the "Air Quality" topic above. Emissions of concern from a public health perspective include potentially toxic substances to which the public could routinely be exposed during project construction and operation. Following the release of toxic contaminants into the air, public exposure may occur through inhalation, skin contact, or ingestion via contaminated food or water. The Commission examines contaminants under two categories, criteria and non-criteria pollutants.

Criteria pollutants are those for which ambient air quality standards have been set either by the U. S. Environmental Protection Agency (U. S. EPA) or the California Air Resources Board (CARB). The standards specify maximum concentrations of specific pollutants which are allowed in the outdoor (ambient) air.

The Applicant's analysis for the SPP provided an examination of offsets. Calpine asserted that the combination of using best available control technology (BACT) and providing emission offsets will result in no net increase in criteria pollutants and therefore no requirement for mitigation measures in addition to those already being carried out to address air quality requirements. (Ex. 4, p. 8.6-11.) Commission staff witness Mike Ringer testified that based on his work with Commission air quality experts, no standards will be violated by the construction or operation of the SPP and adequate offsets are available for the criteria pollutants which the plant will emit. (12/1/98 RT 48.)

Non-criteria pollutants have no associated ambient air quality standards to identify pollution levels considered safe for everyone. Lacking such standards, a process known as health risk assessment is used to ensure that exposure to these pollutants will not result in an unacceptable public health risk. The risk assessment procedure involves a number of steps to identify which substances are hazardous, which are likely to be emitted from the proposed plant, and an estimate of the ambient concentrations of these substances to determine the public's exposure level. These levels are then compared to health-based standards.

Calpine calculated maximum emission rates for each polluting substance designated by Staff,[19] using the highest expected hourly and annual heat input for the power plant. (Ex. 4, p. 8.1-26, Appendix 8.1E.) Calpine then conducted an initial screening analysis using the USEPA SCREEN3 model to determine worst-case ambient emissions concentrations (Ex. 4, Appendix 8.1J, p. 10.) The model incorporates a full range of meteorological conditions including atmospheric stability classes and wind speeds to calculate maximum pollutant concentrations. In addition, Calpine ran the model using nine scenarios with various power plant operating load rates and various ambient temperatures in order to obtain worst-case impacts. (Ex. 4, Appendix 8.1I.)

Commission staff agrees with the methods and results of Calpine's calculations of ambient concentrations of toxic substances. Based on this work, Mr. Ringer concluded that SPP emission will add up to approximately one or two percent of the applicable health-based criteria that is used to determine significance. (Ex. 2, p. 122.)

The results of the analysis are summarized in the table below:

PUBLIC HEALTH
Facility Hazard/Risk

Type of Hazard/Risk	Hazard Index/Risk	Significance (Safe) Level
Acute Non-cancer	0.01	1.0
Chronic Non-cancer	0.02	1.0
Individual Cancer	0.02×10^{-6}	1.0×10^{-6}

Mr. Ringer concluded that concerning non-criteria pollutants, the SPP would not have any significant public health impacts. (12/1/98 RT 49.)

The Applicant and staff also examined cumulative impacts on public health. To determine the cumulative impact of criteria pollutants the Feather River Air Quality Management District (FRAQMD) conducted a comprehensive review of all known

[19] The list of substances is found in Public Health Table 1 (Ex. 2, p. 121). These are: ammonia, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, chrysene, dibenz(a,h)anthracene, indeno(1,2,3cd)-pyrene, napthalene, 1,3-butadiene, acetaldehyde, acrolein, benzene, formaldehyde, propylene oxide, toluene, xylene.

future projects within a six mile area of the SPP and found that there are none which meet the criteria for modeling.

For non-criteria pollutants, the Staff testimony observed that elevated concentrations of toxic air contaminants from stationary sources tend to be quite localized. Significant cumulative risks are likely to occur only when multiple facilities with substantial low-level toxic emissions are immediately adjacent to, or very close to, one another. (Ex. 2, p. 124.) Neither Greenleaf 1, immediately adjacent to the SPP site, or the nearest additional facilities, Greenleaf 2, Sunsweet, and Yuba City Cogeneration, located approximately seven miles to the northeast, meet Feather River AQMD criteria for significant risk. Since the upper-bound estimates for non-criteria emissions from the SPP project are substantially lower than the significance levels for both acute and chronic health effects, and because nearby facilities do not pose significant public health risks, the Staff testimony concluded that cumulative health hazards from project-related non-criteria emissions are not matters of concern. (Ex. 2, p. 124.)

The Staff testimony analyzed cancer risks based on assumed maximum impacts to a critical receptor, though actual risks are likely to be lower. Because the estimated risk proved to be below the de minimis risk level, Staff concluded that carcinogenic emissions will not meaningfully change the existing overall level of lifetime cancer risk. (Ex. 2, p. 124.)

In response to a question on cross-examination, Mr. Ringer explained that Commission staff based its cancer risk analysis on the results of air quality modeling which determined the point of absolute worst-case impact at all times. Since even this artificially severe analysis revealed no significant impacts to public health, all other locations, by definition, have lower impacts. (12/1/98 RT 50.)

FINDINGS AND CONCLUSION

Based on the weight of the evidence of record, the Commission finds:

1. The primary potential public health hazard associated with the SPP project is due to exposure to combustion products from burning natural gas.

2. Combustion of natural gas results in emissions of criteria and non-criteria pollutants.

3. As discussed in the Air Quality section of the Proposed Decision, emissions of criteria pollutants will be at levels consistent with those allowed under applicable law.

4. Acute and non-carcinogenic health risks from project operations will be below levels determined to be acceptable.

5. The cancer risk associated with the project is approximately two percent of the one-in-one-million significance threshold commonly accepted for risk analysis purposes.

6. The project will not alone or in combination with other projects, result in increased risks to public health.

7. With the implementation of the Condition of Certification listed below, the project will be constructed and operated in conformance with all applicable laws, ordinances, regulations and standards identified in the pertinent portion of APPENDIX A of this Decision.

We therefore conclude that the SPP will comply with applicable law and not have a significant adverse impact upon public health.

CONDITION OF CERTIFICATION

PUBLIC HEALTH-1 Unless a screening health risk assessment performed by the project owner pursuant to CAPCOA Guidelines shows that health risks to the public are not significant, the project owner will require its contractor(s) to construct natural gas dehydrators using a design which vent emissions from glycol regeneration tanks through packed-chilled condensers to minimize hazardous air emissions.

Verification: Prior to construction of the dehydrators, the project owner will provide the CPM with copies of the Authority to Construct for the dehydrators from the Colusa County Air Pollution Control District and the Feather River Air Quality Management District.

C. LAND USE

In general, an electric generation project and its related facilities can be incompatible with existing or planned land uses when it creates unmitigated noise, odor, dust, public health hazard or nuisance, traffic, or visual impacts, or when it significantly restricts existing or future uses.

The Committee's analysis of land use impacts for the Sutter Power Project focused on two main issues: 1) the conformity of the project with local land use plans, ordinances and policies; and, 2) the potential of the proposed project to have direct, indirect, and cumulative land use conflicts with existing and planned uses. Initially, the site did not conform with local land use plans. Therefore, the Applicant made a proposal to Sutter County for a zoning change from AG (agricultural) to M-2 PD (General Industrial Combining Planned Development District) and a general plan amendment from Agriculture 80-acre minimum to Industrial. (11/10/98 p.m. RT 25.) The measure was passed by the Sutter County Board of Supervisors on March 30, 1999.

Summary of Testimony

Thomas Priestley sponsored the Applicant's testimony including a description of the project site, located at the southwest corner of South Township and Best Roads on a 77-acre parcel (APN 21-230-25), about seven miles southwest of Yuba City. The nearest residence to the site is located approximately 2,000 feet away. Other nearby residences are further to the north and south along South Township Road, Best Road and Pierce Road. There are a total of 84 residences within two miles of the SPP site. The parcel for the proposed site now contains Greenleaf 1, a 49.5 MW Calpine cogeneration plant, ancillary storage and office buildings, wetlands, grasslands, borrow pits, abandoned mosquito abatement trenches, and a six-foot wide canal on the south side of the

property. This property was used to farm rice until 1984 when the Greenleaf facility was constructed and has not been farmed since.[20] (Ex. 4, pp. 8.4-1 through 8.4-5.)

The witness described the SPP site as including substantial[21] setbacks from adjacent agricultural lands and a landscape plan including twenty-foot-wide berms planted with a variety of plants, shrubs, and trees as a visual screen.

Agriculture is the predominant land use in the SPP area. The SPP parcel is surrounded by other large agricultural parcels consisting of orchards, rice, and field crops. The Sutter Bypass of the Feather River, which includes the Sutter National Wildlife Refuge, is located about one mile west of the parcel. (Ex. 4, pp. 8.4-1 through 8.4-5.)

Natural gas for the SPP will be delivered through a 13.4 mile pipeline which will have only temporary land use impacts during construction. Where the pipeline ties into the main gas line in Colusa County, the existing drip station would have to be replaced with a dehydrator station on about 5,000 square feet of pasture land.[22]

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[20] Calpine Environmental Manager, Charlene Wardlow, noted that wetlands on the site constitute biological habitat. Thus, even without the proposed SPP, the land could not be returned to agriculture without mitigating for the existing wildlife habitat on site. (11/10/98 p.m. RT 43).

[21] These are 300 to 400 foot setbacks from the area the plant would occupy. (11/10/98 p.m. RT 25).

[22] Colusa County would require a use permit for the dehydrator and that portion of the pipeline within its jurisdiction, as well as a grading permit for projects of five acres or more. These requirements are superseded by the Commission license.

[insert] This label is already there, label: Land Use Figure 1
Current Land Uses within One Mile of Project Site and Linear Features

[insert] PLANNED SITE ARRANGEMENT AND LANDSCAPE PLAN Label: Land use: Figure 2

Sutter Power Plant Site Plan/Landscape Plan

The proposed electric transmission line will run east from the SPP to South Township Road, then continue south along the west side of the road for about 1.8 miles to O'Banion Road. The line will then continue west along the south side of O'Banion to a 220-foot by 380-foot switchyard near the Western Area Power Administration's 230 kV transmission lines. (Ex. 4, p. 8.4.5; 11/10/98 p.m. RT 20.) Mr. Priestley described the proposed tubular steel transmission towers, located 750 to 800 feet apart. Where required to mitigate visual impacts, however, the towers can be placed up to 1200 feet apart. (11/10/98 p.m. RT 28.)

The Calpine witness referred to the body of research literature regarding the land use impacts of transmission lines on agriculture,[23] specifically citing the Colusa County Transmission Line Element. He stated that there are three potential impacts of transmission lines on agriculture: 1) impacts from actual tower placement; 2) effects of the transmission line on equipment and irrigation practices; and 3) effects on aerial applications.

He noted that tower footings will have no impact on agriculture because their placement is proposed for a right-of-way which is not cultivated for agriculture. (11/10/98 p.m. RT 48.) Similarly, the line will not impact the use of agricultural equipment, since the towers are not in agricultural fields. The witness added that even if they were located close to fields, modern steel tubular towers have a much lower impact on agricultural practices than do traditional lattice-type transmission towers.[24] (11/10/98 p.m. RT 29.)

Mr. Priestley acknowledged community concerns relating to effects on aerial application. He noted that the SPP design conforms with developed principles to reduce significant negative effects on crop dusting. The transmission lines will be

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[23] Additional sources were reviewed in Mr. Priestley's *Supplemental Analysis of Transmission Line and Switching Station Effects on Agriculture and Land Use*, identified as Exhibit 45 and entered into evidence at the December 1, 1998, evidentiary hearing. The results of that testimony are discussed in the Socioeconomics section of this Decision, *supra*.

[24] While Condition of Certification LAND-5 is designed to accommodate safety concerns of the Sutter Extension Water District, Commission staff noted that the water district is opposed to routing the transmission line within its right-of-way. (11/10/98 p.m. RT 35.)

located at the edge of the fields at right angles, with no diagonal crossing of fields. The lines will avoid creating barriers by undergrounding the 12 kV line on O'Banion and placing the new transmission line high enough for crop dusters to fly underneath the conductors. In addition, Calpine will relocate effected landing strips. (11/10/98 p.m. RT 31.)

Finally, he described two alternative plans for the required switching station at the west end of O'Banion Road. According to the witness, the technically preferred site is the location of the duck club on O'Banion Road. He pointed out, however, that it is also feasible to site the switch station to the east side of the existing PG&E 500 kV line. This would spare the duck club and retain the existing agricultural equipment storage area, thus leaving a buffer between the switching station and the duck club. In his view, the parcel is large enough to accommodate existing uses as well as the proposed switching station. (11/10/98 p.m. RT 34.)

The Committee asked Mr. Priestley if the addition of the SPP to an agricultural area would be likely to create a "key way" for additional industry to come into the vicinity. The Calpine witness testified it would not, since the SPP lacks certain linkages which would draw further industry to the spot. (11/10/98 p.m. RT 47.) This was expanded upon by Calpine Project Director, Curt Hildebrand, who noted that the project does not include an opportunity to utilize exhaust heat. Such a design feature might have provided an opportunity for an expansion of industrial thermal uses, but none exists. Furthermore, the project will generate power at 230 kV, a voltage level that is not feasible for industrial customers to use. Finally, he pointed out that there is insufficient transmission line capacity for any electricity generation, in addition to that of the SPP, to locate at the site. (11/10/98 p.m. RT 75.)

The Sutter County Community Services Department also concluded that the SPP was not likely to be a catalyst for future development in the area. In its November 12, 1998, report to the Sutter County Planning Commission,[25] it cited two supporting reasons. First, the department stated that it believed the parcel in question was converted from

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[25] The report of the Sutter County Community Services Department on Calpine's proposal to amend the General Plan and rezone its parcel, dated November 12, 1998, was identified as Exhibit 39 and admitted into evidence at the November 16, 1998, evidentiary hearing. (11/16/98 RT 18.)

agriculture to industrial use in 1984.[26] Thus, the county staff believes that if approved, the SPP would represent an expansion of an existing industrial use. The proposed change in the general plan and zoning would therefore be consistent with the current usage of the parcel. The second reason is that department staff is recommending that Calpine grant to Sutter County an open area easement on all portions of the site not proposed for development. This would prevent Calpine and future owners from developing any more of the project site. (Ex. 39, p.8.)

Commission staff witness Amanda Stennick presented her testimony, pointing out that the largest area of concern regarding the proposed project involves the rezone and general plan amendment. She stated her opinion that the project represents an industrial use in an agricultural area and the issue must be resolved by the local jurisdiction. In other words, the project cannot proceed without Sutter County granting a General Plan Amendment and zoning change. (11/10/98 p.m. RT 13, 16.) She reviewed the history of the 1993 Sutter County General Plan update which resulted in the current, 1996 General Plan, and pointed out the criteria adopted by the Sutter County Supervisors which specify how the county should consider a conversion of land zoned agricultural to urban and industrial uses.[27] Staff for the Sutter County Community Services Department believe these criteria are not applicable to the SPP because the parcel now contains a power plant and has not been used for agriculture since 1984.[28] (Ex. 2, p. 215, App. B, letter from George Carpenter to Paul Richins re: "Criteria for Agricultural Land Conversion", dated August 7, 1998.)

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[26] This occurred when the Sutter County Planning Commission approved Use Permit No. 1201 for the Greenleaf 1 facility. The parcel has been out of agricultural use since 1986. (Ex. 39, p. 8.)

[27] Resolution of Supervisors Adopting Development Criteria for Agricultural Land Conversion, Resolution 98-58, passed June 23, 1998.

[28] Ms. Stennick disagreed with the Department staff interpretation since environmental documentation for the Greenleaf 1 project stated that the portions of the parcel related to the Greenleaf plant were expected to remain in agricultural use. (Ex. 2, p. 188.) Furthermore, no condition in the use permit issued for the Greenleaf 1 project prohibited farm operations on the parcel. Therefore, she did not believe that the 77 acre parcel was converted from agricultural use at the time of its Greenleaf 1 permit. (11/10/98 p.m. RT 12, 14.) Sutter County representative George Carpenter objected to the Commission witness' late-filed amended position disagreeing with the county staff interpretation of the county's resolution. In his view this was a violation of CEC regulations title 20, sections 1742(c) and 1744(b). (11/10/98 p.m. RT 84.) The Sutter County Community Services Department comments and its report to the Planning

The Commission staff witness also clarified that the Commission staff now favored only the South Township-O'Banion Road transmission line route and no longer recommended either the alternative which proceeded directly south on South Township to the Sutter Bypass, or the Staff-proposed west route which exited the site in a westerly route to the existing PG&E 500 kV lines, then south to a switchyard near O'Banion Road. (11/10/98 p.m. RT 13, 15.)

Ms. Stennick noted the various mitigation measures on the preferred transmission line route which will reduce impacts: the shorter transmission line route; the greater the setback between the transmission lines and poles and the cultivated fields; the relocation of the existing crop duster runways to one centralized location, and a design to ensure that the lowest point of the line is at a minimum of 42 feet from the ground.[29] She therefore concluded that the South Township Road to O'Banion Road transmission line route will lessen impacts to current agricultural operations and is a better option for minimizing potential land use impacts than other proposed routes. (Ex.2, p. 207.)

The Commission staff analysis concludes that the SPP will cause conversion of agricultural land to non-agricultural uses. To mitigate such impacts, the Sutter County comprehensive General Plan revision includes policies and implementation measures to address agricultural land conversion and siting of industrial/commercial uses.

In addition, local approvals and discretionary actions would be required absent the Commission's jurisdiction. They are summarized as follows:

- Colusa County would require a use permit for the dehydrator and that portion of the pipeline within its jurisdiction, and a grading permit for projects of five acres or more.
- Sutter County would require a use permit for the proposed utility transmission lines and switchyard.

Commission contain additional disagreements with the CEC staff's approach. (11/10/98 p.m. RT 84-85; Ex. 39, pp. 5, 8.)

[29] Minimum ground clearance of 42 feet to the conductor cable was agreed to by Calpine to accommodate maintenance equipment owned by the Sutter Extension Water District.

Public Comment

After the Committee concluded taking evidence on land use issues, numerous members of the public offered comments in opposition to the project. Leonard Henson, Rosie Foster, and Bob Amarel, Jr. all expressed their concern that construction and operation of the SPP would serve as a "key way" to further industrialization of their agriculture community. Mr. Amarel also expressed his disapproval of the project location and questioned whether the proposed transmission easements along South Township Road were actually available for use. (11/10/98 p.m. RT 61, 74.)

Local resident Brad Foster stated his concerns for the safety of crop dusters operating around the proposed transmission line. He also expressed doubt that a thorough examination of alternative sites for the project had been conducted and recommended building the SPP elsewhere. (11/10/98 p.m. RT 80-83.) David Massey, who lives near the intersection of south Township and O'Banion Road, said that the transmission line would interfere with his view of the Sutter Buttes and harm his property values. (11/10/98 p.m. RT 64.) Mary Henson works with the local schools and commented that the increased tax revenues from the SPP would result in no increased money for schools due to the state revenue distribution method. (11/10/98 p.m. RT 53.) Ray Stevensen reported that a crew working near the Greenleaf 1 natural gas pipeline nearly caused an explosion because the line was not marked. He stressed the need for Calpine to join the underground survey which locates gas pipelines and other underground utilities prior to construction activities. (11/10/98 p.m. RT 66.)

Commission Discussion

As previously noted, the Commission's assessment of land use impacts for the Sutter Power Project (SPP) must focus on two main issues: 1) the conformity of the project with local land use plans, ordinances and policies;[30] and 2) the potential of the proposed project to have direct, indirect, and cumulative land use conflicts with existing and planned uses.

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[30] Appendix G of the CEQA Guidelines states: "A project will normally have a significant effect on the environment if it will: (a) Conflict with adopted environmental plans and goals of the community where it is located;".

As to the first inquiry, the evidentiary record is undisputed that the proposed project does not conform with applicable Sutter County land use plans and therefore requires a General Plan amendment and rezoning in order to proceed. Calpine applied to Sutter County for these changes at the time that it filed its AFC with the Energy Commission. On November 12, 1998, the staff of the Sutter County Community Services Department issued its report to the county Planning Commission recommending that Calpine's application for a General Plan Amendment and rezone be approved with various conditions.

On December 2, 1998, after a two night hearing on the matter, the Sutter County Planning Commission voted 4-3 to recommend denial of Calpine's application on the grounds that the project is inconsistent with the General Plan.[31] According to press accounts, the majority of Planning Commissioners expressed reluctance to change the General Plan so soon after the county had gone through a major plan revision two years ago. The three Planning Commissioners who voted in support of the Calpine change were quoted as finding the project appropriate largely because the Greenleaf 1 cogeneration power plant already is situated on the parcel. They were reported as also favoring the economic benefits the project would bring to Sutter County.[32]
On December 9, 1998, Calpine filed an appeal of the Planning Commission's negative recommendation to the Sutter County Board of Supervisors. In the letter of appeal SPP Project Director Curt Hildebrand cited two primary reasons. First he noted that the county is able to amend its General Plan up to four times a year and has done so twice to date in 1998; second, he notes that the General Plan amendment and rezone would simply conform the property's land-use designation to the existing use of the property, since the Greenleaf 1 power plant, located on the site has been in commercial operation for nine years.

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[31] Report to Board of Supervisors on Actions of Planning Commission, issued December 3, 1998 by Planning Division Chief, Thomas A. Last. Also, see letter of Thomas A. Last, Sutter County Planning Division Chief to Curt Hildebrande, Calpine Project Director, dated December 3, 1998, received in CEC Docket Unit, December 8, 1998.
[32] *Calpine Suffers a Setback*, Todd R. Hansen Appeal-Democrat, December 3, 1998, p. 1. While contained in the file or administrative record of this proceeding, this account is not part of the evidentiary record and no Commission findings have been based on the article.

The Sutter County Board of Supervisors intended to rely upon the Revised Presiding Member's Proposed Decision of the Energy Commission as the county's environmental documentation for the project. Accordingly, they did not take up the Calpine appeal until after the Energy Commission made its final decision on its document. On March 30, 1999, the Sutter County Board of Supervisors relied upon the Commission's Revised Presiding Member's Proposed Decision and approved a General Plan amendment and rezoning for the project.

In this Decision, the Commission has addressed the likely direct, indirect, and cumulative impacts on land use which could occur if the project is constructed and operated. As discussed in preceding portions of this Decision, the evidence of record demonstrates that the SPP will not have significant direct impacts on local land uses. The 77 acre parcel for the proposed project is not now in agricultural use and has not been since 1984.[33] While the switching station proposed on the south side of O'Banion Road may displace some agriculture, the record demonstrates that no more than two acres would be lost. The project transmission line is unlikely to directly impact agriculture. Even if preferred easements along existing rights-of-way are not available, the worst case direct impacts to local farming are still insignificant. Direct impacts to affected crop duster landing strips will be fully mitigated by relocating the strips.

Indirect impacts include the affects of the transmission line on agricultural operations, including crop dusting and ground equipment use. The evidence demonstrates that by undergrounding the existing 12 kV line on O'Banion Road, by using steel tubular rather than lattice-style towers, and by locating the transmission line along existing roads and out of the fields, the line's indirect impacts will be mitigated to an insignificant level.

Comments made by U.S. Fish and Wildlife Service staff who manage the Sutter National Wildlife Refuge raise concerns about the transmission line's impacts on the wildlife refuge and local bird populations. However, the Commission staff witness on biological resources testified that the project is not inconsistent with the primary use of the refuge. Furthermore, both the Commission biologist and the California Department of Fish and Game have evaluated the potential impacts of the project on wildlife and in particular impacts to special status species. Both have found that the project's

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[33] Ex. 39, Sutter County Staff Report. However, the Commission staff witness asserted in the Final Staff Assessment that agricultural use of the property ended two years later, in 1986. (Ex. 2, p. 195).

mitigation measures will reduce impacts to insignificant levels. (Ex. 50.) In addition, on April 2, 1999, the U.S. Fish and Wildlife Service issued its Formal Section 7 Biological Opinion, which found that the project as proposed, would not likely jeopardize sensitive species or critical habitat. Therefore, we have found that the project will not have a significant adverse effect on local wildlife habitat land uses such as the Sutter National Wildlife Refuge. (See, Biological Resources Finding No. 5, *supra*).

The SPP is not likely to impose significant cumulative effects. As indicated above, individual impacts to agriculture will be mitigated to insignificant levels. The cumulative effect of adding these resultant impacts to the land use impacts of the Greenleaf 1 plant do not create a significant cumulative impact. Furthermore, it appears to the Commission that local concerns about the SPP being a "key way" for further industrial development in the area are misplaced. As demonstrated by various witnesses, the proposed project lacks the kinds of linkages to other industrial and commercial uses that would make the area attractive to those uses.

FINDINGS AND CONCLUSION

Based on the weight of the evidence of record, the Commission finds:

1. The proposed facility will not be inconsistent with the policies of any local, regional or state parks, or wildlife refuges.

2. The U.S. Fish and Wildlife Service which operates the federal Sutter National Wildlife Refuge (SNWR) issued a "no jeopardy" biological opinion on project impacts on April 2, 1999, and granted its written permission for construction of the SPP natural gas pipeline and related facilities in and near the SNWR.

3. Energy Commission biology staff has testified that the project will not have a significant adverse impact on local wildlife habitat land uses such as the Sutter National Wildlife Refuge.

4. The SPP will not have a significant adverse direct, indirect, or cumulative impact on local agricultural land uses.

5. The project will be located on a 77 acre parcel which presently contains the Greenleaf 1 cogeneration power plant, an existing agriculture-related industrial use.

6. The project will minimize its impact on the local farming community through berming and vegetative screening, reduced night lighting, traffic control, and transmission line placement.

7. The project has, to the extent feasible, mitigated impacts to the neighboring area.

8. Construction and operation of the project will not result in significant adverse direct, indirect, or cumulative land use impacts.

9. Prior to March 30, 1999, The proposed project did not conform to the Sutter County General Plan and local zoning. The Applicant applied for an amendment to the General Plan and a rezoning.

10. On December 2, 1998, the Sutter County Planning Commission voted 4 to 3 to recommend that the Sutter County Board of Supervisors not approve the Applicant's application for a General Plan amendment and rezone to accommodate the SPP.

11. On December 9, 1998, Calpine filed an appeal of the Planning Commission recommendation to the Sutter County Board of Supervisors.

12. On March 30, 1999, the Sutter County Board of Supervisors adopted Resolution No. 99-23, amending the Sutter County General Plan and rezoning the project site parcel.

13. The project can be constructed and operated in accordance with all applicable laws, ordinances, regulations and standards identified in the pertinent portion of APPENDIX A of this Decision.

We therefore, conclude that the SPP complies with local land use designations and if constructed and operated under the Conditions of Certification contained in this Decision, the project will not impose significant adverse impacts upon local land.

CONDITIONS OF CERTIFICATION

LAND USE-1 Calpine's Planned Development (PD) site plan shall include agricultural buffers that comply with the Sutter County buffer design and maintenance guidelines to minimize conflicts between the industrial nature of the site and adjacent agricultural uses. Calpine's PD site plan shall be submitted to the satisfaction of the Sutter County Board of Supervisors.

Verification: At least 30 days prior to the start of construction, the project owner shall submit to the Energy Commission Compliance Project Manager (CPM) a copy of the adopted PD site plan.

LAND USE-2 Development and use of the property shall be limited as set forth in the Planned Development Plan adopted by the Sutter County Board of Supervisors. Additionally, that portion of the site which is part of the Sutter Power Project (SPP) and its ancillary facilities shall be used in conformance with the certification issued by the Energy Commission. Only that portion of the site which is part of the SPP and its ancillary facilities shall be under the authority and jurisdiction of the Energy Commission. Sutter County will maintain authority and jurisdiction on the remainder of the site. Any development, land improvement, building construction or use of the land (including that pertaining solely to existing Greenleaf 1) which is not in conformity with the adopted Planned Development Plan shall be subject to subsequent approval of a planned development amendment and environmental review by Sutter County. Any development, land improvement, building construction or use of the land which is not in conformity with the adopted Planned Development Plan and which relates to the SPP

or its ancillary facilities, shall be reported to the CPM to determine whether a certification amendment is necessary.

Verification: At least 30 days prior to the start of construction, the project owner shall submit to the CPM a copy of the adopted PD site plan.

LAND USE-3 Calpine shall ensure compliance with all applicable criteria of Colusa County's use permit for the dehydrator and that portion of the pipeline within Colusa County. In addition, Calpine shall ensure compliance with all applicable criteria of Colusa County's grading permit criteria (Colusa County Code Chapter 9, Ordinance No. 414 - Land Grading and Leveling). Calpine shall provide a letter from the Colusa County Planning Director stating that all applicable criteria have been satisfactorily met.

Verification: At least 30 days prior to the start of construction of the natural gas pipeline, the project owner shall submit to the CPM a copy of the letter from Colusa County stating that all applicable criteria have been met to the satisfaction of the Colusa County Planning Director.

LAND USE-4 Calpine shall pave a new runway to allow for year round use by members of the local agricultural industry. The location of the new runway shall be to the satisfaction of the Sutter County Board of Supervisors.

Verification: At least 30 days prior to the start of construction of the runway, the project owner shall submit to the CPM a copy of a letter from the Sutter County Board of Supervisors stating that the location of the new runway, timing of construction, and method of paving have been agreed upon to the satisfaction of the Sutter County Board of Supervisors.

LAND USE-5 Where indicated by safety concerns, the transmission line shall have a minimum clearance of 42 feet from the ground to the conductor at maximum sag and the transmission line shall be designed to satisfy the safety concerns of Sutter Extension Water District and Sutter County (on behalf of aerial applicator safety,

and public safety), including any applicable provisions of Article 86, State of California High Voltage Electric Safety Order, section 2946.

At least 30 days prior to the start of construction the project owner shall submit to the Compliance Project Manager a copy of a letter from the Sutter County Board of Supervisors stating that the Board of Supervisors has conferred with Calpine and the Sutter Extension Water District to agree on any measures necessary to ensure compliance of the transmission line with the applicable provision of Article 86, State of California High Voltage Electrical Safety Orders, Section 2946.

LAND USE-6Calpine, or any successive landowner, shall grant to Sutter County the development rights and an open area easement on the portion of the subject property that is not identified for development on the proposed development plan reviewed by the Board of Supervisors. The grant shall preclude Calpine and future owners of the land from expanding the facility beyond the 16± acre area of the footprint and its related facilities (e.g. drainage facilities, evaporation ponds) approved as part of this request, unless the agreement is rescinded by a resolution adopted by the Board of Supervisors. The grant and easement shall run with the land and be recorded to give future property owners notice of its existence.

Verification: Prior to any site preparation work and prior to the issuance of a building permit for any construction on the project site, the project owner shall execute a conveyance of development rights and perpetual open area easement to the county of Sutter. A copy of the recorded agreement shall be provided to the CPM at least 30 days prior to the initiation of any earth moving activities.

LAND USE-7The project owner shall place underground the existing 12 kV PG&E line which runs parallel to O'Banion Road from the South Township Road to the east levee of the Sutter By-pass. Encroachment permits shall be obtained from the Sutter County Public Works Department for any construction work done in the County right-of-way.

Verification: Prior to placing underground the 12 kV PG&E line, the project owner shall provide to the CPM a copy of the Encroachment permit issued by the County Public Works Department. Prior to construction of the 230 kV line from the plant site to the switching station, the project owner shall submit to the CPM verification in the form of a letter that the 12 kV PG&E line has been placed underground.

D. SOCIOECONOMICS

The socioeconomics analysis evaluates the effects of project-related population changes on local schools, medical and protective services, public utilities and other public services, as well as on the fiscal and physical capability of local governmental agencies to meet the needs of project-related changes in population.

Applicant

The Applicant's witness, Charlene Wardlow, testified that Calpine believes the project's economic benefits to Sutter County are greater than any potential or perceived negative impacts from the project. (11/10/98 RT 117:166-20.) She stated that the project is a merchant power plant and represents a private investment of approximately $300 million without economic risk to California ratepayers or local residents. Construction activities will include the local purchase of approximately $5 million in construction materials and will generate approximately $6 to $10 million in sales taxes. (11/10/98 RT 118.) The construction workforce will peak at 256 employees and total personnel requirements over the construction period will be approximately 1,989 personnel-months. (Ex. 4, p. 8.8-8.)

Once completed, between $2 and $4 million of the plant's operating budget will be spent locally. An additional 20 employees will be hired to run the plant with salaries averaging $50,000 for a payroll of $1 million.[34] The annual maintenance budget expended locally is estimated to be $1.2 to $3 million. The witness noted that approximately $27,000 will go to the local schools as developer impact fees and a benefit

[34] This is in addition to the existing $1,000,000 payroll which Calpine now generates at its Greenleaf 1 and 2 projects.

plan will provide advance tax payments to assist Sutter County in upgrading its fire protection services. (11/10/98 RT 119.)

While the valuation of a power generating facility is highly complex, Calpine states that the basic county-wide tax rate of 1.0 percent will be applied to the estimated valuation in order to determine the property taxes for the SPP. If the facility is assessed at $300 million, then the total property tax obligation would be $3 million, annually. The four miles of transmission line will also be taxed at the 1.0 percent rate. (Ex. 4, p. 8.8-8;11/10/98 RT 120.)

Commission Staff

Commission staff witness Amanda Stennick sponsored her analysis of project impacts in the area of socioeconomics. She analyzed the project's potential to cause impacts in the areas of schools, medical services, fire and police protection, housing, and the availability of local labor. Her research led her to conclude that an adequate local workforce is available to meet project employment needs. To ensure the use of local labor, Staff proposed and Calpine agreed to a Condition of Certification which makes recruiting of employees from Sutter County a priority. (11/10/98 RT 123; Ex. 2, 420.)

The Staff analysis shows that the use of a primarily local labor force reduces or eliminates many socioeconomic impacts to community services and institutions. For example, increased school enrollments due to the project are not anticipated (Ex. 2, p. 412), nor is the project expected to have significant negative impacts on medical services, police protection, or housing. (Ex. 2, p. 411.) The SPP, however, is expected to put additional burdens on local fire protection services. To address this matter, Condition of Certification SOCIO-2 requires Calpine to reach agreement with Sutter County for the prepayment of taxes to ensure timely upgrades of fire protection and hazardous material handling equipment. (Ex. 2, p. 411; 11/10/98 RT 124.)

Regarding property taxes, the Staff witness referred to contacts with the Sutter County Assessor's Office and pointed out that of the amount assessed the project in local property taxes, only about 17 percent would remain in the county. Some additional amounts will return to the county in the form of offsets for state moneys not otherwise paid to school and other local districts. (11/10/98 RT 125.)

In an effort to clarify the amount of tax revenues the project would provide for local districts, Commission staff and Calpine recommended the record be clarified by a tax revenue allocation to be prepared by the county assessor. (11/10/98 RT 125-127.) S uch an allocation was prepared by Darrell Rose, Accounting System Analyst with the Sutter County Auditor-Controller. It is identified as Exhibit 49 and is reprinted below. It is based on the tax amount for each $1 million of assessed valuation. There was no objection to its introduction into evidence.

The proposed Sutter Power Plant will generate between $2.7 million and $3.1 million in total property taxes. Below is the breakdown of the local allocation based on the 1997-98 fiscal year percentages as applied to a $2.7 million tax pool.

Because the school districts' tax shares and Education Revenue Augmentation Fund (ERAF) shares count against what the state already pays them in the revenue limit formula, the school districts and Yuba College will not see any net funding increase from this project.

AGENCY INCREASE	TAX SHARE	NET FUNDING
Yuba City Unified	$1,107,691.20	$0
Sutter County general fund	$522,466.20	$522,466.20
ERAF (School tax shift)	$425,225.00	$0
County Fire Dept.	$256,500.00	$256,500.00
Yuba College	$220,036.50	$0
Mosquito Abatement	$70,364.70	$70,364.70
Special Education	$29,357.10	$0
Special Road Fund	$25,641.90	$25,641.90
Sutter Cemetery Districts	$21,132.90	$21,132.90
Education	$12,822.30	$0
Sutter County Water Agency	$4,787.10	$4,787.10
Maintenance Area No. 7	$3,974.40	$3,974.40
TOTAL:	$2,699,998.80	$880,734.30

Source: Calculated from Sutter County Auditor's Office; Exhibit 49.

Impacts to Local Property Values. The Staff witness testified further that during many public workshops residents who live and farm near the SPP site have expressed concerns about the project causing a decrease in property values due to transmission lines that will be directly visible from their homes. In an attempt to address these concerns, Staff researched current literature on proximity impacts analysis and cited the Kinnard-Dickey paper, A Primer on Proximity Impact Research: Residential Property Values Near High-Voltage Transmission Lines as a comprehensive study on this topic. The study reviews various techniques for evaluating impacts on property values. In addition to a literature search on proximity analysis impacts, Staff reviewed the Analysis of Property Value Impacts of the Crockett Cogeneration Project, submitted by the Applicant for the Crockett Cogeneration Project. The Crockett analysis cites several studies that examine the impacts on property values of very large industrial facilities. Such facilities include nuclear power plants, industrial waste incinerators, and landfills. (Ex. 2, pp. 415-417.)

Both the Kinnard-Dickey paper and the Crockett analysis conclude that differing, sometimes conflicting findings have emerged from market studies. The Kinnard-Dickey paper supports the use of the Multiple Regression Analysis (MRA) in the Hedonic Pricing Model format when a large data set of appropriately screened property sales are used. Energy Commission staff testified that it was infeasible to conduct a current proximity impact analysis because the MRA method requires that data be collected on as many market sales transactions as possible within the impact area and within one or more similar control areas over a period of years prior to the time a proposed project becomes a matter of common knowledge. This is necessary in order to accurately reflect what buyers and sellers actually do, as opposed to what potential buyers say they might do under specified hypothetical circumstances. Staff concluded that the potential for the proposed transmission line route to significantly diminish property values would be difficult, if not impossible, to prove. (Ex. 2, p. 418.)

In an effort to further develop the evidentiary record in this area, the Presiding Member directed the Staff to attempt field research to better determine the impact of the project on property values in the area.[35] After attempting to evaluate any change in property

[35] Notice of Additional Evidentiary Hearings and Hearing Order requiring Supplemental Testimony, November 13, 1998.

values before and after construction of the existing Greenleaf 1 power plant, Staff found that the limited number of parcel sales and the timing of those sales made it impossible to collect relevant, meaningful data. Thus, Staff could not establish the existence of negative project impacts to property values. (Ex. 42, Socioeconomics, p. 3.)

Impacts on Agricultural Economy. In response to a Committee request, both the Applicant and the Staff examined the potential for the proposed project and its transmission line to impact the local agricultural economy. Applicant's witness Thomas Priestley stated that transmission line impacts to agriculture are both short term and long term. Short term impacts involve the disturbance of excavating the footing and setting the tubular tower. He stated that property owners are compensated for construction period damages after which the land is restored. Long term impacts involve: 1) the space occupied by the base of the towers; 2) increased time and costs incurred using equipment and crop dusters around the towers; and, 3) reduced yields due to these two factors.

The witness cited a study of transmission line impacts on agriculture[36] to demonstrate that rice production can take place right up to the base of transmission towers, with a small decrease in yields extending out 14 feet. The study also noted that crop dusters do not charge a higher flying rate for fields containing transmission towers, rather any additional costs are attributable to extra materials used in extra passes around towers. The study found that the extra costs of working around the more intrusive lattice-type towers during the course of a year was $1.15 per tower. He concluded that based on these studies, the worst-case impact to crop production from the proposed 12 transmission line towers located at the edge of fields would be a loss of production totaling 94 lbs of rice. However, this loss would only occur if the project was forced to locate the transmission line in a field adjacent to the drainage easement. If the preferred transmission line route is used, no crop land will be impacted. The 12 towers could also impose a combined worst-case time loss to equipment operations of no more than 6 hours per year. (Ex. 45, p. 6.)

Commission staff assumed that **all** land within a 125 foot wide and 4 mile long transmission line easement would be lost to agriculture. Yet even with this approach,

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[36] Resources International. 1979. *The Effects of Transmission Lines and Towers on Agriculture.* Prepared for Pacific Gas and Electric Company, San Francisco, CA.

the gross loss to agriculture represented only .015 percent of Sutter County's rice production for 1997. Staff concluded that the SPP and its facilities, including the transmission line, will not have a significant quantifiable impact on the local agricultural economy. (Ex. 42, Socioeconomics, p. 3.)

Cumulative Impacts. In her testimony Ms. Stennick concluded that the project has the potential for cumulative socioeconomic impacts by inducing population and economic growth in Sutter County. She based her conclusion on the assumption that if the county grants a general plan amendment and rezoning to allow the SPP, it may allow further industrial development in an area now committed to farming, farm residences, open space and wildlife habitat. (11/10/98 RT 122, 124; Ex. 2, p. 418.) She noted, however, that no specific or reasonably foreseeable projects have been proposed for the SPP parcel or adjacent parcels. Any potential cumulative impacts resulting from the reasonably, foreseeable build-out of the SPP parcel would have to be in accordance with the uses in the underlying M-2 zone and the Combining Planned Development District. If the county's amendment to the general plan restricts uses of the parcel to the proposed plant, then no additional uses could occur absent additional review by the county. (Ex. 2, p. 418.) This subject is addressed further in the Land Use section of this Decision.

The Commission witness also noted the expressions of concern and objection to the project by residents who live and farm in the area. These concerns include fears of increased noise, traffic, land use incompatibility, visual impacts and loss of property values. She concluded that the industrialization of the SPP parcel has the potential to impact the farming community and reduce the quality of life for surrounding residents.

SOCIOECONOMICS Table 6

Construction Requirements by Month
Source: FSA (Ex. 2, p. 410, Table 6.)

CURE

California Unions for Reliable Energy (CURE), an intervenor in this proceeding, presented two witnesses who testified on the socioeconomic benefits of the project. Robert Carr, Business Manager of the Plumbers and Steamfitters Local 228 in Yuba City, stated that his union has about 300 members in Sutter, Butte and Yuba Counties. He cited other local unions as well whose members would benefit from the project. Mr. Carr testified that local construction unions spend approximately $350,000 in the local health care system. He reviewed the agreement CURE has with Calpine to ensure rapid, efficient construction of the SPP facility and complemented the project on its advanced mitigation measures regarding air quality and water usage. (11/10/98 RT 135.)

Chuck Cake, Business Manager of the International Brotherhood of Electrical Workers, spoke about the training and apprentice programs run by his union, adding that if the SPP is built, the majority of electricians would likely be local hires. (11/10/98 RT 139.)

Public Comment

Jim Kitchens, President of the Yuba/Sutter Chamber of Commerce, pointed out the socioeconomic benefits of the SPP. He noted that the Yuba/Sutter area is one of the poorest in California, with high rates of welfare and unemployment, accompanied by low per capita income. He stated that if the project is denied it will cost jobs and send an "anti-business" message to those outside the community. (11/10/98 RT 144.) Mr. Kitchens reviewed how the Governmental Affairs Committee of the Yuba/Sutter Chamber of Commerce reviewed the SPP and, after talking with community members of opposing views on the project, led the Chamber to officially support the SPP. He voiced his concern that low employment in the area leads to child and spousal abuse, delinquency and other socioeconomic problems and urged support for the SPP as one way to reduce such problems. (11/10/98 RT 142-145.)

Louis Boyce stated that most of the property tax money paid by the SPP which leaves the area will come back as reimbursements from state and federal programs. He believes the project is unlikely to harm local property values since the site already

contains a power plant and, in his opinion, many of the people in the area bought their homes after Greenleaf 1 was constructed. (11/10/98 RT 158.)

Numerous people commented in opposition to the project. Ed Tomai stated that it would harm the quality of life in the area. (11/10/98 RT 146.) Mike Shannon stressed that the cumulative impact of pollution from the power plant and the visual impact of the transmission lines would lower property values and impose a cost on the residents and farmers who live near the site. (11/10/98 RT 157.) Jerome Burke reviewed the recent history of the Sutter County general plan, and contention over land use matters. He recalled the county's extensive process of adopting its current general plan and asked that it be followed by placing the SPP where the general plan says it should go. He emphasized that the SPP is a good project, but is proposed for the wrong location. (11/10/98 RT 163.)

Nearby resident Cookie Amarel urged that the SPP should be located closer to the load center where its power is needed. She also believes that the transmission line will reduce the value of her property. (11/10/98 RT 164.) Landowner Wilma LaPerle stated that the original county plan for the Greenleaf plant was to limit development to only that project, yet now a general plan amendment is proposed to allow more industrial development on the site. She prefers that the project be relocated where it will not potentially interfere with rice growing. Local grower Brad Foster asked who will ensure that all the money Calpine mentioned would actually be spent locally. (11/10/98 RT 168.) George LaPerle voiced concern about the Creps farm property as well as the duck club on O'Banion Road which he fears will be harmed by the project. (11/10/98 RT 171.)

Larry Williams, Assistant Refuge Manager at the Sacramento National Wildlife Refuge, stated that his staff manages the Sutter National Wildlife Refuge as part of the Sacramento National Wildlife Refuge Complex. His comments represent the views of the refuge staff as opposed to the official position of the U.S. Fish and Wildlife Service. Mr. Williams reviewed the value of the refuge to some 200,000 birds, including birds which are listed by the federal and state government as threatened. These include the peregrine falcon, bald eagle, Aleutian Canada goose, and Swainson's hawk. (11/10/98 RT 176.)

He discussed the number of transmission lines which presently border and cross the refuge and discussed the high rate of bird mortality which results from the lines. In addition to these deaths, he noted that avian botulism outbreaks are highest in areas of the refuge where transmission lines result in high mortality. (11/10/98 RT 178.) He believes that any additional transmission lines within five miles of the refuge will result in additional bird mortality in an area already plagued with excessive mortality. (11/10/98 RT 180.)

Commission Discussion

It is clear from the evidence that the SPP will bring significant economic benefits to Sutter County. Revenues from property taxes, construction jobs, the local purchase of construction materials, and maintenance expenditures will all be beneficial contributions to the local economy. Once operating the payroll from the project will be approximately $1 million. Equipment and materials for maintenance will also be purchased locally for the project. These benefits are likely to stimulate the local economy of Sutter County and the Yuba City area.

Furthermore, the record is without evidence of any significant impacts which the project will impose on local socioeconomic elements. Most local services will not be burdened by the project. Those that will, such as local fire departments, will be compensated in a way which allows them to respond to any project-related impacts.

The record also lacks evidence that the project will adversely impact the local agricultural economy. Construction impacts to agriculture will be compensated for by the Applicant and easements for transmission lines will be purchased including a component to compensate for lost crop production. The evidence clearly demonstrates that the worst-case impacts of the project on local rice production are not significant. Earlier concerns about the project impacting groundwater pumping and adding to local flooding have been largely eliminated by Calpine's

switch to dry cooling technology. The cropdusters who testified gave their opinions that the project's transmission line would not bring significant changes to local cropdusting.[37]

Concerns of farmers who live in the vicinity of the project were taken very seriously by the Committee and have formed the basis of many of the mitigation measures in the Decision. It is the Commission's judgment that the Conditions of Certification contained in this Decision will prevent project-related impacts from becoming a significant burden on the local populous.

FINDINGS AND CONCLUSION

Based on the weight of the evidence of record, the Commission finds:

1. The proposed project is not likely to have a significant adverse effect on traditional socioeconomic considerations including employment, housing, schools, medical, tax revenues, and fire and police protection.

2. The project will likely result in an increase of $2.7 to $3.1 million in annual property tax revenues to Sutter County. Sutter County indicates that based on current tax allocations, between $978,00 and $1,010,000 will flow directly to Sutter County and its special districts.

3. The project will likely result in an increase of approximately $6 to $10 million in sales tax revenues due to construction expenditures.

4. The project will spend locally between $3 to $7 million of its annual operation and maintenance budget.

5. Once operating the project will have a $1 million annual payroll.

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[37] The project-related relocation of crop-duster airstrips may result in additional flying distances from the new airstrip to certain farms. To address this addditional expense, the Sutter County Board of Supervisors adopted a "Ferry Charge Condition," whereby Calpine would compensate farmers.

6. The agreement between Sutter County and the Applicant required in Condition of Certification SOCIO-2 will adequately mitigate any impacts from the project associated with hazardous materials handling and fire protection.

7. The project owner will recruit employees and purchase materials within Sutter County to the greatest extent possible.

8. The project owner will compensate local growers affected by the project for crop and other damages incurred during the construction period.

9. The SPP and its facilities, including the transmission line, will not have significant individual or cumulative impacts on the local agricultural economy.

10. The project transmission line is likely to result in a worst-case decrease in annual in rice production of no more than 200 pounds.

11. The evidence of record does not persuasively establish a measurable diminution in property values as a result of the project.

We therefore conclude that the SPP will not impose any significant adverse socioeconomic impacts.

CONDITIONS OF CERTIFICATION

SOCIO-1 The project owner and its contractors and subcontractors shall recruit employees and procure materials and supplies within Sutter County first unless:

- to do so will violate federal and / or state statutes;
- the materials and / or supplies are not available; or
- qualified employees for specific jobs or positions are not available; or

- there is a reasonable basis to hire someone for a specific position from outside the local area.

Verification: At least 30 days prior to the start of construction, the project owner shall submit to the California Energy Commission (CEC) Compliance Project Manager (CPM) copies of contractor, subcontractor, and vendor solicitations and guidelines stating hiring and procurement requirements and procedures. In addition, the project owner shall notify the CEC CPM in each Monthly Compliance Report of the reasons for any planned procurement of materials or hiring outside the local regional area that will occur during the next two months. The CEC CPM shall review and comment on the submittal as needed.

SOCIO-2 The project owner shall provide a letter to the CEC CPM outlining the agreement between the project owner and Sutter County on the amount of fees and timing of payments the project owner will provide to cover project-specific impacts associated with hazardous materials handling and fire protection.

Verification: At least 30 days prior to the start of construction, the project owner shall submit to the CPM a copy of the agreement with the Sutter County Fire Department which states the amount of fees and timing of payment the project owner will provide to cover project-specific impacts associated with hazardous materials handling and fire protection.

E. VISUAL RESOURCES

After many months of data exchange, analysis, public comment, workshops and compromise, by the time of the evidentiary hearings, the impact of the project's transmission line on visual resources was the single matter which remained in substantial dispute between parties; the Commission staff and the Farm Bureau on one hand, and the Applicant and Sutter County staff on the other.[38] There is no dispute that the project design will conform with all applicable laws, ordinances, regulations and standards pertaining to the protection of visual resources. Nor is there disagreement that the project will incorporate all feasible measures which would help to mitigate its visual impacts. Intervenors have not challenged the mitigation measures agreed to by Calpine and the Commission staff and no additional mitigation measures have been found which are feasible.[39] Thus, the primary issue at the evidentiary hearings was whether the transmission line for the SPP would impose a significant environmental impact after all feasible mitigation measures are imposed.

The area surrounding the SPP site is agricultural and rural residential in nature. Agricultural uses (orchards, rice fields, and other field crops) are located to the north, south, and west of the project site. The Sutter Buttes are prominent in views to the northwest, and the trees of the Sutter Bypass are visible in views to the west. This mixture of landscape elements provides substantial variety in color, texture, and topography.

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[38] The Sutter County Community Services Department has specifically disagreed with Commission staff, finding the Commission staff methodology overly subjective and inconsistent with the conclusions in the EIR for Sutter County's General Plan. (Ex. 39, p. 5.) However, the Yuba-Sutter Farm Bureau argues that the SPP will impose significant visual impacts. California Unions for Reliable Energy (CURE), while supporting the project, has taken no position on the question of visual resource impacts.

[39] Intervenors, Commission staff and Calpine have actively explored the possibility of undergrounding the project's 230 kV transmission line. Western, however, made clear that it would not build, own, or operate an underground line. (11/10/98 71.) Furthermore, expert testimony established that undergrounding the line was not economically feasible alternative for this project. (11/2/98 p.m. RT 40.) Efforts to explore undergrounding the existing PG&E 69kV and 12 kV electrical lines along South Township Road between the SPP site and O'Banion Road, have to date been rebuffed by PG&E.

Yet electrical power is also an integral part of the area's landscape pattern. In addition to the existing Greenleaf 1 cogeneration power plant on the SPP parcel, several electrical transmission and distribution lines on wood poles are in the project area. One transmission and distribution line runs along the east side of South Township Road. Another line runs along the south side of Best Road, while a third line runs along the south side of O'Banion Road. A PG&E 500 kV transmission line and a 230 kV Western line, both on steel lattice towers, run northwest to southeast along the eastern edge of the Sutter Bypass about two miles west of the project site.

The proposed power plant site would be located immediately west of the existing Greenleaf 1 power plant. Site topography is flat with an elevation of approximately 36 feet above sea level. Vegetation within the site consists of high growing grasses and young willow and cottonwood trees (up to 15 feet tall). (Ex. 2, pp. 252-257.)

Applicant's Analysis

Calpine presented the testimony of Dr. Thomas Priestley, an expert on the visual impacts of electrical facilities.[40] Dr. Priestley's testimony summarized the area's visual environment including the visual features of the existing Greenleaf 1 cogeneration power plant. Major elements of that facility include the steam turbine building and cooling tower, which are both 50 feet tall, as well as the stack which is 60 feet tall. He noted that views of the Sutter Buttes from the project area have not been given protected status by Sutter County, although such views have been so designated along portions of Highway 20, located 6 miles north of the project area.

This witness also noted that the number of viewers in the area is relatively small. Because it is an agricultural area, the density of residences is low. Traffic levels on the area's roads are also low. Visitor traffic is primarily related to the Sutter National Wildlife Refuge, though Mr. Priestley characterized the number of visitors to the refuge

[40] Dr. Priestley holds an undergraduate degree in City Planning, masters degrees in City and Regional Planning, and in Environmental Planning as well as a Ph.D. in Environmental Planning. He has taught courses in environmental design, analysis methods, land use planning, environmental planning, and design research methods. He has 18 years experience researching the effects of transmission lines on land use and property values and has experience with numerous power plant and transmission line projects. He has also published research in this field. (Ex. 26, resume of Thomas Priestly, Ph.D., pp. 1-6.)

as relatively low.[41] He described the proposed power plant's most visually important features, including the 145-foot-high stacks, the 70-foot-high generator housing units and the 109-foot-tall and 210-foot-wide dry cooling unit. The double circuit 230 kV transmission line would be carried on 105-foot-high tubular steel poles located approximately 750-feet apart.[42] The switching station would occupy a fenced area approximately 180 by 360 feet located adjacent to the existing Western Area Power Administration line near the Sutter bypass. It would include several 58 foot high deadend towers and a series of 20-foot-high circuit breakers and disconnect switches. The stations for the underground natural gas pipeline would not have significant visual impacts. (Ex. 26, pp. 54-55.)

His testimony set forth the methodology he used to analyze visual impacts. As part of the assessment of the site vicinity, a set of "Key Observation Points" (KOPs) were selected in collaboration with CEC staff. These views represented a sampling of the most seen, most highly valued, and most sensitive views of the site. He next identified the sensitivity of the area's visual resources based on existing landscape composition and character.[43] He identified the visual characteristics of the proposed facility and then developed visual computer simulations to create an accurate sense of the view conditions that would exist after project construction.

The next step was to determine the degree of visual change resulting from the project. Like that of the Commission staff, the Applicant's visual analysis assessed the significance of impacts for each KOP. However, in making its final assessment of significance under the California Environmental Quality Act (CEQA), the Applicant's witness evaluated the project in the context of the entire viewshed. He next identified potential mitigation measures and ultimate project impacts after applying mitigation.

The location of the various "Key Observation Points" or KOPs and their relationship to the project location is identified on VISUAL RESOURCES Figure 5, which follows. (Ex. 2, p. 256; Ex. 26, p. 60.)

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[41] Up to 5,000 hunters per year and approximately 1,000 birdwatchers. (Ex. 26, p. 54.)

[42] Where necessary to avoid obstructing views from residences, the distance between steel transmission poles can be extended up to 1,200 feet. (Ex 26, p. 55.)

[43] Such factors include the relative uniqueness of the landscape, numbers of views, extent of scenery-related activities, and public policies to protect the landscape's appearance.

VISUAL Figure 1
(Sandy, the first sentence of this label is already on the figure)
Location of Viewshed, Key Observation Points (KOPs) and Direction of View.
Source: AFC, Ex. 4, p. 8.11-3, Figure 8.11-1; Ex. 2, p. 256, Figure 5; Ex. 26, p.59, Figure Vis-7.)

VISUAL KOP-1 Figure 2

Leave the existing label and just change the figure number

VISUAL KOP-2 Figure 3

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VISUAL KOP-3 Figure 4

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VISUAL KOP-4 Figure 5

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VISUAL KOP-5 Figure 6

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KOP-1 represents the view toward the plant from the area of South Township Road in front of a residence located on South Township approximately 2,000 feet from the area to be occupied by the SPP. The existing Greenleaf 1 cogeneration plant lies in front of the SPP from this view. The number of viewers is relatively small and eventually landscaping around the site will obscure views of the project. Both Calpine and CEC staff found no significant impact from this location. (See KOP-1 Visual Figure 2.)

KOP-2 This viewpoint represents the view from Best Road near its intersection with George Washington Boulevard in an area where a number of residences line the north side of Best Road. The spot is approximately a mile and a quarter from the proposed plant site. The number of homes is small, and traffic levels on Best Road and on George Washington Boulevard are relatively low. Houses in the area have a north/south orientation and do not face toward the plant. Orchard trees on the South side of Best Road now screen views of the site. Calpine and Staff concur that there would be no significant impact at this location. (See KOP-2 Visual Figure 3.)

KOP-3 This view is toward the plant from Pierce Road, a narrow paved road located one-half mile to the north, providing access to four residences. The view toward the project site consists of flat agricultural fields of low scenic interest with a full view of the existing Greenleaf 1 cogeneration plant. The proposed project would be one-half mile from these residences. Painting both the Greenleaf 1 and the SPP in neutral, non-reflective gray tones, controlling the night-lighting of the plant, and planting the perimeter landscaping berm will reduce visual impacts from this location.[44] With these mitigation measures, the Applicant and Staff agree there will not be significant impacts at this location. (See KOP-3 Visual Figure 4.)

KOP-4 This involves the view from a point along South Township Road approximately two-thirds of a mile south of the Greenleaf 1 cogeneration plant and is near two residences. One residence is set back in an orchard and does not have ground floor views of the plant site. The other house is located close to the road but views from its front windows toward the site are partially blocked by a stand of trees growing between the house and the road. While part of the project may be visible to houses at this KOP, the limited view and the power plant's visual mitigation measures cause both

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[44] The likely visual impacts at this location before and after mitigation are simulated in figure Vis-8 and Vis-9 of Exhibit 26, pages 62 and 63.

Calpine and the Commission staff to find no significant impact at this location. (See KOP-4 Visual Figure 5.)

KOP-5 This viewpoint was selected to represent the view toward the plant and north up South Township Road from a point about 600 feet south the intersection of South Township and O'Banion Roads. The location is approximately two miles from the proposed plant site and about 600 feet distant from the corner point at which the proposed transmission line will change from its alignment along South Township Road to its westerly route on O'Banion Road.[45] A relatively new home is located near the spot with large windows facing the Sutter Buttes and the proposed corner transmission pole. (See KOP-5 Visual Figure 6.)

An orchard at the southwest corner of the intersection now blocks views of the plant site. However, comments from the homeowner indicate that the floors of his home are built between five and six feet above the road level, thus allowing him to see over the orchard, toward the Sutter Buttes. (12/1/98 RT 215.) Calpine's analysis states that the homeowner's view of the Sutter Buttes is located to the west of the corner tower and thus not interrupted. (Ex. 26, p. 67.) CEC staff testimony, however, finds that views from the residence would be interrupted by the tower. (11/16/98 RT 164.) Mr. Priestley notes that transmission towers along O'Banion Road could be spaced in such a way that no towers would be sited within the residence's view of the Buttes. (Ex. 26, p. 67.) KOP-5 also represents the views of drivers traveling north on South Township who would experience the new transmission line on the left and the existing distribution line with wood poles on the right.[46] (*Id.*)

The witness also introduced exhibit 40 to demonstrate that the visual impacts from residences located on O'Banion Road at distances 1000 and 2000 feet east of the intersection with South Township, were not effected in the same manner or degree as the residence located near KOP-5. (11/16/98 RT 40.) The Calpine witness acknowledges that the transmission towers at the KOP-5 location would be prominently

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[45] This view with a simulation of how the transmission lines is likely to appear is shown in exhibit 26, Vis-12 on page 68.

[46] Commission staff has referred to the situation of electrical lines on both sides of the road as creating a "tunneling effect" to the viewer. (Ex. 2, p. 344.) The evidence shows that there are approximately 113 trips per day counting both directions, on this part of South Township Road. (Ex. 4, p. 8.10-7, Table 8.10-3.)

visible and constitute a visible change. (Ex. 26, p. 67.) He disagreed, however, with the Commission staff opinion that the resulting impact is a significant one under CEQA definitions. He noted on redirect examination that a previous Calpine evaluation describing the visual effect of the transmission line as being "moderate to high" is not the same thing as saying that a project has a significant adverse impact under CEQA. (11/16/98 RT 138.) Rather, the moderate to high rating refers to the impacts of the facility as seen from a single, particular viewpoint, and does not include an assessment of the view sensitivity and the numbers of people effected. (*Id.*) The Commission staff disagrees, finding that a significant visual impact exists from this KOP. (Ex. 26, p. 64-67.)

Dr. Priestley explained that he had reservations about Staff's method. He noted his disagreement with the method of using matrices which combine numerous separate ratings, adding that CEC staff goes further, adding matrices for "impact susceptibility" and "visual impact severity." (Ex. 26, p. 57.) These accumulated factors then generate ratings of project impact significance. He stated that one of the problems with the Staff method is that each category includes subjective assumptions about what constitutes a "high", "medium", or"low" rating. (*Id.*). While commending the Commission staff's goal of establishing workable standards for visual evaluations, the witness argued that Staff's complex approach conceals, rather than eliminates subjectivity, permitting a reviewer to mix and match in a way which greatly exaggerates impacts. He found that the Staff method frequently does not specify the criteria or thresholds that would allow another rater to apply the system. (*Id.*; Applicant's brief p. 20.)

Priestley concludes that the Staff methodology has produced an incorrect result in finding a significant adverse environmental impact in the addition of a power plant and electric transmission line to a view that already contains these features. (Ex. 26; p. 70.)

<u>Commission Staff Analysis</u>

CEC staff sponsored the testimony of Gary Walker on the visual impacts of the proposed project. (Ex. 2, pp. 245-362.) Mr. Walker testified that he evaluated the views from the various key observation points in regard to a number of factors including visual quality, view sensitivity, visibility and viewer exposure. He then evaluated the effects the project would cause in terms of contrast, line, form, texture, and scale, as well as dominance and view blockage. He originally had concluded that the power plant

was likely to cause significant visual impacts. As a result of additional mitigation measures agreed to by Calpine, he determined that the plant-related visual impacts would be less than significant. (11/16/98 RT 145.) He did, however, testify that even after all feasible mitigation, the visual impacts of the transmission line would be significant. (*Id.*)

Mr. Walker reviewed his attempts to find measures which would mitigate the visual impacts of the transmission line to levels below significance. These included consideration of both placing the 230 kV transmission line underground and using an alternative route for the line. After investigation, however, he determined that undergrounding the line was of "questionable feasibility".[47] The alternative route of exiting the plant in a westerly route and then turning south parallel to existing transmission lines proved to have unacceptable biological impacts and was therefore dropped.[48] (11/16/98 RT 146.) He then evaluated the possibility of placing underground the existing distribution lines along South Township Road. This too, shows little promise because PG&E has not responded regarding the feasibility of the measure. (11/16/98 RT 145-146.) In addition, Staff notes that this measure is probably infeasible due to the high expense and to PG&E's policy against undergrounding 69 kV lines. (CEC brief, p. 1.)

In an effort to mitigate the impacts of the corner transmission pole at South Township and O'Banion Roads, Mr. Walker looked into the possibility of having the line make its westerly turn onto O'Banion Road at a 45 degree angle. This would allow transmission towers to be located so as not to block the homeowner's view of the Sutter Buttes. However, he testified that staff members of the Sutter County Community Services Department were concerned about the risk such an angular line might pose to crop

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[47] The transmission line expert for Calpine testified that undergrounding a 230 kV transmission line for the required distance was not economically feasible for the project, costing in the $7 to $14 million range. (11/2/98 p.m. RT 40.) Additionally, representatives from Western stated that they had no experience with underground, high-voltage transmission lines and would not build, construct, own, maintain or operate one. (11/10/98 RT 71, 83).

[48] While Staff examined a western route for the transmission line to reduce visual impacts, participants at a workshop to examine the alternative strongly encouraged Staff to drop it due to biological impacts at the Sutter National Wildlife Refuge, and interference with duck hunting and crop dusting. (11/10/98 RT 12.)

dusters. He added that while he supports this measure, it would still leave significant visual impacts, even if implemented. (11/16/98 RT 168-169.)

The Commission witness criticized numerous elements of Dr. Priestley's analysis of the project's visual impacts. He found that Dr. Priestley failed to systematically identify important visual features, did not identify changes imposed by the project, and did not clearly state factors and assumptions which led to his conclusions. Finally, Mr. Walker stated that because of these perceived defects, Dr. Priestley's approach provided no means for another visual analyst to replicate the work and arrive at the same conclusion. (11/16/98 RT 147.) He elaborated various details in his disagreement with the Applicant's methodology, concluding that it was essentially a "black box approach to the subject." (11/16/98 RT 148-149.)

The Staff witness is particularly critical of the Applicant's failure to assess the visual dominance of the transmission line for viewers in the vicinity of KOP-5 (11/16/98 RT 81-83) or to mention what Staff describes as the "tunneling effect" of the view from KOP-5. (11/16/98 RT 72:17-18.)

Sutter County Analysis

In addition to the testimony from the Applicant and CEC staff, the Staff of the Sutter County Community Services Department commented on the project's visual impacts in their report to the county Planning Commission. This was made part of the record and identified as Exhibit 39. The county staff report reviews the various mitigation measures imposed to reduce the project's visual impacts and identifies two "concerns" which the county has with the CEC visual analysis.

The county staff's first concern is that the CEC methodology is overly subjective, with no guidance to determine what constitutes a small, moderate or high impact on viewers. The report notes that a total of only 19 homes will have any view of the project's facilities and many of these views are limited by existing landscaping at the residences. Most views from roads are limited by existing orchards and power lines. Clear views of the Sutter Buttes are blocked by the proposed plant for only about one mile along south Township Road and all roads with views of the project have limited traffic. The county report notes that only two or three homes would have their views of

the Buttes further affected by the plant. The report concludes that no substantial impact on visual resources exists. (Ex. 39, p. 5.)

The county's second concern is that the Commission staff conclusion appears inconsistent with conclusions in the EIR for the county General Plan. That document concluded that the Highway 20-Sutter Industrial Park would create only potentially significant visual impacts though many more residents would be affected by the industrial park than by the SPP. In addition, the Highway 20 area has a much higher vehicle count.[49]

Public Comment

David Massey owns the newer home south of the O'Banion and South Township Road intersection. He commented that KOP-5 does not truly represent his view because his house is approximately 150 feet east of the spot and he built the house so that the floors are five to six feet above street level. As a result, he sees over the nearby orchard and has a view of the Buttes which will be damaged by the transmission line poles. (12/1/98 RT 215.) He also voiced concerns about the impacts of night lighting at the facility. (11/16/98 RT B-4.) Harry Hunt, who lives north of the proposed plant site pointed out that in addition to the three affected homes being discussed, he too did not want to look at the plant in his view. (12/1/98 RT 219.)

Brad Foster, who lives on O'Banion Road east of the intersection with South Township introduced photographs forming a panoramic view from the Sutter Buttes in the west to O'Banion Road in the southwest. (Ex. 47.) He offered this to demonstrate the view from his home on a clear day. In response to questions from the Applicant, Mr. Foster stated that three or four of the proposed transmission towers would intersect his view of the Sutter Buttes. In addition, he submitted a photograph taken of the Sutter Buttes from his dining room. (12/1/98 RT 203.)

Commission Discussion

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[49] Exhibit 39 describes traffic along the Highway 20 visual corridor as 6,000-10,000 vehicle trips per day, while that along South Township Road is 113 trips and 129 vehicle trips on O'Banion Road.

The CEC staff agrees with the Applicant that the project design is in conformity with applicable laws, ordinances, regulations and standards which pertain to the protection of visual resources. Therefore, legal conformity of the project is not at issue. In addition, the record establishes that the proposed project has been designed, and redesigned, to minimize visual impacts. Calpine has proposed a number of its own measures and has agreed to additional mitigation measures recommended by the Commission staff. In addition, both Commission staff and Calpine have put considerable effort into examining additional mitigation measures which turned out not to be feasible.[50] The record establishes that a number of feasible mitigation measures have been included to reduce visual impacts while others have been analyzed and rejected as infeasible. We conclude that the project has been designed to be as visually unobtrusive as possible. Thus, we are left with the issue of deciding whether the project, which is in compliance with all applicable law, and after including all feasible mitigation measures, nevertheless creates visual impacts which are "significant" as viewed from a single key observation point.[51]

In determining whether or not an environmental impact is significant, the Commission examines the relevant portions of CEQA. CEQA Guidelines interpret the term "significant effect on the environment" as "a substantial or potentially substantial adverse change in any of the physical conditions within the area affected by the project including...objects of historical or aesthetic significance." [CEQA Guidelines Sections 15002(g) and 15382; see also Public Resources code sections 21083 and 21087.] Appendix G of the CEQA Guidelines sets forth the relevant criteria for analyzing the visual impacts of this project. The criterion states:

> A project will normally have a significant effect on the environment if it will:...
> (b) have a substantial, demonstrable negative aesthetic effect.

The Applicant points out that CEQA's use of the term "demonstrable" is intended to elevate the inherently subjective question of visual impacts from one of personal taste

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[50] Examples of these include undergrounding the power plant's 230 kV transmission line; routing the line west from the plant, then south paralleling the PG&E and Western lines; taking the line in a diagonal at the corner of South Township and O'Banion Road; and undergrounding the existing electrical lines on the east side of South Township Road between the project and O'Banion Road.

[51] KOP-5.

("beauty is in the eye of the beholder") to an element that decision-makers can use in objectively considering the impacts of a project. (CEQA, Appendix G(b); Applicant's Post-Hearing Brief, p. 17.) In the instant case, the significant impact is only "demonstrable" through the extremely complex and ultimately subjective analysis carried out by the Commission staff. This conclusion of a significant impact is contravened by the Applicant's expert whose background demonstrates extensive experience in both the practical and academic analysis of visual impacts. Staff's conclusion is also contrary to that of the professional planners of Sutter County Community Service Department, who have experience in applying aesthetic values to land use questions in Sutter County and whose views deserve great weight in our process.[52]

Judicial authority also provides pertinent guidance. The leading case in this regard is *Association for Protection of Environmental Values in Ukiah v. City of Ukiah*, (1991) 2 Cal.App.4th 720 [3 Cal.Rptr.2d 488]. In that case, several neighbors challenged the construction of a single-family residence on an adjacent vacant lot, claiming that the home construction would cause significant adverse environmental impacts which would impair their views and privacy.

In affirming the trail court's rejection of the Association's claims, a three judge panel of the Court of Appeal unanimously stated:

> In examining this exception [CEQA Guidelines section 15300.2(c), above], we must differentiate between adverse impacts upon particular persons and adverse impacts upon the environment of persons in general. As recognized by the court in *Topanga Beach Renters Assn. v. Department of General Services*

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[52] The Commission's regulations make clear the important role of sister agencies in evaluating the impacts of a project:

> Section 1742(c): The applicant shall present information on environmental effects and mitigation and the staff *and concerned agencies* shall submit their assessments at hearings held pursuant to Section 1748. (Emphasis added.)
>
> Section 1744(b): Upon acceptance of the application, *each agency responsible for enforcing the applicable mandate shall assess the adequacy of the applicant's compliance measures to determine whether the facility will comply with the mandate.* (Emphasis added.)

> (1976) 58 Cal.App.3d 188 [129 Cal.Rptr. 739]: "[A]ll government activity has some direct or indirect adverse effect on some persons. *The issue is not whether [the project] will adversely affect particular persons but whether [the project] will adversely affect the environment of persons in general.* (Emphasis added.) (Sec. 21083, subd.(c).)" (*Id.* at p. 195.) There was no evidence presented that construction of a single-family dwelling on this lot - the last to be developed in a neighborhood of single-family residences - would adversely affect the environment of persons in general. Moreover, the height, view and privacy objections raised by the Association impacted only a few of the neighbors and were properly considered by the City in connection with its site development permit approval, along with other aesthetic concerns. These concerns did not affect the environment of persons generally and did not result from "unusual circumstances." (*Id.* at p. 734.)[53]

We believe the methodology used by the Commission staff could result in a finding of significance whenever the view from a single key observation point is impacted and the extent of impact is evaluated subjectively. By focusing its determination of an entire project's significance on the views from a single key observation point, Staff emphasizes the impact on a particular person or persons rather than evaluating the environmental impacts on a broader scale.

If the single key observation point selected was one which itself involved large numbers of the public, an argument could be made that a substantial adverse impact at that point amounted to an entire project imposing a significant adverse impact. However, such is not the case before us.

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[53] These definitions are intended to guide decision-makers in determining whether to prepare an EIR. Though the CEC siting process makes unnecessary the preparation of an EIR, the same definitions guide an evaluation of whether a project impact is significant. Even where a project impact is determined to be significant, however, the project may still be approved where the agency finds that changes have been made to the project which avoid or substantially lessen the significant environmental impacts. Likewise, if a project's '...economic, legal, social, technological, or other benefits "...outweigh unavoidable adverse environmental effects, such effects may be considered "acceptable". (CEQA Guidelines, §§ 15091(a), 15093(a).)

KOP-5 was evaluated by the Staff to include the views of north-bound drivers near the intersection of O'Banion and South Township Roads and three residences; one located near KOP-5 south of the intersection and two located 1000-feet and 2000-feet respectively to the east of the intersection on O'Banion Road. (Ex. 2, p. 266; 11/16/98 RT 31.) The result of the geographic separation of the latter two houses from the intersection is that KOP-5 is not representative of the view from these two residences. (Compare Ex. 2, Figs. Vis-15 and Vis-16; Ex. 40, Figs. Vis-15 through 17; Ex. 47.) The difference in the views was even acknowledged by the Staff witness. (12/1/98 RT 181.) As a result, the visual impact caused by the project at KOP-5 is more pronounced than that imposed on the residences to the east.

While the two houses on O'Banion will have a distant view of the power plant and the transmission line will cross a portion of their view, it will not, in our estimation, constitute a significant impact. This is supported by the visual resource exhibits in evidence and by the expert opinions of Dr. Priestly and the County staff.

The evidence supports Staff's evaluation of impacts at KOP-5 only as to the Massey residence at the O'Banion and South Township intersection, and to any northbound drivers at the intersection. Furthermore, the evidence establishes that traffic is light for this location.[54] It appears that the imposition of a steel transmission pole into the view of the Sutter Buttes from the Massey residence would be judged a high impact. Likewise, we can accept that the "tunneling effect" appearance of the transmission line on the west side of South Township Road opposite the existing distribution lines will create a visual corridor to northbound drivers. Yet it is our determination that even a marked visual intrusion on this limited number of persons does not constitute the basis for a finding that the project will impose a significant visual impact on the environment.

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[54] 113 trips per day in both directions (Ex. 39, p. 5; Ex. 4, fig. 8.10-2).

FINDINGS AND CONCLUSION

Based on the weight of the evidence of record, the Commission finds:

1. The project would be constructed in an area that is predominantly devoted to agriculture.

2. The 77 acre parcel for the project is presently the location of the Greenleaf 1,49.5 megawatt cogeneration power plant and accompanying transmission line.

3. The existing viewshed includes numerous electrical distribution lines on wood poles, and two miles to the west of the project, the PG&E 500 kV and the Western 230 kV transmission lines.

4. The addition of the project to the 77 acre Greenleaf 1 parcel will augment the industrial appearance of the site.

5. The addition of the project's four mile 230 kV transmission line will add an industrial visual element along South Township and O'Banion roads.

6. The proposed plant site mitigation measures, including elimination of a vapor plume through dry cooling, painting both the SPP and the Greenleaf 1 plants neutral gray, adding perimeter berms planted with trees and shrubs to screen the two power plants, and the shielding of night lighting at both power plants, will mitigate visual impacts of the power plants to below levels of significance.

7. The record includes analyses of other means to mitigate the project's visual impacts which proved infeasible.

8. Transmission line impact mitigation measures, including the dulling of reflective metal surfaces, placement to avoid view obstruction at residences, and the use of non-specular conductors will reduce visual impacts to the maximum extent feasible.

9. The Conditions of Certification below impose all feasible mitigation capable of reducing the visual impacts of the project.

10. The weight of the evidence of record indicates that the SPP will not create any significant adverse visual impacts.

11. Even with the imposition of the mitigation measures contained in the Conditions of Certification, the transmission line will likely intrude upon views of the Sutter Buttes from the residence at 3936 O'Banion Road, near the intersection of O'Banion Road. A small number of additional residences will have their views of the Sutter Buttes impacted to a lesser degree.

12. The transmission line will intrude upon the views of the Sutter Buttes for north-bound drivers on South Township Road.

13. The evidence indicates that north-bound drivers on South Township Road are relatively few in number, approximately 113 per day, counting both directions.

14. The SPP and its facilities, including the transmission line will not present a significant adverse visual impact as defined under the California Environmental Quality Act.

15. The project will meet all applicable laws, ordinances, regulations and standards, identified in the pertinent portion of APPENDIX A of this Decision.

We therefore conclude that the SPP will not have a significant adverse impact on visual resources and will not have a substantial, demonstrable negative aesthetic effect on the environment.

CONDITIONS OF CERTIFICATION

VIS-1 Prior to first electricity generation, the project owner shall treat the project structures, buildings, and tanks visible to the public in non-reflective colors to blend with the agricultural setting.

Protocol: The project owner shall submit a treatment plan for the project to the California Energy Commission Compliance Project Manager (CPM) for review and approval. The treatment plan shall include:

- specification, and 11" x 17" color simulations, of the treatment proposed for use on project structures, including structures treated during manufacture;

- a detailed schedule for completion of the treatment; and,

- a procedure to ensure proper treatment maintenance for the life of the project.

If the CPM notifies the project owner that revisions of the plan are needed before the CPM will approve the plan, the project owner shall submit to the CPM a revised plan.

After approval of the plan by the CPM, the project owner shall implement the plan according to the schedule and shall ensure that the treatment is properly maintained for the life of the project.

For any structures that are treated during manufacture, the project owner shall not specify the treatment of such structures to the vendors until the project owner receives notification of approval of the treatment plan by the CPM.

The project owner shall not perform the final treatment on any structures until the project owner receives notification of approval of the treatment plan from the CPM.
The project owner shall notify the CPM within one week after all precolored structures have been erected and all structures to be treated in the field have been treated and the structures are ready for inspection.

Verification: Not later than 60 days prior to ordering any structures that are to be color treated during manufacture, the project owner shall submit its proposed plan to the CPM for review and approval.

If the CPM notifies the project owner that any revisions of the plan are needed before the CPM will approve the plan, within 30 days of receiving that notification, the project owner shall submit to the CPM a revised plan.

Not less than thirty days prior to first electricity generation, the project owner shall notify the CPM that all structures treated during manufacture and all structures treated in the field are ready for inspection.

The project owner shall provide a status report regarding treatment maintenance in the Annual Compliance Report.

VIS-2 Any fencing for the project shall be non-reflective.

Protocol: At least 30 days prior to ordering the fencing the project owner shall submit to the CPM for review and approval the specifications for the fencing documenting that such fencing will be non-reflective.

> If the CPM notifies the project owner that revisions of the specifications are needed before the CPM will approve the submittal, the project owner shall submit to the CPM revised specifications.
>
> The project owner shall not order the fencing until the project owner receives approval of the fencing submittal from the CPM.
> The project owner shall notify the CPM within one week after the fencing has been installed and is ready for inspection.

Verification: At least 60 days prior to ordering the non-reflective fencing, the project owner shall submit the specifications to the CPM for review and approval.

If the CPM notifies the project owner that revisions of the submittal are needed before the CPM will approve the submittal, within 30 days of receiving that notification, the project owner shall prepare and submit to the CPM a revised submittal.

The project owner shall notify the CPM within seven days after completing installation of the fencing that the fencing is ready for inspection.

VIS-3 Prior to first electricity generation, the project owner shall design and install all lighting such that light bulbs and reflectors are not visible from public viewing areas and illumination of the vicinity and the nighttime sky is minimized. To meet these requirements:

Protocol: The project owner shall develop and submit a lighting plan for the project to the CPM and the Sutter County Community Services Department for review and approval. The lighting plan shall require that:

- Lighting is designed so that exterior light fixtures are hooded, with lights directed downward or toward the area to be illuminated and so that backscatter to the nighttime sky is minimized. The design of this outdoor lighting shall be such that the luminescence or light source is shielded to prevent light trespass outside the project boundary;

- High illumination areas not occupied on a continuous basis such as maintenance platforms or the main entrance are provided with switches or motion detectors to light the area only when occupied;

- A lighting complaint resolution form (similar in general format to that in Visual Attachment 1, which follows these Conditions) will be used by plant operations, to record all lighting complaints received and document the resolution of those complaints. All records of lighting complaints shall be kept in the on-site compliance file.

If the CPM notifies the project owner that revisions of the plan are needed before the CPM will approve the plan, the project owner shall prepare and submit to the CPM a revised plan.

Lighting shall not be installed before the plan is approved. The project owner shall notify the CPM when the lighting has been installed and is ready for inspection.

Verification: At least 60 days before ordering the exterior lighting, the project owner shall provide the lighting plan to the CPM and to the Sutter County Community Services Department for review and approval.

If the CPM notifies the project owner that any revisions of the plan are needed before the CPM will approve the plan, within 30 days of receiving that notification the project owner shall submit to the CPM a revised plan.

The project owner shall notify the CPM within seven days of completing exterior lighting installation that the lighting is ready for inspection.

VIS-4 By December 1 of the year in which ground disturbance related to construction of the power plant begins, the project owner shall implement a landscape plan that meets the requirements of the Sutter County Zoning Code and provides a continuous screen of the proposed power plant from sensitive view areas. The screen shall be created along the northern and southern boundaries of the Calpine property and along the eastern boundary of the Calpine property parallel to South Township Road.

Protocol: The project owner shall submit to the CEC CPM for review and approval a specific plan describing its landscaping proposal, stating that it conforms to Sutter County's Zoning Code and has been approved by the County. The plan shall include, but not be limited to:

- a detailed landscape plan, at a reasonable scale, which includes a list of proposed tree and shrub species and sizes and a discussion of the suitability of the plants for the site conditions and mitigation objectives. One objective shall be to provide year-round screening. To meet this objective evergreen species shall be used. This may require a berm to raise the tree roots above the water table. Another objective shall be to provide screening at least 75 feet tall for the total distance to be screened, except where clearance beneath the proposed transmission line requires shorter trees. Another objective shall be to use species that grow rapidly. The plan shall propose species and spacing to achieve these objectives. Trees to be planted shall be the optimal size to reach full height as rapidly as possible.

- maintenance procedures, including any needed irrigation; and

- a procedure for replacing unsuccessful plantings.

If the CPM notifies the project owner that revisions of the plan are needed before the CPM will approve the plan, the project owner shall prepare and submit to the CPM a revised plan.

The trees and shrubs shall not be planted before the plan is approved. The project owner shall notify the CPM when the trees and shrubs have been planted and are ready for inspection.

Verification: At least 90 days prior to the start of commercial operation of the project, the project owner shall submit the proposed landscape plan for the project to the CPM for review and approval. The CPM will respond to the project owner within 15 days of receipt of the landscaping plan. The project owner shall submit any required revisions within 30 days of notification by the CPM. The CPM will respond to the project owner within 15 days of receipt of the revised documents. The project owner shall notify the CPM within seven days after completing the proposed planting that the planting is ready for inspection.

VIS-5 Prior to first electricity generation at the Sutter Power Project, to reduce the contribution of the Sutter Power Project to cumulative visual impacts, the project owner shall have the Greenleaf 1 facilities painted to match the colors of the Sutter Power Project.

Protocol: The project owner shall submit a treatment plan for the project to the California Energy Commission Compliance Project Manager (CPM) for review and approval. The treatment plan shall include:

- specification, and 11" x 17" color simulations, of the treatment proposed for use on project structures.

- a detailed schedule for completion of the treatment; and,

- a procedure to ensure proper treatment maintenance for the life of the project.

If the CPM notifies the project owner that revisions of the plan are needed before the CPM will approve the plan, the project owner shall submit to the CPM a revised plan.

After approval of the plan by the CPM, the project owner shall implement the plan according to the schedule and shall ensure that the treatment is properly maintained for the life of the project.

The project owner shall not perform the final treatment on any structures until the project owner receives notification of approval of the treatment plan from the CPM.
The project owner shall notify the CPM within one week after all structures have been treated and the structures are ready for inspection.

Verification: At least 60 days prior to first commercial electricity generation at the Sutter Power Project, the project owner shall submit its proposed plan to the CPM for review and approval.

If the CPM notifies the project owner that any revisions of the plan are needed before the CPM will approve the plan, within 30 days of receiving that notification, the project owner shall submit to the CPM a revised plan.

The project owner shall notify the CPM when all structures have been treated and are ready for inspection.

The project owner shall provide a status report regarding treatment maintenance in the Annual Compliance Report.

VIS-6 Prior to first electricity generation, to offset the contribution of the Sutter Power Project to cumulative lighting impacts, the project owner shall have the lighting at the Greenleaf 1 Power Plant modified such that light bulbs and reflectors are

not visible from public viewing areas and illumination of the vicinity and the nighttime sky is minimized. To meet these requirements:

Protocol: The project owner shall develop and submit a lighting modification plan for the project to the CPM for review and approval. The lighting plan shall require that:

- Exterior light fixtures are hooded, with lights directed downward or toward the area to be illuminated and backscatter to the nighttime sky is minimized. The luminescence or light source shall be shielded to prevent light trespass outside the project boundary;

- High illumination areas not occupied on a continuous basis such as maintenance platforms or the main entrance shall be provided with switches or motion detectors to light the area only when occupied;

- A lighting complaint resolution form (following the general format of that in attachment 1) will be used by plant operations, to record all lighting complaints received and document the resolution of those complaints. All records of lighting complaints shall be kept in the on-site compliance file.

If the CPM notifies the project owner that revisions of the plan are needed before the CPM will approve the plan, the project owner shall prepare and submit to the CPM a revised plan.

Lighting modifications shall not be made before the plan is approved. The project owner shall notify the CPM when the lighting modifications have been made and are ready for inspection.

Verification: At least 60 days prior to first electricity generation on the Sutter Power Project the project owner shall provide the lighting modification plan to the CPM for review and approval.

If the CPM notifies the project owner that any revisions of the plan are needed before the CPM will approve the plan, within 30 days of receiving that notification the project owner shall submit to the CPM a revised plan.

The project owner shall notify the CPM within seven days after completing exterior lighting modifications that the lighting is ready for inspection.

VIS-7 To minimize potential visual impacts, the project owner shall place all electrical transmission poles so as to not be directly in front of any residence and, to the extent possible, so as to not be directly in the view of the Sutter Buttes from any residence.

Protocol: At least 60 days prior to construction of the transmission line, the project owner shall submit a plan to the CPM showing:

- all proposed pole locations;
- all residences within one-quarter mile of the proposed transmission line route that have a view of the transmission line; and
  - the line of sight from each of the residences toward the Sutter Buttes.

If the CPM notifies the project owner that revisions of the plan are needed before the CPM will approve the plan, the project owner shall prepare and submit to the CPM a revised plan.

Transmission line pole placement shall not begin before the plan is approved. The project owner shall notify the CPM when the poles have been installed and are ready for inspection.

Verification: At least 60 days prior to beginning transmission line construction, the project owner shall provide the electrical transmission pole plan to the CPM for review and approval.

If the CPM notifies the project owner that any revisions of the plan are needed before the CPM will approve the plan, within 30 days of receiving that notification the project owner shall submit to the CPM a revised plan.

The project owner shall notify the CPM within seven days after completing transmission line construction that the line is ready for inspection.

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LIGHTING COMPLAINT RESOLUTION FORM

SUTTER POWER PROJECT Yuba City, California
Complainant's name and address: Phone number:
Date complaint received: Time complaint received:
Nature of lighting complaint:
Definition of problem after investigation by plant personnel: Date complainant first contacted:
Description of corrective measures taken: Complainant's signature: _____ Date:
Approximate installed cost of corrective measures: $ Date installation completed: Date first letter sent to complainant: _____ (copy attached) Date final letter sent to complainant: _____ (copy attached)
This information is certified to be correct: Plant Manager's Signature:

(Attach additional pages and supporting documentation, as required.)

F. BIOLOGICAL RESOURCES

As is often the case with many complex industrial developments, the Sutter Power Plant Project provoked a substantial degree of interest, especially among residents in the vicinity. This part of the Decision discusses the broad areas of environmental, health, safety, and socioeconomic concerns expressed during these proceedings.

The Commission's examination of biological resources is directed toward impacts to state and federally listed species, species of special concern, wetlands, and other areas of critical biological interest. This analysis evaluates the biological resources of the project site and ancillary facilities; determines the need for mitigation; and assesses the adequacy of mitigation proposed by the Applicant, other parties, Commission staff, relevant agencies, and members of the public. Resulting mitigation measures are intended to reduce identified impacts to less than significant levels.

The area of the SPP project site is characterized by alluvial plain soils deposited by the Sacramento and Feather Rivers. This area historically supported abundant grasslands, wetlands, waterfowl, furbearers, ungulates, and other biological resources. Most of the area is now used for agriculture, however, with few wetlands or grasslands. The historic marshes, small lakes, sloughs and wetlands were drained and diverted into the Sutter Bypass after its construction in the early 1900's. (Ex. 2, p. 428.)

Many of the local irrigation canals support vegetation similar to that found along natural waterways, providing some of the most important remaining habitat for the federally- and state-listed giant garter snake. The area is still a major wintering ground for migratory waterfowl of the Pacific Flyway. Although there has been a steady decline in waterfowl numbers throughout the Sacramento Valley since 1979, the Sutter National Wildlife Area and the Butte Sink support 22 to 25 percent of the Valley's wintering population. Some riparian corridors are still present along the Sacramento and Feather Rivers and along the Sutter Bypass.

The Sacramento River and Sutter Bypass are used as a spawning ground or migratory route by several fish species that are either listed or proposed for listing, including winter-, spring-, and fall-run chinook salmon, Central Valley steelhead, and Sacramento splittail. Remaining grasslands provide foraging habitat for the state-listed Swainson's

hawk and several other raptors. Due to the loss of most natural areas within Sutter County, preserving the remaining habitat is important to maintain existing levels of wildlife. (*Id.*)

Sutter County has developed a three-tiered biological sensitivity classification for all county lands based on the presence, extent, expected function, relative sensitivity, and overall importance of vegetative communities. Maps showing the approximate locations of areas designated as high, moderate or low sensitivity were introduced into evidence by the Applicant. (Ex. 4, pp. 8.2-3 & 8.2-4.) These maps depict the SPP plant site in a Low Sensitivity Area and the linear facilities within Moderately and Highly Sensitive Areas.

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BIOLOGICAL RESOURCES Figure 1

Sutter Power Plant Project Features, Including Linear Facilities

Power Plant Site: The 77-acre parcel on which the proposed SPP site will be located consists of the 12.3-acre Greenleaf 1 Power Plant and associated roads, 8.67 acres of seasonal wetlands, 52.8 acres of annual grasslands, 2.0 acres of drainage canals, and 1.2 acres of blackberry bramble. The grasslands are former rice fields that have been fallow for since the construction of Greenleaf 1, and are mowed annually. These grasslands provide foraging habitat for game birds, several raptors, including the Swainson's hawk, and upland habitat for the giant garter snake. The drainage canals contain vegetation similar to natural water ways and support several prey species such as bullfrogs, crayfish, insects and mosquito fish. The canals provide suitable habitat for several bird species, including the American bittern, and for the giant garter snake. The blackberry bramble as well as a few willow and cottonwood trees provide habitat for several bird species, including a resident great-horned owl. The plant site is surrounded by agricultural land, predominately rice fields.

The wetlands found on site represent a small island of remaining natural wetlands or a remnant of the historic landscape. The Applicant has identified five classifications of wetlands on the site: transitional vernal pools, borrow pits, mosquito abatement trenches, perennial mosquito abatement pond, and seasonal depressions. (Ex. 4, Table 8.2-6; Ex.2, Biological Resources Figure 2.)

Impacts to biological resources at the plant site were described by Calpine witness Debra Crow who testified that approximately 16.73 acres of annual grassland will be lost due to the power plant footprint and access road. Seasonal wetlands amounting to 5.83 acres will also be lost to construction, although portions of these wetlands will only be temporarily disturbed during construction activities. (Ex. 26, p. 86.)

The project's original proposal to use wet cooling towers posed potential thermal and chemical wastewater impacts to anadromous and inland fisheries, giant garter snakes and waterfowl in the area. However, in a letter to the Energy Commission dated September 11, 1998, Calpine proposed using a 100 percent dry cooling design which will reduce groundwater use to an annual average of 140 gallons per minute and will result in zero discharge of effluent from the facility. The cooling tower will be replaced by air cooled condensers that will not emit a steam plume and will eliminate biological impacts associated with wastewater discharge and cooling tower drift. (Ex. 2, p. 439; 11/2/98 RT 123.) The Commission has required this dry cooling technology to be used.

BIOLOGICAL RESOURCES Table 1

Species of Concern Observed or Presumed to be in the SPP Project Area

Common Name	Scientific Name	Status[1]
American bittern	*Botaurus lentiginosus*	FC
White-face ibis	*Plegadis chihi*	FC, SC
Aleutian canada goose	*Branta canadensis leucopareia*	FT
White-tailed kite	*Elanus leucurus*	FP
Northern harrier	*Circus cyaneus*	SC
Bald eagle	*Haliaeetus leucocepalus*	FT, SE
Swainson's hawk	*Buteo swainsoni*	ST
American peregrine falcon	*Falco peregrinus anatum*	FE, SE
Greater sandhill crane	*Grus canadensis tabida*	ST, FP
Lark sparrow	*Chondestes grammacus*	FC
Giant garter snake	*Thamnophis gigas*	FT, ST
Northwestern pond turtle	*Clemmys marmorata*	FC, SC
Winter-run chinook salmon	*Oncorhynchus tshawytscha*	FE, SE
Spring-run chinook salmon	*Oncorhynchus tshawytscha*	FPE
Fall-run chinook salmon	*Oncorhynchus tshawytscha*	FPT
Late fall-run chinook salmon	*Oncorhynchus tshawytscha*	FPT
Central Valley steelhead	*Oncorhynchus mykiss*	FPE
Sacramento Splittail	*Pogonichthys macrolepidotus*	FPT
California hibiscus	*Hibiscus lasiocarpus*	CNPS list 2

[1] Status:
FE: Federally Endangered
FT: Federally Threatened
FP: Federally Protected
FPE: Federally Proposed Endangered
FPT: Federally Proposed Threatened
FC: Federal Species of Concern
SE: State Endangered
ST: State Threatened
SC: California Species of Special Concern
CNPS list 2: California Native Plant Society list 2 - rare or endangered in California

Natural Gas Pipeline: The 14.9-mile natural gas pipeline parallels paved and dirt roads. Approximately 5,500 feet of line runs through the Sutter National Wildlife Refuge (SNWR) along Hughes Road. Approximately 6.5 miles parallel irrigation canals. The SNWR, located in the Sutter Bypass, contains seasonal wetlands, permanent wetlands, and riparian corridors. This is classified as a Highly Sensitive Habitat Area by Sutter County. Sensitive species found in this habitat include chinook salmon and Central Valley steelhead, the Sacramento splittail, and the listed giant garter snake. Construction of the natural gas pipeline will require a 25 to 50 foot corridor.

The pipeline will be constructed by PG&E, and a detailed engineering plan has not yet been developed. Commission staff, however, has determined that construction of the natural gas pipeline will permanently remove 0.2 acres of Swainson's hawk habitat. In addition, temporary disturbances will occur during construction along the entire 15-mile route. Any Swainson's hawk nest located within 0.5 mile of the route during construction activities could be disturbed during the nesting season from April through August. Since the route parallels 6.5 miles of irrigation canals that support giant garter snakes, construction during the winter hibernation period of October through March could result in direct takings of individual snakes. To eliminate potential impacts to fisheries, riparian vegetation, and California hibiscus, the pipeline will be bored 30 feet underneath the water channels on either side of the Bypass. Placing the pipeline under Hughes Road through the Bypass will eliminate impacts to wetland habitats. (Ex. 2, p. 440.)

Transmission Line: The transmission line will extend south along the west side of South Township Road to O'Banion Road, then west along the south side of O'Banion Road a switching station located near the levee on the south side of O'Banion. Other, alternative transmission line routes have been eliminated from consideration. (See Alternatives discussion, *infra*.) The length of the transmission line is 4 miles and will consist of 32 poles, terminating in a switchyard which will require 2.2 acres. (Ex. 2, p. 434; Ex. 4, p. 86.)

Construction of the transmission line near irrigation canals could result in the direct take of individual giant garter snakes if conducted during October through March. The thirty-two poles required for the O'Banion Road route would result in the permanent loss of 0.009 acres and temporary loss of 0.01 acres of Swainson's hawk foraging and giant garter snake upland habitat.

The site for the proposed switchyard at the west end of O'Banion Road consists of buildings and rice fields that are managed for waterfowl during the hunting season and that constitute Swainson's hawk foraging habitat. Placement of the switchyard within 200 feet of any drainage canal would likely impact giant garter snake habitat. Placing it in the location of the buildings would reduce loss of habitat.

The transmission line will increase the risk of avian collisions. Local hunting may elicit a flushing response that could increase the risk for collision along the line that spans the slough. Most collisions occur with the small diameter shield wire located at the top of the span. Areas along the routes that parallel distribution lines also present higher collision risks due to the clustering of lines. (Ex. 2, p. 440.)

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Mitigation

Calpine's decision to change from wet cooling towers to a dry air condenser substantially reduced the potential for biological impacts. This change: 1) eliminates impacts to aquatic biota from wastewater discharge in the field drains and Sutter Bypass; 2) eliminates impacts to the wetlands and surrounding vegetation from cooling tower drift; and 3) reduces potential for avian collisions with the HRSG stacks. (Ex. 2, p. 447.) The evidence of record also establishes the amount of habitat affected by the project and the amount of compensatory habitat required to mitigate the habitat lost:

Biological Resources Table 3:
Acres of Habitat Permanently Lost, Compensation Ratios and Acres of Compensatory Habitat Required

	Wetlands	Swainson's Hawk Habitat		Giant Garter Snake Habitat
		grassland	ag land	
Plant Site & Access Road	5.83	16.73	0	2.7
Gas Pipeline & Dehydrator Station	0	0	0.2	0
Transmission Line O'Banion Road	0	0.007	0	0.01
Switchyard	0	0	2.2[1]	2.2
Totals:	5.83	16.737	2.4	4.907
Mitigation ratios	1:1	1:1	0.5:1	3:1
Replacement Habitat required	5.83	16.737	1.2	14.721

[1] This assumes that the switchyard will be placed in cultivated fields and not grasslands or developed lands.

Calpine's witnesses summarized the various mitigation measures to compensate for project-related losses to wetlands, Swainson's hawk habitat and habitat for giant garter snakes. In addition to purchasing habitat compensation, the Applicant will revegetate areas used for construction lay-down, conduct pre-construction species surveys, drill under, rather than trenching through habitat waterways, and have a designated biologist on site during construction to supervise compliance and give awareness training. Transmission line top wires will be fitted with bird flight diverters, making them more visible to reduce the number of birds impacting the lines. Any such impacts among sensitive species will be monitored. If evaporative ponds are used, measures will be used to divert or restrict bird access to the ponds. The witness concluded that when all the ratios for compensatory habitat are calculated, Calpine will be enhancing and preserving twice as much land as will be taken by the project. The witness added that all of the Staff-proposed Conditions of Certification were acceptable to the applicant. (11/2/98 RT 108-112.)

In her verbal testimony, Commission staff biologist Linda Spiegel discussed the plan to mitigate for lost habitat. Calpine will pay $617,125.00, an amount based on the acreage of habitat which is disturbed by the project. (11/2/98 RT 119.) This money will be used by Wildlands Incorporated to purchase suitable habitat for the impacted species. Wildland Incorporated is a habitat development corporation dedicated to restoration and preservation of habitat and wildlife.[55] The compensatory habitat purchased will be approved by the California Department of Fish and Game and protected in perpetuity. (*Id.*, RT 122.) After summarizing the mitigation measures contained in the Conditions of Certification, the Staff witness testified that these measures will fully compensate for habitat loss to Swainson's hawk, giant garter snake and wetland habitat (11/2/98 RT 122-123) as well as reduce project impacts on biological resources to less than significant levels. She cited a letter from California Department of Fish and Game agreeing with that conclusion as well as a verbal concurrence from the U.S. Fish and Wildlife Service. She noted that a written biological opinion is due from that federal agency "in the next couple of weeks." (*Id.*, RT 123.)

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[55] Compensatory habitat is available through Wildlands Inc. for giant garter snake and Swainson's hawk habitat at the Dolan Ranch mitigation bank in Colusa County and for wetlands at the Sheridan Ranch mitigation bank in Sacramento County. (Ex. 2, 447.)

In response to questions regarding facility impacts on the Sutter National Wildlife Refuge, Ms. Spiegel testified that impacts from the gas pipeline installation would be temporary and that while the transmission line could have an impact, bird flight diverters required as mitigation on the transmission line are known to reduce collisions by up to 89 percent. She concluded that the project was consistent with the primary use of the refuge and that, as mitigated, it would avoid any substantial adverse environmental effect on the refuge. (*Id.*, RT 127-128.)

Public Comments

Local landowner Mary Woods expressed her concern that the proposed transmission line would result in increased numbers of ducks hitting the lines. She believes that the design of the transmission line will enclose the local area on two sides, thereby increasing duck collisions. (Id., RT 135.) Local grower (and subsequently intervenor) Brad Foster complained of weeds coming from the plant property due to its natural condition and asked for improvements in the weed mowing schedule. Mr. Foster also questioned the adequacy of the compensatory habitat for lost Swainson's hawk habitat. (*Id.*, RT 133.)

Commission Discussion

Several of the mitigation and project design measures are likely to address the concerns expressed by members of the public. Habitat mitigation for the Swainson's hawk has been determined by wildlife experts who are charged with protecting such habitat. The Commission has properly relied upon their determination that adequate compensatory habitat is being provided. Likewise, we rely on expert biologists to recommend mitigation measures which will significantly reduce bird mortality from collision with transmission line conductors. While the project's transmission line is likely to result in some bird deaths, the evidence of record demonstrates that the losses will not be significant. Weed seeds from the project site are likely to be reduced from current levels at least in part because the power plant and related facilities will consume much of the area which is presently producing weeds.

In a letter dated February 17, 1999, Gary W. Kramer, Manager of the Sutter National Wildlife Refuge, sent to the Commission an official expression from the U.S. Fish and Wildlife Service granting its conditional permission for the project pipeline to be built

within the Sutter National Wildlife Refuge. This letter allows the Commission to make the affirmative findings required by the Commission's regulations. (20 CCR, § 1752(g)(3).)[56] Federal preemption ensures that any mitigation measures required by the U.S. Fish and Wildlife Service in its biological opinion will modify or supersede those included by this Commission. However, the bioilogical opinion issued on April 2, 1999, found that the project as mitigated through the Commission's process, would not likely jeopardize sensitive species or habitats.

FINDINGS AND CONCLUSION

Based on the weight of the evidence of record, the Commission finds:

1. The proposed project and its appurtenant facilities including its gas pipeline and electric transmission line will be consistent with the primary land use of the Sutter National Wildlife Refuge.

2. The project will disturb a total of 19.137 acres of Swainson's hawk, giant garter snake and wetland habitat and provide 38.488 acres of compensatory habitat.

3. The Applicant will pay $617,125 (less any discount negotiated with Wildlands, Inc.) to Wildlands Inc., for the purchase and management of compensatory habitat.

4. The compensatory habitat purchase will be supervised and approved by biologists from the CEC, California Department of Fish and Game, and the U.S. Fish and Wildlife Service.

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[56] This section of the regulations requires the Presiding Member's Proposed Decision to make findings with respect to "[a]reas for wildlife protection, recreation or historic preservation;" In the case of such an area, i.e., the Sutter National Wildlife Refuge, the PMPD must make, "[f]indings and conclusions on whether the facility will be consistent with the primary land use of the area; whether the facility, after consideration of feasible mitigation measures, will avoid any substantial adverse environmental effect; and whether the approval of the public agency having ownership or control of the land has been obtained."

5. The Sutter Power Plant Project, as mitigated, will not cause a significant adverse environmental impact to the Sutter National Wildlife Refuge.

6. The United States Fish and Wildlife Service, as the agency having ownership and control of the Sutter National Wildlife Refuge, has given its official conditional approval for the Sutter Power Plant Projectnatural gas pipeline to cross the refuge.

7. The April 2, 1999, biological opinion of the United States Fish and Wildlife Service determined that, with mitigation, no jeopardy to sensitive species would result from certification of the project.

8. The SPP facility has the potential to adversely affect biological resources in the area.

9. The potential adverse affects of the SPP (including associated transmission line and natural gas supply pipeline), if left unmitigated, would fall primarily upon wetlands, grasslands and their inhabitants, including the Swainson's hawk, the Giant Garter Snake, and migratory waterfowl.

10. The California Department of Fish and Game, the U.S. Fish and Wildlife Service, and the National Marine Fisheries Service have all been consulted, as appropriate, in formulating the Conditions of Certification listed below.

11. The measures specified in the Conditions of Certification listed below will adequately mitigate the potential adverse effects upon biological resources of the SPP project to below a level of significance.

12. With the implementation of the mitigation measures specified below, the SPP project will conform with all applicable laws, ordinances, regulations and standards, identified in the pertinent portion of APPENDIX A of this Decision.

We therefore conclude that the Sutter Power Plant will not result in any significant adverse impacts to biological resources, is consistent with the primary land use of the Sutter National Wildlife Refuge, and to date has not demonstrated evidence of the

approval of the U.S. Fish and Wildlife Service for use of the refuge for the project's natural gas pipeline.

CONDITIONS OF CERTIFICATION

BIO-1 Construction-site and/or ancillary facilities preparation (described as any ground disturbing activity other than allowed geotechnical work) shall not begin until an Energy Commission Compliance Project Manager (CPM) approved designated biologist is available on site.

Protocol: The designated biologist must meet the following minimum qualifications:

1) a bachelor's degree in biological sciences, zoology, botany, ecology, or a closely related field;

2) three years of experience in field biology or current certification of a nationally recognized biological society, such as the Ecological Society of America or The Wildlife Society;

3) one year of field experience with resources found in or near the project area; and

4) ability to demonstrate to the satisfaction of the CPM the appropriate education and experience for the biological resource tasks that must be addressed during project construction and operation.

If, within 30 days of receiving the proposed designation, the CPM determines that the proposed designated biologist is unacceptable, the project owner shall submit another individual's name and qualifications for consideration.

If the approved designated biologist needs to be replaced, the project owner shall obtain approval of a new designated biologist by submitting to the CPM the name, qualifications, address, and telephone number of the proposed replacement.
No disturbance will be allowed in any designated sensitive area(s) until the CPM approves a new designated biologist and that designated biologist is on-site.

Verification: At least 30 days prior to the start of rough grading, the project owner shall submit to the CPM for approval, the name, qualifications, address, and telephone number of the individual selected by the project owner as the designated biologist. If a designated biologist is replaced the information on the proposed replacement as specified in the Condition must be submitted in writing at least ten working days prior to the termination or release of the preceding designated biologist.

BIO-2 The CPM approved designated biologist shall perform the following duties:

1) advise the project owner's supervising construction or operations engineer on the implementation of the biological resource Conditions of Certification;

2) supervise or conduct mitigation, monitoring, and other biological resource compliance efforts, particularly in areas requiring avoidance or containing sensitive biological resources, such as wetlands and special status species; and

3) notify the project owner and the CPM of any non-compliance with any Condition.

Verification: The designated biologist shall maintain written records of the tasks described above, and summaries of these records shall be submitted along with the Monthly Compliance Reports to the CPM.

BIO-3 The project owner's supervising construction and operating engineer shall act on the advice of the designated biologist to ensure conformance with the biological resource Conditions of Certification.

Protocol: The project owner's supervising construction and operating engineer shall halt, if needed, all construction activities in areas specifically identified by the designated biologist as sensitive to assure that potential significant biological resource impacts are avoided.

The designated biologist shall:

1) tell the project owner and the supervising construction and operating engineer when to resume construction; and

2) advise the CPM if any corrective actions are needed or have been instituted.

Verification: Within two working days of a designated biologist's notification of non-compliance with a Biological Resources Condition or a halt of construction, the project owner shall notify the CPM by telephone of the circumstances and actions being taken to resolve the problem or the non-compliance with a Condition.

For any necessary corrective action taken by the project owner, a determination of success or failure will be made by the CPM within five working days after receipt of notice that corrective action is completed, or the project owner will be notified by the CPM that coordination with other agencies will require additional time before a determination can be made.

BIO-4 The project owner shall develop and implement a Worker Environmental Awareness Program in which each of its own employees, as well as employees of contractors and subcontractors who work on the project site or related facilities (including any access roads, storage areas, transmission lines, water and gas lines) during construction and operation, are informed about biological resource sensitivities associated with the project (see General Conditions of Compliance).

Protocol: The Worker Environmental Awareness Program:

1) shall be developed by the designated biologist and consist of an on-site or classroom presentation in which supporting written material is made available to all participants;

2) must discuss the locations and types of sensitive biological resources on the project site and adjacent areas;

3) must present the reasons for protecting these resources;

4) must present the meaning of various temporary and permanent habitat protection measures; and

5) must identify who to contact if there are further comments and questions about the material discussed in the program.

The specific program can be administered by a competent individual(s) acceptable to the designated biologist.

Each participant in the on-site Worker Environmental Awareness Program shall sign a statement declaring that the individual understands and shall abide by the guidelines set forth in the program material. Each statement shall also be signed by the person administering the Worker Environmental Awareness Program.

The signed statements for the construction phase shall be kept on file by the project owner and made available for examination by the CPM for a period of at least six (6) months after the start of commercial operation. Signed statements for active operational personnel shall be kept on file by the project owner for the duration of their employment and for six months after their termination.

Verification: At least 30 days prior to the start of rough grading, the project owner shall provide copies of the Worker Environmental Awareness Program and all supporting written materials prepared by the designated biologist and the name and

qualifications of the person(s) administering the program to the CPM for approval. The project owner shall state in the Monthly Compliance Report the number of persons who have completed the training in the prior month and a running total of all persons who have completed the training to date.

BIO-5 Prior to the start of any ground disturbance activities, the project owner shall enter into an Endangered Species Memorandum of Understanding (MOU) with the California Department of Fish and Game (CDFG) (per Section 2081 of the California Endangered Species Act) and implement the terms of the agreement.

Verification: At least 60 days prior to the start of rough grading, the project owner shall submit to the CPM a copy of the final CDFG Endangered Species MOU.

BIO-6 Prior to construction, the project owner shall provide final copies of the Biological Opinions per Section 7 of the federal endangered species act obtained from the U.S. Fish and Wildlife Service (USFWS) and incorporate the terms of the agreement into the Biological Resources Mitigation Implementation and Monitoring Plan.

Verification: At least 60 days prior to the start of rough grading, the project owner shall submit to the project CPM copies of the final USFWS Biological Opinion.

BIO-7 The project owner shall acquire either a Streambed Alteration Agreement or written verification that this permit is not necessary from the California Department of Fish and Game for project impacts to drainages, and implement the terms of the agreement.

Verification: At least 45 days prior to the start of rough grading, the project owner shall provide the CPM with a copy of the California Department of Fish and Game Streambed Alternation Agreement or written verification that this permit is not necessary for this project.

BIO-8 The project owner shall ensure the following measures are implemented to avoid or mitigate project impacts to giant garter snakes:

1) Avoid trenching or auguring activities within 200 feet of giant garter snake habitat from October 2 through April 30.

2) Have the designated biologist on site during construction activities that occur between October 1 and May 1. The designated biologist shall possess a permit as required under Section 10(a)1(A) of the federal Endangered Species Act to capture or relocate snakes.

3) Within 24 hours prior to commencement of construction activities, the site shall be inspected for snakes by the designated biologist. Observed snakes should be reported and cleared to an area that will not be affected by construction within the next 24 hours. If a snake is encountered during construction activities, the designated biologist should be contacted and take appropriate measures to ensure the snake will not be harmed.

4) Avoid obstructing the flow of water through the canals (dewatering). Any dewatered habitat must remain dry for at least 15 consecutive days after April 15 and 15 consecutive days prior to excavating or filling dewatered habitat.

5) Prevent runoff from construction activities from entering giant garter snake habitat.

6) Restrict vegetation clearing to the minimal area necessary to facilitate construction activities. Mark and avoid giant garter snake habitat in or adjacent to the project that will not be directly affected by construction activities.

7) Provide replacement habitat at a location acceptable to USFWS and CDFG to compensate for habitat lost (BIO-13).

8) Mow, rather than disk, to control vegetation on-site. Mower blades should be raised to at least 6 inches during the snake's active period of May 1 to October 1.

9) Conduct activities to clear vegetation in the irrigation canals as necessary to minimize disturbance to snake habitat and in accordance with methods approved by CDFG and USFWS.

10) Eliminate wastewater discharge as described in Condition SOILS&WATER 2.

Verification: At least 45 days prior to rough grading, the project owner shall provide to the project CPM for review and approval written documentation (BRMIMP, BIO-12) that the above measures will be or have been accomplished by the licensee and specifying the procedures used or that will be used to implement these measures.

BIO-9 The project owner shall ensure the following measures are implemented to mitigate or avoid project impacts to Swainson's hawks:

1) The designated biologist shall conduct preconstruction surveys during March through June during construction years to determine if an active nest site is within 0.5 mile of construction activities.

2) Design the project to avoid removal of nest trees and to avoid placement of the transmission line within 0.1 mile of nest trees.

3) The designated biologist shall monitor construction activities that occur within 0.5 mile of an active nest site between March 1 and August 15 or until fledglings are no longer dependent on the nest tree. The monitoring plan shall be acceptable to CDFG.

4) Provide replacement habitat at a location acceptable to CDFG to compensate for the loss of habitat (BIO-13).

5) Protect on-site Swainson's hawk foraging habitat not taken by the power plant foot print in perpetuity or provide replacement habitat at a location and ratio acceptable to CDFG and establish an endowment account adequate to provide funds for the perpetual maintenance and management of the replacement habitat.

Verification: At least 45 days prior to rough grading, the project owner shall provide to the project CPM for review and approval written documentation (BRMIMP, BIO-12) that the above measures will be accomplished by the applicant and specifying the procedures used or that will be used to implement these measures.

BIO-10 The project owner shall ensure the following measures are implemented to mitigate or avoid project impacts to migratory birds:

1) Powerlines shall be constructed following recommendations in Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 1996 (Avian Powerline Interaction Committee 1996).

2) Powerlines located in sensitive areas (e.g. over Gilsizer Slough and through potential foraging or flyway areas) shall be fitted with bird flight diverters placed on the ground wire at 16.4-foot (5-meter) intervals. Sensitive areas shall be identified in the Biological Resources Mitigation Implementation and Monitoring Plan (Condition BIO-12).

3) Between October through March, measures shall be taken in areas of high migratory bird use (such as Gilsizer Slough) to flush birds from the construction area prior to stringing wires.

4) Develop a monitoring plan to analyze whether the transmission line and HRSG stacks are causing significant impacts from avian collision and/or electrocutions. If it is determined that significant impacts are occurring, propose remedial mitigation measures to be implemented. A report presenting the monitoring data and a discussion of the mitigation effectiveness shall be provided annually for 10 years following the completion of construction. If it can be shown that impacts to birds from the project are not occurring, licensee has the option to request staff to decrease the frequency or cease monitoring.

5) Underbuild distribution lines whenever possible. Underbuilt lines should be spaced below conductors to provide a vertical clearance of at least 43 inches.

6) If an evaporation pond is used to store the evaporater brine, the evaporation must be screened or otherwise modified to eliminate the potential for birds and wildlife to enter the pond.

7) Eliminate wastewater discharge as described in Condition SOILS&WATER 2.

Verification: At least 45 days prior to rough grading, the project owner shall provide to the project CPM for review and approval written documentation (BRMIMP, BIO-12) that the above measures will be accomplished by the licensee and specifying the procedures used or that will be used to implement these measures. The avian collision / electrocution monitoring plan annual report shall be provided to the project CPM no later than December 31 for each year monitoring is required.

BIO-11 The project owner shall ensure the following measures are implemented to mitigate or avoid project impacts to wetlands:

1) Provide in-kind replacement habitat at a location acceptable to USFWS for wetlands impacted by the project (BIO-13).

2) Establish an endowment account adequate to provide funds for the perpetual maintenance and management of the replacement habitat.

3) Mark and avoid all wetlands on site that will not be directly taken by the power plant footprint and all wetlands along Hughes Road in the Sutter National Wildlife Refuge.

4) Protect on-site wetlands not taken by the power plant foot print in perpetuity or provide replacement habitat at a location and ratio acceptable to USFWS and establish an endowment account adequate to provide funds for the perpetual maintenance and management of the replacement habitat.

5) Use an air cooled condenser to eliminate wet cooling tower evaporation and incorporate drains designed to route contaminated runoff away from the remaining wetlands or develop and implement a

monitoring program to ensure the wetlands remaining on-site are not degraded by project operations. The program shall include parameters acceptable to USFWS that monitor hydrologic quality and productivity, and identify and defend reference or control wetlands for comparative analysis. If it is determined that the on-site wetlands are being negatively impacted, propose remedial mitigation measures to be implemented. A report presenting the monitoring data and a discussion of the mitigation effectiveness shall be provided annually for the life of the project. If it can be shown that the wetlands are not being negatively impacted, licensee has the option to request Staff to decrease the frequency or cease monitoring.

6) Place a construction cloth over all remaining wetlands located within 500 feet of construction and related roads during construction activities.

7) Place the pipeline under or in the shoulder of Hughes Road.

Verification: At least 45 days prior to rough grading, the project owner shall provide to the project CPM for review and approval written documentation (BRMIMP, BIO-12) that the above measures will be accomplished by the licensee and specifying the procedural terms for implementing these measures. The wetland monitoring plan annual report shall be provided to the project CPM no later than July 1 for each year monitoring is completed.

BIO-12 The project owner shall submit to the CPM for review and approval a copy of the final Biological Resources Mitigation Implementation and Monitoring Plan.

Protocol: The Biological Resources Mitigation Implementation and Monitoring Plan shall identify:

- all sensitive biological resources to be impacted, avoided, or mitigated by project construction and operation;

- all conditions agreed to in the USFWS Biological Opinion and CDFG Endangered Species Memorandum of Understanding;

- all mitigation, monitoring and compliance conditions included in the Commission's Final Decision;

- all conditions agreed to in the USACE Clean Water Act Permits;

    - all conditions specified in the CDFG Streambed Alteration Permit, if required;

- required mitigation measures for each sensitive biological resource;

- required habitat compensation, including provisions for acquisition, enhancement and management, for any loss of sensitive biological resources;

- a detailed plan for protecting the existence and monitoring the integrity of the wetlands remaining on-site;

- a detailed description of measures that will be taken to avoid or mitigate temporary disturbances from construction activities;

- all locations, on a map of suitable scale, of laydown areas and areas requiring temporary protection and avoidance during construction;

- aerial photographs of all areas to be disturbed during project construction activities - one set prior to site disturbance and one set subsequent

to completion of mitigation measures. Include planned timing of aerial photography and a description of why times were chosen;

- monitoring duration for each type of monitoring and a description of monitoring methodologies and frequency;

- performance standards to be used to help decide if/when proposed mitigation is or is not successful;

- all remedial measures to be implemented if performance standards are not met; and

  - a process for proposing plan modifications to the CPM and appropriate agencies for review and approval.

Verification: At least 45 days prior to rough grading, the project owner shall provide the CPM with the final version of the Biological Resources Mitigation Implementation and Monitoring Plan for this project, and the CPM will determine the plan's acceptability within 15 days of receipt of the final plan. The project owner shall notify the CPM five working days before implementing any modifications to the Biological Resource Mitigation Implementation and Monitoring Plan.

Within 30 days after completion of construction, the project owner shall provide to the CPM, for review and approval, a written report identifying which items of the Biological Resource Mitigation Implementation and Monitoring Plan have been completed, a summary of all modifications to mitigation measures made during the project's construction phase, and which condition items are still outstanding.

BIO-13 The project owner shall provide $617,125 (less any discount negotiated with Wildlands, Inc.) in the form of a check or money order to Wildlands Incorporated to acquire and manage lands as compensation for the loss of habitat from SPP construction and operation.

Protocol: Final determination of compensatory acres required will be determined by CEC after the project owner has submitted a final design of the project or by assuming a worse case estimate. The total number of compensatory acres shall account for the total number of acres lost for each habitat type impacted (Swainson's hawk habitat, wetland habitat, and giant garter snake habitat).

If any habitat disturbance occurs beyond that covered by the $ 617,125 amount, the project owner shall provide additional funds at current 1998 values of $52,000 per wetland acre, $ 1,500 per Swainson's hawk habitat acre, and $19,500 per giant garter snake habitat acre at ratios established by the CPM in consultation with USFWS and CDFG. The additional funds will be provided to Wildlands, Incorporated. Additional disturbance shall be determined by black and white aerial photographs taken before and after construction at a scale of 1" = 200' as specified in BIO-12.

Verification: Within sixty (60) days after the Commission Decision is issued, the project owner shall provide the CPM a copy of the land purchase agreement between the project owner and Wildlands, Incorporated. At least ten (10) days prior to construction, the project owner shall provide the CPM a copy of the check or money order delivered to Wildlands Incorporated. Within ninety (90) days prior to the start of construction, the project owner shall provide the CPM with aerial photos taken before construction. Within one hundred eighty (180) days after construction, the project owner shall provide the CPM aerial photos taken after construction and an analysis of the amount of any habitat disturbance additional to that determined in the FSA and compensated for by lands purchased. The CPM will notify the project owner of any additional amount of funds required to compensate for additional habitat disturbances at the adjusted market value at the time of construction.

G. NOISE

As part of its licensing process, the Commission is required to determine whether the potential environmental impacts of noise from the site clearing, construction, and operation of the SPP are consistent with local noise level limits. Construction and operation of any power plant creates noise, or unwanted sound. The character and loudness of this noise, the times of day or night during which it is produced, and the proximity of the facility to any sensitive receptors combine to determine whether the project will meet applicable noise control laws and ordinances, and whether it will exhibit significant adverse environmental impacts.

Federal and State laws exist to protect plant workers from noise-related safety hazards. Measures which protect neighbors from noise impacts are the California Environmental Quality Act and, more specifically, the Sutter County General Plan. The noise element of the general plan limits daytime operation of noise sources such as the proposed SPP, to 50 dBA[57] and with a 45 dBA limit at night, as measured at the nearest residence to the plant. Because the SPP is designed to operate 24 hours a day, it must meet the stricter 45 dBA limit at all times. (11/2/98 RT 141.) Table A2 of the Commission staff testimony, reprinted below, describes noise at the 45 dBA level as falling within the upper end of the quiet range. (Ex. 2, p. 242.)

Ambient noise surveys carried out by the Applicant revealed local noise levels as low as 41 to 45 dBA. This includes noise from the existing Greenleaf 1 Power Plant, which was operating at the time of the surveys, as well as general background noises from wind, birds, frogs and insects. Commission staff witness Steve Baker testified that adding the SPP noise to this level of background noise would increase total noise levels by three or four decibels; this increase is generally regarded as an insignificant amount. (11/2/98 RT 142.) While the project will be designed and constructed to the 45 dBA noise level, Calpine will be required to carry out a noise monitoring survey after the plan begins operation to confirm that the plant achieves the specified noise level.

In comparing the SPP noise level to those of the existing Greenleaf 1 facility, Mr. Baker noted that the existing plant was built prior to adoption of present noise standards and is much noisier. While the older plant has drawn complaints in the past, it is

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[57] A - weighted sound level in decibels (dBA).

"grandfathered" in and need not meet current standards. He testified that, in contrast to the original plant, at 45 dBA the SPP would..."be all but inaudible. One would have to deliberately sit down and listen, and listen hard to determine whether this plant is operating or not." (11/2/98 RT 143: 18-20.)

In answer to a question from the Committee regarding noise from steam venting at the Greenleaf 1 plant, Calpine witness Charlene Wardlow testified that in response to statements from neighbors, Calpine had refitted the older plant's steam vent with silencers to reduce high-pitched venting noises due to unscheduled outages. (11/2/98 RT 148.) Staff witness Baker also answered Committee questions regarding a "silent blow" process that Calpine may use during construction to clean out the system prior to beginning operation. This could replace the traditional and louder, steam blow technique. He has heard the process in operation at another power plant and described it as "amazingly quiet". (11/2/98 RT 149.)

Mr. Baker also summarized the noise complaint process which would be in place as part of the Conditions of Certification. It requires the Applicant to establish a special, published phone number for complaints. Any noise complaints would have to be addressed within 24 hours of receiving the call. If the offending noise were found to be caused by the project, the project owner is required to take all feasible steps to eliminate the problem. The program is monitored by the Commission's compliance unit to ensure implementation by the project owner. (11/2/98 RT 151.)

Public Comment

Local resident Rosie Foster voiced concerns that the old Greenleaf 1 project would simply drown out the noise from the SPP. She is also concerned that if the project is built on an eight foot pad, it may transmit excess noise down upon the nearby residents. She further stressed the need to make environmental requirements specific and mandatory, rather than within the discretion of the Applicant. (11/2/98 RT 152-153.)

Commission Discussion

The Greenleaf 1 project was not licensed by the Commission and is not subject to its jurisdiction. Thus, only Sutter County can address noise concerns at that facility. However, the record indicates that Calpine has voluntarily taken some measures to reduce noise at the Greenleaf project. The height of the SPP will not effect noise levels

from the plant because the project must meet a performance standard of no more than 45 db at the nearest residence, regardless of plant height. In response to Ms. Foster's suggestion regarding discretionary requirements, the Commission will require the use of a quiet steamblow process.

The Commission concludes that, based on the uncontested evidence of record, the project can be constructed and operated in a manner which will not imposes significant noise impacts upon the local environment.

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NOISE Table A2 Typical Environmental and Industry Sound Levels			
Source and Given Distance from that Source	A-Weighted Sound Level in Decibels (dBA)	Environmental Noise	Subjectivity / Impression
Civil Defense Siren (100')	140-130		Pain Threshold
Jet Takeoff (200')	120		
	110	Rock Music Concert	Very Loud
Pile Driver (50')	100		
Ambulance Siren (100')	90	Boiler Room	
Freight Cars (50')			
Pneumatic Drill (50')	80	Printing Press Kitchen with Garbage Disposal Running	Loud
Freeway (100')	70		Moderately Loud
Vacuum Cleaner (100')	60	Data Processing Center Department Store / Office	
Light Traffic (100')	50	Private Business Office	Quiet
Large Transformer (200')	40		
Soft Whisper (5')	30	Quiet Bedroom	
	20	Recording Studio	
	10		Threshold of Hearing
	0		

Source: Peterson and Gross 1974; Ex. 2, p. 242.

FINDINGS AND CONCLUSION

Based on the weight of the evidence of record, the Commission finds:

1. Project construction will increase the noise levels above the existing ambient levels in the surrounding community.

2. The project's construction noise levels will be temporary in nature and mitigated to the extent feasible; therefore, they will not result in a significant impact to the surrounding community.

3. The existing ambient noise levels in the area surrounding the project site have been measured at between 41 and 45 dBA.

4. The project's operation noise levels will not significantly elevate noise levels in the community above the existing ambient noise levels.

5. Applicant will implement the mitigation measures contained below, which will ensure that noise levels will not significantly increase as a result of the SPP.

6. With the implementation of the Conditions of Certification set forth below, the Sutter Power Plant Project will be constructed and operated in conformity with the applicable laws, ordinances regulations and standards set forth in the appropriate portion of APPENDIX A of this Decision.

We therefore conclude that the SPP will cause no significant adverse noise impacts.

CONDITIONS OF CERTIFICATION

NOISE-1 At least 15 days prior to the start of rough grading, the project owner shall notify all residents within one mile of the site, by mail or other effective means, of the commencement of project construction. At the same time, the project owner shall establish a telephone number for use by the public to report any undesirable noise conditions associated with the

construction and operation of the project. If the telephone is not staffed 24 hours per day, the project owner shall include an automatic answering feature, with date and time stamp recording, to answer calls when the phone is unattended. This telephone number shall be posted at the project site during construction in a manner visible to passersby. This telephone number shall be maintained until the project has been operational for at least one year.

Verification: The project owner shall transmit to the CPM in the first Monthly Construction Report following the start of rough grading a statement, signed by the project manager, attesting that the above notification has been performed, and describing the method of that notification. This statement shall also attest that the telephone number has been established and posted at the site.

NOISE-2 Throughout the construction and operation of the project, the project owner shall document, investigate, evaluate, and attempt to resolve all project related noise complaints.

Protocol: The project owner or authorized agent shall:

- use the Noise Complaint Resolution Form (see next page for example), or functionally equivalent procedure acceptable to the CPM, to document and respond to each noise complaint;
  - attempt to contact the person(s) making the noise complaint within 24 hours;
  - conduct an investigation to determine the source of noise related to the complaint;
  - if the noise is project related, take all feasible measures to reduce the noise at its source; and
  - submit a report documenting the complaint and the actions taken. The report shall include: a complaint summary, including final results of noise reduction efforts; and if obtainable, a signed statement by the complainant stating that the noise problem is resolved to complainant's satisfaction.

Verification: Within 30 days of receiving a noise complaint, the project owner shall file a copy of the Noise Complaint Resolution Form, or similar instrument approved by the CPM, with the Sutter County Community Services Department and with the CPM documenting the resolution of the complaint. If mitigation is required to resolve a complaint, and the complaint is not resolved within a 30 day period, the project owner shall submit an updated Noise Complaint Resolution Form when the mitigation is finally implemented.

NOISE-3 Prior to the start of project construction, the project owner shall submit to the CPM for review a noise control program. The noise control program shall be used to reduce employee exposure to high noise levels during construction and also to comply with applicable OSHA standards.

Verification: At least 30 days prior to the start of rough grading, the project owner shall submit to the CPM the above referenced program. The project owner shall make the program available to OSHA upon request.

NOISE COMPLAINT RESOLUTION FORM

SUTTER POWER PLANT PROJECT (97-AFC-2)
NOISE COMPLAINT LOG NUMBER _____ Complainant's name and address: Phone number:
Date complaint received: Time complaint received:
Nature of noise complaint:
Definition of problem after investigation by plant personnel: Date complainant first contacted:
Initial noise levels at 3 feet: _____ dBADate: Initial noise levels at complainant's property: _____ dBA Date: Final noise levels at 3 feet: _____ dBA Date: Final noise levels at complainant's property: _____ dBA Date:
Description of corrective measures taken: Complainant's signature: _____ Date:
Approximate installed cost of corrective measures: $ Date installation completed: Date first letter sent to complainant: _____ (copy attached) Date final letter sent to complainant: _____ (copy attached)
This information is certified to be correct: Plant Manager's Signature:

(Attach additional pages and supporting documentation, as required.)

NOISE-4 The project owner shall use a modern, low-pressure, continuous, "quiet" steam blow process and shall submit a description of this process, with expected noise levels and projected hours of execution, to the CPM.

Verification: At least 15 days prior to the first low-pressure continuous steam blow, the project owner shall submit to the CPM drawings or other information describing the process, including the noise levels expected and the expected time schedule for execution of the process.

NOISE-5 The project owner shall conduct a public notification program to alert residents within one mile of the site prior to the start of steam blow activities. The notification shall include a description of the purpose and nature of the steam blow(s), the proposed schedule, the expected sound levels and the explanation that it is a one-time operation and not a part of normal plant operations.

Verification: At least 15 days prior to the first steam blow(s), the project owner shall notify all residents within one mile of the site of the planned steam blow activity, and shall make the notification available to other area residents in an appropriate manner. The notification may be in the form of letters to the area residences, telephone calls, fliers or other effective means. Within five (5) days of notifying these entities, the project owner shall send a letter to the CPM confirming that they have been notified of the planned steam blow activities, including a description of the method(s) of that notification.

NOISE-6 Upon the project first achieving an output of 80 percent or greater of rated capacity, the project owner shall conduct a 25-hour community noise survey, utilizing the same monitoring sites employed in the pre-project ambient noise survey as a minimum. The survey shall also include the octave band pressure levels to ensure that no new pure-tone noise components have been introduced. If the results from the survey indicate that operation of the power plant causes noise levels in excess of 45 dBA (l_{eq}) measured at the nearest residence, additional mitigation measures shall be implemented to reduce noise to a level of compliance with this

limit. No single piece of equipment shall be allowed to stand out as a dominant source of noise.

Verification: Within 30 days after first achieving an output of 80 percent or greater of rated output, the project owner shall conduct the above described noise survey. Within 30 days after completing the survey, the project owner shall submit a summary report of the survey to the Sutter County Community Services Department and the CPM. Included in the report will be a description of any additional mitigation measures necessary to achieve compliance with the above listed noise limits, and a schedule, subject to CPM approval, for implementing these measures. Within 30 days of completion of installation of these measures, the project owner shall submit to the CPM a summary report of a new noise survey, performed as described above and showing compliance with this condition.

NOISE-7 The project owner shall conduct an occupational noise survey to identify the noise hazardous areas in the facility. The survey shall be conducted within thirty (30) days after the facility is in full operation, and shall be conducted by a qualified person in accordance with the provisions of Title 8, California Code of Regulations sections 5095-5100 (Article 105) and Title 29, Code of Federal Regulations, Part 1910. 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 upon request.

H. TRAFFIC AND TRANSPORTATION

In this section the Commission examines the extent to which the project may impact the transportation system within the vicinity of the proposed plant. In some cases large numbers of construction workers can, over the course of the construction phase, increase roadway congestion and also affect traffic flow. The proposed underground gas lines are located within road rights-of-way requiring trenching and other activities disruptive to traffic flows. In addition, the transportation of large pieces of equipment can require rail use and the alteration of traffic flows and roadway use. Traffic related to plant operation does not tend to produce similar types of impacts because of the limited number of vehicles involved.

When assessing a projects' potential impact on the local transportation system, levels of service (LOS) measurements are used for evaluation. These LOS measurements represent the flow of traffic. In general, levels of service range from A (free flowing traffic) to F (which is heavily congested, with stoppage of the flow). An LOS D threshold is the minimum standard accepted by Sutter County. This level of service is generally considered marginally acceptable.

In the SPP Application for Certification, the Applicant documented that essentially all local roadways are operating at least at a level of service C. (Ex. 4, Tables 8.10-1, 8.10-2 and 8.10-3.)

During a workshop on the project, however, truck traffic in the immediate vicinity of the existing Greenleaf project was identified as a cause of concern by local residents. They complained of noise and of the use of local roadways other than Oswald and South Township roads. These complaints were apparently prompted by truck traffic for both the existing Greenleaf 1 Power Plant deliveries and transportation for agricultural related products. (Ex. 2, p. 218.)

Calpine witness Charlene Wardlow addressed this concern in her testimony. She pointed out that the Greenleaf 1 facility has a dryer for drying prune pits and wood chips and produces a great deal of traffic as a result of these deliveries. Trucks going to Greenleaf 1 are currently allowed to use South Township Road. The SPP on the other hand will have no truck traffic related to drying activities and has agreed to require that

its trucks use George Washington or Highway 99 and Oswald Roads to South Township Road and then to the plant. This change in truck routing should eliminate most of the local complaints concerning traffic which is related to the SPP. (11/2/98 RT 154.)

Ms. Wardlow further stated that the Applicant agrees to the Conditions of Certification recommended by the Commission staff. Included among these conditions is TRANS-7 which requires Calpine to repave any roads which are damaged as a result of project construction activities. (*Id.*)

Commission staff witness Greg Newhouse sponsored the Traffic and Transportation portion of the Final Staff Assessment as his testimony. (Ex. 2, pp. 215-226.) He pointed out that in terms of traffic volume, the greatest local impact usually occurs during the construction phase of a project due to commuting construction workers and large numbers of truck deliveries to the site. He concluded, however, that in the case of the SPP, construction traffic will not produce a significant negative effect and will function within the traffic requirements of Sutter County. Moreover, he agreed with the Calpine witness that traffic problems apparently experienced due to the Greenleaf 1 facility will not occur at the SPP. (11/2/98 RT 156-157.)

Public Comment

Local grower Brad Foster stated his concern that the requirements for routing trucks in a way which will avoid community impacts are unenforceable. He prefers that the project be built closer to a major highway in order to reduce transportation impacts. At the Committee's request Mr. Newhouse reviewed for Mr. Foster and other members of the public who were present just how the Commission's complaint process works and how a citizen could report any SPP trucks using an unauthorized route. (11/2/98 RT 161.)

The evidence of record uniformly indicates that mitigation measures contained in the Conditions of Certification below will ensure that the project's traffic and transportation impacts will not be significant because such impacts will not cause a decrease in level of service below county standards.

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TRAFFIC AND TRANSPORTATION TABLE 1

Source: **Ex. 4, Table 8.10-5.**

Use existing heading on Table

TRAFFIC AND TRANSPORTATION: Figure 1
EXISTING TRAFFIC VOLUMES

Source: Ex. 4, p. 8.10-6.

FINDINGS AND CONCLUSION

Based on the weight of the evidence of record, the Commission finds as follows:

1. Project construction and operation will add additional traffic to the roads in the project region.

2. Currently, roads in the project region are classified at level of service C or above.

3. The additional amounts of traffic attributable to project construction and operation will not decrease the Level of Service currently existing on the region's roads.

4. Most traffic and transportation impacts resulting from the SPP will occur during the construction phase.

5. Traffic impacts associated with the SPP will be insignificant after the project commences operation.

6. The construction and operation of the project will not result in significant adverse impacts to the area road network.

7. The Conditions of Certification provide a mechanism to ensure that the SPP's traffic routing plan is enforceable.

8. With the implementation of the Conditions of Certification below, the project will be constructed and operated in conformity with all applicable laws, ordinances, regulations and standards, identified in the pertinent portion of APPENDIX A of this Decision.

We therefore conclude that the SPP will not create any significant adverse traffic and transportation impacts.

CONDITIONS OF CERTIFICATION

TRANS-1 The project owner shall comply with California Department of Transportation (Caltrans) and Sutter County limitation on vehicle sizes and weights. In addition, the project owner or its contractor shall obtain necessary transportation permits from Caltrans and all relevant jurisdictions for both rail and roadway use.

Verification: In monthly compliance reports, the project owner shall submit copies of any oversize and overweight transportation permits received during that reporting period. In addition, the project owner shall retain copies of these permits and supporting documentation in its compliance file for at least six months after the start of commercial operation.

TRANS-2 The project owner or its contractor shall comply with California Department of Transportation (Caltrans) and Sutter County limitations for encroachment into public rights-of-way and shall obtain necessary encroachment permits from Caltrans and all relevant jurisdictions.

Verification: In monthly compliance reports, the project owner shall submit copies of any encroachment permits received during that reporting period. In addition, the project owners shall retain copies of these permits and supporting documentation in its compliance file for at least six months after the start of commercial operation.

TRANS-3 The project owner shall ensure that all federal and state regulations for the transport of hazardous materials are observed.

Verification: The project owner shall include in its monthly compliance reports copies of all permits and licenses acquired by the project owner and/or subcontractors concerning the transport of hazardous substances.

TRANS-4 The project owner shall require all truck deliveries using Highway 99 to use Oswald Road and South Township Road to the site and all truck deliveries using Highway 20 to use George Washington to Oswald Road and then South Township Road to the site.

Verification: The project owner shall include this specific route in its contracts for truck deliveries and maintain copies onsite for inspection by the CPM.

TRANS-5 All oversized equipment delivered by rail shall use the following route to the project site: Clark Road west to Broadway, south on Broadway to Nostra Road, west on Nostra Road to North Township, south on North Township to the SPP site. If the project owner finds another rail spur to be more advantageous, the project owner shall consult with Sutter County and request in writing approval for the use of that route from the CPM.

Verification: The project owner shall include this specific route in its contracts for oversized equipment delivery and maintain copies onsite for inspection by the CPM. If another route than that described in Condition of Certification TRANS-5 is found advantageous by the project owner, the project owner shall request approval in writing for the use of that route at least 30 days in advance of the use date.

TRANS-6 Prior to the start of construction, the project owner shall consult with Sutter County and will prepare a construction traffic control plan and implementation program which includes addressing the timing of heavy equipment and building materials deliveries; signing, lighting and traffic control device placement for natural gas pipeline and transmission line construction; and establishing construction work hours outside of peak traffic periods.

Verification: Thirty days prior to construction, the project owner shall provide to the CPM and to Sutter County Public Works Department for review and approval a copy of its construction traffic control plan and implementation program.

TRANS-7 Based on determination of primary roadways to be used in the traffic control plan and implementation program and following construction of the power plant and all related facilities, the licensee shall repair those primary roadways to original or as near original condition as possible.

Verification: Thirty days prior to construction, the licensee shall photograph the primary roadways. The licensee shall provide the CPM and Sutter County with a copy

of these photographs. Within 30 days of the completion of project construction, the licensee will meet with the CPM and Sutter County Public Works Department to determine and receive approval for the actions necessary and schedule to complete the repair of those roadways to original or as near original condition as possible.

I. SOIL AND WATER RESOURCES

This analysis considers: the risk of accelerated wind or water erosion and sedimentation; adequacy and reliability of the proposed project's water supply; effects of project withdrawals on surface supplies and groundwater levels; the adequacy of the project's waste treatment and disposal methods to protect the area's surface and groundwater quality; and, the extent of flood hazards and the adequacy of proposed flood-flow routing and control measures.

Erosion and Sedimentation. Activities associated with facility construction will require significant earth moving. Removal of protective vegetation and disturbance of the soil surface structure leaves the soil particles vulnerable to erosion. Grading activities may result in soil compaction which increases stormwater runoff velocities, allowing more soil particles to be entrained in the runoff and carried off-site. Alteration of natural drainages may cause runoff to cross exposed surfaces leading to increased erosion and deposition off-site in adjacent water bodies. Erosion is also a significant concern where construction of linear facilities crosses natural and man-made drainages. Dewatering activities associated with power plant and gas line construction may also lead to erosion.

Calpine plans to import sufficient fill to raise most of the site five feet to reach a nominal finished grade of 43 feet above sea level, creating the potential for exposed berms and spoil piles vulnerable to water erosion. During project operation, wind and water action can continue to erode unprotected surfaces. An increase in the amount of impervious surfaces will increase runoff, leading to the erosion of unprotected surfaces. (Ex. 2, p. 471.)

Calpine will use temporary construction measures to control the flow of stormwater runoff across disturbed areas. Barriers will be used to prevent sediment from flowing into adjacent water bodies and sensitive habitats. Similarly, erosion control measures will be used during construction of the electrical transmission line to ensure that water quality is maintained, to protect property from erosion, and to prevent accelerated soil loss. After construction is complete, permanent erosion control will be installed and maintained for the life of the project. (Ex. 26, p. 96.)

Standard erosion and dust control techniques will be used during construction of the natural gas pipeline to ensure that excess siltation does not occur. Pipeline construction will require a permit from the Army Corps of Engineers. Although pipeline contractors will bore under any channel wider than 20 feet, some activity within channels constituting waters of the United States will be necessary, triggering the need for this general permit. (Ex. 2, p. 472.)

Water Supply. As originally designed, the project would have employed a wet cooling tower system requiring an average of about 4.3 million gallons of water per day. This cooling water was to come from a series of wells located on the site. Commission staff and local growers expressed concern with how such a large amount of groundwater pumping would effect neighboring domestic and agricultural wells. Concerns included the drawdown of groundwater supplies and the tendency of brackish water to move into the capture zones of the supply wells.

Staff witness Joe O'Hagen reviewed how Calpine mitigated this potential impact by changing to a dry cooling design which used an air cooled condenser. This basically reduced water consumption for the project by over 95 percent, from an average of slightly more than 3,000 gallons per minute (gpm) to 140 pm. Average daily flows will be 60,000 gallons per day (gpd) and peak flows 318,000 gpd. The annual water demand of the project based upon average operating conditions, therefore will be reduced from 4,856 acre feet to 67 acre feet, while annual demand based upon peak operating conditions, will be reduced from 7,115 acre feet to 356 acre feet. Since the project will not be operating at peak levels a significant portion of the time, Calpine estimates that annual groundwater pumping will be approximately 225 acre feet. (Ex. 2, p. 474.) Mr. O'Hagen testified that as a result of Calpine's change to dry cooling, the project would have no off-site impacts to groundwater. (11/2/98 RT 78, 82-83.)

Wastewater Discharge. The staff witness testified that the original cooling design also created a major concern in that the project would be discharging between 2 and 2.8 million gallons of wastewater per day. The wastewater would have a number of chemical constituents including metals and dissolved solids which occur naturally in local well water, but would be concentrated through the cooling cycle of the project. Staff concerns included whether the discharge would meet water quality standards and whether it would have harmful effects on local biology, due to both the chemicals in the

wastewater and to the elevated temperatures at which the waters would be released. (11/2/98 RT 83.) The results of water chemistry modeling indicated that the wastewater discharge would approach or exceed the aquatic life standard for both copper and arsenic.

In addition, Paul Russell of the Sutter Extension Water District stated that the culverts where the field drains run beneath the district's laterals need to be expanded to accommodate the Sutter Power Project's peak wastewater discharges and stormwater runoff. (Ex. 2, p. 476.)

To address concerns regarding wastewater discharge, Calpine proposed as a mitigation measure that SPP be a zero effluent discharge facility. Use of dry cooling technology removed the need to dispose of cooling tower blowdown, which represented the major portion of the wastewater discharge stream. Furthermore, remaining wastewater flows, including boiler blowdown and sanitary waste from the package sewage treatment plant, will not be disposed as originally proposed. These flows, including wastewater from the oil/water separator, filter backwash, HRSG blowdown, sanitary wastes and evaporative cooler blowdown, will be directed to a waste treatment basin. After treatment to remove suspended solids, this water will be recycled. (Ex. 2, p. 477.)

As a result of the change in plant cooling facilities, the only flows that will be discharged to surface water will be stormwater runoff, which is discussed below. (Ex. 2, p. 477.)

The concentrated brine from the evaporator is high in total dissolved solids (TDS), ranging from 5,000 mg/l to 120,000 mg/l. Calpine has identified three approaches to dispose of this material. These disposal options include: use of an evaporation pond; a crystallizer; or trucking the brine off-site. The evaporation pond would be sized to accommodate the wastewater flow and rainfall incident on the pond. Such an evaporation pond will require a Waste Discharge Requirement issued by the Central Valley Regional Water Quality Control. Generally, such ponds are required to be lined and have leechate collection and monitoring systems. A crystallizer works as an evaporator to distill off the water, which can be reused, leaving a precipitate which can be disposed off-site in the appropriate landfill. Off-site disposal would require a tank with several days capacity to hold the brine before being trucked off-site. (11/2/98 RT

477.) In a February 26, 1999, letter to the Commission, Calpine stated its selection of the crystallizer system.

Drainage and Flooding. The proposed project is located in Zone X which is defined by the Federal Emergency Management Agency (FEMA) as an area protected from the 100-year flood by levees. Calpine estimates that flooding at the SPP site due to levee failure or overtopping during larger storms could inundate the site with six to eight feet of water. (Ex. 4.)

Staff has determined that stormwater runoff from the proposed project site, generated by 10-year or greater storms, will need to be retained on-site until the discharge does not contribute to drainage problems at the North Drain or adjacent drainages, or until the threat of flooding has subsided. Although there will be no wastewater discharge from the project, Calpine will be required to evaluate the capacity of and demonstrate that it has access to local field drains for stormwater discharge, especially where they cross local irrigation canals.

In addition, Sutter County and Commission staff proposed that Calpine coordinate its drainage proposal with all public and private downstream entities that own or maintain these drainage facilities and to identify and implement any improvements necessary to the system. (Ex. 2, p. 481.)

Staff witness O'Hagen concluded that as a result of his analysis and the various mitigation measures, the project would not lead to any significant environmental impact concerning soil or water resources. (11/2/98 RT 85.)

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Public Comment

A number of local growers who live near the proposed sight noted their concern about the project drawing down groundwater, especially in drought years. Rosie Foster asked if agricultural or industrial users would have a priority on groundwater during draught years. Staff witness Joe O'Hagen responded that no priority system existed among groundwater users. Cookie Amarel and Rosie Foster asked whether Calpine has

actually secured the drainage easements it needs to handle its stormwater discharge. (11/2/98 RT 99.) Calpine attorney Chris Ellison referred her to the list of property owners identified as part of the transmission line study. (*Id.*, RT 100.)

Commission Discussion

The Commission concludes that the project will not impose any significant erosion or sedimentation impacts. Furthermore, with its design change to dry cooling and to retain floodwaters on site, the project will not impose significant adverse impacts upon the local water supply, wastewater discharge systems, or upon local drainage or flooding.

FINDINGS AND CONCLUSION

Based on the weight of the evidence of record, the Commission finds as follows:

1. The project's use of a dry cooling design will result in a zero discharge facility.

2. Project demand for groundwater during operation will range from 41.5 gallons per minute (gpm) to 221 gpm, depending on ambient air temperature. This demand will average approximately 225 acre feet/year.

3. Project demand for groundwater will not significantly impact off-site wells on neighboring properties.

4. Sanitary and process wastes will not be discharged into local drainage systems.

5. Only stormwaters will be discharged from the project site into the local environment.

6. The SPP will temporarily retain stormwaters on-site during periods of heavy runoff until the threat of flooding has passed.

7. With the implementation of the Conditions of Certification below, the project will be designed, constructed and operated in way that it will not have a significant negative effect on soil and water resources.

8. With the implementation of the Conditions of certification below, the project will meet all applicable laws, ordinances, regulations and standards identified in the pertinent portion of APPENDIX A of this Decision.

We therefore conclude that the SPP will have no substantial adverse impacts upon the area's soil and water resources.

CONDITIONS OF CERTIFICATION

SOIL&WATER-1 The Sutter Power Project will utilize a 100 percent dry cooling technology. Wet or wet/dry cooling technology will not be used.

Verification: Once operation has begun, the Calpine shall provide to the CPM in the annual compliance report, a record of the average month groundwater consumption, the monthly average groundwater levels as measured in the project well(s), and the monthly average total dissolved solid (TDS) concentration in the project water supply.

SOIL&WATER-2 No project wastewater streams shall be discharged to surface water.

Verification: The volume and method of disposal for all wastewater streams shall be provided to the CEC CPM in the annual compliance report.

SOIL&WATER-3 Prior to the initiation of any earth moving activities, the project owner shall submit a final erosion control and revegetation plan for staff approval. The final plan shall contain all the elements of the draft plan contained in Calpine Data Response No. 33, dated March 4, 1998, with changes made to address the final design of the project.

Verification: The final erosion control and revegetation plan shall be submitted to the CPM for approval at least 30 days prior to the initiation of any earth moving activities.

SOIL&WATER-4 Prior to beginning any clearing, grading or excavation activities associated with construction of the power plant, transmission and gas lines, the project owner must submit a notice of intent to the State Water Resources Control Board to indicate that the project will operate under provisions of the General Construction Activity Storm Water Permit. As required by the general permit, the project owner will develop and implement a Storm Water Pollution Prevention Plan (SWPPP).

Verification: At least two weeks prior to the start of construction, the project owner will submit to the CPM a copy of the Storm Water Pollution Prevention Plan (SWPPP) for review and approval. This includes SWPPPs developed for all linear facilities.

SOIL&WATER-5 The project owner shall submit to the California State Water Resources Control Board a notice of intent to comply with the provisions of the General Industrial Activities Storm Water Permit. The project owner shall develop and implement the required Storm Water Pollution Prevention Plan.

Verification: At least thirty 30 days prior to operation, the project owner shall submit to the CPM a copy of the Storm Water Pollution Prevention Plan that was prepared.

SOIL&WATER-6 The project owner shall provide on-site retention of stormwater during periods of high runoff to ensure that the project will not contribute to drainage problems. Periods of high runoff shall be considered 10-year, 24-hour storms or greater. The project owner shall prepare a report evaluating potential effects of stormwater runoff from the project site on downstream drainage facilities. Specifically, this report shall identify the volume of runoff anticipated from the proposed site for the twenty-five and 50-year, 24-hour storm, how this runoff will be accommodated on-site and the ability of the field drains, the North Drain and Pump Plant No. 2 to accommodate these flows, especially during 10-year, 24-hour or greater storms. The plan shall identify any improvements needed to be made to these facilities to ensure their ability to accommodate stormwater flows from the project. The plan shall also verify that the project's use of these drainage facilities and any

necessary improvements to them has been coordinated with all public and private entities that own and/or are responsible for the operation and maintenance of all downstream drainage facilities affected by project runoff.

Verification: Thirty (30) days prior to the start of construction, the project owner shall submit for review and approval to the CEC CPM and the Sutter County Department of Public Works the proposed drainage plan.

SOIL&WATER-7 All sanitary wastewater shall be disposed into a sewage disposal system constructed and operated under permit from the Regional Water Quality Control Board or constructed to standards established by the Sutter County Environmental Health Division.

Verification: Prior to any earth moving activities or the issuance of a building permit, the project owner shall submit to the CPM a copy of the permit and waste discharge requirements or a copy of the permit from the County Environmental Health Division.

J. HAZARDOUS MATERIAL HANDLING

Public safety concerns arise from the construction and operation of a proposed project, especially regarding the handling, transportation, and disposal of hazardous materials. Therefore, the Commission examines each power plant proposal to determine if the facility is designed to ensure the safe handling and storage of hazardous materials. Moreover, a project may also pose a degree of fire and explosion risk to nearby communities as well as to on-site workers. All these aspects and their risks were analyzed during this proceeding, and are summarized below.

Hazardous materials to be used at the facility in large quantities include sodium hypochlorite, sodium hydroxide, sulfuric acid, anhydrous ammonia, and hydrochloric acid. Other hazardous materials will be used in smaller quantities, such as scale inhibitors (phosphate), oxygen scavengers, biocides and chemicals for pH control. These smaller-quantity materials pose minimal potential for off-site impacts. (Ex. 2, p. 159.)

Ammonia Releases. Anhydrous ammonia is used for the control of nitrous oxides in the power plant's emission control system. Among the materials used at the project, Staff determined that anhydrous ammonia poses the principal significant risk of off-site impacts in the event of a major accidental release. (*Id.*) This is due to the relative toxicity of ammonia and its ability to disperse into the ambient air, where it can be transported off-site.

The Applicant's witness testified that in order to address this risk, the project would store the ammonia in a twelve thousand gallon double-walled tank with secondary containment facilities. In the event of an accidental release, an alarm would sound in the control room of the power plant. (11/2/98 RT 166.) Conditions of Certification require the implementation of these measures. (*Id.*, RT 162.)

Staff witness Rick Tyler stated that accidental releases of ammonia typically are caused by human errors, equipment failures, or external events. The witness noted that the project's proposed safety measures were sufficient to address these risks. He added, however, that once the project is in its final design stage, it will also be subject to the federal risk management program and must then prepare a safety management plan for

California Occupational and Health Administration (OSHA) as well. This will require an extensive analysis of any potential scenarios for the release of ammonia. (*Id.*, RT 170-172.)

The evidence of record also contains an analysis of the risk of an ammonia release which could endanger local residences. Using the methodology proposed by Staff, Calpine determined the risk of such a release would be less than one in one million. Staff reviewed the study and determined this risk to be extremely low and therefore acceptable. (Ex. 2, p. 163.)

To assist local fire agencies to deal with any additional risks and responsibilities posed by the project, Calpine has arranged with the Emergency Services Director of Sutter County to prepay taxes of approximately $300,000 to the county for the purchase of fire fighting and hazmat equipment and related support. (11/2/98 RT 166.) Condition of Certification HAZ-3 will allow Commission staff to verify that adequate funding has been provided to Sutter County for hazardous material handling and safety prior to bringing any hazardous materials to the project site. The Commission staff witness testified that in addition to addressing project impacts, this new equipment will provide a significant benefit by allowing local fire officials to better serve citizens in the surrounding area. (*Id.*, RT 172.)

<u>Fire and Explosion.</u> The primary risk of fire and or explosion at the project is from natural gas which will be used as a fuel at the SPP. While natural gas will be used in significant quantities, it will not be stored on-site. The risk of a fire and/or explosion from natural gas can be reduced to insignificant levels through adherence to applicable codes and the development and implementation of effective safety management practices. Compliance with these codes and other required mitigation measures will reduce to insignificant levels the potential for impacts associated with the use of natural gas. (Ex. 2, p. 164.) This compliance is required in the Conditions of Certification below.

FINDINGS AND CONCLUSION

Based on the weight of the evidence of record, the Commission finds:

1. Hazardous materials including sodium hypochlorite, sodium hydroxide, sulfuric acid, anhydrous ammonia, and hydrochloric acid will be used in the construction and operation of the proposed project.

2. The major types of hazards associated with the storage and handling of hazardous materials at the project are associated with anhydrous ammonia releases and with natural gas fires and explosions.

3. The possibility of dangerous events associated with the hazardous materials proposed for use at the project can be reduced to acceptable levels through the application of appropriate design, safety and mitigation measures.

4. The Conditions of Certification set forth below require safety and mitigation measures which will reduce project-related hazards to acceptable levels both on and off the project site.

We therefore conclude that, with the implementation of the Conditions of Certification set forth below, the Sutter Power Plant Project will be constructed and operated in conformity with all applicable laws, ordinances, regulations and standards set forth in the appropriate portion of APPENDIX A of this Decision.

CONDITIONS OF CERTIFICATION

HAZ-1 The project owner shall not use any hazardous material in reportable quantities, as specified in Code of Federal Regulations, Part 40, Subpart F, Section 68.130, that is not listed in Tables 5.8-4 and 5.8-5 of the AFC (Ex. 4.), unless approved in advance by the California Energy Commission's Compliance Project Manager (CPM).

Verification: The project owner shall provide, in the Annual Compliance Report, a list of hazardous materials contained at the facility in reportable quantities.

HAZ-2 The project owner shall provide a Risk Management Plan and Process Safety Management Plan to the Sutter County Fire Department and the Energy Commission CPM for review and approval at the time the plans are first submitted to the U.S. Environmental Protection Agency (EPA) and the California Occupational Safety and Health Administration (Cal OSHA). The project owner shall reflect all recommendations of the Sutter County Fire Department and CPM in the final document. A copy of the final plans, reflecting all comments, shall be provided to the Sutter County Fire Department and the CPM once approved by EPA and Cal OSHA.

Verification: At least sixty (60) days prior to the delivery of anhydrous ammonia to the facility, the project owner shall provide the final approved plans listed above to the CPM.

HAZ-3 The project owner shall provide a letter from the Sutter County Fire Department indicating that adequate funding for fire protection resources has been identified and that such funding will be available to the Department as needed to ensure adequate emergency response capability.

Verification: At least 30 days prior to delivery of anhydrous ammonia to the facility, the project owner shall provide a copy of the letter described above from the Sutter County Fire Department.

K. WASTE MANAGEMENT

The testimony of Applicant's witness David Augustine was that, in general, the SPP will follow a hierarchical approach to waste management in the order of: 1) source reduction; 2) recycling; 3) treatment; and 4) disposal. He stated that this approach will employ the best-known waste management methods, comply with all applicable laws, ordinances, standards and regulations, and thus project waste will pose little or no risk to the public or to the environment. (Ex. 26, p. 31.)

The proposed project will generate hazardous and non-hazardous wastes during its construction. Project construction is expected to produce approximately 100 tons of paper, wood, glass, and plastics. (Ex. 4, p. 8.13-3.) These wastes will be disposed of on a weekly basis at a class III (non-hazardous) landfill.

Construction Waste. Hazardous wastes generated during construction may include waste oil and grease, paint, spent solvent, welding materials, and cleanup materials from spills of hazardous substances. Hazardous solutions from pre-operational chemical cleaning and treatment of the heat recovery steam generator boiler and pre-boiler systems will also be generated. Chemical wastes from cleaning the boiler prior to start-up will be temporarily stored on-site in portable tanks and transported off-site prior to treatment or disposal. (Calpine 1997, p. 8.13-11.) The quantities of other hazardous wastes will be minor and temporarily stored on-site (less than 90 days) at designated locations in approved containers prior to being transported to licensed treatment, recycling, or disposal facilities.

Operational Waste. Once the facility begins normal operating conditions, it is expected to generate both nonhazardous and hazardous wastes.

Nonhazardous wastes from operations will include trash, office wastes, empty containers, broken or used parts, used packing material, and used filters. Calpine has estimated the quantity of such wastes to be about 80 cubic yards annually (Calpine 1998, response to CURE data request 151; Ex. 26, p. 24), with some of the material being recyclable. This waste will be collected in dumpsters on-site and picked up by Yuba Sutter Disposal, Inc. (Ex. 4, p. 8.13-10.)

Hazardous wastes generated during routine operation may include spent air pollution control catalyst, used oil, used cleaning solvents, waste paint, contaminated cleanup materials, demineralizer regeneration waste, and empty chemical containers.

Cleaning the heat recovery steam generator, as required every three to five years, will generate acid and alkaline chemical cleaning waste solutions and flushing waters. This waste may be classified as hazardous due to dissolved metals, and will be collected, transported off-site, treated, and disposed of in compliance with regulatory requirements. (Ex. 4, p. 8.13-11.)

The oxidation catalyst (used for CO emissions control) and the selective catalytic reduction catalyst (used for NOx emissions control) must be replaced as they become contaminated, typically after several years' service. Classified as hazardous due to heavy metals content, the spent catalysts will be sent back to the manufacturer for recycling if possible, or disposed of at a Class I (hazardous) landfill. (Ex. 4, p. 8.13-11.)

Waste lubricating oil will be removed by a licensed waste oil recycling contractor for recycling (Ex. 4, p. 8.13-11.)

Commission staff evaluated the cumulative impacts of the project regarding waste management and determined that due to the minor amounts of wastes generated during project construction and operation, the insignificant impacts on individual disposal facilities, and the availability of additional regional landfills, cumulative impacts will be insignificant for both hazardous and nonhazardous wastes.

The following mitigation measures, required during construction and operation of the proposed project, will ensure that waste impacts are minimal:

- Hazardous wastes will not be stored on-site for periods longer than 90 days. (Ex. 4, p. 8.13-11.)

- Hazardous wastes will be stored in segregated storage areas that are surrounded by berms to contain leaks and spills and sized to hold the contents of the single largest container. (*Id.*)

- Hazardous wastes will be collected by a licensed hazardous waste hauler using a manifest and managed only at authorized facilities. (Ex. 4, p. 8.13-11.)

- Non hazardous materials will be used instead of hazardous materials whenever possible and wastes will be recycled whenever possible. (Ex. 4, p. 8.13-11.)

- Waste lubricating oil will be recovered and recycled by a waste oil recycling contractor and spent SCR catalysts will be recycled by the supplier if possible. (Ex. 4, p. 8.13-11.)

Additional required mitigation includes eliminating the wet cooling tower and achieving a zero process effluent discharge project. This means no effluent will be discharged into local water systems. These measures, however, will result in the generation of additional waste streams associated with wastewater treatment. Sludge from the treatment of process wastewater (from the oil/water separator, filter backwash, heat recovery steam generator blowdown, sanitary waste treatment, and evaporative cooler blowdown) will accumulate in the treatment basin and must be removed every two to three years and taken off site for disposal.

Water purification processes which provide makeup water for the steam cycle and subsequent volume reduction of reject water will result in a concentrated brine which must be managed. Calpine has proposed using one of three options for brine handling: 1) an evaporation pond; 2) off-site disposal as liquid; and 3) crystallization and off-site disposal of dry salt (Calpine AFC Mitigation Program Supplement, October 1998, p. 3.) If an evaporation pond is used, accumulated salt from precipitation will be removed every three to ten years and taken off-site for disposal. If liquid brine is to be taken off-site, a wastewater disposal contractor will transport the brine for disposal at a licensed treatment facility. If a crystallizer is used, a dry salt will be generated at the rate of from 0.5 to 2 tons per day for off-site disposal. All of the wastes from the above processes are expected to be nonhazardous and will be periodically tested. In a letter dated February 26, 1999, Calpine identified the crystallizer technology as the mitigation measure to manage project-related wastewaters. (Ex. 2, p. 180; 11/10/98 RT 53; letter to Paul Richins from Charlene L. Wardlow, dated February 26, 1999.)

We have reviewed the evidence of record and determined that the proposed measures, together with applicable laws, ordinances, regulations and standards will adequately

assure that no significant environmental impacts will result from the management and disposal of project-related wastes. Calpine must identify the specific mitigation measure which will be used to manage project-related wastewaters by close of the Proposed Decision comment period.

FINDINGS AND CONCLUSION

Based on the weight of the evidence of record, the Commission finds:

1. Construction and operation of the Sutter Power Plant Project will produce hazardous and nonhazardous wastes.

2. Nonhazardous wastes will be disposed of by Yuba Sutter Disposal, Inc. for removal of recyclables and deposition at a sanitary landfill.

3. Hazardous wastes will be transported to licensed treatment, recycling, or disposal facilities.

4. Due to the availability of individual disposal facilities, and of additional regional landfills, the cumulative impacts from the amounts of wastes generated during project construction and operation, will be insignificant for both hazardous and nonhazardous wastes.

We therefore conclude that, with the implementation of the Conditions of Certification below, the proposed project will be constructed and operated in conformity with all laws, ordinances, regulations, and standards pertaining to waste management identified in APPENDIX A of this Decision.

CONDITIONS OF CERTIFICATION

WASTE-1 The project owner shall obtain a hazardous waste generator identification number and hazardous waste treatment permit for neutralization facilities from the Department of Toxic Substances Control prior to generating any hazardous waste.

Verification: The project owner shall keep copies of the identification number and permit on file at the project site and notify the CPM via the monthly compliance report of their receipt.

WASTE-2 The project owner shall notify the CPM of any waste management-related enforcement action taken or proposed to be taken against it, or against any waste hauler or disposal facility or treatment operator that the owner contracts with.

Verification: The project owner shall notify the CPM in writing within 10 days of becoming aware of an impending enforcement action.

WASTE-3 Prior to the start of both construction and of operation, the project owner shall prepare and submit to the Sutter County Community Services Department and the CPM a waste management plan for all wastes generated during construction and operation of the facility, respectively. The plans shall contain, at a minimum, the following:

- A description of all waste streams, including projections of frequency, amounts generated and hazard classifications; and

- Methods of managing each waste, including treatment methods and companies contracted with for treatment services, waste testing methods to assure correct classification, methods of transportation, disposal requirements and sites, and recycling and waste minimization / reduction plans.

Verification: No less than 30 days prior to the start of construction, the project owner shall submit the construction waste management plan to the Sutter County Community Services Department and the CPM for review. The operation waste management plan shall be submitted no less than 60 days prior to the start of project operation. The project owner shall submit any required revisions within 30 days of notification of the need for such revisions by the CPM (or mutually agreed upon date).

In the Annual Compliance Reports, the project owner shall document how actual waste management methods compared to planned management methods during the year.

L. WORKER SAFETY AND FIRE PROTECTION

Analysis in this area examines whether the proposed project adequately addresses worker safety during the plant's construction and operation phases. It also addresses fire protection and the ability of project and county fire department personnel to respond in case of an emergency at the project site.

We reviewed the SPP Application for Certification (Ex. 4, section 8.7) and relevant portions of the Final Staff Assessment (Ex. 2, pp. 135-145) to determine whether the Applicant has proposed adequate measures to:

- protect against fire;
- provide adequate emergency response procedures;
- comply with applicable safety LORS; and
- protect the workers during construction and operation of the facility.

Fire Protection: Unless features of the project present unusual industrial safety or fire protection problems, compliance with applicable laws, ordinances, regulations and standards are usually sufficient to ensure worker safety and fire protection.

The SPP will be located in a rural area and the nearest fire fighting and response service providers are equipped and staffed for rural emergency response only. These include grass fires, vehicular collisions, farm accidents, house and barn fires, and paramedic services.

The fire stations closest to the proposed project site are:

> Central Gaither Station - located four and one- half to five miles away from the proposed site and manned by five volunteer fire fighters. The station has one fire truck, manufactured in 1976.
>
> Oswald Fire Station - also located about four and a one-half to five miles from the proposed site. The station is manned by two paid firefighters and 10 volunteers. It has an engine, a water tender, a grass rig, and an old ambulance that carries shade structures, tents, etc.

The proposed SPP may create additional demands on fire protection resources such as a confined space rescue, HAZMAT problems, and high angle rescue. These types of incidents are not normally experienced in this rural community. While the SPP facility will have onsite fire protection systems, the project will still need to be supported by local fire protection services. According to the Sutter County Director of Fire and Emergency Services, there is not now adequate fire and emergency protection available for a new industrial plant in the area. (Ex. 2, p. 137.)

To address this impact, Commission staff in consultation with the Sutter County Director of Fire and Emergency Services determined that the area's rural fire protection services must be updated with additional modern fire fighting equipment. Sutter County and Calpine are developing an agreement which specifies the improvements in emergency services needed to support the project. This agreement is discussed further in the Socioeconomics section of this Decision (*infra.*)

Worker Safety: Workers at industrial facilities are exposed to chemical spills, hazardous waste, fires, confined space ingress/egress problems, and dangers from moving equipment. A large power plant must have well defined policies and procedures, training, hazard recognition and control at the facility to minimize such hazards and protect workers. Injury and Illness Prevention Programs (IIPPs) will be prepared to minimize worker hazards during both construction and operation phases. (Ex. 2, p. 140.)

FINDINGS AND CONCLUSION

Based on the weight of the evidence of record, the Commission finds as follows:

1. The Sutter Power Plant Project will be designed, constructed, and operated in a manner sufficient to reasonably protect workers and the public from fire dangers.

2. The SPP will create an additional demand upon existing fire and emergency service resources.

3. The existing fire and emergency service resources are inadequate to meet project demands.

4. The Sutter Power Plant Project will enter an agreement with Sutter County to prepay property taxes in a sufficient amount to fund equipment and other upgrades of emergency services which are required because of construction and operation of the SPP.

5. This agreement is necessary to meet the demands imposed by the project and is required by Condition of Certification SOCIO-2.

6. The measures contained in the Conditions of Certification will adequately protect plant personnel from incidents related to spills and routine handling of hazardous of hazardous, toxic and flammable materials, as well as from fire and explosive accidents.

7. If the Conditions of Certification set forth below are met, the project will meet all applicable laws, ordinances, regulations and standards, including applicable federal, state and industry worker safety standards, identified in the pertinent portion of APPENDIX A of this Decision.

We therefore conclude that the SPP project will adequately address worker safety and fire protection matters during the construction and operation phases.

CONDITIONS OF CERTIFICATION

SAFETY-1 The project owner shall submit to the CPM a copy of the Project Construction Safety and Health Program as follows:

- Construction Injury and Illness Prevention Program
- Construction Fire Protection and Prevention Plan
- Personal Protective Equipment Program

Protocol: The Construction Injury and Illness Prevention Program and the Personal Protective Equipment Program shall be submitted to the California Department of Industrial Relations, Division of Occupational Safety and Health (Cal/OSHA) Consultation Service, for review and comment concerning compliance of the program with all applicable Safety Orders.

The Construction Fire Protection and Prevention Plan shall be submitted to the Sutter County Fire Department for review and acceptance.

Verification: At least 30 days prior to the start of construction, or a date agreed to by the CPM, the project owner shall submit to the CPM a copy of the Project Construction Safety and Health Program, incorporating Cal/OSHA's Consultation Service comments, and a letter from the Sutter County Fire Department stating that they have reviewed and accepted the Construction Fire Protection and Prevention Plan and the Personal Protective Equipment Program.

SAFETY-2 The project owner shall submit to the CPM a copy of the Project Operation Safety and Health Program containing the following:

- Operation Injury and Illness Prevention Plan
- Emergency Action Plan
- Operation Fire Protection Plan
- Personal Protective Equipment Program

Protocol: The Operation Injury and Illness Prevention Plan, Emergency Action Plan, and Personal Protective Equipment Program shall be submitted to the California Department of Industrial Relations, Division of Occupational Safety and Health (Cal/OSHA) Consultation Service, for review and comment concerning compliance of the program with all applicable Safety Orders.

The Operation Fire Protection Plan and the Emergency Action Plan shall be submitted to the Sutter County Fire Department for review and acceptance.

Verification: At least 30 days prior to the start of operation, the project owner shall submit to the CPM a copy of the final version of the Project Operation Safety & Health Program. It shall incorporate Cal/OSHA Consultation Service comments and a letter from the Sutter County Fire Department stating that they have reviewed and accepted the specified elements of the proposed Operation Safety and Health Plan.

The project owner shall notify the CPM that the Project Operation Safety and Health Program (Injury and Illness Prevention Plan, Fire Protection Plan, the Emergency Action Plan, and Personal Protective Equipment requirements), including all records and files on accidents and incidents, is present on-site and available for inspection.

SAFETY-3 The project owner shall design and install all exterior lighting to meet the requirements contained in the Visual Resources Conditions of Certification and in accordance with the American National Standards Practice for Industrial Lighting, ANSI/IES-RP-7.

Verification: Within 60 days after construction is completed, the project owner shall submit a statement to the CPM that the illuminance contained in ANSI/IES RP-7 were used as a basis for the design and installation of the exterior lighting.

M. CULTURAL RESOURCES

This subject addresses structural and cultural evidence of the history of human development, most particularly in the area which will be disturbed by project construction and operation. Cultural resource materials may be found nearly anywhere in California, and may be found on the surface or at varying depths beneath the surface.

These resources are significant to our understanding of our culture, our history and heritage. Critical to the analysis of such resources are the spatial relationships between an undisturbed cultural resource site and the surface environmental resources and features, and the analysis of the locational context of the resource materials within the site and beneath the surface. These relationships provide information that can be used to piece together the sequence of human occupation and use of an area, and they begin to create a picture of the former inhabitants and their environment. Analysis of cultural resources can also provide insight into the broader patterns of human adaptation to environmental change.

Three aspects of cultural resources are addressed in the analysis carried out by the Commission: archaeological resources which are prehistoric, those which are historic, and ethnographical resources.

Prehistoric archaeological resources are those materials relating to prehistoric human occupation and use of an area; these resources may include sites and deposits, structures, artifacts, rock art, trails, and other traces of prehistoric human behavior. In California the prehistoric period began over 10,000 years ago and extended through the 18th century when the first Euro-American explorers settled in California.

Historic archaeological resources are those materials usually associated with Euro-American exploration and settlement of an area and the beginning of a written historical record; they may include archaeological deposits, sites, structures, traveled ways, artifacts, documents, or other evidence of human activity. Under state requirements, historic resources must be greater than 100 years old while under federal requirements, such resources are considered historic if they are greater than 50 years old.

Ethnographical resources are those materials important to the heritage of a particular ethnic or cultural group, such as Native Americans, African, European, or Asian immigrants. They may include traditional resource collecting areas, ceremonial sites, topographic features, cemeteries, shrines, or ethnic neighborhoods and structures.

Project Setting

Since the area around the proposed SPP location is rich in history and prehistory, there is a potential that development of the project would encounter evidence of previous human occupation and use of the land in the area. Prior to preparation of the AFC, consultants to the Applicant reviewed literature, site records, and maps at the Northeast Center of the California Historical Resources Information System located at the California State University at Chico. Information found during the literature and record search was used to assess the potential for the proposed project to encounter sensitive cultural resource materials in the project area. These searches indicated that, although most of the area affected by the project had not been previously surveyed for cultural resources, five prehistoric sites have been recorded within one mile of the project. While no historic sites were recorded within the project area, two sites from the historic period are located nearby.

The Commission staff witness testified that the power plant site itself is located outside of the natural river levee zone so it is unlikely that cultural resource materials would be encountered. (Ex. 2, p. 374.) The site will be excavated to a depth necessary to reach soils capable of bearing the foundations for the power generation equipment and the bank of cooling towers and basins. Generally, the transmission route for the project will pass through an area of low sensitivity for cultural resources. (Ex. 4.)

Over one third of the project's 16-inch diameter natural gas pipeline route and all of the 4-inch pipeline route will pass through the natural river levee zones along the Sacramento River. These areas have been identified as having the potential to encounter cultural resources. Given the number of prehistoric sites already recorded in the levee zone in the project area, any undisturbed soils underlying these routes may contain previously unknown cultural resources (Ex. 4.)

Mitigation

The Applicant has proposed and staff from Western and the Commission have recommended Conditions of Certification that would help ensure necessary mitigation of impacts if previously unknown cultural resources are encountered during project construction. Critical to the success of any mitigation efforts is the selection of a qualified professional cultural resources specialist. The Conditions of Certification require that Western and the Commission staff review the qualifications and approve of the professional archaeologist designated by the project owner. In addition, Commission staff has proposed contingency mitigation measures which are to be implemented if sensitive cultural resources are encountered in any area affected by the project, during pre-construction site preparation or in such activities as coring, boring, augering, excavation, and trenching during project construction.

A six-point cultural resource monitoring program is proposed for implematation in areas in the natural river levee zone. The six steps in this program have been incorporated into the Conditions of Certification. They include:

- Pre-Construction Assessment and Construction Training
- Construction Monitoring
- Site Recording and Evaluation
- Mitigation Planning
- Curation of Recovered Materials
- Report of Findings

Western and the Commission will be notified should any cultural resources be found during project construction. (Ex. 2, p. 384.)
Five prehistoric sites have been recorded within one mile of the project site and associated linear facility routes. Thus, there is a potential that where surface disturbance and excavation are required, cultural resources could be encountered during project-related construction activities. As a result, the project has the potential to cause an adverse impact to previously unknown unique or eligible resources. If such resources are encountered during construction, the Conditions of Certification adopted by the Commission will ensure that work will be halted and that such resources can be evaluated and any necessary mitigation implemented.

FINDINGS AND CONCLUSION

Based on the weight of the evidence of record, the Commission finds as follows:

1. The Conditions of Certification listed below contain measures which will assure adequate mitigation of impacts to any cultural resources encountered during development of the proposed project site, the related natural gas pipeline, and the electric transmission line.

2. Implementation of the Conditions identified below will assure significant adverse impacts do not occur to cultural resources as a result of project construction or operation.

3. Implementation of the Conditions identified below will assure that the project will meet all applicable laws, ordinances, regulations and standards, set forth in the appropriate portion of APPENDIX A of this Decision.

We therefore conclude that construction and operation of the SPP will not cause any significant impacts to cultural resources.

CONDITIONS OF CERTIFICATION

CUL-1 Prior to the start of project construction (defined as any construction-related vegetation clearance, ground disturbance and preparation, and site excavation activities), the project owner shall provide the California Energy Commission Compliance Project Manager (CPM) and Western with the name(s) and qualifications of its designated cultural resource specialist and mitigation team members.

The designated cultural resource specialist shall be responsible for implementing all the cultural resource Conditions of Certification, using qualified personnel to assist him or her in project-related field surveys, monitoring, data collection and artifact recovery, mapping, mitigation, analysis of recovered cultural resources and data, or report preparation.

After CPM and Western approval of the Cultural Resource Monitoring and Mitigation Plan (described below in condition CUL-3), the designated

cultural resource specialist and team shall be available to implement the mitigation plan prior to, and throughout construction of the project.

Protocol: The project owner shall provide the CPM and Western with a resume or statement of qualifications for its designated cultural resources specialist and mitigation team members. The resume(s) shall include the following information:

1) The resume for the designated cultural resource specialist shall demonstrate that the specialist meets the following minimum qualifications: a graduate degree in archaeology, anthropology, California history, or cultural resource management; at least three years of cultural resource mitigation and field experience in California, including at least one year's experience leading cultural resource field surveys; leading site mapping and data recording; marshalling equipment necessary and leading archaeological resource recovery operations; preparing recovered materials for analysis and identification; recognizing the need for appropriate sampling and/or testing in the field and in the lab; directing the analyses of mapped and recovered materials and data; completing the identification and inventory of recovered cultural materials; and the preparation of appropriate reports to be filed with the receiving curation repository, the appropriate regional information center(s), the State Historic Preservation Officer, Western and the CPM.

2) The resume for the designated cultural resource specialist shall include a list of specific projects the specialist has previously worked on; the role and responsibilities of the specialist for each project listed; and the names and phone numbers of contacts familiar with the specialist's work on these referenced projects.

3) If additional personnel will be assisting the designated cultural resource specialist in project-related field surveys, monitoring, data and artifact recovery, mapping, mitigation, material analysis, or report preparation, the project owner shall also provide names, addresses, and resumes for these mitigation team members.

4) If the CPM and Western determine that the qualifications of the proposed cultural resource specialist are not in concert with the above requirements, the project owner shall submit another individual's name and qualifications for consideration.

5) If the previously approved, designated cultural resource specialist is replaced prior to completion of project mitigation, the project owner shall obtain CPM and Western approval of the new designated cultural resource specialist by submitting to the CPM and Western the name and qualifications of the proposed replacement specialist, at least ten (10) days prior to the termination or release of the preceding designated cultural resource specialist.

Verification: At least ninety (90) days prior to the start of construction on the project, the project owner shall submit the name and resume for its designated cultural resource specialist to the CPM and Western for review and written approval.

Thirty (30) days prior to start of construction, the project owner shall confirm in writing to the CPM, who will notify Western, that the previously approved designated cultural resource specialist and the team of assistants are prepared to implement the monitoring and mitigation measures for cultural resources, as described in the Cultural Resources Monitoring and Mitigation Plan, prepared per condition CUL-3, below.

At least ten (10) days prior to the termination or release of a designated cultural resource specialist, the project owner shall obtain CPM and Western approval of the new designated cultural resource specialist by submitting to the CPM and Western the name and resume of the proposed replacement specialist.

CUL-2 Prior to the start of project construction, the project owner shall provide the designated cultural resource specialist and the CPM with maps and drawings for the Sutter Power Plant project. The final center lines and right-of-way boundaries shall be provided on 7.5 minute quad maps, and the location of all the various areas where surface disturbance may be associated with project-related access roads, storage yards, laydown sites, pull sites, pump or pressure stations, Sutter Bypass switching station, on-site switchyard, electrical tower or pole footings, etc.

Where the potential for impacts to significant cultural resources has been identified, the designated cultural resource specialist may request, and the project owner shall provide, enlargements of portions of the 7.5 minute maps presented as a sequence of strip maps for the linear facility routes. The strip maps shall show mile-post markers and the detailed locations of proposed access roads, storage or laydown sites, tower or pole footings, and any other areas of disturbance associated with the construction and maintenance of linear facilities.

Verification: At least ninety (90) days prior to the start of construction on the project, the project owner shall provide the designated cultural resource specialist, the CPM, and Western with final maps at appropriate scale(s) and drawings for all project facilities. Copies of all requests for more detailed maps by the designated cultural resource specialist shall also be submitted in writing to the CPM. There is no need to include Western in this submittal.

CUL-3 Prior to the start of project construction, the designated cultural resource specialist shall prepare a draft Cultural Resources Monitoring and Mitigation Plan to identify general and specific measures to minimize potential impacts to significant cultural resources. The CPM will review, and must approve in writing, the draft Cultural Resources Monitoring and Mitigation Plan. The CPM will provide copies of the draft plan to Western so that Western may submit this plan to the SHPO for concurrence prior to the project owner taking any actions under the approved monitoring and mitigation plan.

Protocol: The Cultural Resources Monitoring and Mitigation Plan shall include, but not be limited to, the following elements and measures:

a. A discussion of the sequence of project-related tasks, such as any final pre-project surveys, fieldwork, flagging or staking; construction monitoring; mapping and data recovery; preparation for recovery of cultural resources; preparation of recovered materials for analysis, identification, and inventory; preparation of preliminary and final reports; and preparation of materials for curation.

b. An identification of the person(s) expected to assist with each of the tasks identified in a, above, and a discussion of the mitigation team leadership and organizational structure, and the inter-relationship of tasks and responsibilities.

c. Where sensitive areas are to be monitored during construction or avoided during operation, the designated cultural resource specialist shall identify measures such as flagging or fencing to prohibit or otherwise restrict access to sensitive resource areas. The discussion should address how these measures will be implemented prior to the start of construction and how long they will be needed to protect the resources from project-related effects.

d. Where the need for monitoring of project construction activities has been determined by Western, the designated cultural resource specialist, in consultation with the CPM, will establish a schedule for the monitor(s) to be present. If the designated cultural resource specialist determines that the likelihood of encountering cultural resource or sites in certain areas is slight, monitoring may be discontinued in that location.

e. If cultural resources are encountered are exposed during project-related grading, excavation, augering, and/or trenching, the designated cultural resource specialist shall have the authority to halt or redirect construction in the immediate vicinity of the find until the specialist can determine the significance of the find. The designated cultural resource specialist shall act in accordance with the following procedures:

- The project owner, or designated representative, shall inform the CPM and Western within one working day of the discovery of any potentially significant cultural resources and discuss the specific measure(s) proposed to mitigate potential impacts to these resources.

- The designated cultural resource specialist, representatives of the project owner, Western, and the CPM shall confer within 5 working days of the notification of the CPM, if necessary, to discuss any mitigation measures already implemented or proposed to be implemented, and to discuss the disposition of any finds.

- The SHPO will be consulted on potential eligibility, effect, and proposed mitigative measures. As the federal lead agency, Western will initiate the consultations with the SHPO.

- All required data recovery and cultural resource impact mitigation shall be completed as expeditiously as possible.

  f. All isolates encountered will be recorded and mapped; all lithic scatters and/or cultural resource sites will be recorded and mapped and all diagnostic artifacts will be collected for analysis; and all recovered cultural resource materials will be prepared and delivered for curation into a retrievable storage collection in a public repository or museum which meets the Title 36 Code of Federal Regulations 79 standards for the curation of cultural resource materials.

  g. The identification of the public institution that has agreed to receive any maps and data, records, reports, and any cultural resource materials recovered during project-related monitoring and mitigation work. Also include a discussion of any requirements or specifications for materials delivered for curation and how they will be met. The name and phone number of the contact person at the institution shall be included as well.

Verification: At least sixty (60) days prior to the start of construction on the project, the project owner shall provide the CPM and Western with a copy of the draft Cultural

Resources Monitoring and Mitigation Plan prepared by the designated cultural resource specialist. The CPM and Western will provide written approval or disapproval of the proposed Cultural Resources Monitoring and Mitigation Plan within 15 days of receipt of the submittal. If the draft plan is not approved, the project owner, the designated cultural resource specialist, the CPM, and Western shall meet to discuss comments and work out necessary changes.

CUL-4 Prior to the start of project construction, the project owner shall conduct a pre-construction reconnaissance and staking in all areas expected to be affected by construction and operation of the proposed project and its associated linear facilities. The staking of the linear facilities shall use the final design, centerlines, rights-of-way, and mile posts delineated in the construction drawings and maps prepared under condition of certification CUL-2. The designated cultural resource specialist will use the mile post stakes and boundary markers to identify sensitive areas with the potential to produce cultural resources and for implementation of specific measures, as described in condition CUL-8, below.

Verification: A least thirty (30) days prior to the start of construction, the project owner will complete a pre-construction reconnaissance and staking of the post miles and right-of-way boundaries in all areas expected to be affected by construction and operation of the proposed project and its associated linear facilities.

CUL-5 Prior to the start of construction on the project, the designated cultural resource specialist shall prepare an employee training program. The designated cultural resource specialist shall submit the training program to the CPM and Western for review and written approval.

Protocol: The training program will address the potential to encounter cultural resources during project-related site preparation and construction activities, the sensitivity and importance of these resources, and the legal obligations to preserve and protect such resources.

The training program shall also include the set of reporting procedures that workers are to follow if any cultural resources are encountered during project activities. This training program may be combined with

other training programs prepared for paleontological and biological resources, hazardous materials, or any other areas of interest or concern.

Verification: At least thirty (30) days prior to the start of construction on the project, the project owner shall submit to the CPM and Western for review, comment, and written approval, the proposed employee training program and set of reporting procedures the workers are to follow if cultural resources are encountered during project construction. Western may be required to submit this training plan to the SHPO for concurrence as part of the consultation process.

The CPM and Western shall provide written approval or disapproval of the employee training program and set of procedures within 15 days after receipt of the submittal. If the draft training program is not approved, the project owner, the designated cultural resource specialist, the CPM, and Western shall confer as needed to achieve any necessary changes.

CUL-6 Prior to the start of construction, and throughout the project construction period as needed for all new employees, the project owner and the designated cultural resource specialist shall provide the approved training to all project managers, construction supervisors, and workers who operate ground-disturbing equipment. The project owner and construction manager shall provide the workers with the approved set of procedures for reporting any cultural resources that may be discovered during project-related ground disturbance.

Verification: Prior to the start of construction, and throughout the project construction period as needed for all new employees, the project owner and the designated cultural resource specialist shall present the CPM- and Western-approved training program on the potential for project impacts to sensitive cultural resources. The training shall include a set of reporting procedures for cultural resources encountered during project activities. The project owner shall provide documentation in the Monthly Compliance Report to the CPM that the employee training and the set of procedures have been provided to all project managers, construction supervisors, and to all workers.

CUL-7 Throughout the project construction period, the project owner shall provide the designated cultural resource specialist with a current schedule of

anticipated weekly project activity and a map indicating the area(s) where construction activities will occur. The designated cultural resource specialist shall consult daily with the project superintendent or construction field manager to confirm the area(s) to be worked on the next day(s).

Throughout the monitoring and mitigation phase of the project, the designated cultural resource specialist shall maintain a daily log of monitoring and mitigation activities carried out by the specialist and members of the cultural resource mitigation team. The designated cultural resource specialist shall prepare summary reports on monitoring activities, any cultural resource finds and recovery efforts, and the progress or status of the resource monitoring, mitigation, preparation, identification, and analytical work being conducted for the project. Copies of these summaries shall be included in the Monthly Compliance Reports filed with CPM by the project owner. The CPM will forward copies of these summary reports to Western. The designated cultural resource specialist may informally discuss the cultural resource monitoring and mitigation activities with their Energy Commission technical counterpart at any time.

Verification: The project owner shall include, in the Monthly Compliance Reports to the CPM, a summary of the daily logs prepared by the designated cultural resource specialist; the CPM will forward copies to Western.

CUL-8 The designated cultural resource specialist shall be present at the construction site at all times when construction-related grading, excavation, trenching, and/or augering occurs in areas that lie within the natural river levee zone (found to be generally associated with the Shanghai-Nueva-Columbia soils group). Project areas where the natural levee zones may be found include the switchyard site, and portions of the 16-inch and the 4-inch natural gas pipeline routes. Using the mile posts and boundary stakes placed by the project owner, the designated cultural resource specialist shall monitor the route of the 16-inch natural gas pipeline, between Mile Post (MP) 8.97 to 9.51; MP 10.42 to MP 11.41; and MP 12.1 to 13.70. For the route of the 4-inch natural gas pipeline, areas to be

monitored full-time are from MP 0.00 to MP 1.60. Other sections of the linear facility routes may be monitored as deemed necessary by the CPM and Western.

Verification: The project owner shall include, in the Monthly Compliance Reports to the CPM, a summary of the daily logs prepared by the designated cultural resource specialist; the CPM will forward copies to Western.

CUL-9 If buried human remains are encountered during project-related grading, excavation, augering, and/or trenching, the construction crew shall halt or redirect construction in the immediate vicinity of the find and immediately contact the county coroner and the designated cultural resource specialist. If the coroner determines that the find is of Native American origin, the coroner shall notify the Native American Heritage Commission (NAHC) to request a determination of "most likely descendant". The NAHC is required to notify the descendant(s) and request that they inspect the burial and make recommendations for treatment or disposal.

If Native American remains are encountered on federally managed land (within the Sutter National Wildlife Reserve), the US Fish and Wildlife Service is required to follow the procedures of the Native American Graves Protection and Repatriation Act, to repatriate the remains.

Verification: The designated cultural resource specialist shall notify the County Coroner, the project owner, the CPM, and Western if any buried human remains are encountered during project construction activities.

CUL-10 The project owner, through the designated cultural resource specialist, shall ensure the recovery, preparation for analysis, analysis, identification and inventory, the preparation for curation, and the delivery for curation of all significant cultural resource materials encountered and collected during the monitoring, data recovery, mapping, and mitigation activities related to the project.

Verification: The project owner shall maintain in its compliance files, copies of signed contracts or agreements with the designated cultural resource specialist and other qualified research specialists. These specialists will ensure the necessary recovery, preparation for analysis, analysis, identification and inventory, and preparation for curation of all significant cultural resource materials collected during monitoring, data recovery, mapping, and mitigation activities for the project. The project owner shall keep these files on-site and available for periodic audit by the CPM, for a period of at least two years after completion of the approved Final Cultural Resources Report.

CUL-11 The project owner shall ensure preparation of a Preliminary Cultural Resources Report following completion of data recovery and site mitigation work. The preliminary report is to be prepared by the designated cultural resource specialist and submitted to the CPM and Western for review and written approval. Western will provide copies of the preliminary report to the SHPO.

Protocol: The preliminary report shall include (but not be limited to) preliminary information on the survey report(s), methodology, and recommendations; site records and maps; determinations of significance; data recovery and other mitigation activities; discussion of possible results and findings of any analysis to be conducted on recovered cultural resource materials and data; proposed research questions that may be answered, or that may have been raised by the data from the project; related information such as maps, diagrams, charts, photographs and other appropriate materials; and an estimate of the time needed to complete the analysis of recovered cultural resource materials and prepare a final report. As the Federal lead agency, Western will provide a standard report format to be followed by the designated cultural resource specialist.

If no cultural resource materials are recovered during project-related construction activities, the approved preliminary report shall also serve as the final report and shall be filed with appropriate entities, as described in conditions CUL-13 and CUL-14.

Verification: Within ninety (90) days following completion of the data recovery and site mitigation work, the project owner shall submit a copy of the Preliminary Cultural Resources Report to the CPM and Western for review, comment, and written approval.

CUL-12 The project owner will ensure preparation of a Final Cultural Resources Report by the designated cultural resource specialist, if cultural resource materials are found and recovered during project-related monitoring and mitigation. This final report shall be submitted to the CPM and Western for review and written approval.

Protocol: The final report shall include (but not be limited to) the survey report(s), methodology, and recommendations; site records and maps; description and inventory list of recovered cultural resource materials; determinations of sensitivity and significance; summary of data recovery and other mitigation activities; results and findings of any special analyses conducted on recovered cultural resource materials and data; research questions answered or raised by the data from the project; and the name and location of the public institution receiving the recovered cultural resource materials for curation. As the lead federal agency, Western will provide a standard report format to be followed by the designated cultural resource specialist.

Verification: The project owner shall submit a copy of the draft Final Cultural Resources Report to the CPM and Western for review, comment, and written approval. The report shall be submitted to the CPM and Western within ninety (90) days following completion of the analysis of the recovered cultural materials and preparation of related information. The project owner shall submit a copy of the final cultural resources report to the CPM and Western for review and written approval.

CUL-13 The project owner shall ensure that Western is provided with an original (or an original-quality) copy of the approved Final Cultural Resources Report, and other copies necessary to submit to the public institution receiving the recovered data and materials for curation, to the SHPO, and to the appropriate regional archaeological information center(s). A legible copy of the approved Final Cultural Resource Report shall be filed with

the CPM, with a request for confidentiality, if needed to protect any sensitive resources or sites.

The report copy sent to the curating institution and to the appropriate regional information centers shall include the information required by 36 Code of Federal Regulations 79 and the regional archaeological information centers.

Verification: The project owner shall maintain in its compliance files, copies of all documentation related to the filing of the original materials and the approved final cultural resources report with the public institution receiving the recovered data and materials for curation, with the appropriate regional archaeologic information repository(ies), and the SHPO. If no cultural resource materials were recorded or recovered, then the approved Preliminary Cultural Resources Report shall serve as the final report and is to be filed with these same agencies.

CUL-14 Within thirty (30) days following filing of the Final Cultural Resources Report with the CPM, Western, and the appropriate entities, the project owner, through the designated cultural resource specialist, shall deliver for curation all cultural resource materials collected during data recovery and mitigation for the project. The materials shall be delivered for curation into a public repository which meets the U.S. Secretary of Interior requirements for the curation of cultural resource materials.

Verification: The project owner shall maintain in its project history or compliance files, copies of signed contracts or agreements with the museum(s), university(ies), or other appropriate public repository(ies) by which the project owner has provided for delivery for curation of all the cultural resource materials collected during data recovery and site mitigation for the project.

N. PALEONTOLOGIC RESOURCES

Paleontologic resources include the fossilized remains or trace evidence of prehistoric plants or animals which are preserved in soil or rock. These fossils are scientifically important because they help document the evolution of particular groups of organisms and the environment in which they lived. Fossils can also be used to date the rocks in which they are found and to date the geologic events which formed the rocks.

While paleontologic resources may be found nearly anywhere in California, they are becoming increasingly vulnerable to the ongoing development and urbanization of the state. Though some fossil evidence of ancient life-forms is found on the surface due to erosion, fossils are more often found in rock units comprised of sedimentary deposits located beneath the surface. These layers have the potential to produce new information on conditions that existed long before humans arrived in the state. If paleontologic resources and their temporal and spatial context receive proper protection and analysis through project mitigation, these resources can add to the understanding of ancient environments and life forms. Analysis of fossil materials also can provide the single most important key to dating changes in ocean levels or earth movement along fault lines.

The Commission is required by statute and regulations to determination any potential impacts to paleontologic resources from the proposed Sutter Power Project. Impacts to paleontologic resources may result either directly or indirectly during pre-construction or construction of the project.

To determine the risk of project impacts, prior to preparation of the AFC consultants to Calpine reviewed literature and maps at the Sacramento State, U.C. Davis, and U.C. Berkeley universities. The consultants searched for information on fossil resources within and near the project area. Later, a record search at the University of California at Berkeley Museum of Paleontology (UCMP) indicated two fossil localities in the vicinity of the project site. Both were found in the older, Pleistocene-age terrace deposits. (Ex. 4.) In one locality, a lower jaw and teeth from a bison were recovered from a depth of about four feet. At the second locality, a partial vertebra was recovered during well drilling at a depth of about 140 feet and was tentatively identified as mammoth.

Consultants to the Applicant indicated that these finds mean the area potentially impacted by the project meets the criteria of the Society for Vertebrate Paleontology (SVP) for an area of high sensitivity. (Ex. 2, p. 491.) No surface evidence of paleontologic resources was found during the pre-AFC field surveys. (Ex. 4.)

Potential project impacts to paleontologic resources are most likely to occur during excavations for the plant site, the transmission line and the natural gas supply pipeline. Plant site grading as well as the excavations and foundation development associated with power plant construction will potentially impact sedimentary deposits known to produce fossil materials. Drilling for wells at the site will also pose potential impacts. The extent of impact will depend on the extent of surface area disturbed during site preparation and the depth of excavation into previously undisturbed sedimentary deposits as project foundations are built. (Ex. 4.)

Construction of foundations for the transmission structures will require drilling of the soil to variable depths for each power pole. The depth of soil disturbance will depend on the height and diameter of the individual poles designed for each portion of the route.

Portions of the 12-mile route proposed for the 16-inch diameter gas pipeline are in areas known to produce fossil materials. Given the large amount of excavation associated with the gas pipelines to be constructed for this project, the greatest potential for project-related impact on paleontologic resources is associated with construction of these linear facilities. (Ex. 2, p. 498.)

To reduce the risks of impacts to paleontologic resources, the Applicant has recommended that a qualified paleontologic resource specialist monitor excavations, trenching, or auguring during construction along portions of the routes for the 16-inch diameter natural gas pipeline and the electric transmission line. A five-point paleontologic resource monitoring program will be implemented, following the SVP standard procedures for areas identified as having a high sensitivity for fossil resources. This five-point program has been incorporated into the Conditions of Certification and includes the following:

- Preconstruction Assessment and Construction Training
- Construction Monitoring
- Specimen Preparation

- Curation
- Report of Findings

FINDINGS AND CONCLUSION

Based on the weight of the evidence of record, the Commission finds:

1. Paleontologic Resources likely exist in the area which will be disturbed by project construction.

2. Portions of the area which will be disturbed by project construction meet the Society of Vertebrate Paleontologists criteria for areas identified as having high sensitivity for fossil resources.

3. The project is likely to be constructed in a manner which will meet all applicable laws, ordinances, regulations and standards identified in the pertinent portion of APPENDIX A of this Decision.

4. Construction and operation of the project is not likely to result in significant adverse impacts on paleontologic resources if the proposed mitigation measures and the Conditions of Certification set forth below are followed.

We have reviewed the recommendations and modifications offered by the Commission staff to the Applicant's mitigation plan and find them acceptable as a means to protect paleontologic resources. The modifications are reflected in the Conditions of Certification which follow. Therefore, we conclude that the SPP will not cause any significant adverse impacts to paleontologic resources.

CONDITIONS OF CERTIFICATION

REQUIREMENTS

PAL-1 Prior to the start of project construction (defined as any construction-related vegetation clearance, ground disturbance and preparation, and site excavation activities), the project owner shall provide the California Energy Commission Compliance Project Manager (CPM) with the name(s)

and qualifications of its designated paleontologic resources specialist and mitigation team members.

The designated paleontologic resources specialist shall be responsible for implementing all the Conditions of Certification and for using qualified personnel to assist him or her in project-related field surveys; monitoring; fossil stabilization, removal, and transport; data collection and mapping; direction and implementation of mitigation procedures; matrix sampling, screen washing, and other micro-fossil recovery techniques; preparation and analysis of recovered fossils and data; identification and inventory of recovered fossils; preparation of recovered fossils for delivery and curation; and report preparation.

After CPM approval of the Paleontologic Resources Monitoring and Mitigation Plan, described below in Condition PAL-4, the designated paleontologic resources specialist and team shall be available to implement the mitigation plan prior to, and throughout construction of the project.

Protocol: The project owner shall provide the CPM with a resume or statement of qualifications for its designated paleontologic resources specialist and mitigation team members. The resume(s) shall include the following information:

1) The resume for the designated paleontologic resource specialist shall demonstrate that the specialist meets the following minimum qualifications: a graduate degree in paleontology or geology, or paleontologic resource management; at least three years of paleontologic resource mitigation and field experience in California, including at least one year's experience leading paleontologic resource field surveys; leading site mapping and data recording; marshalling and use of equipment necessary for fossil recovery, sampling, and screen washing; leading fossil recovery operations; preparing recovered materials for analysis and identification; recognizing the need for appropriate sampling and/or testing in the field and in the lab; directing the analyses of mapped and recovered fossil materials; completing the identification and inventory of recovered fossil materials; and the preparation of appropriate reports to be filed with the receiving curation repository, the University Museum of

Paleontology at Berkeley, all appropriate regional information center(s), and the Commission.

2) The resume for the designated paleontologic resource specialist shall include a list of specific projects the specialist has previously worked on; the role and responsibilities of the specialist for each project listed; and the names and phone numbers of contacts familiar with the specialist's work on these referenced projects.

3) If additional personnel will be assisting the designated paleontologic resources specialist in project-related field surveys, monitoring, data and fossil recovery, mapping, mitigation, fossil analysis, or report preparation, the project owner shall also provide names, addresses, and resumes for these paleontology resource team members.

4) If the CPM determines that the qualifications of the proposed paleontologic resources specialist are not in concert with the above requirements, the project owner shall submit another individual's name and qualifications for consideration.

5) If the previously approved, designated paleontologic resources specialist is replaced prior to completion of project mitigation, the project owner shall obtain CPM approval of the new designated paleontologic resources specialist by submitting the name and qualifications of the proposed replacement to the CAM, at least ten (10) days prior to the termination or release of the preceding designated paleontologic resources specialist.

Verification: At least ninety (90) days prior to the start of construction on the project, the project owner shall submit the name and resume for its designated paleontologic resources specialist, to the CPM for review and approval. The CPM shall provide written approval or disapproval of the proposed paleontologic resources specialist.

Thirty (30) days prior to start of construction, the project owner shall confirm in writing to the CPM that the previously approved, designated paleontologic resources specialist and the team of assistants are prepared to implement the monitoring and mitigation

measures for paleontologic resources, as described in the CPM-approved Paleontologic Resources Monitoring and Mitigation Plan, prepared per Condition PAL-4, below.

At least ten (10) days prior to the termination or release of a designated paleontologic resource specialist, the project owner shall obtain CPM approval of the new designated paleontologic resource specialist by submitting to the CPM the name and resume of the proposed replacement specialist.

PAL-2 Prior to the start of project construction, the project owner shall provide the designated paleontologic resource specialist and the CPM with maps and drawings for the Sutter Power Plant Project. The final center lines and right-of-way boundaries shall be provided on 7.5 minute quad maps, and the location of all the various areas where surface disturbance may be associated with project-related access roads, storage yards, laydown sites, pull sites, pump or pressure stations, switchyards, electrical tower or pole footings, etc.

Where the potential for impacts to significant paleontologic resources has been identified, the designated paleontologic resources specialist may request, and the project owner shall provide, enlargements of portions of the 7.5 minute maps presented as a sequence of strip maps for the linear facility routes. The strip maps would show post mile markers and the detailed locations of proposed access roads, storage or laydown sites, tower or pole footings, and any other areas of disturbance associated with the construction and maintenance of linear facilities.

Verification: At least ninety (90) days prior to the start of construction on the project, the project owner shall provide the designated paleontologic resource specialist and the CPM with final maps at appropriate scale(s) and drawings for all project facilities. Any request for more detailed maps by the designated paleontologic resource specialist shall also be submitted in writing to the CPM.

PAL-3 Prior to the start of project construction, the designated paleontologic resource specialist shall prepare a draft Paleontologic Resources Monitoring and Mitigation Plan to identify general and specific measures to minimize potential impacts to sensitive paleontologic resources. The CPM will review and must approve in writing the draft Paleontologic Resources

Monitoring and Mitigation Plan. After CPM approval, the project owner's designated paleontologic resource specialist and designated paleontologic resource team shall be available to implement the Monitoring and Mitigation Plan, as needed throughout project construction.

Protocol: The Paleontologic Resources Monitoring and Mitigation Plan shall include, but not be limited to, the following elements and measures:

a. A discussion of the sequence of project-related tasks, such as any final pre-project surveys, fieldwork, flagging or staking; construction monitoring; mapping and data recovery; fossil preparation and recovery; preparation for analysis, identification, and inventory; preparation of preliminary and final reports; and preparation of materials for curation.

b. An identification of the person(s) expected to assist with each of the tasks identified in a, above, and a discussion of the mitigation team leadership and organizational structure, and the inter-relationship of tasks and responsibilities.

c. Where sensitive areas are to be avoided during construction and/or operation, the designated paleontologic resource specialist shall identify measures such as flagging or fencing to prohibit or otherwise restrict access to sensitive resource areas. The discussion should address how these measures will be implemented prior to the start of construction and how long they will be needed to protect the resources from project-related effects.

d. Where monitoring of project construction activities is deemed necessary by the designated paleontologic resource specialist, the specialist will determine the size or extent of the areas where monitoring is to occur and will establish a schedule for the monitor(s) to be present. If the designated specialist determines that the likelihood of encountering fossil resources in certain areas is slight, monitoring may be discontinued in that location.

e. If fossil-bearing sediments or fossil materials are encountered on the surface or are exposed during project-related grading, augering, and / or trenching, the designated paleontologic resource specialist shall have the authority to halt or redirect construction in the immediate vicinity of the find until he or she can determine the significance of the find. The designated paleontologic resources specialist shall act in accordance with the following procedures:

- The project owner, or its designated representative, shall inform the CPM within one working day of the discovery of any potentially significant paleontologic resources and discuss the specific measure(s) proposed to mitigate potential impacts to these resources.

- The designated paleontologic resource specialist, representatives of the project owner, and the CPM shall confer within five working days of the notification of the CPM, if necessary, to discuss any mitigation measures already implemented or proposed to be implemented and to discuss the disposition of any finds.

- All necessary and required data recovery and mitigation shall be completed as expeditiously as possible.

f. Include a discussion of the designated paleontologic resource specialist's access to equipment and supplies necessary for recovery of fossil materials and matrix samples. This should include information on the types and availability of specialized equipment and supplies needed to prepare, remove, load, transport, and analyze large-sized fossils or extensive fossil deposits.

g. All paleontologic resource localities, rock units, and sediment and stratigraphic boundaries encountered shall be recorded (may include photos) and mapped; all vertebrate fossils and trackways, and all diagnostic invertebrate and plant fossils shall be stabilized, prepared and recovered for identification and analysis; adequate samples of potentially fossil-bearing matrix shall be collected and

screen washed for sorting and analysis of micro-fossils; recovered fossil materials shall be analyzed and identified to the genus level whenever possible; and all recovered fossil materials shall be inventoried, prepared, and delivered for curation into a retrievable storage collection in a public repository or museum which meets the Society of Vertebrate Paleontologists (SVP) standards and requirements for the curation of paleontologic resources;

h. Identify the institution that has agreed to receive any data and fossil materials recovered during project-related monitoring and mitigation work. Discuss any requirements or specifications for materials delivered for curation and how they will be met. Also include the name and phone number of the contact person at the institution.

Verification: At least forty-five (45) days prior to the start of construction on the project, the project owner shall provide the CPM with a copy of the draft Monitoring and Mitigation Plan prepared by the designated paleontologic resource specialist. The CPM shall provide written approval or disapproval of the proposed Paleontologic Resources Monitoring and Mitigation Plan within 15 days of receipt of the submittal. If the draft plan is not approved, the project owner, the designated paleontologic resources specialist, and the CPM shall meet to discuss comments and achieve necessary changes.

PAL-4 Prior to the start of project construction, the project owner shall conduct a pre-construction reconnaissance and staking in all areas expected to be affected by construction and operation of the proposed project and its associated linear facilities. The staking of the linear facilities shall use the final design, centerlines, rights-of-way, and post miles delineated in the construction drawings and maps prepared under Condition of Certification PAL-2. The designated paleontologic resources specialist will use the post mile stakes and boundary markers to identify sensitive areas with the potential to produce paleontologic resources and for implementation of specific measures, as described in Condition PAL-8, below.

Verification: A least thirty (30) days prior to the start of construction, the project owner shall complete a pre-construction reconnaissance and staking of mile-posts and right-of-way boundaries in all areas expected to be affected by construction and operation of the proposed project and its associated linear facilities.

PAL-5 Prior to the start of construction on the project, the designated paleontologic resources specialist shall prepare an employee training program. The designated paleontologic resource specialist shall submit the training program to the CPM for approval.

Protocol: The training program will discuss the potential to encounter fossil resources in the field, the sensitivity and importance of these resources, and the legal obligations to preserve and protect such resources.

The training shall also include the set of reporting procedures that workers are to follow if sensitive paleontologic resources are encountered during project activities. The training program will be presented by the designated paleontologic resources specialist and may be combined with other training programs prepared for cultural and biological resources, hazardous materials, or any other areas of interest or concern.

Verification: At least thirty (30) days prior to the start of construction on the project, the project owner shall submit to the CPM for review, comment, and written approval, the proposed employee training program and set of reporting procedures the workers are to follow if paleontologic resources are encountered during project construction.

The CPM shall provide the project owner with written approval or disapproval of the employee training program and the set of procedures within 15 days of receipt of the submittal. If the draft training program is not approved, the project owner, the designated paleontologic resources specialist, and the CPM shall meet to discuss the comments and work out necessary changes.

PAL-6 Prior to the start of construction, and throughout the project construction period as needed for all new employees, the project owner and the designated paleontologic resource specialist shall provide the CPM-approved training

to all project managers, construction supervisors, and workers who operate ground disturbing equipment. The project owner and construction manager shall provide the workers with the CPM-approved set of procedures for reporting any sensitive paleontologic resources or fossil-bearing sediments that may be discovered during project-related ground disturbance.

Verification: Prior to the start of construction, and throughout the project construction period as needed for all new employees, the project owner and the designated paleontologic resources specialist shall present the CPM-approved training program on the potential for project impacts to sensitive paleontologic resources. The training shall include a set of reporting procedures for paleontologic resources encountered during project activities. The project owner shall provide documentation in the Monthly Compliance Report to the CPM that the employee training and the set of procedures have been provided to all project managers, construction supervisors, and to all workers.

PAL-7 Throughout the project construction period, the project owner shall provide the designated paleontologic resource specialist with a current schedule of anticipated weekly project activity and a map indicting the area(s) where construction activities will occur. The designated paleontologic resource specialist shall consult daily with the project superintendent or construction field manager to confirm the area(s) to be worked on the next day(s).

Throughout the paleontologic resources pre-construction reconnaissance, monitoring and mitigation phases of the project, the designated paleontologic resources specialist shall keep a daily log of any fossil resource finds and the progress or status of the surveys, resource monitoring, mitigation, preparation, identification, and analytical work being conducted for the project. The designated paleontologic resource specialist may informally discuss the paleontologic resource monitoring and mitigation activities with the Commission technical counterpart.

Verification: The project owner shall include, in the Monthly Compliance Reports to the CPM, a summary of the daily logs prepared by the designated paleontologic resource specialist.

PAL-8 The designated paleontologic resource specialist shall be present at all times to monitor construction-related grading, excavation, trenching, and/or augering in areas where remnant river terrace deposits have been found. These terrace remnants have been generally correlate with soils of the Conejo-Tisdale group and Pleistocene-age fossil materials may be present.

Project areas where the terrace deposits may be found include the power plant site, the Sutter Bypass switching station site, portions of the 16-inch natural gas pipeline route, and the electric transmission line route. Using the mile posts and boundary stakes placed by the project owner, the designated paleontologic resource specialist shall monitor the route of the 16-inch natural gas pipeline, between Mile Post (MP) 0.00 to MP 2.07; MP 3.58 to MP 3.70; and MP 4.10 to MP 4.50. For the route of the 4.0-mile electric transmission line, areas to be monitored full-time are MP 0.00 to MP 1.40; and MP 1.80 to MP 2.60.

Other sections of the linear facility routes may be monitored as deemed necessary by the designated paleontologic resources specialist.

Verification: The project owner shall include in the Monthly Compliance Reports to the CPM, a summary of the daily logs prepared by the designated paleontologic resource specialist.

PAL-9 The project owner, through the designated paleontologic resources specialist, shall ensure the recovery, preparation for analysis, analysis, identification and inventory, the preparation for curation, and the delivery for curation of all significant paleontologic resource materials encountered and collected during pre-construction surveys and during the monitoring, data recovery, mapping, and mitigation activities related to the project.

Verification: The project owner shall maintain, in its compliance files, copies of signed contracts or agreements with the designated paleontologic resource specialist and other qualified research specialists. These specialists will ensure the necessary data and fossil

recovery, mapping, preparation for analysis, analysis, identification and inventory, and preparation and delivery for curation of all significant paleontologic resource materials collected during data recovery and mitigation for the project. The project owner shall keep these files available for periodic audit by the CPM.

PAL-10 The project owner shall ensure preparation of a Preliminary Paleontologic Resources Report following completion of data recovery and site mitigation work. The preliminary report is to be prepared by the designated paleontologic resources specialist and submitted to the CPM for review, comment, and written approval.

Protocol: The preliminary report shall include (but not be limited to) preliminary information on the survey report(s), methodology, and recommendations; site records and maps; determinations of sensitivity and significance; data recovery and other mitigation activities; possible results and findings of any analysis to be conducted on recovered paleontologic resource materials and data; proposed research questions that may be answered or may have been raised by the data from the project; and an estimate of the time needed to complete the analysis of recovered fossil materials and prepare a final report.

If no fossil resources were recovered during project construction, the CPM-approved preliminary report shall also serve as the final report and shall be filed with appropriate entities, as described in conditions PAL-11 and PAL-12.

Verification: Within ninety (90) days following completion of the data recovery and site mitigation work, the project owner shall submit a copy of the Preliminary Paleontologic Resources Report to the CPM for review, comment, and written approval.

PAL-11 The project owner shall ensure preparation of a Final Paleontologic Resources Report by the designated paleontologic resources specialist if significant fossil resources are found and recovered during project-related surveys, monitoring and mitigation.
Protocol: The final report shall include (but not be limited to) the survey report(s), methodology, and recommendations; locality records and maps;

description and inventory list of recovered fossil materials; determinations of sensitivity and significance; summary of data recovery and other mitigation activities; results and findings of any special analyses conducted on recovered paleontologic resource materials and data; research questions answered or raised by the data from the project; and the name and location of the public institution receiving the recovered paleontologic resources for curation.

Verification: The project owner shall submit a copy of the draft Final Paleontologic Resources Report to the CPM for review, comment and written approval. The draft Final Paleontologic Resources Report shall be submitted to the CPM within ninety (90) days following completion of the analysis of the recovered fossil materials and preparation of text and related information, such as maps, diagrams, tables, charts, photos, etc.

PAL-12 The project owner, through the designated paleontologic resources specialist, shall submit an original, or an original-quality, copy of the CPM-approved Final Paleontologic Resources Report to the public institution receiving the recovered data and materials for curation, to the Museum of Paleontology at UC Berkeley, and to the appropriate regional information center(s). A legible copy of the approved Final Paleontologic Resources Report shall be filed with the CPM, with a request for confidentiality if needed to protect any sensitive resources or sites. Protocol: The copies of the CPM-approved Final Report sent to the entities identified above shall include the following (as applicable to the project findings set forth in the final report): clean and reproducible original copies of all text; originals of any topographic maps showing site and resource locations, boundaries of underlying rock units and stratigraphy; original or clear copies of drawings of significant paleontologic resource materials found during pre-construction surveys, during project-related monitoring, data recovery, and mitigation; and photographs (including a set of negatives, if possible) of the locality(ies) and the various paleontologic resource materials recovered during project monitoring and mitigation and subjected to post-recovery analysis and evaluation.

Verification: The project owner shall maintain, in its compliance files, copies of all documentation related to the filing of the original materials and the CPM-approved Final Paleontologic Resources Report with the public institution receiving the data and recovered materials for curation, the UC Museum of Paleontology at Berkeley, and the appropriate paleontologic information repository(ies). If no significant paleontologic resources were recorded or recovered, then the CPM-approved Preliminary Paleontologic Resources Report shall serve as the final report and shall be filed with these same entities.

PAL-13 Within thirty (30) days following filing of the Final Paleontologic Report with the appropriate entities, the project owner shall deliver for curation all paleontologic resource materials collected during data recovery and mitigation for the project. The materials shall be delivered for curation into a public repository which meets Society for Vertebrate Paleontology (SVP) requirements for the curation of paleontologic resources.

Verification: The project owner, through the designated paleontologic resources specialist, shall maintain in its project history or compliance files copies of signed contracts or agreements with the museum(s), university(ies), or other appropriate public repository(ies), to which the project owner has provided for delivery and curation of all the paleontologic resource materials collected during data recovery and site mitigation for the project.

O. ALTERNATIVES

The Commission is required to examine the "feasibility of available site and facility alternatives to the Applicant's proposal which substantially lessen the significant adverse impacts of the proposal on the environment." (20 Cal. Code of Regs., § 1765.) Further direction is provided by the CEQA Guidelines, which require an evaluation of the comparative merits of "a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project." [14 Cal. Code of Regs., § 15112(d).] The analysis must focus on "alternatives capable of eliminating any significant adverse environmental effects or reducing them to a level of insignificance..." and must include evaluation of a "no project" alternative. [14 Cal. Code of Regs., §§ 15126(d)(2), (d)(3).]

In this proceeding, the Commission staff and Western have operated jointly in the design and production of a combined CEQA / NEPA analysis. Thus, the alternatives analysis contained in the Final Staff Assessment (Ex. 2.) is intended to function as the alternatives analysis for both CEQA and NEPA purposes.[58]

The CEQA Guidelines also provide guidance on the appropriate range of alternatives which should be analyzed:

> The range of reasonable alternatives required in an EIR is governed by the "rule of reason" that requires the EIR to set forth only those alternatives necessary to permit a reasoned choice... . The alternatives shall be limited to ones that would avoid or substantially lessen any of the significant effects of the project... An EIR need not consider an alternative whose effect cannot be reasonably ascertained and whose implementation is remote and speculative. [14 Cal. Code of Regs., § 15126(d)(5).]

The project's objectives influence the analysis of alternatives under CEQA. The SPP Application for Certification describes the project's objectives to be the construction and

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[58] The National Environmental Policy Act requires that Western "...explore and objectively evaluate all reasonable alternatives, and for alternatives which were eliminated from detailed study, briefly discuss the reasons for their having been eliminated." [Title 40, Code of Federal Regulations Section 1502.12(a).]

operation of a merchant power plant in the Sutter County region in order to generate and sell electric power in the newly deregulated power market. The SPP will sell part of its output on short and mid-term contracts directly to customers, and sell part on the spot power market. (Ex. 4, 1-1.)

As noted above, CEQA requires an examination of alternatives which will reduce or eliminate the significant environmental impacts of a project. The Commission staff analysis found that the project would create significant visual impacts and thus performed a broad analysis of alternative sites for the project. Other witnesses on visual resources disagreed with the Staff's determination that visual impacts were "significant". After carefully reviewing the evidence, we decided that the project will not impose significant environmental impacts, visual or otherwise. While this determination arguably obviates the need under CEQA to further explore alternatives, testimony regarding various sites and transmission line configurations was nevertheless presented during the hearings and is part of the evidentiary record. In addition, the presentations on alternatives to the SPP generated considerable public interest and discussion, all of which served to further inform the public record and the Committee members. The discussion which follows highlight's pertinent points.

The "No Project" Alternative

In the AFC, Calpine states that "the 'no project' alternative is not feasible given Calpine's business plans and the purpose of a merchant power plant," and that "not building the project would likely result in greater fuel consumption and air pollution in California since the SPP will displace older, less efficient, more polluting utility-owned plants." (Ex. 4, p. 5-1.) To support this, Calpine offered the testimony of Elizabeth R.Y. Kientzle (Ex. 27) who reviewed the potential statewide benefits resulting from the SPP. The witness used simplifying assumptions and a range of scenarios to produce a number of potential results, which she assumed would bracket the most likely outcome. Calpine and Staff stipulated (Ex. 31) regarding the Applicant's testimony "that systemwide air emission reductions are likely to result from the project" but that Calpine's quantification of emissions reductions "may differ from those that Staff might have estimated during a similar analysis." Calpine's witness Kientzle asserted that, despite the issue of how well her testimony may have estimated the expected system benefits of the SPP, "there are no set of reasonable assumptions that I can see that would produce

no benefits from this project." (11/2 RT p. 187.) This assertion was not challenged by staff and is consistent with the stipulation between the Applicant and Staff.[59]

The record establishes that the "no project" alternative would also exacerbate longstanding problems which the Sacramento region has maintaining acceptable voltage levels in the electric system.[60] Commission staff transmission engineer Al McCuen testified that the SPP will offer a major step toward resolving serious threats to the reliability of electric service in the Sacramento Valley area, including Sutter County. The project will postpone for approximately six years the need for expensive new transmission lines in the Sacramento Valley. When built, such lines would be at public expense and cross many more miles than the transmission line required for the SPP. (Ex. 42.) The witness also stressed the importance of local generation, such as supplied by the SPP, over power imported to the area on transmission lines.[61]

The "no project" alternative would also eliminate the economic benefits which the project is likely to bring to Sutter County. These include minimum property tax revenues of approximately $880,734.00 per year.[62] Construction will generate $6 to $10 million in sales taxes. An estimated $5 million will be spent locally for materials and supplies. Once completed, the operation and maintenance of the project will result in local spending of $3 to $7 million each year and add a $1 million payroll to the area.

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[59] While the Committee has rephrased the discussion of the "no project" alternative to reflect the existence of the stipulation between Commission staff and Applicant, the Committee is not rejecting the testimony of Elizabeth R.Y. Kientzle.

[60] McCuen testified that to prevent a system voltage collapse which can affect millions of customers, local utilities have implemented a scheme to shut down, on demand, over 400 megawatts of customer load. In the summer of 1998 there were up to eleven instances where electric power reserves "approached or were at critical levels...". The witness made clear that this problem can affect Sutter County as well: " PG&E, Western, SMUD, Roseville and NCPA are all affected by potential reliability deficits in the Sacramento Valley area. An example of this is the Yuba City area and Roseville area." (Ex. 42, p. 3.)

[61] He stated that "...while increased transmission capacity can provide some power to the Sacramento Valley area, the "worth" of a megawatt of transmission import is nowhere as beneficial as a megawatt of local generation." (Ex. 42, p. 3.)

[62] While Calpine has estimated it will pay between $2.7 and $3.1 million per year in property taxes, estimates from the Sutter County Auditor-Controller indicate that if the project is assessed $2.7 million in property taxes, the amount returned to the county general fund and various districts is likely to be approximately $880,734.00 per year. (Ex. 49.)

When analyzing the "no project" alternative, Commission staff at one point suggested that it would be slightly superior to the SPP. (11/2/98 p.m. RT 8.) The Staff witness acknowledged that the analysis was carried out before being aware of major mitigation measures added to the project. In addition, the Staff analysis did not account for project-related system benefits which the witness agreed the project would provide. (11/2/98 p.m. RT 7-8, 18.) Furthermore, the Staff's analysis of the "no project" alternative assumed that the SPP will impose significant visual impacts. After factoring in the foregoing considerations the witness acknowledged that the Commission could conclude that the benefits of the project would outweigh the benefits of not certifying the project. (Ex. 2, p. 21; 11/2/98 p.m., RT 13-14.)

Site Alternatives

The Applicant conducted an analysis of four alternative locations as part of its Application for Certification.[63] (Ex. 4, p. 5-1.) It evaluated the sites on the basis of six factors: availability, environmental impact, access to transmission lines, natural gas supply, proximity to existing Calpine facilities, and cost. The Applicant concluded that the Sutter Buttes Industrial Area site was not now available and may never be available due to aesthetic standards and height limits which would exclude the project.[64] The South Sutter County Industrial Area site lacks infrastructure and would take considerable time and expense to acquire and develop. In Calpine's view, the SEPCO sites may be available but the time it would take to acquire is unknown. Gas supply to the sites would also cost over twice that of the proposed site. (Ex. 4, p. 5-9.) It accordingly disqualified these sites. The Applicant therefore concluded that the proposed site is the preferred location for the SPP. (Ex. 4, p. 5-10.)
Commission staff examined a five-county region for alternatives, based on prior analysis from the Commission's 1994 Sacramento Ethanol and Power Cogeneration (SEPCO) power plant siting case,[65] Calpine's AFC, and information from Sutter County

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[63] These include the Sutter Buttes Industrial Area, the South County Industrial/Commercial Area, the SEPCO SAC1 Site, and the SEPCO S7 Site.

[64] Sutter County is currently in the process of adopting aesthetic standards for the Sutter Buttes Industrial Center which will protect views of the Sutter Buttes from locations along Highway 20.

[65] Commission Decision, Application for Certification for the Sacramento Ethanol and Power Cogeneration Project, Docket No. 92-AFC-2, May 1994. Publication No. P800-94-007.

(including identification of industrial zones within the County). Staff also considered recommendations from the public.

From these sources, the Staff identified 11 potential alternative sites to the Applicant's proposed Sutter project site. These 11 sites were then reduced to four sites using four screening criteria: (1) proximity to natural gas supply; (2) proximity to transmission lines; (3) transmission line avoidance of medium to high density housing; and (4) whether the site was appropriately zoned.[66] These alternative sites are depicted on the following map, identified as ALTERNATIVES: Figure 1.

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[66] The four sites were: Sacramento county site (SAC 1), South Sutter County Industrial Area site, Sutter Buttes Industrial Area site, and a site at the west end of O'Banion Road near the Sutter Bypass.

ALTERNATIVES: Figure 1
Regional Map of the Four Project Sites Reviewed

In supplementary testimony filed in response to a Committee Order,[67] Staff compared the mitigated[68] Sutter Power Plant site and its linear facilities with the four alternative project sites. (Ex. 42.) This analysis included a description of each site as well as the comparative advantages, disadvantages and potential fatal flaws of each alternative location.[69]

Each of the sites reviewed by the Staff proved to have serious limitations. The SAC 1 site has 200 residences (versus 9 for the SPP) within one mile of the project, imposes more severe visual impacts, impacts jurisdictional wetlands which contain listed species, is located in a flood plain, and drew significant public opposition during hearings in 1994 to locate a power plant at the site which was one third the size of the SPP. The project was never built. (Ex. 42, p. 5.) The South Sutter County Industrial Area has greater visual impacts, jurisdictional wetlands with listed species, no infrastructure such as sewer, water, or storm drainage, and its availability is unknown. (*Id.*, p. 6.) Pursuant to the Sutter County General Plan policy to protect views of the Sutter Buttes along Highway 20, the Sutter Buttes Industrial Area site is expected to have height restrictions of 50-60 feet, which precludes use of that area for the SPP. (*Id.*, p. 8.)

While the O'Banion Road site proved to have fewer visual resource impacts than the SPP project site, Staff found that this alternative site had three fatal flaws that could potentially render it unacceptable. First, the parcel is zoned agricultural and is presently under rice cultivation. Sutter County informed the Commission staff that a change of zoning is not likely under current

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[67] "Notice of Additional Evidentiary Hearings and Hearing Order Requiring Supplemental Testimony", November 13, 1998.

[68] The original Final Staff Assessment section on alternatives compared an unmitigated SPP to various alternatives.

[69] Since Staff concluded that the Sutter project, after all mitigation, would nevertheless result in significant visual impacts, Staff included a brief general assessment of the visual impacts of the various alternative sites. This approach conforms with CEQA Guidelines which emphasize that the alternatives analysis should focus on sites that would reduce any potentially significant impacts of the project.

county agricultural land use policy which disfavors taking land out of agricultural production and putting into another use.[70] Second, the site is owned by the Crepps family and access and control of the property is believed to be infeasible as 66 percent of the ownership shares are unwilling to sell. Finally, the O'Banion site is far closer to the Sutter National Wildlife Refuge than the proposed site. Thus, if the power plant at the O'Banion location were found to be incompatible with the nearby Sutter Refuge, it could not be permitted without a finding of over-riding consideration.

Staff considered all potential environmental impacts, public health and safety issues, and compliance with all laws, ordinances, regulations and standards, and concluded that no alternative site was superior to the proposed site. Commission staff testified that even assuming significant visual resource impacts, the SPP site has fewer impacts than that of any of the alternative project sites reviewed. (Ex. 42, p. 11.)

Additional Alternatives

Calpine and the Commission staff also explored several alternative transmission line routes in an effort to mitigate the visual impacts of the proposed route. One proposal would exit the site and proceed south along South Township Road to the southern end of that road. From there it would either proceed south across open fields or, or alternatively, jog west on Tudor Road, then proceed south along Murray Road to an intersection with Western's system. This route is 5.7 miles long versus the 4 mile preferred route and thus posed additional impacts. A staff-proposed alternative route would have headed west from the project site along a dirt road to the existing PG&E 500 kV transmission line, then parallel that line south to a switching station at the west end of O'Banion Road. (See map of Alternative Transmission Line Routes; Figure 2). This alternative was later rejected by staff because of increased biological impacts due to proximity to the Sutter National Wildlife Refuge.

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[70] The O'Banion site is different from the proposed site. Sutter County Community Services Department staff reported that the parcel proposed for the SPP site was converted to urban/industrial use in 1984 when the use permit for Greenleaf 1 was approved. "If approved, the current project, which is an expansion of an existing industrial use, would merely assign a land use designation consistent with the current use."
(Ex. 39, p. 8.)

Map of Alternative Transmission Line Routes
[From Biological Resources, Fig.1]

ALTERNATIVE TRANSMISSION LINE ROUTES: Figure 1

Biological Resources

In its AFC filing, Calpine also explored alternative project configurations and alternative technologies, none of which proved to be viable alternatives. (Ex. 4, p. 5-10.)

Commission Discussion

Under the "no project alternative," it is probable that other alternative proposals will be made which may, or may not be in this area or region. Within the region, several alternative sites were examined to test their suitability, should the county wish to allow such a use under the General Plan.

The evidentiary record does not establish that any of the alternative sites would allow a successful generating project nor that the various environmental impacts at each of the sites could be mitigated below a level of significance. In the initial Staff analysis of alternative sites, the O'Banion site appeared not only acceptable, but marginally preferable to the "no project" alternative. However, in its supplementary testimony Staff found zoning problems due to the current rice cultivation at the site, access problems based on the stated unwillingness of the property owners to sell, and incompatibility with the Sutter National Wildlife Refuge. (Ex. 42, Alternatives, p. 9.) Thus, the O'Banion site cannot be judged preferable to the proposed site.

The Commission found the SAC 1 or SEPCO site to be an acceptable power plant site in 1994. However, the proposal approved by the Commission at that time was for a power plant 1/4 to 1/3 the size of the SPP and there was significant opposition to the project at that time. At least 200 residences are within a mile of the site (versus 9 for the SPP) with homes on 1-2 acres parcels. Other impacts include visual, wetlands, and flood risks. While these impacts may be mitigable for the much larger SPP as they were for the smaller SEPCO project, the site nevertheless does not, on the whole, offer advantages over the proposed SPP site. The analyses of both the Staff and the Applicant set forth numerous disadvantages to the South Sutter County Industrial site and to the Sutter Buttes Industrial site. In the case of the latter, county height restrictions for the site would likely prohibit use of the site for the SPP.

The limitations of time and resources which the Commission's siting process can devote to analyzing various alternatives to a project make it impossible to hold even a limited number of alternatives up to the same level of scrutiny applied to the Applicant's

proposed site. Nevertheless, the level of review which is possible has not revealed an alternative site which is preferable to the proposed site.

The SPP's present conflict with the Sutter County General Plan is by definition a "significant effect" under CEQA Guidelines.[71] However, it is an effect which can be mitigated and the Applicant has appealed to the Sutter County Board of Supervisors in an effort to do so. If this conflict with the local plans is corrected, the project will not result in any significant environmental impacts after all mitigation measures are implemented. Therefore, no substantial environmental harm would be prevented if the project were not built. The evidence demonstrates that the SPP will not impose any significant environmental impacts. Thus, the "no project" alternative does not appear to conclusively eliminate any significant environmental impacts of the project.

FINDINGS AND CONCLUSION

Based on the weight of the evidence of record, the Commission finds as follows:

1. The evidence of record indicates that Applicant and Commission staff have analyzed a reasonable range of alternatives to the proposed project site, including sites up to 30 miles distant from the proposed site.

2. The evidentiary record also contains a review of a range of alternative technologies, fuels, transmission line and pipeline routes, and a "no project" alternative.

3. If all Conditions of Certification contained in this Decision are implemented, all environmental impacts associated with the proposed site and ancillary facilities will be mitigated to a level of less than significance.

4. Overall environmental impacts, as well as site availability, access to transmission lines and to natural gas supplies, and site costs are relevant criteria in determining the acceptability of a site.

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[71] California Environmental Quality Act, Guidelines, 14 Cal. Code of Regulations, sections 15002(g), 15382, Appendix G(a).

5. Implementation of the Conditions of Certification relating to site specific environmental and public health and safety impacts of the project will reduce the site specific impacts to a level of insignificance; therefore, the proposed site is an acceptable location for the SPP project.

6. No significant environmental impacts would be avoided under the "no project" alternative.

We therefore conclude that no significant impacts would be avoided by any of the alternatives examined.

V. ENGINEERING ASSESSMENT

A. FACILITY DESIGN

Disciplines included under this broad topic are the civil, electrical, mechanical, and structural engineering elements related to the design, construction, and operation of the proposed project and its component systems. The Application for Certification describes the facility design aspects of the project. (Ex. 4, sec. 2.2.)

The proposed project is currently at the preliminary design stage, and the analysis of record is limited to assessing whether the facility's design has been described in sufficient detail to provide reasonable assurance that it will be constructed in conformity with all applicable standards, ordinances, and laws. In addition, the evidence of record contains an analysis of the design information submitted by the Applicant to determine if there is anything unique or unusual about the project or the site which could influence public health and safety, environmental protection or the operational reliability of the project.

This analysis also contains Conditions of Certification to ensure that a design review and construction inspection process is applied which will implement applicable design standards and any special design requirements. (Ex. 2, p. 509; 11/10/98 RT 24.)

The Commission staff team assigned to this topic analyzed the Applicant's proposal in the areas of site preparation and development; major project structures, systems and equipment; mechanical systems; electrical systems; linear facilities such as the gas pipeline and transmission line routes; and geologic hazards.

Based on this analysis, Staff proposed a series of recommendations and Conditions of Certification. Among other things, the conditions designate the responsibilities and qualifications of engineers responsible for design and construction of the project and require that no element of the project proceeds without approval from the local chief building official (CBO). These measures ensure that the project meets all standards in effect at the time of construction.

At the evidentiary hearing of November 10, 1998, intervenor Brad Foster stated his concern about the possibility of Calpine eventually abandoning its dry cooling technology and converting to its original proposal for wet cooling. This change would involve greater water demand for the project and greater visual impacts from the cooling tower vapor plume. These impacts were eliminated by Calpine's switch to dry cooling.

In response, Calpine Project Director Curt Hildebrand stated that the project's dry cooling facility would cost in the order of $20,000,000 and that the company was completely committed to only the dry cooling approach for the life of the project. (11/10/98 RT 27.) Calpine attorney Chris Ellison pointed out that if, as a result of high temperatures, the dry cooling facility (or air cool condenser) becomes less efficient, that fact only impacts the facility's profit margin, not its ability to safely and adequately cool the project. (*Id*. RT 28.) Moreover, the Commission is requiring dry cooling as a Condition of Certification. An air-cooled condenser is specified as one of the major structures of the power plant in Condition GEN-2. If Calpine wanted to change the project design to a wet-cooling configuration, the Applicant would be required to petition the Commission and undergo a thorough public review and impact analysis of the change.

The standards with which the project must comply are identified in APPENDIX A of this Decision, and the Conditions of Certification intended to ensure this compliance are set forth below. Assuming implementation of the latter, the evidence establishes that the project will meet applicable design and construction criteria.

FINDINGS AND CONCLUSION

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

1. The proposed project is currently in the preliminary design stage.

2. Review of the available information, including that contained in the Application for Certification (Ex. 4) and the Final Staff Assessment (Ex. 2), establishes that the proposed facility can be designed and constructed in conformity with the applicable laws, standards, and ordinances set forth in the appropriate portion of APPENDIX A of this Decision.

3. The Conditions of Certification set forth below are necessary to ensure that the project is designed and constructed in conformity with applicable law.

We therefore conclude that with the implementation of the Condition of Certification listed below the proposed project is likely to be designed, constructed, and operated in conformity with applicable law relating to the project's civil, electrical, mechanical, and structural engineering aspects.

CONDITIONS OF CERTIFICATION

GEN-1 The project owner shall design, construct and inspect the project in accordance with the California Building Code (CBC)[72] and all other applicable LORS listed in Appendices 9A through 9G of the Application for Certification (AFC), in effect at the time initial design plans are submitted to the CBO for review and approval. The CBC in effect is that edition that has been adopted by the California Building Standards Commission, and published at least 180 days previously.

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72 All the Sections, Chapters, Appendices and Tables, unless otherwise stated, refer to Sections, Chapters, Appendices and Tables of the 1995 California Building Code.

In the event the SPP is subject to the 1998 CBC, the 1995 CBC provisions identified herein shall be replaced with the applicable successor provisions.

The purpose of the code is to provide minimum standards to safeguard life or limb, health, property and public welfare by regulating and controlling the design, construction, quality of materials, use and occupancy, location and maintenance of all buildings and structures and certain equipment regulated by the CBC. Where, in any specific case, different sections of the code specify different materials, methods of construction or other requirements, the most restrictive shall govern. Where there is a conflict between a general requirement and a specific requirement, the specific requirement shall govern.

Verification: Within 30 days (or a lesser number of days mutually agreed to by the project owner and the CBO) after receipt of the Certificate of Occupancy, the project owner shall submit to the CPM a statement of verification, signed by the responsible engineer, attesting that all design, construction, installation and inspection requirements of the applicable LORS and the Commission's Decision have been met for facility design. The project owner shall provide the CPM a copy of the Certificate of Occupancy in the next Monthly Compliance Report after receipt of the permit from the CBO [Section 109 — Certificate of Occupancy.]

GEN-2 The project owner shall furnish to the California Energy Commission Compliance Project Manager (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 description and list of proposed submittal packages for design, calculations, and specifications for major structures and equipment (see a list of major structures and equipment below). To facilitate audits by Commission staff, the project owner shall provide designated packages to the CPM when requested.

Major Structures

Combustion Turbine Generator (CTG) Pedestal and Foundation
Steam Turbine Generator (STG) Pedestal and Foundation
CTG Enclosure Structure

STG Enclosure Structure
Air Inlet Filtration with Evaporative Cooler Structure
Air Cooled Condenser
Heat Recovery Steam Generator (HRSG) Structure and Foundation
Exhaust Stack and Foundation
Field-Fabricated Tanks and Foundations
Shop-Fabricated Tanks and Foundations
Condenser Support Structure and Foundations
Equipment Foundations (compressors, pumps, transformers)
Switchyard
Control / Administration Building
Pipe Rack Structures
Transformer Dead end Structure

Major Equipment
CTG
STG
Fired HRSG
Shop-Fabricated Pressure Vessels
STG Condenser
Main Step-up Transformers
Boiler Feed Pumps
Condensate Pumps
Switchgear
Cycle Water Chemical Storage

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 rough grading, the project owner shall submit the schedule, a Master Drawing List, and a Master Specifications List to the CBO and to the CPM. The project owner shall provide schedule updates in the Monthly Compliance Report.

GEN-3 The project owner shall make payments to the CBO equivalent to the fees listed in Chapter 1, Section 107 and Table 1-A — Building Permit Fees, Appendix Chapter 33, Section 3310 and Table A-33-A — Grading Plan Review Fees, and Table A-33-B — Grading Permit Fees. If Yuba City,

Sutter County or Colusa County has adjusted the CBC fees, for design review, plan check and construction inspection, the project owner shall pay the adjusted fees.

Verification: The project owner shall make the required payments to the CBO at the time of submittal of the plans, design calculations, specifications, or soil reports. The project owner shall send a copy of the CBO's receipt of payment to the CPM in the next Monthly Compliance Report indicating that the applicable fee has been paid.

GEN-4 Prior to the start of site preparation, the project owner shall assign a California registered architect, structural engineer or civil engineer, as a resident engineer (RE), to be in general responsible charge of the project. [Building Standards Administrative Code (24 CCR, part 1), Section 4-209 — Designation of Responsibilities.]

The RE may delegate responsibility for portions of the project to other registered engineers. Registered mechanical and electrical engineers may be delegated responsibility for mechanical and electrical portions of the project respectively. A project may be divided into parts, provided each part is clearly defined as a distinct unit. Separate assignment of general responsible charge may be made for each designated part.

Protocol: The RE shall:

1. Monitor construction progress to ensure compliance with the design intent;

2. Ensure that construction of all the facilities conforms, in every material respect, to the applicable LORS, approved plans, and specifications;

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

4. Be responsible for providing the project inspectors and testing agency(ies) with complete and up-to-date set(s) of stamped drawings, plans, specifications and other required documents;

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

6. Be responsible for notifying the CBO of corrective action or the disposition of items noted on laboratory reports or other tests as not conforming to the approved plans and specifications.

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

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

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

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

GEN-5 Prior to the start of site preparation, the project owner shall assign at least one of each of the following California registered engineers to the project: A) a civil engineer; B) a geotechnical engineer or a civil engineer experienced and knowledgeable in the practice of soils engineering; C) a design engineer who is either a structural engineer or a civil engineer who is fully competent and proficient in the design of power plant structures and equipment supports; D) a mechanical engineer; and E) an electrical engineer. [California Business and Professions Code Section 6704 et seq; and Section 6730 and 6736. Requires state registration to practice as a civil engineer or Structural Engineer in California.]

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

The project owner shall submit to the CBO for review and approval, the names, qualifications and registration numbers of the lead engineer responsible for each segment. [Section 104.2 — Powers and Duties of Building Official.]

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

Protocol: - A: The civil engineer shall:

1. Design (or be responsible for design), stamp, and sign all plans, calculations, and specifications for proposed site work, civil works, and related facilities to comply with the Energy Commission

Decision. At a minimum, these include: grading, site preparation, excavation, compaction, construction of secondary containment, foundations, erosion and sedimentation control structures, drainage facilities, underground utilities, culverts, site access roads, and sanitary sewer systems; and

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

Protocol: - B: The geotechnical engineer or civil engineer experienced and knowledgeable in the practice of soils engineering:

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

2. Prepare the soils engineering reports required by Appendix Chapter 33, Section 3309.5 — Soils Engineering Report, and Section 3309.6 — Engineering Geology Report.

3. Be present, as required, during site grading and earthwork to provide consultation and monitor compliance with the requirements set forth in Appendix Chapter 33, Section 3317 — Grading Inspections.

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

5. Review the geotechnical report, field exploration report, laboratory tests, and engineering analyses detailing the nature and extent of the site soils that may be susceptible to liquefaction, rapid settlement or collapse when saturated under load; and

6. Prepare reports on foundation investigation to comply with Chapter 18, Section 1804 — Foundation Investigations.

This engineer shall be authorized to halt earthwork and to require changes, if site conditions are unsafe or do not conform with predicted conditions used as a basis for design of earthwork or foundations. [Section 104.2.4 — Stop orders.]

Protocol: - C: The design engineer shall:

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

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

3. Monitor construction progress to ensure compliance with the design intent;
4. Evaluate and recommend necessary changes in design; and

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

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

Protocol: - E: The electrical engineer shall:

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

2. sign and stamp all electrical design drawings, plans, specifications, and calculations.

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

If the designated responsible engineer is subsequently reassigned or replaced, the project owner has 15 days in which to submit the name, qualifications, and registration number of the newly assigned engineer to the CBO for review and approval. The project owner shall notify the CPM of the CBO's approval of the new engineer within five days of the approval.

GEN-6 Prior to the start of an activity requiring special inspection, the project owner shall assign to the project, qualified and certified special inspector(s) who shall be responsible for the special inspections required by Chapter 17, Section 1701 — Special Inspections and Section 1701.5 — Type of Work (requiring special inspection), Section 106.3.5 — Inspection and observation program.

Protocol: The Special Inspector shall:

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

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

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

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

plans and specifications and the applicable provisions of the applicable edition of the CBC.

Welding performed on-site requiring special inspection (including structural, piping, tanks and pressure vessels) shall be inspected by a certified weld inspector (certified AWS and/or ASME as applicable).

Verification: At least 15 days prior to the start of an activity requiring special inspection, the project owner shall submit to the CBO for review and approval, with a copy to the CPM, the name(s) and qualifications of the certified weld inspector(s), or other certified special inspector(s) assigned to the project to perform one or more of the duties set forth above. The project owner shall also submit to the CPM a copy of the CBO's approval of the qualifications of all special inspectors in the next Monthly Compliance Report.
If the special inspector is subsequently reassigned or replaced, the project owner has five days in which to submit the name and qualifications of the newly assigned special inspector to the CBO for approval. The project owner shall notify the CPM of the CBO's approval of the newly assigned inspector within five days of the approval.

GEN-7 The project owner shall keep the CBO informed regarding the status of construction. If any discrepancy is discovered during construction, the project owner shall prepare and submit a non-conformance report (NCR) describing the nature of the discrepancy to the CBO. The NCRs shall reference this condition of certification, and applicable sections of the applicable edition of the CBC.

Verification: The project owner shall submit NCRs, as necessary, within five days, and shall submit a periodic construction progress report to the CBO according to the reporting frequency required by the CBO. A list of the NCRs for the reporting month shall also be included in the next Monthly Compliance Report.

GEN-8 The project owner shall obtain the CBO's final approval of all completed work. The project owner shall request the CBO to inspect the completed structure and review the submitted documents. When the work and the "as-built" and "as graded" plans conform with the approved final plans, the project owner shall notify the CPM regarding the CBO's final

approval. The marked up "as-built" drawings for the construction of structural and architectural work shall be submitted to the CBO. Changes approved by the CBO shall be identified on the "as-built" drawings. [Section 108 — Inspections.]

Verification
: Within 15 days of the completion of any work, the project owner shall submit to the CBO, with a copy to the CPM, (a) written notice that the completed work is ready for final inspection, and (b) a signed statement that the work conforms to the final approved plans.

GEO-1 Prior to the start of construction, the project owner shall assign to the project an engineering geologist(s), certified by the State of California, to carry out the duties required by Appendix Chapter 33, Section 3309.4. The certified engineering geologist(s) assigned must be approved by the CPM (the functions of the engineering geologist can be performed by the responsible geotechnical engineer, if that person has the appropriate California license).

Verification: At least 30 days (or a lesser number of days mutually agreed to by the project owner and the CBO) prior to the start of construction, the project owner shall submit to the CPM for approval, the name(s) and license number(s) of the certified engineering geologist(s) assigned to the project. The submittal should include a statement that CPM approval is needed. The CPM will approve or disapprove of the engineering geologist(s) and will notify the project owner of its findings within 15 days of receipt of the submittal. If the engineering geologist(s) is subsequently replaced, the project owner shall submit for approval the name(s) and license number(s) of the newly assigned individual to the CPM. The CPM will approve or disapprove of the engineering geologist(s) and will notify the project owner of the findings within 15 days of receipt of the notice of personnel change.

GEO-2 The assigned engineering geologist shall carry out the duties required by Appendix Chapter 33, Section 3309.4 — Engineered Grading Requirement, and Section 3318.1 — Final Reports. Those duties are:

1. Prepare the Engineering Geology Report. This report shall accompany the Plans and Specifications when applying to the CBO for the grading permit.

2. Monitor geologic conditions during construction.

3. Prepare the Final Geologic Report.

Protocol: The Engineering Geology Report required by Appendix Chapter 33, Section 3309.3 — Grading Designation, and shall include an adequate description of the geology of the site, conclusions and recommendations regarding the effect of geologic conditions on the proposed development, and an opinion on the adequacy, for the intended use, of the site as affected by geologic factors.

The Final Geologic Report to be completed after completion of grading, as required by Appendix Chapter 33, Section 3318.1, and shall contain the following: A final description of the geology of the site and any new information disclosed during the grading and the effect of same on recommendations incorporated in the approved grading plan. Engineering geologists shall submit a statement that, to the best of their knowledge, the work within their area of responsibility is in accordance with the approved Engineering Geology Report and applicable provisions of this chapter.

Verification: (1) Within 15 days after submittal of the application(s) for grading permit(s) to the CBO, the project owner shall submit a signed statement to the CPM stating that the Engineering Geology Report has been submitted to the CBO as a supplement to the plans and specifications and that the recommendations contained in the report are incorporated into the plans and specifications; (2) Within 90 days following completion of the final grading, the project owner shall submit copies of the Final Geologic Report required by Appendix Chapter 33, Section 3309.3, to the CPM and the CBO.

CIVIL-1 Prior to the start of site grading, the project owner shall submit to the CBO for review and approval the following:

1. design of the proposed drainage structures and the grading plan;

2. an erosion and sedimentation control plan;

3. related calculations and specifications, signed and stamped by the responsible civil engineer; and

4. soils report as required by Appendix Chapter 33, Section 3309.5 — Soils Engineering Report and Section 3309.6 — Engineering Geology Report.

Verification: At least 15 days prior to the start of site grading, the project owner shall submit the documents described above to the CBO for review and approval. In the next Monthly Compliance Report following the CBO's approval, the project owner shall submit a written statement certifying that the documents have been approved by the CBO.

CIVIL-2 The resident engineer shall, if appropriate, stop all earthwork and construction in the affected areas when the responsible geotechnical engineer or civil engineer experienced and knowledgeable in the practice of soils engineering identifies unforeseen adverse soil or geologic conditions. The project owner shall submit modified plans, specifications and calculations to the CBO based on these new conditions. The project owner shall obtain approval from the CBO before resuming earthwork and construction in the affected area. [Section 104.2.4 — Stop orders.]

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

CIVIL-3 The project owner shall perform inspections in accordance with Section 108 — Inspections, Chapter 17, Section 1701.6 — Continuous and periodic special inspection and Appendix Chapter 33, Section 3317 — Grading inspection. All plant site grading operations shall be subject to inspection by the CBO and the CPM.

If, in the course of inspection, it is discovered that the work is not being done in accordance with the approved plans, the discrepancies shall be

reported immediately to the resident engineer, the CBO, and the CPM. The project owner shall prepare a written report detailing all discrepancies and non-compliance items, and the proposed corrective action and send copies to the CBO and the CPM.

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

CIVIL-4 After completion of finished grading and erosion and sedimentation control and drainage facilities, the project owner shall obtain the CBO's approval of the final "as-graded" grading plans, and final "as-built" plans for the erosion and sedimentation control facilities. [Section 109 — Certificate of Occupancy]

Verification: Within 30 days (or a lesser number of days mutually agreed to by the project owner and the CBO) of the completion of the erosion and sediment control mitigation and drainage facilities, the project owner shall submit to the CBO the responsible civil engineer's signed statement that the installation of the facilities and all erosion control measures were completed in accordance with the final approved combined grading plans, and that the facilities are adequate for their intended purposes. The project owner shall submit a copy of this report to the CPM in the next Monthly Compliance Report.

STRUC-1 Prior to the start of any increment of construction, the project owner shall submit to the CBO for review and approval the applicable designs, plans and drawings, and a list of those project structures, components and major equipment items that will undergo dynamic structural analysis. Designs, plans and drawings shall be those for:

1. major project structures;
2. major foundations, equipment supports and anchorages;
3. large field fabricated tanks;

4. turbine / generator pedestal; and
5. switchyard structures.

Protocol: The project owner shall:

1. Obtain agreement with the CBO on the list of those structures, components and major equipment items to undergo dynamic structural analysis;

2. Meet the pile design requirements of the 1995 CBC. Specifically, Section 1807 — General Requirements, Section 1808 — Specific Pile Requirements, and Section 1809 — Foundation Construction (in seismic zones 3 and 4.)

3. Obtain approval from the CBO for the final design plans, specifications, calculations, soils reports, and applicable quality control procedures. If there are conflicting requirements, the more stringent shall govern (i.e., highest loads, or lowest allowable stresses shall govern). All plans, calculations, and specifications for foundations that support structures shall be filed concurrently with the structure plans, calculations, and specifications, [Section 108.4 — Approval Required];

4. Submit to the CBO the required number of copies of the structural plans, specifications, calculations, and other required documents of the designated major structures at least 90 days prior to the start of on-site fabrication and installation of each structure, equipment support, or foundation, [Section 106.4.2 — Retention of plans, Section 106.3.2 — Submittal documents.]; and

5. Ensure that the final plans, calculations, and specifications clearly reflect the inclusion of approved criteria, assumptions, and methods used to develop the design. The final designs, plans, calculations and specifications shall be signed and stamped by the responsible design engineer. [Section 106.3.4 — Architect or engineer of record.]

Verification: At least 30 days (or a lesser number of days mutually agreed to by the project owner and the CBO) prior to the start of any increment of construction, the project owner shall submit to the CBO, with a copy to the CPM, the responsible design engineer's signed statement that the final design plans, specifications and calculations conform with all of the requirements set forth in the Commission's Decision.

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

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

STRUC-2 The project owner shall submit to the CBO the required number of sets of the following:

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

2. Concrete pour sign-off sheets;

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

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

5. Reports covering other structure activities requiring special inspections shall be in accordance with Chapter 17, Section 1701 —

Special Inspections, Section 1701.5 — Type of Work (requiring special inspection), Section 1702 — Structural Observation and Section 1703 — Nondestructive Testing.

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

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

STRUC-3 The project owner shall submit to the CBO design changes to the final plans required by Chapter 1, Section 106.3.2 — Submittal documents, and 106.3.3 — Information on plans and specifications, including the revised drawings, specifications, calculations, and a complete description of, and supporting rationale for, the proposed changes, and shall give the CBO prior notice of the intended filing.

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

STRUC-4 Tanks and vessels containing quantities of hazardous materials exceeding those amounts specified in Table 3E of Chapter 3, in the 1995 California Building code shall, at a minimum, be designed to comply with Occupancy Category 2 (Hazardous facilities). Table 16-K of Chapter 16, in the 1995 CBC which requires use of the following seismic design criteria: $I = 1.25$, $I_p = 1.5$ and $I_w = 1.15$.

Verification: At least 30 days (or a lesser number of days mutually agreed to by the project owner and the CBO) prior to the start of installation of the tanks or vessels containing sufficient quantities of highly toxic or explosive substances that would be hazardous to the safety of the general public if released, the project owner shall submit to the CBO for review and approval, final design plans, specifications, and calculations, including a copy of the signed and stamped engineer's certification.

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

MECH-1 Prior to the start of any increment of piping construction, the project owner shall submit, for CBO review and approval, the proposed final design drawings, specifications and calculations for each plant piping system (exclude: domestic water, refrigeration systems, and small bore piping, i.e., piping and tubing with a diameter equal to or less than two and one-half inches). The submittal shall also include the applicable QA / QC procedures. The project owner shall design and install all piping, other than domestic water, refrigeration, and small bore piping to the applicable edition of the CBC. Upon completion of construction of any piping system, the project owner shall request the CBO's inspection approval of said construction. [Section 106.3.2 — Submittal documents, Section 108.3 — Inspection Requests.]

Protocol: The responsible mechanical engineer shall submit a signed and stamped statement to the CBO when:

1. The proposed final design plans, specifications, and calculations conform with all of the piping requirements set forth in the Commission Decision; and

2. All of the other piping systems, except domestic water, refrigeration systems, and small bore piping, have been designed, fabricated, and installed in accordance with all applicable

ordinances, regulations, laws and industry standards, including, as applicable:

- American National Standards Institute (ANSI) B31.1 (Power Piping Code);
- ANSI B31.2 (Fuel Gas Piping Code);
- ANSI B31.3 as applicable (Chemical Plant and Petroleum Refinery Piping Code);
- ANSI B31.8 (Gas Transmission and Distribution Piping Code); and
- Specific City / County Code.

The CBO may require the project owner, as necessary, to employ special inspectors to report directly to the CBO to monitor shop fabrication or equipment installation. [Section 104.2.2 — Deputies.]

Verification: At least 30 days (or a lesser number of days mutually agreed to by the project owner and the CBO) prior to the start of any increment of piping construction, the project owner shall submit to the CBO for approval, with a copy of the transmittal letter to the CPM, the proposed final design plans, specifications, calculations and quality control procedures for that increment of construction of piping systems, including a copy of the signed and stamped engineer's certification of conformance with the Commission Decision. The project owner shall transmit a copy of the CBO's inspection approvals to the CPM in the Monthly Compliance Report following completion of any inspection.

MECH-2 For all pressure vessels installed in the plant, the project owner shall submit to the CBO and California Occupational Safety and Health Administration (Cal-OSHA), prior to operation, the code certification papers and other documents required by the applicable LORS. Upon completion of the installation of any pressure vessel, the project owner shall request the appropriate CBO and / or Cal-OSHA inspection of said installation. [Section 108.3 — Inspection Requests.]

Protocol: The project owner shall:

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

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

Verification: At least 30 days (or a lesser number of days mutually agreed to by the project owner and the CBO) prior to the start of on-site fabrication or installation of any pressure vessel, the project owner shall submit to the CBO for review and approval, final design plans, specifications, and calculations, including a copy of the signed and stamped engineer's certification, with a copy of the transmittal letter to the CPM.

The project owner shall send copies of the CBO plan check approvals to the CPM in the following Monthly Compliance Report. The project owner shall also transmit a copy of the CBO's and/or Cal-OSHA inspection approvals to the CPM in the Monthly Compliance Report following completion of any inspection.

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

Protocol: The project owner shall design and install all HVAC and refrigeration systems within buildings and related structures in accordance with the applicable edition of the CBC. Upon completion of any increment of construction, the project owner shall request the CBO's inspection and approval of said construction. The final

plans, specifications and calculations shall include approved criteria, assumptions, and methods used to develop the design. In addition, the responsible mechanical engineer shall sign and stamp all plans, drawings, and calculations and submit a signed statement to the CBO that the proposed final design plans, specifications and calculations conform with the applicable LORS. [Section 108.7 — Other Inspections, Section 106.3.4 — Architect or engineer of record.]

Verification: At least 30 days (or a lesser number of days mutually agreed to by the project owner and the CBO) prior to the start of construction of any HVAC or refrigeration system, the project owner shall submit to the CBO the required HVAC and refrigeration calculations, plans, and specifications, including a copy of the signed and stamped statement from the responsible mechanical engineer certifying compliance with the applicable edition of the CBC, with a copy of the transmittal letter to the CPM.

The project owner shall send copies of CBO comments and approvals to the CPM in the next Monthly Compliance Report. The project owner shall transmit a copy of the CBO's inspection approvals to the CPM in the Monthly Compliance Report following completion of any inspection.

MECH-4 Prior to the start of each increment of plumbing construction, the project owner shall submit for CBO's approval the final design plans, specifications, calculations, and QA/QC procedures for all plumbing systems, potable water systems, drainage systems (including sanitary drain and waste), toilet rooms, building energy conservation systems, and temperature control and ventilation systems, including water and sewer connection permits issued by the local agency. Upon completion of any increment of construction, the project owner shall request the CBO's inspection approval of said construction. [Section 108.3 — Inspection Requests, Section 108.4 — Approval Required.]

Protocol: The project owner shall design, fabricate, and install:

1. Plumbing, potable water, all drainage systems, toilet rooms, in accordance with Title 24, California Code of Regulations, Division 5, Part 5, and the California Plumbing Code (or other relevant

section(s) of the currently adopted California Plumbing Code and Title 24, california Code of Regulations); and

2. Building energy conservation systems and temperature control and ventilation systems in accordance with Title 24, California Code of Regulations, Division 5, Chapter 2-53, Part 2.

The final plans, specifications, and calculations shall clearly reflect the inclusion of approved criteria, assumptions, and methods used to develop the design. In addition, the responsible mechanical engineer shall stamp and sign all plans, drawings, and calculations and submit a signed statement to the CBO that the proposed final design plans, specifications, and calculations conform with all of the requirements set forth in the Commission Decision.

Verification: At least 30 days (or a lesser number of days mutually agreed to by the project owner and the CBO) prior to the start of construction of any of the above systems, the project owner shall submit to the CBO the final design plans, specifications and calculations, including a copy of the signed and stamped statement from the responsible mechanical engineer certifying compliance with the applicable edition of the CBC, and send the CPM a copy of the transmittal letter in the next Monthly Compliance Report.

The project owner shall transmit a copy of the CBO's inspection approvals to the CPM in the next Monthly Compliance Report following completion of that increment of construction.

ELEC-1 For the 13.8 kV and lower systems, the project owner shall not begin any increment of electrical construction until plans for that increment have been approved by the CBO. These plans, together with design changes and design change notices, shall remain on the site for one year after completion of construction. The project owner shall request that the CBO inspect the installation to ensure compliance with the requirements of applicable LORS. [Section 108.4 — Approval Required, and Section 108.3 Inspection Requests.]

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

1. Receipt or delay of major electrical equipment;
2. Testing or energization of major electrical equipment; and
3. The number of electrical drawings approved, submitted for approval, and still to be submitted.

ELEC-2 The project owner shall submit to the CBO the required number of copies of items A and B for review and approval and one copy of item C: [Section 106.3.2 — Submittal documents.]

A. Final plant design plans to include:

1. one-line diagrams for the 13.8 kV, 4.16 kV and 480 V systems;
2. system grounding drawings;
3. other plans as required by the CBO.

B. Final plant calculations to establish:

1. short-circuit ratings of plant equipment;
2. ampacity of feeder cables;
3. voltage drop in feeder cables;
4. system grounding requirements;
5. coordination study calculations for fuses, circuit breakers and protective relay settings for the 13.8 kV, 4.16 kV and 480 V systems;
6. system grounding requirements;
7. lighting energy calculations; and
8. other reasonable calculations as customarily required by the CBO.

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

Verification: At least 30 days (or a lesser number of days mutually agreed to by the project owner and the CBO) prior to the start of each increment of electrical equipment installation, the project owner shall submit to the CBO for review and approval the final design plans, specifications and calculations, for the items enumerated above, including a copy of the signed and stamped statement from the responsible electrical engineer certifying compliance with the applicable LORS. The project owner shall send the CPM a copy of the transmittal letter in the next Monthly Compliance Report.

B. POWERPLANT RELIABILITY

Applicable law does not establish specific criteria for power plant reliability or procedures for ensuring reliable operation. Nevertheless, the Commission is required to make findings as to the manner in which the project is to be designed, sited and operated to ensure safe and reliable operation. (20 Cal. Code of Regs., § 1752(c).) Therefore, the Commission inquires whether the proposed project would degrade the reliability of the utility system to which it would be connected. The project will not degrade system reliability so long as the project exhibits reliability at least equal to that of other power plants in the system.

Applicant's submittal in this area consists primarily of its discussion of reliability contained in the Application for Certification. (Ex. 4, sec. 2.4, pp. 2-32 through 2-38.) That section discusses project reliability in terms of the expected plant availability, equipment redundancy, fuel availability, water availability, and project quality control measures. Calpine evaluated the SPP using the equivalent availability factor (EAF), which may be defined as a weighted average of the percent of full energy production capacity achievable. The Applicant's projected equivalent availability factor for the SPP is estimated to be approximately 92 to 98 percent. (Ex. 4, p. 2-33.)

The testimony of staff witness Steve Baker stated that the SPP is expected to perform reliably in baseload and load following duty. He noted that baseload plants must be able to operate for extended periods of time without shutting down for maintenance or repairs. This level of performance is ensured through quality of machinery design, construction, and installation as well as plant maintainability and redundancy of critical equipment. (Ex. 2, p. 539.) To identify what is considered the industry norm for reliability he testified that the North American Electricity Reliability Council (NERC) estimates that the average availability factor for combined cycle units of all sizes is 90.48 percent. (Ex. 2 p. 542.)

Mr. Baker points out in his testimony that in the newly restructured competitive electric power industry, responsibility for maintaining system reliability falls largely to the California Independent System Operator (Cal-ISO), a recently formed entity that will work with the California Power Exchange to purchase dispatch and sell electric power throughout the state. Cal-ISO is currently developing protocols which, it is anticipated,

will allow sufficient reliability to be maintained under the competitive market system. Although the success of these protocols in the new competitive environment remains to be seen, the evidence of record does not suggest that the Sutter project will create or contribute to an unreliable electricity system. (*Id.*, p. 538.)

Calpine proposes to operate its project only to satisfy any contracts it may have with electrical users and to sell power on the spot market through competitive bid. (Ex. 4, section 2.2.14.) Therefore, Commission staff did not evaluate the project's ability to meet other reliability-related power services such as spinning reserve or voltage support. (Ex. 2 p. 538.)

After reviewing the project for reliability aspects, Staff concluded that the plant will be built and operated in a manner consistent with industry norms of 90 percent availability for reliable operation. (*Id.*, p. 543.)

No Conditions of Certification are appropriate concerning this topic area.

FINDINGS AND CONCLUSION

Based on the weight of the evidence of record, the Commission finds:

1. While exceedingly hot weather may effect the operation of the air cooled condenser at the power plant, equipment redundancy, as well as the quality of component design, construction, and installation at the plant will adequately ensure that the project maintains normal levels of reliability.

2. SPP is predicted to have an equivalent availability factor of 92 to 98 percent.

3. The North American Electric Reliability Council estimates the average availability factor for all combined cycle units to be 90.48 percent.

4. The power plant will meet industry norms for reliability if designed, constructed, and operated as proposed.

5. The project will not degrade the overall reliability of the electrical system.

6. The project will operate reliably in baseload and load following modes.

Therefore, we conclude that the project will not have an adverse effect on system reliability.

C. POWERPLANT EFFICIENCY

The Commission must examine the efficiency of a power plant to determine if the project's consumption of energy may create a significant adverse impact on the environment and if so, what measures may be taken to mitigate the impact through increased efficiency of design and operation. The Commission therefore reviews a project to determine if, compared to current state-of-the-art projects, inefficient fuel consumption is likely and, if found, how it can be mitigated.

CEQA requires that environmental impacts be considered in power plant siting to identify the significant effects of a project on the environment, identify alternatives to the project, and indicate how those significant effects can feasibly be mitigated or avoided (Pub. Resources Code, § 21002.1.)

CEQA Guidelines state that a "...project will normally have a significant effect on the environment if it will...(n) [e]ncourage activities whhich result in the use of large amounts of fuel, water, or energy; (o) [u]se fuel, water, or energy in a wasteful manner..." (Cal. Code of Regs., tit. 14, CEQA Guidelines, Appendix G.) CEQA continues, "'Feasible' means capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors" (Pub. Resources Code, § 21061.1.)

In addition to a finding that the project does not waste significant quantities of energy, CEQA requires a comparison with alternatives that consume less energy (Cal. Code of Regs., tit. 14, § 15126(d)(3).)

The SPP is a large power plant which will burn natural gas at a maximum rate of between 30 and 35 trillion Btu per year. (Ex. 4, section 9.3.) The project will be supplied natural gas through a pipeline to the Pacific Gas and Electric (PG&E) system. The evidence establishes that the project itself would not pose a substantial increase in the demand for natural gas in California (Ex. 2, p. 546) and, given the project objectives and location, only natural gas technologies were feasible. Both Staff and Applicant stipulated that, to the extent that the project is likely to displace generation from older, less efficient utility power plants currently serving the system, the net result is likely to be a beneficial, rather than adverse, impact on energy resources. (Ex. 2, p. 550.)

Testimony of record also compared the efficiency of the originally proposed wet cooling towers versus the required dry cooling in the form of an air cooled condenser. The wet cooling system described in the Application for Certification (Ex. 4, p. 2-18) would have yielded the highest efficiency, while use of the air cooled condenser will reduce plant efficiency by approximately 1.5 percent during most of the year. When temperatures are at or above 100 degrees Fahrenheit the efficiency of the dry cooling technology is expected to be 5 percent less than that of wet cooling. Applicant confirmed this reduction in efficiency. (11/10/98 RT 35.) Staff viewed this efficiency loss as a minor reduction which is reasonable in light of the accompanying reduction in environmental impacts as a result of switching to dry cooling. These reduced impacts occur in the areas of water supply, waste disposal, and visual resources.[73] (Ex. 2, p. 549.)

Notwithstanding this reduction in efficiency, Staff determined that in actual operation the project may displace the generation from other, older, less efficient power plants in the utility system. The witness concluded that the end result is likely to be a beneficial impact on energy resource use. He added that the proposed project is likely to have an annual average thermal efficiency of approximately 52 percent. This represents the most fuel-efficient power plant configuration feasible for the intended service. Thus, Staff concluded that the project will present no significant adverse impacts upon energy resources. (*Id.*, p. 550.)

No Conditions of Certification are required concerning this subject area.

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[73] The use of tradition wet cooling towers results in the frequent occurrence of a large vapor plume which can impact visual resources.

FINDINGS AND CONCLUSION

Based upon the evidence of record, we find as follows:

1. The power plant will employ gas turbines (either the General Electric S207FA or the Westinghouse 2x1 501F) which are among the most fuel-efficient currently available.

2. The project will not create a substantial increase in demand for natural gas in California.

3. Applicant's change from a wet cooling tower design to an air cooled condenser is likely to reduce plant efficiency from approximately 54 percent to approximately 52.5 percent for most of the year. Efficiency on very hot days may drop as low as 49 percent.

4. The change to the use of an air cooled condenser rather than wet-cooling towers results in significantly reduced environmental impacts when compared to the original proposal.

5. The average efficiency of a typical utility company baseload power plant is approximately 32 percent.

6. The power plant as proposed will have no significant adverse impacts on energy resources.

7. No preferable alternatives to the use of natural gas fired combustion technology exist which would satisfy project objectives.

We therefore conclude that even though the project may experience efficiency reductions of up to five percent due to the use of dry cooling for the SPP, the project design represents a fuel-efficient power plant configuration based on its intended use and presents no significant adverse impacts upon energy resources.

D. TRANSMISSION SYSTEM ENGINEERING

The Commission is required to analyze whether adequate transmission capacity is or will be available from the power plant to the service area receiving the power. This availability is required in order to ensure the power plant's reliable operation. In addition, the Commission must assess whether or not the associated transmission line will cause significant public nuisance or health effects.

The Commission's analysis of the proposed electric transmission design includes a determination of whether the proposal meets the many transmission criteria imposed by numerous state, regional, and federal bodies. These include the following:

- California Public Utilities Commission (CPUC) General Order 95 (GO-95), "Rules for Overhead Electric Line Construction".
- National Electric Safety Code (NESC-1997).
- Western Systems Coordinating Council (WSCC) Reliability Criteria.
- North American Electric Reliability Council (NERC) Planning Standards.
- Cal-ISO Scheduling Protocols and Dispatch Protocols.

<u>The Proposal and Existing Systems</u>

The SPP will provide a nominal electrical output of 500 megawatts. The transmission system will consist of a 230 kilovolt power plant switchyard or substation, a 4 mile double circuit line operated as a single circuit transmission line and a 230 kilovolt switching station. The switchyard will be located on the southwest portion of the Calpine property. The 230 kilovolt transmission line will exit the switchyard to the east, turn south along the west side of South Township Road for approximately 1.7 miles to O'Banion Road, then west along the south side of O'Banion for 2.3 miles to terminate in a new switching station south of O'Banion Road, near Western's 230 kilovolt transmission line. This is the only transmission line route which the project will use, although several alternative routes were evaluated during the proceeding. (11/16/98/

p.m. RT 195-196.) The power plant site will be located approximately 2.5 miles east of the California-Oregon Intertie corridor which contains PG&E's 500 kilovolt line as well as Western's double circuit 230 kilovolt line.

Calpine also owns and operates the existing Greenleaf 1 generating plant on the SPP site. The plant is connected to PG&E's Rio Oso 115 kilovolt transmission line which serves the Yuba City distribution system. The Rio Oso substation provides service to the west and north and is located approximately 15 miles southeast of the SPP site.

The Sacramento region has had a longstanding problem maintaining acceptable voltage levels and supporting load growth. Commission staff witness Al McCuen testified that in an effort to address this problem, professional transmission planning groups have examined necessary criteria and planned possible solutions. In 1996 the Sacramento Valley Study Group (SVSG) established a reactive margin criteria. Reactive power is associated with the reactive nature of motor loads which must be fed by generation units in the system. In their report the SVSG concluded that imports into the Sacramento region are limited by the reactive margin criteria. In response, a load shedding scheme was implemented by the utilities in the Sacramento Valley to avert a system voltage collapse which could occur following a severe disturbance of the area's electrical system. (Ex. 2, p. 556.) Witness McCuen added that, "A system voltage collapse can drop millions of customers off line for an extended period and result in millions of dollars of costs."[74] (Ex. 42 , Trans. Syst. Eng., p. 1.)

More recently, a voluntary organization of transmission system experts called the Sacramento Area Transmission Planning Group (SATPG) was formed to study long-term transmission system reinforcements needed to support load growth and mitigate low voltages in the Sacramento Valley region. This planning group, of which Calpine and Western are members, is studying system modifications and additions in order to improve system reliability, voltage security, and load handling capability of the transmission system over the next ten years (Ex. 4, p. 6-31; Ex. 2, 556.) Calpine witness

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[74] The August 10, 1997, system outage impacted 11 Western states, Canada, and Mexico along with over 7 million customers. This system disturbance resulted in 32,000 megawatts of lost load and 25,000 megawatts of lost generation. Industry losses are unknown but partial information indicates millions of dollars in losses. Losses in generation sales and the purchase of replacement power are unknown, but the few losses that were documented are about $2 million. (Ex. 42, Trans. Syst. Eng., p. 1.)

James L. Dykes testified that SATGP is presently considering three 230 kilovolt transmission line options; one is 32 miles long, one is 40 miles and the other is 66 miles long. He stated that the results of building any of these projects is not as effective in solving regional problems as the construction of the SPP. (11/2/98 p.m., RT 34.) Mr. McCuen elaborated on this concept, explaining that a megawatt of local generation is "worth" far more than a megawatt of transmission import. He testified the two are not directly comparable. (Ex. 42, Trans. Sys. Eng., p. 3.)

System Reliability. Planning analyses are conducted in advance of potential system changes, such as the addition of the SPP into the system, in order to prevent a criteria violation. Modeling was conducted by Western to determine if adding the SPP to the existing system would, 1) cause problems such as thermal overloads or voltages which are too high or low, 2) ensure that the system remains stable, and 3) assure that sufficient reactive power is available. This was conducted for credible "emergency" conditions that the system might sustain, such as the loss of a single or double circuit line or loss of a transformer. (Ex. 2, p. 558.)

The SPP Interconnection Study conducted by Western assessed 44 outage cases simulating single and double circuit outages in the Sacramento Valley area. Seven base and outage cases were also conducted to compare existing system response without the SPP project (Ex. 4, Attachment 3 and Attachment 5.) Without SPP generation in 2003 and with all facilities in service, the system is expected to have 22 substations with undervoltage levels in violation of criteria (0.95 per unit voltage or lower) and 11 circuits or transformers loaded above 100 percent of their rating under assessed system conditions.[75] With an important line or transformer out of service, system voltages and overloads worsen. (Calpine 1997, Feasibility Study, Attachment 3.)[76]

Both Calpine witness James L. Dykes and Commission staff witness Al McCuen testified the studies demonstrated that, in general, the addition of the SPP project

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[75] The criteria include the Western States Coordinating Council (WSCC) Reliability Criteria for Transmission Planning, as well as the reliability criteria of Western, SMUD, and PG&E.

[76] On August 3, 1998 Calpine submitted a new Sutter Power Plant Interconnection Study(Calpine 1998). This study with improved data assumptions verified the conclusions reached based on the Feasibility Study. Overloads observed with the new study were preexisting and not related to the SPP or were outside the transmission study area.

improves the performance of the Sacramento Valley system.[77] (11/2/98 p.m., RT 33.) Mr. Dykes testified, "the system is in need of generation, and this plan [SPP] does provide that generation". (11/2/98 p.m., RT 33:15-17.) Citing an integration study carried out by Western, Mr. Dykes further testified that the identified need for voltage support in the area is due to three reasons. One is the increased load growth throughout the region. Another is the lack of generation in the area. The third is the insufficient interconnection facilities required to support electricity imports needed in the area. (11/2/98 p.m., RT 33.)

The revised Western interconnection study for the SPP confirmed previous studies which found that the addition of the SPP is not a long-term mitigation for voltage security concerns.[78] Mr. Dykes, however, cited an April 1998 study by SATPG which found that..."the Sutter power plant can provide system security and delay other system enhancing [sic] by up to six years. If the power plant is not built and is not available, the region must start immediately on other reinforcement options." (11/2/98 p.m., RT 34: 6-10.) Mr. Dykes also stated that while the cost of the SPP would be borne entirely by Calpine, the cost of any transmission line upgrade options would be paid for by the utilities building the lines. Those utilities would pass the costs along to their ratepayers. (11/2/98 p.m., RT 41.)

Staff witness McCuen also testified to the importance of the SPP to local transmission needs: "The SPP provides significant power to the Sacramento Valley area, would help mitigate local system voltage problems and provides moderate power for load growth." (Ex. 2, p. 565; 11/2/98 p.m., RT 66.) He added that since the risk of electrical outages could affect Sutter County as well as the Sacramento area, the assistance to the system provided by SPP could prevent electrical problems in Sutter County. (11/2/98 p.m., RT 68.) He also testified that PG&E, Western, SMUD, Roseville and NCPA are all affected by potential reliability deficits in the Sacramento area. He specifically cited the Yuba City area as an example of an area which could be harmed by the deficits. (Ex. 42, Trans. Sys. Eng., p. 3.)

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[77] The witness cited the several sources in making his conclusion. these include: Exhibit 2, Feasibility Study, Attachment 3; Sutter Power Plant Interconnection Study (Calpine 1998); Sutter Power Plant Interconnection Study, prepared by Western Area Power Administration, July 29, 1998.

[78] The interconnection study was incorporated by reference into Mr. Dykes testimony and is also included in Exhibit 4, the Application for Certification.

Project Transmission Engineering

The Calpine witness also reviewed the transmission design features to ensure that the project will comply with all applicable laws, ordinances, regulations, and standards. He found that it does comply and also noted the Applicant's support of the Conditions of Certification proposed by the Commission staff. (11/2/98 p.m., RT 35.) Mr. McCuen's testimony reviewed each of the alternative transmission line routes and substation alternatives considered at various times in the siting process, and found that each one meets the requisite legal and planning standards. From the viewpoint of transmission engineering he found them all to be acceptable. Maps showing the various alternative transmission line routes were contained in the AFC and are reproduced here. (See TRANS: Figure 2.) The environmental impacts of these alternative routes is discussed further in the section of this Decision entitled "Alternatives". (Ex. 2, pp. 563-564.)

Calpine witness Dykes summarized the mitigation measures which will be used in the transmission system design. These include the relocation of impacted cropdusting runways, the elimination of transmission line corona noise through design features, and eliminating radio and TV interference through design and construction techniques. (11/2/98 p.m., RT 35.)

Undergrounding. Another mitigation measure which the parties analyzed was that of undergrounding some or all of the project's transmission line to eliminate visual impacts of the line. Mr. Dykes summarized the results of the Applicant's "Underground Transmission Line Study" filed August 14, 1998, and admitted as Exhibit 23. The study concluded that undergrounding is technically feasible with either an extruded dielectric cable method or with a pipe-type cable, insulated with mineral oil. While Commission staff agreed that underground is technically feasible, Mr. McCuen referred to undergrounding the SPP 230 kilovolt line as "highly inappropriate and perhaps infeasible on balance." (Ex. 2, p. 562.)

The first method requires trenching and the installation of 12 foot by 16 foot splicing vaults periodically along the route. Each vault would have a manhole every quarter mile sticking up above the flood level. These would be connected with a gravel access road above water level for maintenance. A transition station would be built at each end of the underground section. The pipe-type method uses shorter cables with more

splices and therefore more manholes. In addition, it would contain approximately 48,000 gallons of mineral oil pressurized at 200 p.s.i. (11/2/98/p.m., RT 37-43.)

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Proposed Transmission Line Route

TRANS: Figure 1

Source: Exhibit 4, Figure 6.1-3

SPP Project Features

TRANS: Figure 2

Source: Exhibit 4, Figure 1.1-4

Calpine witness James Dykes noted that magnetic field strengths are actually higher directly above the underground line than those directly under an above ground line, though in either case, the field strengths dissipate quickly with distance from the line. He determined that due to the splicing vaults and the access road, more land would be taken out of agricultural production with the underground line than with the overhead line. The cost of undergrounding is between 5.4 and 6.6 times more than above ground methods. In his opinion, it is not an economically feasible alternative for the project. (11/2/98/p.m., RT 37-43.) Mr. Dykes later noted that his estimates were based on a single circuit line. To install a double circuit line, as called for in the project design, would nearly double the cost estimates. (11/2/98/p.m., RT 44.) Commission staff estimated the additional cost ranging from $6 to $17 million. (Ex. 2, p. 562.)

Mr. McCuen testified that, while a 230 kilovolt underground transmission line is likely to be reliable, any needed repairs could put the line out of use for a period of between seven and 30 days. (11/2/98 p.m., RT 77.)

Public Comment

During the public comment period local grower Mike Shannon stated that areas of his farm crossed by overhead transmission lines suffer a significant crop yield reduction because crop dusters cannot get close enough for their applications. He advocated undergrounding the transmission line. (11/2/98 p.m. RT 46.) Neighbor Steve Danna favored undergrounding and urged Calpine to pay the estimated $7 million to do so. Bob Amarel expressed the same opinion, adding that he felt the power from the SPP would benefit people in Sacramento, and not those in Sutter County. (*Id.*, RT 50.)

Brad Foster encouraged consideration of a route which avoided South Township Road and O'Banion Road. He also expressed concern about the possibility that if the SPP is built, a so-called stage II might be later added, running a single or double circuit line from the Sutter Bypass substation south to Elverta. (*Id.*, RT 51.) Staff noted this line as one of several long term solutions to area transmission problems. Staff, however, stated that no stage II project had been proposed and both Western and the CEC staff consider it "highly uncertain" at this time. (Ex. 2, p. 560.)

Commission Discussion

The SPP can be added to the existing electrical system without causing reliability problems to the existing area transmission system. In fact, the project improves area reliability. It also meets all relevant design criteria. While the possibility of undergrounding the project's 230 kV transmission line was explored, it proved to be infeasible, in part because Western will not participate in such a line. Furthermore, the cost is infeasible for this project, and the underground line would create significant environmental disturbances while eliminating others. Ultimately, the Township-O'Banion Road transmission line route poses the fewest environmental impacts among the feasible alternatives.

FINDINGS AND CONCLUSION

Based on the weight of the evidence of record, the Commission finds:

1. Transmission system needs are evaluated by regional planning groups of public and utility transmission system engineers such as the Sacramento Area Transmission Planning Group.

2. The Sacramento Area Transmission Planning Group has identified the need for transmission system reinforcements and/or local generation to support load growth and mitigate low voltages in the Sacramento Valley region, especially in the SMUD service territory.

3. The SPP will provide significant power to the SMUD service territory and the Sacramento Valley area, will help mitigate local system voltage problems and will provide moderate power for load growth.
4. The Commission has analyzed several alternative transmission line engineering designs which would connect the project with Western's double circuit 230 kilovolt transmission line.

5. The South Township-O'Banion Road route proposed by Calpine at the evidentiary hearings is the most feasible, with the fewest environmental impacts.

6. Undergrounding the 230 kV transmission line was evaluated in these proceedings.

7. Undergrounding the 230 kV transmission line is not feasible because: Western will not build, own, operate, or maintain an underground 230 kV transmission line; the cost of undergrounding the line is not economically feasible for the SPP project; undergrounding a 230 kV line raises system reliability concerns due to extended repair times; and, surface disturbance associated with undergrounding would have some temporary and some permanent environmental impacts.

8. Calpine's proposal and the route preferred by the staffs of Sutter County, the Energy Commission, and the Western Area Power Administration goes from the project site switchyard, east to South Township Road, south to O'Banion Road and west to the O'Banion-South switching station site near Western's 230 kilovolt transmission line.

9. Due to the present existence of electric transmission and distribution lines in the area and Applicant's proposal to relocate impacted cropduster runways, the proposed transmission system associated with the project, and as mitigated by the Conditions of Certification below, will not have a significant impact on adjacent agriculture.

10. The project's electric transmission line will meet all applicable laws, ordinances, regulations and standards identified in the pertinent portion of APPENDIX A of this Decision.

We therefore conclude that the SPP will not impose any significant adverse environmental impact due to its transmission system engineering. The Commission approves this transmission route. No other route is approved.

CONDITIONS OF CERTIFICATION

TSE-1 The project owner shall ensure that the design, construction and operation of the proposed transmission facilities will conform to requirements 1a through 1e listed below. The substitution of CPM approved "equivalent" equipment and equivalent switchyard configurations is acceptable.

a. The project 230 kilovolt project switchyard shall include a four circuit breaker ring bus with breaker ratings of 40,000 amperes (interrupting) and ring bus, switches, breakers and buswork rated at 2,000 ampere continuous.

b. An approximately 4 mile double circuit configuration line operated as a single circuit 230 kilovolt line using steel pole construction with conductors sized at a minimum of 1272 thousand circular mill Aluminum Conductor Steel Reinforced shall be constructed to the O'Banion South switching station site.

c. Termination facilities at the Sutter Bypass 230 kilovolt switching station, the power plant switchyard, and transmission line shall comply with applicable Western interconnection standards (CPUC General Order 95 and National Electric Safety Code). Bus work, switches and breakers at the Sutter Bypass switching station shall be rated 3000 ampere continuous with breaker interrupting ratings of 40,000 ampere.

d. Outlet line crossings shall be coordinated with the transmission line owner/operator and comply with the owner's standards.

e. A direct transfer tripping scheme (remedial action scheme) which shuts down one 175 megawatt, two 175 megawatt units, or reduces the plant output upon loss of one of the Sutter Bypass switching station to Elverta lines shall be provided and activated where appropriate.

Verification: At least 30 days prior to start of construction of transmission facilities, the project owner shall submit for approval to the CPM electrical one-line diagrams signed and sealed by a registered professional electrical engineer in responsible charge, a route map, and an engineering description of equipment and the configurations covered by requirements 1a through 1e above. Substitution of equipment and switchyard configurations shall be identified and justified by the project owner for CPM approval.

TSE-2 The project owner shall inform the CPM of any impending changes which may not conform to the requirements of 1a through 1e of TSE-1, and request

CPM approval to implement such changes. A detailed description of the proposed change and complete engineering, environmental, and economic rationale for the change shall accompany the request. Construction involving changed equipment or switchyard configurations shall not begin without prior written approval of the changes by the CPM.

Verification: At least 30 days prior to construction of transmission facilities, the project owner shall inform the CPM of any impending changes which may not conform to requirements 1a through 1e of TSE-1 and request CPM approval to implement such changes.

TSE-3 The project owner shall be responsible for the inspection of the transmission facilities during and after project construction and any subsequent CPM approved changes thereto, to ensure conformance with CPUC General Order 95 and Western's interconnection standards and these Conditions. In case of non-conformance, the project owner shall inform the CPM in writing of such non-conformance and describe the corrective actions to be taken.

Verification: Within 60 days after synchronization of the project, the project owner shall transmit to the CPM an engineering description(s), one-line drawings of the "as-built" facilities signed and sealed by a registered electrical engineer in responsible charge. A statement attesting to conformance with CPUC General Order 95, Western's interconnection standards and these conditions shall be concurrently provided. Within 10 days of any non-conformance, the project owner shall submit a written notification to the CPM as described in this Condition.

E. TRANSMISSION LINE SAFETY AND NUISANCE

The Commission seeks to ensure that construction and operation of transmission lines within its jurisdiction occur in a manner which protects environmental quality, assures public health and safety, and complies with applicable law. This area of review includes the potential impact of project transmission lines on aviation safety, radio-frequency interference, audible noise, fire hazards, nuisance shocks, hazardous shocks, and electric and magnetic field exposure. (Ex. 2, p. 147; 11/10/98 RT 112.)

Calpine witness James L. Dykes summarized the Applicant's work to ensure that the project's transmission facilities posed no threat or nuisance to public health and safety. He testified that, based on his review, there would be no such negative impacts and that the project would comply with all applicable safety codes. He added that Calpine was in agreement with the Conditions of Certification recommended by the Commission staff. (11/2/98 p.m., RT 34, 37.) The testimony of Staff witness Obed Odoemelam agreed that the project can meet the applicable legal standards and will not have an adverse impact on the environment. (Ex. 2, p. 156-157.)

Aviation Safety. The Federal Aviation Administration (FAA) sets standards for notification, lighting and construction concerning development which could pose hazards to aviation. The only major aviation facilities in the project area are the Beale Air Force Base approximately 14 miles east of the project site and the McClellan Air Force Base and the Sacramento International Airport over 25 miles to the south. Two smaller local airports are within 8 miles of the project's transmission line. These include the Sutter County (Yuba City) Airport, approximately 7.5 miles northeast and the Yuba County Airport 8 miles northeast. No flight paths in the area will directly cross over the proposed line. (Ex. 4, p. 6-12.)

The Commission staff supported Calpine's determination that an FAA "Notice of Proposed Construction or Operation" will not be required for the proposed transmission line according to the regulatory criteria relative to height, distance from the nearest runways, and slope of the imaginary line from the end of the nearest runway to the top of line related structures. (Ex. 4, p. 6-12.)

While the line will not pose a significant hazard to general aviation in the area it would, however, present an obstruction hazard to aircraft involved in crop dusting operations in the immediate vicinity. Testimony filed by Commission staff stated that local crop dusting companies expressed their concern about such possible hazard, noting that the transmission line could limit the effectiveness of crop dusting operations to a potentially significant degree. (Ex. 2, p. 148.) This view was countered by the testimony of Calpine's witness James Saare, an experienced crop duster in the area. Mr. Saare stated that the proposed transmission line design and location does not cause a significant increased danger over the existing situation, so long as the proposed transmission line does not cross any agricultural fields at a diagonal. (Ex. 29; 12/1/98 RT 87-89.) The issue of the transmission line interfering with a crop duster runway near O'Banion Road was addressed by Calpine's commitment to relocate the runway. (11/2/98 p.m. RT 35.)

On February 22, 1999, Intervenor Brad Foster, on behalf of the Yuba-Sutter Farm Bureau, moved to reopen the evidentiary record to receive testimony concerning project transmission line interference with local cropduster operations. The Committee granted the motion and, after denying Applicant's motion to strike the testimony, heard the evidence on March 10, 1999. The Farm Bureau's witness, Mr. Paul Wagner, is also an experienced cropduster in the area. He testified that the new transmission line for the project would significantly increase the risk of an accident. He added, however, that, "aerial applications will be able to continue in the area," but that extra materials such as seed, fertilizer and pesticides may be needed to properly cover areas near the powerlines and poles. The witness noted that this is particularly true where powerlines converge or intersect. (Testimony of Paul Wagner, 3/10/99 RT 43.)

Calpine rebuttal witnesses James Saare and James Harrison countered that the project transmission line design, as proposed, would not create a significant added risk. Mr. Saare testified that the project mitigation measure of burying the existing 12kV electrical wood pole line on O'Banion Road is significant. This measure would allow cropdusters to fly under the new line and service fields along O'Banion Road. He also pointed out that, unlike pesticides, applications of seed and fertilizer are not restricted and therefore aerial application of these materials is less affected by transmission lines than are pesticide applications. (Rebuttal testimony of James Saare and James Harrison, 3/10/99 RT 53, 57.)

A more detailed discussion of the possible consequences of the transmission line to area's agricultural economy is addressed in the Socioeconomics section of this Decision.

Interference with Radio-Frequency Communication. Interference with radio and television reception can be caused by the radio noise produced by the action of the electric fields from the energized line. The amount of interference usually depends on factors such as the distance from the line to the receiving device, orientation of the antenna, signal level, line configuration and weather conditions. If this occurs the project owner is legally required to ensure mitigation to the satisfaction of the individual involved. Calpine will use available design options for minimizing the radio noise associated with its transmission line. These design features can also serve to reduce the line-related audible noise discussed below. Condition of Certification TLSN-2 is imposed to ensure resolution of the communications interference issue on a case-specific basis. (Ex. 2, p. 149; 11/2/98 p.m. 35.)

Audible Noise. Like radio noise, audible noise from a transmission line can result from the action of the electric field at the surface of the line conductor and could be perceived as a characteristic crackling, frying, or hissing sound or hum. The noise is usually generated during wet weather and from lines of 345 kV or higher.

The project's line will be designed to specifically reduce its operational noise which would be only slightly perceivable (above background) during wet weather. The maximum noise from the line would be 2.4 dBA in fair weather and 27 dBA in the rain. For the areas beyond the proposed right-of-way, these noise levels would translate into values between 0 dBA and 10 dBA, the threshold of hearing. (Ex. 2, p. 149; Ex. 4, p. 6-12; 11/2/98 p.m. RT 35.)

Fire Hazard. The fires addressed through this examination are those that could be caused by the sparks from conductors of overhead lines or that could result from direct contact between the line and nearby trees. Calpine will build the transmission line to conform with California Public Utilities Commission GO-95 standards which include fire prevention and tree trimming requirements. The Applicant will contract with maintenance crews to keep the right-of-way clear of burnable material. (Ex. 4, p. 6-19.)

Nuisance and Hazardous Shocks. Nuisance or hazardous shocks can result from direct or indirect contact between an individual and an energized line, or metal objects located near the line. These shocks are prevented through proper design and grounding of the

transmission line system. The Conditions of Certification contained in this Decision ensure that Calpine will comply with the requirements of the relevant state regulations. Thus, it is not expected that the proposed line will pose any significant shock hazards to workers or to the general public. Assuming that a large object, such as a farm tractor, remains under a 230 kilovolt transmission line for a lengthy period of time, even at the maximum value of possible electric field, the impacts of induced short circuit currents would be negligible. (Ex. 4, pp. 6-16 through 6-19; 11/2/98 p.m. RT 35.)

Electric and Magnetic Field Exposure. Whenever electricity is used or transmitted, electric and magnetic fields are created by the electric charges. No exposure-related limits have been established by regulatory agencies with regard to human exposure to electric and magnetic fields from power lines or other common sources. Nevertheless, there exists a general public concern about the potential for significant health effects in humans exposed around power lines and other sources.

The available evidence has not established that transmission line electric and magnetic fields pose a significant health hazard to exposed humans. (11/2/98 p.m., RT 35-36; 11/10/98 RT 86.) Moreover, the record demonstrates that any such health risk to an exposed individual would be small as shown by the difficulty in establishing this risk from the studies conducted so far. (Ex. 2, p. 153.) The inability to establish the existence of health risks related to exposure calls into question the biological usefulness of any attempt at exposure reduction. Thus, many scientists have concluded that only modest measures would be justified in any effort at further field strength reduction.[79] (Ex. 2, p. 152-154.)

The Staff witness testified that with no established health effects, most regulatory agencies believe that health-based limits would be inappropriate at the present time for electric or magnetic fields from power lines or other common sources. The few states (Florida, Minnesota, Montana, New Jersey, New York and Oregon) with specific limits for power line electric fields established these limits mainly as a guard against the electric shocks from strong electric fields. (Ex. 2 p. 153.) The two (Florida and New

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[79] It is also important to note that an individual in a building could be exposed for short periods to much stronger fields in using some common electrical appliances and equipment than fields created under a major electric transmission line. Obviously, high-level field exposure can occur in areas other than the power line environment. (Ex. 2, p. 153.)

York) with additional limits on line magnetic fields established these limits mainly to keep exposure from new lines within limits associated with existing ones. (*Id.*) None of these limits were based on established health effects nor intended for the retrofit of existing lines.

Nevertheless, the record in this proceeding establishes that the expected field strengths from the proposed SPP transmission line will be far below even the threshold limits set by the above-mentioned states.[80] (11/2/98/p.m. RT 3.6.) Furthermore, Energy Commission analysts have determined that the double circuit transmission line configuration now proposed by Calpine will, through enhanced field cancellations among adjacent lines, produce much lower electric and magnetic fields than those produced by the original single circuit proposal. (Ex. 2, p. 154, 155.)

Public Comment.

Members of the public expressed concern about the potential risks from electric field shocks generated by the transmission line. Comments were also made about the potential health impacts from the transmission line's electromagnetic field. The majority of comments concerning matters addressed in this section were regarding the transmission line's potential impact on crop dusters; the safety of the pilots and their ability to effectively and efficiently apply materials to farms near the transmission lines. (12/1/98 RT 120-124.) These matters are addressed in the section of this Decision entitled Socioeconomics.

Commission Discussion.

The evidentiary record establishes that the SPP transmission line design will conform to all established requirements to ensure aviation safety, prevent radio and television interference, limit audible noise, eliminate fire hazards, and nuisance shocks. In

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[80] The average year-round magnetic field strength for the proposed transmission line is 144 mG under the transmission line, 50 mG at the edge of a 100 foot-wide right-of-way, and 25 mG at the edge of a 125 foot-wide right-of-way. California does not have a regulatory level but states which do have requirements impose ranges from 150 mG to 250 mG at the edge of the right-of-way. (Ex.4, p. 6-17).

addition, there is no evidence that the line will pose a danger from electric magnetic field exposure. While the addition of the transmission line does add another obstacle to the work of local cropdusters, testimony by three crop dusters with local experience established on balance that the route proposed and the ground clearances determined by Conditions LAND USE-5 and 7 would reduce risks to an acceptable level. The Commission therefore concludes that, based on the evidentiary record, the project's transmission line will conform to all the requirements designed to ensure the prevention of transmission line safety problems and nuisance hazards.

FINDINGS AND CONCLUSION

Based on the weight of the evidence of record, the Commission finds:

1. The proposed SPP is not expected to create an electric field strength greater than 2.8 kV/m under the transmission line and 0.4 kV/m at the edge of a 125 foot right-of-way. Expected average magnetic field strengths are 144 mG under the transmission line and 25 mG at the edge of the 125 foot right-of-way.

2. The field strengths identified in Finding 1 above are not likely to cause adverse health effects to members of the public.

3. The Conditions of Certification below reasonably assure that the proposed transmission line will cause no significant adverse affects in the areas of aviation safety, radio communication interference, audible noise, fire hazards, nuisance or hazardous shocks or electric and magnetic field exposure.

4. With the implementation of the Conditions of Certification, the project will meet all applicable laws, ordinances, regulations and standards identified in the pertinent portion of APPENDIX A of this Decision.

We therefore conclude that, based on the evidentiary record, the project's transmission line will conform to all the requirements regarding transmission line safety and nuisance hazards and will not have a significant adverse environmental impact related to such nuisance hazards and safety factors.

CONDITIONS OF CERTIFICATION

TLSN-1 The project owner shall construct the proposed transmission line according to the requirements of GO-95 and Title 8, Section 2700 et seq. of the California Code of Regulations.

Verification: Thirty days before start of transmission line construction, the project owner shall submit to the Commission's Compliance Project Manager (CPM) a letter signed by a California registered electrical engineer affirming that the transmission line will be constructed according the requirements of GO-95 and Title 8, Section 2700 et seq. of the California Code of Regulations.

TLSN-2 The project owner shall make every reasonable effort to identify and correct, on a case-specific basis, all complaints of interference with radio or television signals from operation of the line and related facilities. In addition to any transmission repairs, the relevant corrective actions should include, but shall not be limited to, adjusting or modifying receivers, adjusting or repairing, replacing or adding antennas, antenna signal amplifiers, filters, or lead-in cables.

The project owner shall maintain written records, for a period of five years, of all complaints of radio or television interference attributable to operation together with the corrective action taken in response to each complaint. All complaints shall be recorded to include notations on the corrective action taken. Complaints not leading to a specific action or for which there was no resolution should be noted and explained. The record shall be signed by the project owner and also the complainant, if possible, to indicate concurrence with the corrective action or agreement with the justification for a lack of action.

Verification: All reports of line-related complaints shall be summarized and included in the Annual Compliance Report to the CPM.

TLSN-3 The project owner shall engage a qualified consultant to measure the strengths of the line electric and magnetic fields before beginning construction and after the line is energized. Measurements should be

made at appropriate points along the route to allow verification of design assumptions relative to field strengths. The areas to be measured should include the Sutter Bypass switching station, the on-site switchyard, and any residences near the right-of-way.

Verification: The project owner shall file a copy of the first set of pre-project measurements with the CPM at least 30 days before the start of construction. The post-project measurements shall be filed within 30 days after the day the line was energized.

TLSN-4 The project owner shall ensure that the transmission line right-of-way is kept free of combustible material as required under the provisions of section 4292 of the Public Resources Code and Section 1250 of the California Code of Regulations.

Verification: The project owner shall provide a summary of inspection results and any fire prevention activities along the right-of-way in the annual compliance report.

TLSN-5 The project owner shall send a letter to all owners of property within or adjacent to the right-of-way at least 60 days prior to first transmission of electricity.

Protocol: The letter shall include the following:

- A discussion of the nature and operation of a transmission line.
- A discussion of the project owner's responsibility for grounding existing fences, gates, and other large permanent chargeable objects within the right-of-way regardless of ownership.
- A discussion of the property owner's responsibility to notify the project whenever the property owner adds or installs a metallic object which would require grounding as noted above
- A statement recommending against fueling motor vehicles or other mechanical equipment underneath the line.

Verification: The project owner shall submit the proposed letter to the CPM for review and approval 30 days prior to mailing to the property owners and shall maintain a record of correspondence (notification and response) related to this requirement in a compliance file.

The project owner shall notify the CPM in the first Monthly Compliance Report that letters have been mailed and that copies are on file.

TLSN-6 The project owner shall ensure the grounding of any ungrounded permanent metallic objects within the right-of-way, regardless of ownership. Such objects shall include fences, gates, and other large objects. These objects shall be grounded according to procedures specified in the National Electrical Safety Code.

In the event of a refusal by the property owner to permit such grounding, the project owner shall so notify the CPM. Such notification shall include, when possible, the owner's written objection. Upon receipt of such notice, the CPM may waive the requirement for grounding the object involved.

Verification: At least 10 days before the line is energized, the project owner shall transmit to the CPM a letter confirming compliance with this condition.

VI. COMPLIANCE

A. FACILITY CLOSURE

This section pertains to plans and Conditions of Certification for the safe and responsible closure of the Sutter Power Plant facility.

The Applicant addressed facility closure in Section 4 of the AFC (Ex. 4), including a discussion of the measures that it would implement to handle temporary or permanent facility closure. The discussion addresses the contingencies, issues, security measures and other steps necessary to remedy and prevent environmental hazards, and protect worker and public health and safety.
In supplementary testimony, presented at the December 1, 1998, evidentiary hearing, Commission staff witness Steve Munro explained that the Staff had examined facility closure issues and costs in each technical area and recommended facility closure conditions in the FSA in its testimony. Staff did not identify the need for a dedicated facility closure fund. (12/1/98 RT 61.)

The witness summarized the uncertainties which complicate the identification of specific closure measures and costs at the present time:

1. It is not known what the characteristics of the environs surrounding the facility will be in 30 years or more when the facility is closed. Those characteristics will have a major bearing on what specific closure measures and mitigation will be necessary to prevent creating a significant environmental impact when the project ceases operation.

2. Although current laws, ordinances, regulations and standards (LORS) are known, it is not known what specific changes and new LORS will be in place at the time of plant closure.

3. It is impossible to know what the conversion or salvage value of the project structures and equipment will be at the time of closure. This prevents determination of the net removal, dismantling, and other closure costs. (Ex. 42, Plant Closure, p. 3.)

Mr. Munro added that the assumption that the Sutter Power Project may retain significant value at the time of closure is supported by recent closure experience involving a project under the Commission's jurisdiction. (*Id.*) The net closure costs in that case, have been relatively low. In addition, the recent divestiture of assets by utility companies in California has demonstrated that power plant equipment and assets retain a significant market value even after 40 years or more of service.

Discussion

There is no evidence in the record which would lead the Commission to conclude that Calpine does not, or will not have the financial resources necessary to carry out any reasonably anticipated closure measures at the time the facility ceases operation.

If in the future Calpine intends to sell the SPP, Calpine would have to petition the Energy Commission which would then conduct a publicly-noticed hearing on the amendment petition. Any subsequent owner would have to establish a willingness and an ability to carry out all Conditions of Certification, including closure conditions and requirements. The transfer of ownership likely would not be approved if the prospective new owner could not demonstrate this commitment.

Because many variables cannot be known until the time of plant closure, the Facility Closure Condition of Certification specifies that 12 months prior to the anticipated cessation of operation of the project, a proposed closure plan must be submitted and a public review process initiated. This process will be used to develop a specific closure plan, necessary mitigation measures, and additional closure conditions, to prevent any significant impacts to the environment and public health and safety. Such a process will involve the Commission, the Staff, other interested state, federal and local agencies, and members of the public. It is only through this process that we will be able to identify the net costs of project closure.

FINDINGS AND CONCLUSION

Based on the weight of the evidence of record, the Commission finds as follows:

1. Temporary closure of the SPP which results from damage to the facility will be largely addressed through emergency procedures set forth in a Risk Management Plan which will be developed based on steps described in Section 8.12.6.4 the AFC. (Ex. 4.)

2. The planned life of the SPP is 30 years. Economic and operational conditions could result in a shorter or longer project life.

3. Because future conditions that would affect decisions regarding plant closure are largely unknown and unknowable at present, it is appropriate to present details of a closure plan to the CEC and to Sutter County when timing of plant closure is not less than 12 months hence.

4. There is no evidence of record to suggest that the Applicant may not be capable of financial responsibility for closure measures.

5. The Conditions of Certification listed below will assure that the project will meet all applicable laws, ordinances, regulations and standards which are likely to apply to future closure of the facility.

We therefore conclude that the project is likely to be eventually closed in an orderly manner which will not pose a danger to the health and safety of the public, nor pose a financial burden on public resources.

CONDITIONS OF CERTIFICATION

CLOSURE-1 Prior to first energizing of the project, the project owner shall submit a contingency plan for dealing with an unplanned and/or sudden facility closure or interruption of operations other than those required for normal maintenance. The contingency plan shall provide for the following:

1. taking immediate steps to secure the facility from trespassing or encroachment;

2. removal of hazardous materials;

3. removal of hazardous wastes for closures more than 90 days in duration;

4. draining of all chemicals from storage tanks and other equipment;

5. the safe shutdown of all equipment; and

6. other necessary or prudent measures.

Verification: At least 90 days prior to first energizing the project, the project owner shall submit to the CPM and to the Assistant Director of Sutter County Community Services Department, Fire and Emergency Services for review and approval a contingency plan identifying the steps that will be taken in case of an unplanned permanent or temporary facility closure.

CLOSURE-2 In the event of an unplanned and/or sudden facility closure or interruption of operations, the project owner shall notify the Energy Commission CPM, as well as other responsible agencies, by telephone or fax within 24 hours.

The project owner shall take all necessary steps to ensure that there is no immediate danger to health and safety to or the environment from materials on the site as provided in the contingency plan described in condition CLOSURE-1.
If the CPM determines that the closure is likely to be permanent or for a duration of more than twelve months, then a plan consistent with the Protocol of Condition CLOSURE-3 below shall be submitted to the CPM within 90 days of the CPM's determination (or other mutually agreed upon period of time).

Verification: The project owner shall maintain on-site the contingency plan required by Condition CLOSURE-1 identifying the steps that will be taken in case of an unplanned permanent or temporary facility closure. Within seven days of any unplanned and/or sudden facility closure or interruption of operations, the project

owner shall submit a letter to the CPM describing the situation, the expected duration, and any planned actions to protect health, safety, and the environment.

CLOSURE-3 In the event of a planned facility closure, at least 12 months (or other mutually agreed-upon period of time) prior to commencing facility closure activities, the project owner shall file a proposed facility closure plan with the Energy Commission for review and approval.

Protocol:

1. The plan shall:

   a. Identify and discuss the proposed facility closure activities, mitigation measures, and schedule for the power plant site, transmission line corridor, and all other appurtenant facilities constructed as part of the project;
   b. Identify any facilities or equipment intended to remain on site after closure and the reason therefore, including any potential future use; and

   c. Address conformance of the plan with all applicable laws, ordinances, regulations standards, local/regional plans in existence at the time of facility closure, and applicable Conditions of Certification.

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

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

4. The project owner shall not commence facility closure activities, with the exception of measures to eliminate any immediate threats to health and safety or the environment, until Commission approval of the facility closure plan is obtained, and the project owner shall comply with any requirements the Commission may incorporate as a condition of facility closure plan approval.

Verification: The project owner shall file 125 copies (or a mutually agreed upon lesser number) of the proposed facility closure plan with the Commission. At least six months (or other mutually agreed-upon time) prior to commencing facility closure, the project owner shall participate in a workshop, if the CPM determines that a workshop is necessary, to allow the Sutter County Planning Department and other interested agencies and parties to comment on the proposed closure plan and determine if there are any changes or additional measures needed in the plan.

B. COMPLIANCE MONITORING PLAN AND GENERAL COMPLIANCE CONDITIONS

The project's Compliance Monitoring Plan and General Conditions (Compliance Plan) has been established as required by Public Resources Code section 25532. The plan provides a means for assuring that the facility is constructed and operated in conformity with air and water quality, public health and safety, environmental and other applicable regulations, guidelines, and conditions adopted or established by the California Energy Commission (Commission) and specified in the written decision on the Application for Certification or otherwise required by law.

The Compliance Plan is composed of two elements:

(1) General Conditions that:

- Set forth the duties and responsibilities of the Compliance Project Manager (CPM), the project owner, delegate agencies, and others;

- Set forth the requirements for handling confidential records and maintaining the compliance record;

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

- State the requirements for periodic compliance reports and other administrative procedures that are necessary to verify the compliance status for all Commission approved conditions.

(2) Specific Conditions of Certification which are found following each technical area and contain the measures required to mitigate any and all potential adverse project impacts to an insignificant level. Each Condition of Certification also includes a verification provision which describes the method of verifying that the condition has been satisfied.

C. GENERAL CONDITIONS

COMPLIANCE PROJECT MANAGER (CPM) RESPONSIBILITIES

A CPM will oversee the compliance monitoring and shall be responsible for:

1) Ensuring that the design, construction, operation, and closure of the project facilities is in compliance with the terms and conditions of the Commission's Decision;

2) Resolving complaints;

3) Processing post-certification changes to the Conditions of Certification, project description, and ownership or operational control;

4) Documenting and tracking compliance filings; and

5) Ensuring that the compliance files are maintained and accessible.

The CPM is the contact person for the Energy Facilities Siting and Environmental Protection Division and will consult with the appropriate responsible agencies and Commission management when handling disputes, complaints, and amendments.

All required compliance documentation must be submitted to the CPM for processing. Where a submittal required by a Condition of Certification requires CPM approval, it should be understood that the approval will involve all appropriate staff and management.

Pre-Construction and Pre-Operation Compliance Meetings

The CPM shall schedule a pre-construction and, if necessary, a pre-operational compliance meeting prior to the projected start-dates of construction and plant operation. The purpose of these meetings will be to assemble both the Commission's and the project owner's technical staff to review the status of all pre-construction or pre-operation requirements contained in the Commission's Conditions of Certification to confirm that they have been met, or if they have not been met, to ensure that the proper action is taken. These meetings shall be scheduled in time to ensure, to the extent possible, that Commission conditions will not delay the construction and operation of the plant due to oversight or inadvertence, and to preclude any last-minute, unforeseen issues from arising.

The CPM shall write letters to the project owner, prior to the start of construction and operation, notifying the project owner when all pre-construction or pre-operation conditions have been satisfied. Any pre-construction conditions not satisfied will be identified, and an explanation provided if approval to start construction or operation is not being given. Approval will be given when outstanding conditions are either satisfied, or the CPM approves, in writing, an agreement to satisfy them.

Commission Record

The Commission shall maintain as a public record in either the Compliance file or Docket file for the life of the project (or other period as required):

1) All documents demonstrating compliance with any legal requirements relating to the construction and operation of the facility;

2) All monthly and annual compliance reports filed by the project owner;

3) All complaints of noncompliance filed with the Commission; and

4) All petitions for project or condition changes and the resulting staff or Commission action taken.

PROJECT OWNER RESPONSIBILITIES

It is the responsibility of the project owner to ensure that the general compliance conditions and the Conditions of Certification are satisfied. The general compliance conditions regarding post certification changes specify measures that the project owner must take when requesting changes in the project design, compliance conditions, or ownership. Failure to comply with any of the Conditions of Certification or the general compliance conditions may result in reopening of the case and revocation of Commission certification, an administrative fine, or other action as appropriate.

Access

The CPM, designated staff, and delegated agencies or consultants shall be guaranteed and granted access to the power plant site, related facilities, project-related staff, and the records maintained on site, for the purpose of conducting audits, surveys, inspections, or general site visits.

Compliance Record

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

Commission staff and delegate agencies shall, upon request to the project owner, be given access to the files.

Compliance Verifications

A cover letter from the project owner or authorized agent is required for all compliance submittals and correspondence pertaining to compliance matters. **The cover letter subject line shall identify the involved Condition(s) of Certification by condition**

number and include a brief description of the subject of the submittal. The project owner shall also identify those submittals **not** required by a Condition of Certification with a statement such as: "This submittal is for information only and is not required by a specific Condition of Certification." When providing supplementary or corrected information, the project owner shall reference the date of the previous submittal.

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

Compliance Project Manager
California Energy Commission
1516 Ninth Street (MS-2000)
Sacramento, CA 95814

If the project owner desires Commission staff action by a specific date, it shall so state in its submittal and include a detailed explanation of the effects on the project if this date is not met.

Each Condition of Certification is followed by a means of verification. The verification describes the Commissions's procedure(s) to ensure post-certification compliance with adopted conditions. The verification procedures, unlike the conditions, may be modified, as necessary, by the CPM, in most cases without full Commission approval.

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

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

2) Appropriate letters from delegate agencies verifying compliance;

3) Commission staff audit of project records; and/or

4) Commission staff inspection of mitigation and/or other evidence of mitigation.

Compliance Reporting

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

Compliance Matrix

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

1) The technical area,

2) The condition number,

3) A brief description of the verification action required by the condition,

4) The date the submittal is required (e.g., 60 days prior to construction, after final inspection, etc.),

5) The expected or actual submittal date,

6) The date a submittal or action was approved by the CBO, CPM, or delegate agency, if applicable, and

7) An indication of the compliance status for each condition (e.g., "not started", "in progress" or "completed date").

Completed or satisfied conditions do not need to be included in the compliance matrix after they have been identified as completed/satisfied in at least one monthly or annual compliance report. The CPM will provide the project owner with an example of a compliance matrix upon request.

Monthly Compliance Report

During construction of the project, the project owner or authorized agent shall submit Monthly Compliance Reports within 10 working days after the end of each reporting month. Monthly Compliance Reports shall clearly identify the report month. The reports shall contain at a minimum:

1) A summary of the current project construction status, a revised/updated schedule if there are significant delays, and an explanation of any significant changes to the schedule;

2) Documents required by specific Conditions of Certification should be included with the Monthly Compliance Report. Each of these items must be identified in the transmittal letter, and should be submitted as attachments to the Monthly Compliance Report;

3) An initial, and thereafter updated compliance matrix which shows the status of all Conditions of Certification (fully satisfied and/or closed conditions do not need to be included in the matrix after they have been reported as closed);

4) A list of conditions which have been satisfied during the reporting period, and a description or reference to the actions which satisfied the condition;

5) A list of any deadlines that were missed accompanied by an explanation and an estimate of when the information will be provided;

6) A cumulative listing of any changes to compliance activities which have resulted from negotiations between the project owner and the CPM or Commission or its delegate agencies (Note: changes to conditions, verifications, or other terms of compliance must be approved by the Commission or cleared with the CPM prior to implementation);

7) A listing of any filings to or permits issued by other governmental agencies during the month;

8) A projection of project compliance activities scheduled during the next two months;

9) A listing of the month's additions to the on-site compliance file; and

10) Any requests to dispose of items that are required to be maintained in the project owner's compliance file.

The first Monthly Compliance Report is due the month following the Commission business meeting date that the project was approved, unless the project owner notifies the CPM in writing that a delay is warranted. The first Monthly Compliance Report shall include an initial list of dates for each of the events identified on the Key Events Table (see last page of this section).

Annual Compliance Report

After the air district has issued a Permit to Operate, the project owner shall submit Annual Compliance Reports instead of Monthly Compliance Reports. The reports are for each calendar year of commercial operation and are due to the CPM by February 15th of the year immediately following the reporting year. Annual Compliance Reports

shall be submitted over the life of the project unless otherwise specified by the CPM. Each Annual Compliance Report shall be identified by year and shall contain the following:

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

2) A summary of the current project operating status and an explanation of any significant changes to facility operations during the year;

3) Documents required by specific conditions to be submitted along with the Annual Compliance Report. Each of these items must be identified in the transmittal letter, and should be submitted as attachments to the Annual Compliance Report;

4) A cumulative listing of all post-certification changes approved by the Commission or cleared by the CPM;
5) An explanation for any submittal deadlines that were missed, accompanied by an estimate of when the information will be provided;

6) A listing of filings made to or permits issued by other governmental agencies during the year;

7) A projection of project compliance activities scheduled during the next year; and

8) A listing of the year's additions to the on-site compliance file.

Facility Closure

Facility closure requirements are described in the Facility Closure section of this Commission Decision. Upon receipt of the proposed closure plan, the CPM will initiate the Commission's closure plan review process, which is substantially the same as the amendment review process. A description of the closure plan review process can be obtained from the CPM.

Confidential Information

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

Department of Fish and Game Filing Fee

Pursuant to the provisions of Fish and Game Code section 711.4, the project owner must remit to the California Department of Fish and Game (CDFG) the required filing fee. The fee must be paid on or before the tenth day following the Commission Business Meeting at which the project was approved by the Commission. No construction may commence until the fees are paid in full and proof of payment is submitted to the CPM.

The project owner shall submit a copy of the CDFG receipt to the CPM within 30 days of the Commission Business Meeting at which the project was approved by the Commission. The receipt shall identify the project, and indicate the date paid and the amount paid.

DELEGATE AGENCIES

To the extent permitted by law, the Commission may delegate authority for compliance verification and enforcement to various state and local agencies which have expertise in subject areas where specific requirements have been established as a condition of certification. If a delegate agency does not participate in this program, the Commission staff will establish an alternative method of verification and enforcement. Commission staff reserves the right to independently verify compliance.

In performing construction and operation monitoring of the project, the Commission staff acts as and has the authority of the Chief Building Official (CBO). The Commission staff retains this authority when delegating to a local CBO. Delegation of authority for compliance verification includes the authority for enforcing codes, the responsibility for code interpretation where required, and the authority to use discretion as necessary in implementing the various codes and standards.

Whenever an agency's responsibility for a particular area is transferred by law to another entity, all references to the original agency shall be interpreted to apply to the successor entity.

Employee Awareness Training

Prior to the start of construction and throughout construction, the project owner must present employee awareness training, as needed, to all project managers, construction supervisors, construction workers, and ground disturbance equipment operators. The training will cover the potential to encounter cultural, paleontologic, or biological resources in the field, the sensitivity and importance of these resources, and the legal obligation to preserve and protect the resources. The training must specify the actions which employees must take, and reporting procedures to follow, when resources are encountered. Refer to the cultural, paleontologic, and biological resources Conditions of Certification for specific training content requirements. The training may be coordinated or conducted separately for each technical area and may include other subjects of concern such as hazardous materials and hazardous waste handling. Proof of employee training shall be maintained on-site for at least one year, and be available for CPM inspection.

Biological resource training, revised as appropriate, shall also be provided to all employees during the operational phase of the project.

Project Construction Monitoring Maps

Prior to the start of construction, the project owner shall provide two copies of a 7.5 minute quadrangle project map, and other maps of suitable scale if specified in the paleontologic, cultural, and biological resources Conditions of Certification, showing rights-of-way and final alignment of all structures and linear facilities. These maps must identify the geographical areas of concern in the areas of paleontologic, cultural, and biological resources. They must show details including center lines, areas of disturbance associated with project-related access roads, storage yards, laydown sites, pull sites, pump or pressure stations, switchyards, electrical transmission line tower or pole footings, sensitive animal nesting or burrowing sites, and other features of paleontological, cultural, or biological significance.

Coordination With Designated Project Resource Specialists

Representatives of the project owner shall coordinate with their designated paleontologic, cultural and biological specialists on a weekly basis during construction to ensure that they are kept informed about upcoming construction activities, work locations, and the possible impact on sensitive resources.

ENFORCEMENT

The Commission's authority to enforce the terms and conditions of its Decision is specified in Public Resources Code sections 25534 and 25900. The Commission may amend or revoke the certification for any facility, and may impose a civil penalty for any significant failure to comply with the terms or conditions of the Decision.

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

NONCOMPLIANCE

Any person or agency may file a complaint alleging noncompliance with the Conditions of Certification. Such a complaint will be subject to review by the Commission pursuant to Title 20, California Code of Regulations, section 1230 et seq., but in many instances the noncompliance can be resolved by using the informal dispute resolution procedure described below.

Informal Dispute Resolution Procedure

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

The procedure may precede the more formal complaint and investigation procedure specified in Title 20, California Code of Regulations, section 1230 et seq., but is not intended to be a substitute for, or prerequisite to, it. The informal procedure may not be used to change the terms and Conditions of Certification as approved by the Commission, although the agreed upon resolution may result in a project owner, or in some cases Commission staff, proposing an amendment.

The procedure encourages all parties involved in a dispute to discuss the matter and to reach an agreement resolving the dispute. If a dispute cannot be resolved, then the matter must be referred to the full Commission for consideration via the complaint and investigation process. The procedure for informal dispute resolution is as follows:

Request for Informal Investigation

Any individual, group, or agency may request the Commission to conduct an informal investigation of alleged noncompliance with the Commission's Conditions of Certification. All requests for informal investigations shall be made to the designated CPM.

Upon receipt of a request for informal investigation, the CPM shall promptly notify the project owner of the allegation by telephone and letter. All known and relevant information of the alleged noncompliance shall be provided to the project owner and to the Commission staff. The CPM will evaluate the request and the information to determine if further investigation is necessary. If the CPM finds that further investigation is necessary, the project owner will be asked to promptly investigate the matter and within seven (7) working days of the CPM's request, provide a written report of the results of the investigation, including corrective measures proposed or undertaken, to the CPM. Depending on the urgency of the noncompliance matter, the CPM may conduct a site visit and/or request the project owner to provide an initial report, within forty-eight (48) hours, followed by a written report filed within seven (7) days.

Request for Informal Meeting

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

1) Immediately schedule a meeting with the requesting party and the project owner, to be held at a mutually convenient time and place;

2) Secure the attendance of appropriate Commission staff and staff of any other agency with expertise in the subject area of concern as necessary;
3) Conduct such meeting in an informal and objective manner so as to encourage the voluntary settlement of the dispute in a fair and equitable manner; and

4) After the conclusion of such a meeting, promptly prepare and distribute copies to all in attendance and to the project file, a summary memorandum which fairly and accurately identifies the positions of all parties and any conclusions reached. If an agreement has not been reached, the CPM shall inform the complainant of the formal complaint process and requirements provided under Title 20, California Code of Regulations, section 1230 et seq.

Formal Dispute Resolution Procedure-Complaints and Investigations

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

The Chairman, upon receipt of a written request stating the basis of the dispute, may grant a hearing on the matter, consistent with the requirements of noticing provisions. The Commission shall have the authority to consider all relevant facts involved and make any appropriate orders consistent with its jurisdiction (Title 20, California Code of Regulations, section 1232.)

POST CERTIFICATION CHANGES TO THE COMMISSION DECISION: AMENDMENTS, STAFF CHANGES AND VERIFICATION CHANGES

The project owner must petition the Commission, pursuant to Title 20, California Code of Regulations, section 1769, to 1) delete or change a Condition of Certification; 2) modify the project design or operational requirements; 3) transfer ownership or operational control of the facility; or 4) change a condition verification's technical requirement.

A petition is required for amendments and for insignificant (staff) changes. For informal and non-technical verification changes of an administrative nature, a letter from the project owner is sufficient. In all cases, the petition or letter requesting a change must be submitted to the Commission's Docket in accordance with Title 20, California Code of Regulations, section 1209.

The criteria that determines which type of change process applies is explained below.

Amendment

The proposed change will be processed as an amendment if it involves: a change to the requirement or protocol (and in some cases the verification) portion of a Condition of Certification; an ownership or operator change; or causing a potential significant environmental impact.

Insignificant Staff Change

The proposed change will be processed as an insignificant staff change if it does not require changing the language in a Condition of Certification, it does not have a

potential significant environmental impact, and it will not cause the project to violate laws, ordinances, regulations or standards.

Verification Change

The proposed change will be processed as a verification change if it involves only the language in the verification portion of the Condition of Certification. This change procedure can only be used to change verification requirements that are of an administrative nature, usually the timing of a required action. If the verification language contains technical requirements, the proposed change must be processed as an amendment.

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KEY EVENT LIST

PROJECT _____ DATE ENTERED

DOCKET # _____ PROJECT MANAGER

EVENT DESCRIPTION	***DATE ASSIGNED***
Date of Certification	
Start of Construction	
Completion of Construction	
Start of Operation (1st Turbine Roll)	
Start of Rainy Season	
End of Rainy Season	
Start T/L Construction	
Complete T/L Construction	
Start Fuel Supply Line Construction	
Complete Fuel Supply Line Construction	
Start Rough Grading	
Complete Rough Grading	
Start of Water Supply Line Construction	
Complete Water Supply Line Construction	
Start Implementing Erosion Control Measures	
Complete Implementing Erosion Control Measures	

APPENDICES

STATE OF CALIFORNIA

Energy Resources Conservation
and Development Commission

In the Matter of:	)	
	)	
Application for Certification of	)	Docket No. 97-AFC-2
The Sutter Power Plant	)	
Project	)	
	)	

EXHIBIT LIST

EXHIBIT 1: Preliminary Staff Assessment, dated July 1, 1998. Identified and received into evidence on November 2, 1998.

EXHIBIT 2: Final Staff Assessment, dated October 19, 1998. Identified and received into evidence on November 2, 1998.

EXHIBIT 3: Staff Errata for the Final Staff Assessment. Identified and received into evidence on November 2, 1998.

EXHIBIT 4: Application for Certification for the Sutter Power Plant Project, Volumes I and II. Submitted by the Applicant to the Energy Commission December 1, 1997. Identified and received into evidence on November 2, 1998.

EXHIBIT 5: Sutter Power Plant Prevention of Significant Deterioration Permit Application. Submitted by the Applicant to the Energy Commission on January 1, 1998. Identified and received into evidence on November 2, 1998.

EXHIBIT 6: Additional Data for the Sutter Power Plant Project. Submitted by the Applicant to the Energy Commission on January 8, 1998. Identified and received into evidence on November 2, 1998.

EXHIBIT 7: Sutter Power Plant General Electric Turbine Authority to Construct Permit Application. Submitted by the Applicant to the Energy Commission on April 1, 1998. Identified and received in evidence on November 2, 1998.

EXHIBIT 8: Sutter Power Plant Westinghouse Turbine Authority to Construct Permit Application. Submitted by the Applicant to the Energy Commission on April 1, 1998. Identified and received into evidence on November 2, 1998.

EXHIBIT 9: No Exhibit.

EXHIBIT 10: Responses to February 2, 1998 Data Requests. Submitted by the Applicant to the Energy Commission on April 2, 1998. Identified and received into evidence on November 2, 1998.

EXHIBIT 11: Responses to Data Requests 60-68. Submitted by the Applicant to the Energy Commission on April 15, 1998. Identified and received into evidence on November 2, 1998.

EXHIBIT 12: Responses to Data Requests 64 and 66, Additions or Corrections to 63, 67, and 68. Submitted by the Applicant to the Energy Commission on May 1, 1998. Identified and received into evidence on November 2, 1998.

EXHIBIT 13: Supplemental Filing to Change Electric Transmission Line Route. Submitted by the Applicant to the Energy Commission on May 11, 1998. Identified and received into evidence on November 2, 1998.

EXHIBIT 14: Supplemental Filing to Change Size of Cooling Tower. Submitted to Energy Commission by the Applicant on May 13, 1998. Identified and received into evidence on November 2, 1998.

EXHIBIT 15: Information Requested by CEC Staff (revised figures and Landscape Plan). Submitted by the Applicant to the Energy Commission on June 8, 1998. Identified and received into evidence on November 2, 1998.

EXHIBIT 16: Responses to Data Requests of the California Union for Reliable Energy. Submitted to the Applicant on July 1, 1998. Identified and received into evidence on November 2, 1998.

EXHIBIT 17: Sutter Power Plant Effluent Water Temperature Modeling Report. Submitted by the Applicant to the Energy Commission on July 1, 1998. Identified and received into evidence on November 2, 1998.

EXHIBIT 18: Sutter Power Plant Effluent Water Quality Modeling Report. Submitted by the Applicant to the Energy Commission on July 1, 1998. Identified and received into evidence on November 2, 1998.

EXHIBIT 19: Sutter Power Plant Double Circuit Line. Submitted by the Applicant to the Energy Commission on July 23, 1998. Identified and received into evidence on November 2, 1998.

EXHIBIT 20: Sutter Power Plant Groundwater Monitoring Plan. Submitted by the Applicant to the Energy Commission on July 31, 1998. Identified and received into evidence on November 2, 1998.

EXHIBIT 21: Western Letter Regarding Transmission Underbuilding. Submitted by the Applicant to the Energy Commission on August 10, 1998. Identified and received into evidence on November 2, 1998.

EXHIBIT 22: Comments on Visual Resources Impact Assessment. Submitted by the Applicant to the Energy Commission on August 14, 1998. Identified and received into evidence on November 2, 1998.

EXHIBIT 23: Underground Transmission Line Feasibility Study. Submitted by the Applicant to the Energy Commission on August 14, 1998. Identified and received into evidence on November 2, 1998.

EXHIBIT 24: Biological Resources Mitigation Implementation Plan. Submitted by the Applicant to the Energy Commission on October 1, 1998. Identified and received into evidence on November 2, 1998.

EXHIBIT 25: Mitigation Program Supplement. Submitted by the Applicant to the Energy Commission on October 8, 1998. Identified and received into evidence on November 2, 1998.

EXHIBIT 26: Testimony of Applicant. Submitted by the Applicant to the Energy Commission on October 23, 1998. Identified and received into evidence on November 2, 1998.

EXHIBIT 27: Testimony of Elizabeth R.Y. Kientzle on Economic Benefits of the Sutter Power Project (11 pages and appendix). Submitted by the Applicant to the Energy Commission on October 23, 1998. Identified and submitted into evidence on November 2, 1998.

EXHIBIT 28: Testimony of Gary Rubenstein. Submitted by the Applicant to the Energy Commission on 10/23/98. Identified and received into evidence on November 2, 1998. **WITHDRAWN**

EXHIBIT 29: Affidavit if James Armand Saare. Submitted by the Applicant to the Energy Commission on 10/23/98. Identified and received into evidence on November 2, 1998.

EXHIBIT 30: Stipulation Regarding Findings and Conditions. Submitted by the Applicant to the Energy Commission on October 26, 1998. Identified and received into evidence on November 2, 1998.

EXHIBIT 31: Stipulation Regarding Ms. Elizabeth R.Y. Kientzle Testimony. Identified and received into evidence on November 2, 1998.

EXHIBIT 32: Visual Aids to Debra Crowe's and Elizabeth Kientzle's Testimony. Identified and received into evidence on November 2, 1998.

EXHIBIT 33: Air Quality: a) Revisions to Air Dispersion Modeling, b) Sulfur Oxides/Particulate Matter Calculations, c) Road Paving Emissions Reduction Credit Application. Submitted by the Applicant to the Energy Commission on November 6, 1998. Identified and received into evidence on November 10, 1998.

EXHIBIT 34: Sutter Power Plant Site Plan/Landscape Plan. Submitted by the Applicant to the Energy Commission on November 6, 1998. Identified and received into Evidence on November 11, 1998.

EXHIBIT 35: Information Requested by CEC Staff. Submitted by the Applicant to the Energy Commission on June 5, 1998. Identified and received into Evidence on November 11, 1998.

EXHIBIT 36: Information requested by Energy Commission Staff. Identified and received into evidence on November 11, 1998.

EXHIBIT 37: Testimony of CURE on Socioeconomic Impacts of the Project. Identified and received into evidence on November 11, 1998.

EXHIBIT 38: Visual Aids of Thomas Priestley on Land Use, identified and received into evidence on November 11, 1998.

EXHIBIT 39: Sutter County Staff Report. Submitted by George Carpenter, Sutter County Community Services Department to the Energy Commission on November 12, 1998. Identified and received into Evidence on November 16, 1998.

EXHIBIT 40: Thomas Priestly, Overhead Slides Figures 13-17. Submitted by the Applicant to the Energy Commission on November 16, 1998. Identified and received into Evidence on November 16, 1998.

EXHIBIT 41: Gary Walker, Comparison of Proposed SPP Transmission Poles with Existing PG&E Poles Along South Township Road. Submitted by Energy Commission on November 16, 1998. Identified and received into Evidence on November 16, 1998. **WITHDRAWN**

EXHIBIT 42: Staff Supplemental Testimony for the Sutter Power Project (97-AFC-2), including Alternatives by Paul Richins; Transmission System Engineering by Al McCuen, and Transmission Systems Alternatives, Biological Resources, by Linda Spiegel; Socioeconomic by Amanda Stennick and Gary D. Walker; Plant Closure by Steve Munro; with Attachment A, Response of Commission Staff to Committee Scheduling Order, dated February 27, 1998. Submitted by Energy Commission on November 24, 1998. Identified and received into Evidence on December 1, 1998.

EXHIBIT 43: Revised Air Quality Testimony of Magdy Badr for the Sutter Power Project, and Errata that incorporates the conditions of certification contained in the Final Determination of Compliance provided by the Feather River Air Quality Management District. Submitted by the Energy Commission on November 17, 1998. Identified and received into Evidence on December 1, 1998.

EXHIBIT 44: Final Determination of Compliance for the Sutter Power Plant, Yuba City, CA. Submitted by Feather River AQMD on November 13, 1998. Identified and received into Evidence on December 1, 1998.

EXHIBIT 45: Supplemental Testimony of Thomas Priestly, AICP, Analysis of Transmission Line and Switching Station Effects on Agricultural and Land Use. Submitted by Applicant on November 24, 1998. Identified and received into Evidence on December 1, 1998.

EXHIBIT 46: Comparison of Typical Proposed SPP Transmission Pole with Existing 48' Tall PG&E Pole on the Southeast Corner of the Intersection of South Township Road

and O'Banion Road. Submitted by Gary Walker, Energy Commission on December 1, 1998. Identified and received into Evidence on December 1, 1998.

EXHIBIT 47: Visuals from Farm Bureau. Identified and received into Evidence on December 1, 1998.

EXHIBIT 48: Visuals from Farm Bureau. Identified and received into Evidence on December 1, 1998.

EXHIBIT 49: Letter from Darrell Rose, County of Sutter. Estimated Taxes from the proposed Calpine Power Plant Project. Identified and received into Evidence on December 1, 1998.

EXHIBIT 50: Memo from David S. Zezukak, Department of Fish and Game, Region 2. Identified and received into Evidence on December 1, 1998.

EXHIBIT 51: Update to the testimony of Energy Commission Staff Witness,Gary Walker, regarding Visual Resources. Identified and received into Evidence on December 1, 1998.

AIR QUALITY

FEDERAL

The Federal New Source Review (NSR) program, which is administered by the District requires the SPP to comply with the Lowest Achievable Emission Rate (LAER) for NOx, VOC and CO and to provide offsets for emissions of these pollutants. In addition, Calpine must certify that all facilities they own and operate comply with applicable requirements contained in the State Implementation Plan. The Environmental Protection Agency (EPA) has revoked the one hour ozone standard for the northern portion of Sutter County in which the SPP will be located, as of July 1998, and it has been replaced by the new 8-hour ozone standard. However, the existing District NSR rules will remain in effect until rules based on the new 8-hour ozone standard are developed and adopted. Therefore, the Calpine project must still comply with all existing Federal NSR rules.

The SPP facility is located in an attainment area for NO2, SO2 PM10 and CO, and is subject to the Prevention of Significant Deterioration (PSD) review for those air contaminants. In general, the project must comply with Best Available Control Technology (BACT) for NO2, SO2, PM10 and CO and demonstrate that its emission impacts will not significantly degrade the existing ambient air quality in the region. EPA Region IX retains PSD review authority. The PSD trigger levels are 40 tons per year for NOx, CO, VOC and SO2 and 15 tons for PM10. The SPP is subject to PSD review for NOx, CO and PM10 since the annual emission levels are higher than the PSD trigger levels.

The power plant's gas turbines are also subject to the federal New Source Performance Standards (NSPS). These standards include a NOx emissions of no more than 75 ppm at 15 percent excess oxygen (ppm@15%O2), and a SOx emissions of no more than 150 ppm@15%O2.

States are required by Title V of the Federal Clean Air Act (FCAA) to implement and administer the operating permit programs with the goal of ensuring that large sources are in compliance with all applicable requirements. These requirements are contained in Title 40 CFR, part 70. To comply with Title V, the District has the authority to administer the federal operating permit program and has adopted Regulation X, Rule 10.3. The Acid Rain Provisions of the FCAA establish an emission allowance/tracking program and impose monitoring of SO2 and NOx emissions. All electrical generating facilities labeled as "affected units" are subject to acid rain regulations. The SPP is subject to acid rain regulations and must comply with all requirements. Calpine will estimate SO2 emissions using the approved emission factors and measured heat input rate. The CO2 emissions are estimated using a carbon balance for natural gas and measured heat input. The heat input will be monitored on a continuous basis with an

accuracy of ± 2 percent. The heat content of the natural gas will be measured or certified monthly by the natural gas distributor. Furthermore, the SPP will be required to install, operate and certify NOx continuous emission monitoring systems (CEMS). All calculation methodologies and CEMS must be installed and certified within 90 days following the commencement of the operation of the power plant. However, since the SPP will utilize natural gas in its operation, the project is exempted from the installation of CEMS for SO2, CO2 and volumetric flow rate. The following AIR QUALITY Table 1 summarizes the federal and state ambient air quality standards and the averaging time for each pollutant.

STATE

The California State Health and Safety Code, Section 41700, requires that "no person shall discharge from any source whatsoever such quantities of air contaminants or other material which causes injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property".

LOCAL

The Air District issued A Final Determination Of Compliance (FDOC) on November 10, 1998.

The following is a concise summary of the major applicable District Rules and Regulations:

Regulation III, Rule 3.0

Prohibits a person from discharging visible emissions greater than Ringleman No. 2, which is equivalent to 40 percent opacity.

Regulation III, Rule 3.2

Prohibits a person from discharging particulate matter in concentrations greater than 0.3 grains per cubic foot of gas at standard conditions.

Regulation III, Rule 3.10

Prohibits a person from discharging sulfur oxides in excess of 0.2 percent by volume (2,000 ppm), collectively calculated as SO2.

Regulation III, Rule 3.16

Regulates operations which periodically may cause fugitive dust emissions into the atmosphere.

Regulation IV

Defines the authority to construct and permit to operate processes associated with stationary emission sources.

Regulation X, Rule 10.1

Defines the New Source Review process, including best available control technology (BACT) requirements, and ambient air quality impact assessment and emission reduction credit requirements.

Regulation X, Rule 10.3

Requires the preparation and submittal of Title V operating permit and acid rain permit applications. Applications for new sources are due within 12 months of initial operation of the source.

Regulation XI, Rule 11.3

Restricts the use of hexavalent chromium water treatment chemicals in cooling towers. Limits hexavalent chromium emissions to existing cooling towers.

AIR QUALITY Table 1
Federal and State Ambient Air Quality Standards

Pollutant	Averaging Time	Federal Standard	California Standard
Ozone (O3)	1 Hour	0.12 ppm (235 _g / m^3)	0.09 ppm (180 _g / m^3)
Carbon Monoxide (CO)	8 Hour	9 ppm (10 mg / m^3)	9 ppm (10 mg / m^3)
	1 Hour	35 ppm (40 mg / m^3)	20 ppm (23 mg / m^3)
Nitrogen Dioxide (NO2)	Annual Average	0.053 ppm (100 _g / m^3)	---
	1 Hour	---	0.25 ppm (470 _g / m^3)
Sulfur Dioxide (SO2)	Annual Average	80 _g / m^3 (0.03 ppm)	---
	24 Hour	365 _g / m^3 (0.14 ppm)	0.04 ppm (105 _g / m^3)
	3 Hour	1300 _g / m^3 (0.5 ppm)	---
	1 Hour	---	0.25 ppm (655 _g / m^3)
Suspended Particulate Matter (PM10)	Annual Geometric Mean	---	30 _g / m^3
	24 Hour	150 _g / m^3	50_g / m^3
	Annual Arithmetic Mean	50 _g / m^3	---
Sulfates (SO_4)	24 Hour	---	25 _g / m^3
Lead	30 Day Average	---	1.5 _g / m^3
	Calendar Quarter	1.5 _g / m^3	---
Hydrogen Sulfide (H_2S)	1 Hour	---	0.03 ppm (42_g / m^3)
Vinyl Chloride (chloroethene)	24 Hour	---	0.010 ppm (26 _g / m^3)
Visibility Reducing Particulates	1 Observation	---	In sufficient amount to produce an extinction coefficient of 0.23 per kilometer due to particles when the relative humidity is less than 70 percent.

ALTERNATIVES

FEDERAL

National Environmental Policy ActThe National Environmental Policy Act is the national charter for the protection of the environment. It established environmental protection as a policy, and provides a means for carrying out the policy. The Act requires that Federal agencies consider the effects of their actions on the human environment in planning their activities, and it provides for procedures that agencies must follow to achieve the goals of the Act. Primary in NEPA analysis is that the public and the decision maker is fully informed of the impacts associated with the proposed activity. The intent is to make good decisions based on an understanding of the environmental consequences, and to take actions to protect, restore, and enhance the environment. In order to achieve this, the agency is required to rigorously explore all reasonable alternatives to the proposed action. Western is the lead Federal agency with these responsibilities.

40 CFR 1500-1508

These regulations implement the procedural provisions of NEPA. They establish both the process that must be followed in order to comply with the Act, as well as the requirements that documents must satisfy.

10 CFR 1021

These are the specific regulations of the Department of Energy that provide procedures for all organizational elements of the Department, including Western, in complying with the provisions of NEPA.

STATE

California Environmental Quality Act (CEQA)

Similar to NEPA, CEQA requires a lead agency to prepare either a Negative Declaration or an Environmental Impact Report (EIR) that reviews a project's potential environmental effects. The California Energy Commission's certification process does not result in the issuance of an EIR. Instead, the Energy Commission's review process has been deemed functionally equivalent to CEQA by the Secretary of Resources. An alternatives analysis is an integral part of this environmental analysis as well.

CEQA Guidelines, California Code of Regulations, Title 14, § 15043

Provides guidelines for the preparation of an environmental (i.e., CEQA) analysis.

Warren-Alquist State Energy Resources and Development Act, Public Resources Code § 25000 et seq.

Legislation that created the California Energy Commission. Public Resources Code § 25500 et seq. pertains to power facility and site certification.

LOCAL

County of Sutter/County of Sacramento General Plans, Land Use Elements

A General Plan (GP) provides long range planning policy. It is developed, adopted and implemented by local planning bodies (city councils and county Boards of Supervisors). One of seven mandatory elements of a GP, the land use element, addresses the general nature and distribution of land uses. General Plan land use designations are not as specific as zoning classifications and do not allow either "by-right" or conditional uses pertaining to specific parcels. Rather, they reflect planning objectives that are meant to guide future policy-making and land use decisions.

An example is the GP land use designation of the South Sutter County Industrial/Commercial Area as Industrial/Commercial. Many, if not most, assessor parcels in this area "carry" agricultural zoning classifications. Any change in zoning classification would have to be consistent with the GP. Thus, a zoning change from AG-80 (or agriculture with a minimum 80 acres parcel size) to RD-5 (single-family residential, five dwelling units per acre) would not be consistent with the GP policy of directing use to Industrial/Commercial uses. Such a project would either be disapproved based upon GP inconsistency, or the GP plan would have to be amended.

County of Sutter/County of Sacramento Zoning CodesZoning codes provide for the classification of individual assessor's parcels, or portions thereof, into different land use categories (e.g., industrial, residential, open space and agricultural) and for further divisions of such uses (e.g., light industrial and heavy industrial). Each classification allows for "by-right" or conditional permitting of only certain types of land uses.

BIOLOGICAL RESOURCES

FEDERAL

Endangered Species Act of 1973

Title 16 of the United States Code (USC), section 1531 et seq., 50 Code of Federal Regulations (CFR) 17.1 et seq., designates and provides for protection of threatened and endangered plant and animal species and their critical habitat.

Clean Water Act

33 USC, section 404 et seq, prohibits the discharge of dredged or fill material into the waters of the United States without a permit. An Individual 404 permit is required to fill more than 3 acres. Nationwide permit (NWP) 26 is required to fill 3 acres or less of wetlands and NWP 12 is required for utility line placement near waters of the U.S. causing temporary discharge of material. Section 401 et seq, requires water quality assessment when using 404 permits and for discharges into waters of the United States.

Migratory Bird Treaty Act

16 USC, section 703 through 711, prohibits the take of migratory birds.

STATE

California Endangered Species Act of 1984

Fish and Game Code sections 2050 through 2098, protects California's rare, threatened, and endangered species.

California Code of Regulations (CCR)

Title 14 CCR, sections 670.2 and 670.5, lists animals of California designated as threatened or endangered.

Fully Protected Species

Fish and Game Code, sections 3511, 4700, 5050, and 5515, prohibits take of plants and animals that are fully protected in California.

Significant Natural Areas

Fish and Game Code, section 1930, designates certain areas such as refuges, natural sloughs, riparian areas, and vernal pools as significant wildlife habitats.

Streambed Alteration Agreement

Fish and Game Code, section 1600, reviews projects for impacts to waterways, including impacts to vegetation and wildlife from sediment, diversions, and other disturbances.

Native Plant Protection Act of 1977

Fish and Game Code, section 1900 et seq., designates state rare, threatened, and endangered plants.

California Environmental Quality Act (CEQA)

Public Resources Code, section 21000 et seq., requires all government agencies to develop standards and procedures necessary to protect California's environmental quality. It establishes public procedures for identification of significant adverse environmental impacts. CEQA exempts certified state regulatory programs, including the Energy Commission power plant site certification program, from specific procedural requirements; these programs remain subject to other provisions of CEQA, such as the policy of avoiding significant adverse effects on the environment where feasible.

LOCAL

Sutter County General Plan 1996

Section 4, Conservation / Open Space - Natural Resources.

- Wetland and Riparian Areas: Goal 4.B, to protect wetland and riparian areas throughout Sutter County. Policy 4.B-1, requires new developments to fully mitigate the loss of federally regulated wetlands to achieve a no net loss through any combination of avoidance, minimization, or compensation. Policy 4.B-2, discourages direct discharge of surface runoff into wetland area and requires new development to be designed in a manner that pollutants and siltation will not significantly affect wetlands. Policy 4.B-3, encourages the preservation and restoration of natural wetland environments when feasible and practical as part of the development review process. Policy 4.B-4, encourages the creation and use of wetland mitigation banks as long as their creation and existence will not adversely impact existing and / or planned agriculture or urban development.

- Fish and Wildlife Habitat: Goal 4.C, to protect and enhance habitats that support fish and wildlife species. Policy 4.C-1 strives to preserve those areas of wildlife habitat designated "high habitat value". Policy 4.C-2, encourages preservation and proper management of those areas

designated "moderate habitat value". Policy 4.C-3, supports the preservation and re-establishment of fisheries in the rivers and streams within the County. Policy 4.C-4, requires participation in the process of developing mitigation programs for threatened and endangered species. Policy 4.C-5, requires support of the preservation and protection of waterfowl resources and their habitat. Policy 4.C-6, encourages the preservation and re-establishment of wildlife corridors between natural habitat areas to maintain biodiversity and prevent the creation of biological islands. Policy 4.C-7, encourages the preservation of rare, threatened or endangered animal species.

- Vegetation: Goal 4.D, to preserve and protect the vegetation resources. Policy 4.D-1, encourages the preservation of important areas of natural vegetation including, but not limited to, oak woodlands, riparian areas, and vernal pools. Policy 4.D-2, encourages the preservation of rare, threatened, and endangered plant species. Policy 4.D-3, requires all new development projects avoid, to the maximum extent possible, ecologically-fragile areas (e.g. areas of rare, threatened or endangered species of plants, riparian areas, vernal pools). Policy 4.D-4, strives to protect major groves of native trees located in the unincorporated areas of the County. Policy 4.D-5, encourages the use of native and drought tolerant plant materials in all public and private revegetation/landscaping projects.

Calpine must obtain several permits and two biological opinions to be in compliance with applicable LORS. These are Section 7 consultation and resulting biological opinion from USFWS, individual 404 permit from USACE, and a Section 401 permit from CRWQCB. A CDFG Streambed Alteration Permit may also be required to route the gas pipeline through the Sutter Bypass. Staff has requested a Biological Opinion from CDFG. Recent changes in project design and lack of complete information regarding final project design have delayed the consultation process with USFWS and CDFG.

FACILITY CLOSURE

FEDERAL

Resource Conservation and Recovery Act (42 U.S.C. §6901 et seq.)

The Act, known as RCRA, sets forth standards for the management of hazardous solid wastes. The provisions of RCRA may be administered in each state by the U.S. Environmental Protection Agency (EPA). However, the law allows EPA to delegate the administration of RCRA to the various states. When a state receives final EPA authorization, its regulations have the force and effect of federal law. EPA grants final authorization when a state program is shown to be equivalent to the federal requirements. The Department of Toxic Substances Control in California received final authorization on August 1, 1992.

The Resource Conservation and Recovery Act establishes requirements for the management of hazardous wastes from the time of generation to the point of ultimate treatment or disposal. Section 6922 requires generators of hazardous waste to comply with requirements regarding:

- record keeping practices which identify quantities of hazardous wastes generated and their disposition,
- labeling practices and use of appropriate containers,
- use of a manifest system for transportation, and
- submission of periodic reports to the EPA or authorized state.

The Resource Conservation and Recovery Act also establishes requirements applicable to hazardous waste transporters, including record keeping, compliance with the manifest system, and transportation only to permitted facilities.

Title 40, Code of Federal Regulations, part 260

These sections contain regulations promulgated by the EPA to implement the requirements of RCRA as described above. Characteristics of hazardous waste are described in terms of ignitability, corrosivity, reactivity, and toxicity, and specific types of wastes are listed.

STATE

Public Resources Code, Division 15 (Warren-Alquist Act of 1973)

This law regulates the siting, construction, operation and related aspects of thermo-electric power plants producing 50 or more MW (net) of electrical generation.

Public Resources Code section 40000 et seq. (California Integrated Waste Management Act of 1989)These sections, comprising Division 30 of the Public Resources Code, regulate solid waste management in California and created the California Integrated Waste Management Board. The Board is required to adopt and revise minimum standards for solid waste handling and disposal, including design, operation, maintenance and ultimate reuse of solid waste processing or disposal facilities.

California Water Code section 13000 et seq. (Porter-Cologne Water Quality Control Act)

This law regulates the discharge of wastes which could affect water quality and is designed to protect surface and groundwaters of the state against contamination and loss of beneficial use. The Act requires the State Water Resources Control Board to classify wastes according to the risk of impairing water quality and the types of disposal sites according to the level of protection provided for water quality. Regional boards issue waste discharge requirements addressing the nature and limiting the release of any wastes which could degrade waters of the state.

Title 14, California Code of Regulations, section 17200 et seq. (Minimum Standards for Solid Waste Handling and Disposal)

These regulations set forth minimum standards for solid waste handling and disposal, guidelines to ensure conformance of solid waste facilities with county solid waste management plans, as well as enforcement and administration provisions.

California Health and Safety Code section 25100 et seq. (Hazardous Waste Control Act of 1972, as amended).

This act creates the framework under which hazardous wastes must be managed in California. It mandates the State Department of Health Services (now the Department of Toxic Substances Control under the California Environmental Protection Agency, or Cal EPA) to develop and publish a list of hazardous and extremely hazardous wastes, and to develop and adopt criteria and guidelines for the identification of such wastes. It also requires hazardous waste generators to file notification statements with Cal EPA and creates a manifest system to be used when transporting such wastes.

Title 22, California Code of Regulations, section 66262.10 et seq. (Generator Standards)

These sections establish requirements for generators of hazardous waste. Under these sections, waste generators must determine if their wastes are hazardous according to

either specified characteristics or lists of wastes. As in the federal program, hazardous waste generators must obtain EPA identification numbers, prepare manifests before transporting the waste off-site, and use only permitted treatment, storage, and disposal facilities. Additionally, hazardous waste must only be handled by registered hazardous waste transporters. Generator requirements for record keeping, reporting, packaging, and labeling are also established.

California Public Utilities Commission (CPUC) General Order 95 (GO-95), "Rules for Overhead Electric Line Construction"

This order formulates uniform requirements for construction of overhead lines. The order mandates that abandoned electrical transmission lines must be removed.

CULTURAL RESOURCES

FEDERAL

- National Historic Preservation Act; Title 16 United States Code § 470 *et* seq; requires Federal agencies to consider the effects of their actions on sites that are eligible for inclusion in the National Register of Historic Places (NRHP). The NHPA defines "historic properties" as those properties eligible for or listed on the National Register. This includes any cultural resources that are (1) properties (things, tangibles), and (2) significant (ie, eligible). Regulations established in Title 36 Code of Federal Regulations, Part 800, require consultation with the State Historic Preservation Officer (SHPO) and notification of the Advisory Council on Historic Preservation (ACHP) if a proposed action could impact such sites.

  In consultation with the SHPO, the Federal agency lead defines the project's Area of Potential Effect (APE). Western Area Power Administration (Western) is the federal lead for this project for the National Historic Preservation Act.

- National Environmental Policy Act (NEPA); Title 42 United States Code, § 4321-4327: requires Federal agencies to consider potential environmental impacts of projects with federal involvement and to consider appropriate mitigation measures.

- American Indian Religious Freedom Act; Title 42 United States Code § 1996: is intended to protect and preserve for Native Americans their inherent right of freedom to believe, express, and protect their traditional religions of Native Americans, including access to religious or traditional sites, use and possession of sacred objects, and freedom to worship through ceremonies and traditional rites.

- Native American Graves Protection and Repatriation Act (1990); Title 25, United States Code section 3001, *et seq*: defines "cultural items", "sacred objects", and "objects of cultural patrimony"; establishes an ownership hierarchy; provides for review; allows excavation of human remains but stipulates return of the remains according to ownership; sets penalties; calls for inventories; and provides for return of specified cultural items.
- Archaeological Resources Protection Act of 1979 (ARPA); Title 16, United States Code section 470aa-470ll: requires permits for the excavation and/or removal of cultural materials from Federal and Indian lands. Excavations must be undertaken for the purposes of furthering scientific knowledge in the public interest. Also of importance, is that the act

provides for both civil and criminal penalties for violation of the act, i.e., excavation and/or removal without a permit. Per Nick's e-mail.

- Curation of Federally-owned and Administered Archaeological Collections; Title 36 Code of Federal Regulations, section 79: These regulations establish guidelinesand standards for the storage, treatment, preservation, and administration of archaeological collections belonging to the Federal government. These regulations were promulgated under the authority of the National Historic Preservation Act. Per Nick's e-mail.

- Archaeology and Historic Preservation; Secretary of the Interior's Standards and Guidelines (48 Federal Register 44716 - 44740): These are not regulatory and are intended to provide technical advice about archaeological and historic preservation activities and methods.

STATE

- California Environmental Quality Act (CEQA); Public Resources Code sections 21083.2, 21084.1, *et seq*: require analysis of potential environmental impacts of proposed projects on cultural resources that are eligible for or listed on the California Register of Historic Resources (CRHR). Properties that are listed on or have been determined to eligible for the NRHR are automatically included in the CRHR, as are properties that have been determined significant through certified local studies. For practical purposes, compliance with NHPA will also result in compliance with CEQA for cultural resources.

- CEQA; Public Resources Code, 21083.2, 21084.1, *et seq*: require application of feasible mitigation measures if potential project-related impacts are identified.

- CEQA Guidelines; California Code of Regulations, § 15000, *et seq*, Appendix G (j)]: specifically defines a potentially significant environmental effect as occurring when the proposed project will "...disrupt or adversely affect...an archeological site, except as part of a scientific study."

- CEQA Guidelines; California Code of Regulations, § 15000, *et seq*, Appendix K: specifically sets forth all the steps necessary to analyse the effects of a proposed project on historic and prehistoric resources.

- Public Resources Code, section 5020.1.

- Public Resources Code, section 5024.1.

- Public Resources Code, § 5097.5: Any unauthorized removal of archaeological or historic resources or sites located on public lands is a misdemeanor. As used in this section, public lands means lands owned by, or under the jurisdiction of, the state, or any city, county, district, authority or public corporation, or any agency thereof.

- California Health and Safety Code, § 7050.5: If human remains are discovered during construction, the project owner is required to contact the county coroner.

- Public Resources Code, § 5097.98: If the County Coroner determines that the remains are Native American, the coroner is required to contact the Native American Heritage Commission, which is then required to determine the "Most Likely Descendant" to inspect the burial and to make recommendations for treatment or disposal.

LOCAL

Although the Energy Commission has pre-emptive authority over local laws, it typically ensures compliance with local laws, ordinances, regulations, standards, plans, and policies.

Sutter

Sutter County has developed specific requirements for the protection of cultural resources and mitigation of potential impacts to such resources. Section 4.9 of the 1996 County General Plan (and associated EIR) sets forth goals, policies, implementation programs, and mitigation measures relative to protection of historic and cultural resources. The draft EIR for the revisions to the General Plan state that Goal 5B is to identify, protect, and enhance Sutter County's important historical, archaeological, and cultural sites. Mitigation Measure 4.9.1 directs the County, through its Community Services Department, to require a reconnaissance survey be conducted for development projects in areas of known high resource sensitivity. If the report on the survey concludes that resources are present, then the County requires the developer to implement the mitigation measures as set forth in the survey report (Sutter 1996a, 1996b; Farhar 1998a, 1998b).

Colusa County

Colusa County has no specific LORS related to cultural resources. The County does require a project developer to consult with a professional archaeologist if any cultural

resources are encountered during project construction. This requirement is usually included in the use permit for a project (Kelley 1998).

POWER PLANT EFFICIENCY

FEDERAL

No federal laws apply to the efficiency of this project.

STATE

California Environmental Quality ActCEQA requires that environmental impacts be considered in power plant siting to identify the significant effects of a project on the environment, identify alternatives to the project, and indicate how those significant effects can feasibly be mitigated or avoided (Pub. Resources Code, § 21002.1).

CEQA Guidelines state that a "...project will normally have a significant effect on the environment if it will...(n) [e]ncourage activities which result in the use of large amounts of fuel, water, or energy; (o) [u]se fuel, water, or energy in a wasteful manner..." (Cal. Code Regs., tit. 14, CEQA Guidelines, Appendix G). CEQA continues, " 'Feasible' means capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors" (Pub. Resources Code, § 21061.1).

In addition to a finding that the project does not waste significant quantities of energy, CEQA requires a comparison with alternatives that consume less energy (Cal. Code Regs., tit. 14, § 15126(d)(3)).

LOCAL

No local or county ordinances apply to the efficiency of this project.

FACILITY DESIGN

The applicable Laws, Ordinances, Regulations, and Standards proposed by the Applicant are contained in Exhibit 4, the Application for Certification (AFC) in Appendices 9A through 9G (SPP 1997), and are hereby incorporated into Appendix A by reference.

HAZARDOUS MATERIAL MANAGEMENT

FEDERAL

The Superfund Amendments and Reauthorization Act of 1986 ("SARA") Title III and Clean Air Act of 1990, established a nationwide emergency planning and response program and imposed reporting requirements for businesses which store, handle, or produce significant quantities of extremely hazardous materials. The Acts (codified in 40 CFR section 68.115, part F) require 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 these Acts are reflected in the California Health and Safety Code, sections 25520 et. seq.

STATE

Section 25520 of the Health and Safety Code directs facilities storing or handling hazardous materials in reported quantities to develop a risk management plan (RMP) and submit it to appropriate local authorities and the United States Environmental Protection Agency (EPA) for review and approval. The plan must include the severity of an accidental release, the likelihood of an accidental release occurring, the magnitude of potential human exposure, any preexisting evaluations or studies of the material, the likelihood of the substance being handled in the manner indicated, and the accident history associated with the handling of the material in the past. These regulations also require the development of comprehensive safety management plans addressing the handling of hazardous materials at the facility. This new, recently developed program supersedes the old requirement for California Risk Management and Prevention Plan (RMPP).

California Health and Safety Code section 41700 requires that "No person shall discharge from any source whatsoever such quantities of air contaminants or other material which causes injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause injury or damage to business or property."

Government Code Section 65850.2 restricts the permitting of any new facility involving the handling of acutely hazardous materials within 1,000 feet of a school. This section also requires the completion of an RMP analysis.

LOCAL AND REGIONAL

The Uniform Fire Code (UFC) contains provisions regarding the storage and handling of hazardous materials. These provisions are contained in Articles 79 and 80. Article 80 was extensively revised in the latest 1994 edition. These articles contain requirements that are generally similar to those contained in the Health and Safety Code. The Code does, however, contain unique requirements for secondary containment, monitoring, and treatment of toxic gases emitted through emergency venting. These unique requirements are generally restricted to extremely hazardous materials.

The California Building Code contains requirements regarding the storage and handling of hazardous materials. The Building Official must inspect and verify compliance with these requirements prior issuance of occupancy permit. A further discussion of these requirements is provided in staff's Facility Design section.

LAND USE

COUNCIL ON ENVIRONMENTAL QUALITY MEMORANDUM

The President's Council on Environmental Quality (CEQ) in the late 1970s recognized that continued land development was causing a loss of prime or unique farmlands (CEQ 1980). In a memorandum, the CEQ cautioned federal agencies to take into account the potential for impact on these lands when preparing and reviewing environmental impact statements.

WARREN ALQUIST ACT

Under Public Resources Code Section 25500, the Commission has jurisdiction over the proposed power plant and all related facilities. The issuance of a "certificate" (or license) by the Commission is "in lieu" of any state or local permit, and supersedes "any applicable statute, ordinance, or regulation of any state, local, or regional agency." However, the Commission must make findings concerning whether the proposed project conforms with state and local laws and ordinances, including land use plans and zoning ordinances. The project cannot be licensed unless the Commission finds that the project conforms with state and local laws and ordinances, unless the Commission finds instead that "such facility is required for public convenience and necessity and that there are not more prudent and feasible means of achieving such public convenience and necessity." (Public Resources Code, § 25525.)

SUTTER COUNTY GENERAL PLAN

The general plan is the legal document that acts as a constitution for land use and development in Sutter County. It consists of the seven mandatory elements: land use, transportation and circulation, open space, conservation, housing, safety, seismic safety (Sutter County 1996a). In 1993, Sutter County initiated a comprehensive update of its general plan. The resulting revised and updated general plan was adopted on November 25, 1996. The following provisions of the Sutter County General Plan are specific to the proposed project.

<u>Land Use Designations</u>

Industrial (IND)

The IND designation on the general plan land use map is intended to accommodate industrial type uses. Typical uses include: manufacturing, assembling, processing, fabricating, bulk handling of products, storage, warehousing, heavy trucking, refining, repairing, packaging or treatment of goods. Light and heavy industries would conduct their operations in designated areas and minimize the external effect of traffic congestion, noise, glare, air pollution, fire and safety hazards on adjoining districts.

Findings, Goals, Policies

Agricultural Land

Finding 1k.

Urbanization and other land conversion often results in conflicts between agricultural and non-agricultural land uses.

Goal 1f.

To minimize conflicts between agricultural and non-agricultural land uses.

Policies

1.F-1 The county shall require that new development adjacent to agricultural lands be designed to minimize conflicts with adjacent agricultural uses.

1.F-2 The county shall require that all lands set aside or utilized for mitigation of development in Sutter County demonstrate that its creation and existence will not adversely impact existing and/or future planned agriculture or urban development.

1.F-3 The county shall continue to implement its Right to Farm Ordinance (Agricultural Operations Disclosure, Ordinance Code 1013, Chapter 1330 or its successor).

1.F-4 The county shall protect agricultural operations from conflicts with non-agricultural uses by requiring buffers between proposed non-agricultural uses and adjacent agricultural operations.

Protection and Enhancement of Agricultural Resources

Findings 6a.

Between 1987 and 1992, the number of farms and acres of farmlands in Sutter County decreased, while the total value of farm products increased. However, the amount of developed land remains below 4 percent of the total county land area.

6b. Prime agricultural lands and lands of statewide significance total 275,998 acres or roughly 71% of the total area of Sutter County.

6d. Urbanization often results in conflicts between agricultural and non-agricultural land uses.

Goal

6.A To preserve high quality agricultural land for agricultural purposes.

Policies

6.A-1 The county shall preserve agriculturally-designated areas for agricultural uses and direct non-agricultural development to areas designated for urban/suburban growth, or rural communities and/or cities.

6.A-2 The county shall balance the needs of proposed urban and suburban development with the need to preserve agricultural lands.

Commercial and Industrial Land

Finding

1h. The designation of areas for commercial and industrial development in a variety of locations is necessary in order to provide adequate opportunities for new non-residential development.

Goal

1.D To designate adequate commercial and industrial land to provide convenient and valuable business areas and employment opportunities within Sutter County.

Policies

1.D-1 The county shall designate specific areas suitable for commercial and industrial development and reserve such lands in a range of parcel sizes to accommodate a variety of commercial and industrial uses.

1.D-2 The county will discourage strip development, particularly along the Highway 20 corridor between the City of Yuba City and the east side of the Industrial area located southwest of the Community of Sutter. County actions will support retention of an agricultural atmosphere between Township Road and the Industrial area southwest of the Community of Sutter.

Industrial Buffers

Findings

1i. In order to create an atmosphere where industrial development can thrive, industrial areas must be protected from encroachment by potentially incompatible land uses.

1j. Buffers can be utilized in conjunction with other strategies to reduce land use conflicts and protect the integrity of the county's industrially designated areas.

Goal

1E. To reduce the potential for conflicts between industrial land uses and surrounding uses which are sensitive to the impacts of industrial development.

Policies

1.E-1 New development that may be incompatible with adjacent uses shall be required to provide buffer zones consistent with county standards to reduce anticipated conflicts with existing and future land uses.

1.E-3 The county encourages industrial uses to be developed in contiguous or generally consolidated areas to reduce the potential for conflicts with surrounding uses.

SUTTER COUNTY ZONING CODE

The Sutter County Zoning Ordinance was adopted in January, 1998. The ordinance implements the Sutter County General Plan by applying development standards and construction requirements on land as it is developed within the unincorporated areas of the county. It regulates such items as building height, property line setbacks, parking spaces, landscaping, and land use (Sutter County 1998). The following divisions of the Sutter County Zoning Ordinance aply to the project:

General Industrial District (M-2)

The purpose of the M-2 zoning district (§§ 1500-4910 through 1500-4914) is to provide for a full range of industrial, manufacturing and related uses to expand the economic base, employment opportunities and provide for the general welfare. Due to potential high intensity operational characteristics and features, this district should be located away from residential neighborhoods and other potentially sensitive uses.

Combining Planned Development District (PD)

The PD district (§§1500-6310 through 1500-6336) is designed to be combined with other zone districts, and through the adoption of a development plan, can provide specific additional uses and/or requirements. The purpose of the PD district is:

(a) To encourage creative and more efficient approaches to the use of land through lot design, use of open space, mixture of open space, mixture of land usage and/or densities, adjustments of setbacks or other means to create a better environment; or

(b) To allow development whose type or design require special consideration in order to assure compatibility with adjacent land use.

General Provisions and Exceptions

Communication equipment buildings, substations, generation plants, and transmission lines shall require a use permit (§1500-8011).

Standards in §1500-8022 pertaining to fences (c) (1), (c) (4) also apply.

Parking and Loading RequirementsThe purpose of §§1500-8110 through 1500-8118 is to:

1) Provide off-street parking and loading spaces for all land uses.
2) Promote vehicular and pedestrian safety.
3) Reduce street congestion and traffic hazards.
4) Provide and maintain safe and well designed off-street parking facilities.

Sutter County Use Permit # 1392

On February 5, 1986, Sutter County approved Use Permit #1392 to allow Greenleaf Power Corporation to construct and operate an electrical generation plant and cogeneration use of waste heat for drying wood chips and/or heating irrigation water on the 77-acre parcel. When this use permit was approved in 1986, it was the second

time the Sutter County Planning Commission had considered the project. The facility was originally approved at a smaller size in 1984 (Use Permit #1207) based on findings that "[t]he project [was] consistent with the General Plan by allowing full development of a natural resource located in the County." At that time, Sutter County stated that the agricultural zoning designation of the plant site and pipeline route was not expected to change in the foreseeable future because of the county's commitment to preserve agricultural uses and discourage urban development within agricultural areas. The environmental documentation provided by Greenleaf Power Corporation stated that 5.8 acres would be developed and non plant-related facilities were expected to remain in agricultural use (Greenleaf 1984).

Colusa County Use Permits

The criteria of Colusa County's use permit apply to the natural gas dehydrator and that portion of the pipeline within Colusa County, and the county's grading permit criteria apply to projects of five acres or more (Colusa County Code Chapter 9, Ordinance No. 414 - Land Grading and Leveling).

NEED CONFORMANCE

STATE

California Code of Regulations

California Code of Regulations states "The presiding member's proposed decision shall contain the presiding member's recommendation on whether the application shall be approved, and proposed findings and conclusions on each of the following: (a) Whether and the circumstances under which the proposed facilities are in conformance with the 12-year forecast for statewide and service area electric power demands adopted pursuant to Section 25309(b) of the Public Resources Code." [Cal. Code of Regs., tit. 20, § 1752 (a)].

Public Resources CodePublic Resources Code Section 25523 (f) states "Findings regarding the conformity of the proposed facility with the integrated assessment of need for new resource additions determined pursuant to subdivisions (a) to (f), inclusive, of Section 25305 and adopted pursuant to Section 25308 or, where applicable, findings pursuant to Section 25523.5 regarding the conformity of a competitive solicitation for new resource additions determined pursuant to subdivisions (a) to (f), inclusive, of Section 25305 and adopted pursuant to Section 25308 that was in effect at the time that the solicitation was developed."

NOISE

FEDERAL

The Occupational Safety and Health Act of 1970 requires federal regulations that establish maximum noise levels to which workers at a facility may be exposed. (See 29 C.F.R. § 1910 et seq.) These OSHA noise regulations are designed to protect workers against the effects of noise exposure, and list permissible noise level exposure as a function of the amount of time during which the worker is exposed. OSHA regulations also dictate hearing conservation program requirements and workplace noise monitoring requirements.

There are no federal laws governing offsite noise.

STATE

Similarly, there are no state regulations governing off-site (community) noise. Rather, state planning law requires that local authorities such as counties or cities prepare and adopt a general plan. Government Code section 65302(g) requires that a noise element be prepared as part of the general plan to establish acceptable noise limits.

The California Environmental Quality Act (CEQA) requires that significant environmental impacts be identified, and that such impacts be eliminated or mitigated to the extent feasible. CEQA Guidelines (Cal. Code Regs., tit. 14, Appendix G, item (p)) define a significant effect on the environment as one that will "[i]ncrease substantially the ambient noise levels for adjoining areas...." CEQA Guidelines further require that the impacts of the project be considered cumulatively in conjunction with those of other projects planned for the area (Cal. Code Regs., tit. 14, § 15065(c)).

The California Occupational Safety and Health Administration (Cal-OSHA) has promulgated Occupational Noise Exposure Regulations (Cal. Code Regs., tit. 8, § 5095 et seq.) that set employee noise exposure limits. These standards are equivalent to the federal OSHA standards described above.

LOCAL

The Sutter Power Project (SPP) will lie chiefly within Sutter County.[1] The only local standard that applies to the project is the Noise Element (Section 8) of the Sutter County

[1]Although a small portion of the natural gas pipeline will lie in Colusa County, that portion of the project is unlikely to produce any detectable noise impacts. Therefore, Colusa County LORS are not considered in this analysis.

General Plan (Sutter County 1996a). Enforcement is the responsibility of the Sutter County Community Services Department.

Sutter County General Plan Noise Element

The purpose of the Noise Element of the General Plan is "...to establish policies and implementation programs to limit community exposure to excessive noise levels." (Sutter County 1996a, p. 70.) This is accomplished, in part, by implementation of Policy 8.A-2: "The County shall require that new non-transportation noise sources be mitigated to the noise level standards shown...." These standards are:

NOISE: Table 1
Sutter County Noise Level Standards

New Non-Transportation Sources		
Noise Level Descriptor	Daytime (7 a.m. to 10 p.m.)	Nighttime (10 p.m. to 7 a.m.)
Hourly L_{eq}, dB	50	45
Maximum level, dB	70	65

Source: Sutter County 1996a, Table 7

The Noise Element further lists Land Use Compatibility Guidelines, which categorize as "acceptable" CNEL or L_{dn} noise levels up to 60 dBA for land uses that include such sensitive noise receptors as residences, schools, libraries, hospitals and churches (Sutter County 1996a, Table 8).[2] The Noise Level Standards listed in **NOISE: Table 1** above are more stringent, and thus govern.

Since a combined cycle power plant such as the Sutter Power Project can be expected to operate day and night, the plant must be constructed to meet the nighttime standard of 45 dBA, measured at the property line of the nearest sensitive receptor.[3] In this case, that receptor is a residence located approximately 1,800 feet to the northeast of the project site, identified in the AFC as noise monitoring location L1 (Calpine 1997, AFC Table 8.5-3).

[2]For explanation of such terms as "CNEL" and "L_{dn}," refer to NOISE: APPENDIX A immediately following this section.

[3]Sutter County 1996a, Policy 8.A-1, p. 71.

PALEONTOLOGIC RESOURCES

FEDERAL

Federal protection for significant paleontologic resources would apply to the federally-owned lands within the Sutter National Wildlife Refuge (Sutter NWR). Federal legislative protection for paleontologic resources stems from the Antiquities Act of 1906 [PL 59-209; Title 16, United States Code, § 431-433: 34 Stat. 225], which calls for protection of historic landmarks, historic and prehistoric structures, and other objects or historic or scientific interest on federal land.

- National Environmental Policy Act (NEPA): Title 42 United States Code, § 4321-4327; requires federal agencies to consider potential environmental impacts of projects with federal involvement and to consider appropriate mitigation measures.

- Federal Land Policy and Management Act (FLPMA): Title 43 United States Code, sections 1701-1784; requires the Secretary of Interior to retain and maintain public lands in a manner that will protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric water resource, and archeological values [§ 1701(a)(8)]; the Secretary, with respect to the public lands, shall promulgate rules and regulations to carry out the purposes of this Act and of other laws applicable to public lands [Section 1740].

STATE

- California Environmental Quality Act (CEQA): Public Resources Code sections 5020.1, 5024.1, 21083.2, 21084.1, *et seq*; requires analysis of potential environmental impacts of proposed projects and requires application of feasible mitigation measures.

- California Environmental Quality Act (CEQA) Guidelines: California Code of Regulations, § 15000, *et seq*, Appendix G (j)], specifically defines a potentially significant environmental effect as occurring when the proposed project will "...disrupt or adversely affect...a paleontological site, except as part of a scientific study."

- Public Resources Code, § 5097.5. Any unauthorized removal of paleontologic resources or sites located on public lands is a misdemeanor. As used in this section, public lands means lands owned by, or under the jurisdiction of, the state, or any city, county, district, authority or public corporation, or any agency thereof.

LOCAL

Although the Energy Commission has pre-emptive authority over local laws, it typically ensures compliance with local laws, ordinances, regulations, standards, plans, and policies.

Sutter County

Sutter County has developed specific requirements for the protection of natural resources. If fossil resources were encountered, they could potentially be addressed in goals and policies related to protection of natural resources (Carpenter 1998; Farhar 1998a, 1998b).

Colusa County

Colusa County has no ordinances, plans, or policies specifically related to paleontologic resources (Kelley 1998).

PROFESSIONAL GUIDELINES AND CRITERIA

In 1994, the Society for Vertebrate Paleontology (SVP), a national professional organization, distributed final revisions to a set of draft guidelines that outline acceptable professional practices in the conduct of paleontologic resource surveys, monitoring and mitigation, data and fossil recovery, sampling, preparation, analysis, and curation (SVP 1994). Prior to the adoption of the final guidelines, many practicing professional paleontologists in California had chosen to adhere to the proposed mitigation and monitoring requirements in the guidelines. At the annual meeting in late 1994, the revised guidelines for mitigation were adopted by the membership of the society and published in the society journal (SVP 1995).

In its guidelines for monitoring and mitigation, the SVP established three categories of sensitivity for paleontologic resources: high, low, and undetermined (SVP 1995). Areas where fossils have been previously found are deemed to have a high sensitivity and a high potential to produce fossils. In areas of high sensitivity, full-time monitoring is typically recommended during any project disturbance. Areas that are not sedimentary in origin and that have not been known to produce fossils previously, typically are deemed low sensitivity and monitoring is usually not needed during project construction. Areas that have not had any previous paleontologic resource surveys or fossil finds are deemed undetermined until surveys and mapping is done. After reconnaissance surveys, observation of exposed cuts, and possibly sub-surface testing, a qualified paleontologist can determine whether the area should be categorized as

having high, low, or undetermined sensitivity; that is, whether there is a high or low potential to encounter fossil resources (SVP 1995).

PUBLIC HEALTH

FEDERAL

- The Clean Air Act (42 U.S.C. §7401 et seq.). Section 109(b)(1) of the Clean Air Act (CAA) adopted in 1970 established authority for adoption of Ambient Air Quality Standards to protect the public from adverse health effects of air pollution.

- National Ambient Air Quality Standards (40 C.F.R. Part 50). The U.S. Environmental Protection Agency has established ambient air quality standards for nitrogen dioxide (NO_2), ozone (O_3), carbon monoxide (CO), sulfur dioxide (SO_2), particulate matter (PM), and lead. Primary standards are designed to protect public health and secondary standards are intended to protect the public welfare from effects such as nuisance, soil deposition, and reduction in visibility. The Environmental Protection Agency classifies areas as attainment, unclassified, or non-attainment, depending on whether or not the monitored ambient air quality results demonstrate compliance (attainment), insufficient data available (unclassified), or non-compliance (non-attainment) with air standards.

STATE

- California Health and Safety Code section 39606 requires that the California Air Resources Board adopt ambient air quality standards to protect the public health. Pursuant to this section, the ARB has adopted standards for O_3, CO, SO_2, PM_{10}, lead, hydrogen sulfide (H_2S), and NO_2. These standards are defined in Title 17, California Code of Regulations, section 70100 et seq.

- California Health and Safety Code sections 39650 et seq. mandate the Air Resources Board and the Department of Health Services to establish safe exposure limits for toxic air pollutants and identify pertinent best available control technologies. They also require that the new source review rule for each air pollution control district include regulations that require new or modified procedures for controlling the emission of toxic air contaminants.

- California Health and Safety Code section 41700 states that "no person shall discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or

annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause injury or damage to business or property."

SOCIOECONOMIC RESOURCES

Sutter County Ordinance 1248.

Section 1360-050 of Sutter County Ordinance Code establishes development impact fees on the issuance of all building permits for new construction in Sutter County. These fees will be paid by Calpine to Sutter County prior to issuance of a Certificate of Occupancy and will contribute towards funding public improvements, infrastructure, and services within the county. Development impact fees for industrial projects are set at $0.37 per square foot. Calpine has stated that for purposes of determining the amount to be paid in developer impact fees the SPP will total 73,386 square feet. Therefore, Calpine will pay to Sutter County a total of $27,152.82 in development impact fees.

ENVIRONMENTAL JUSTICE

President Clinton's Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations" was signed on February 11, 1994. The order required all federal agencies to develop environmental justice strategies. The Council on Environmental Quality (CEQ) and the U.S. Environmental Protection Agency (EPA) subsequently issued Guidelines to assist all federal agencies and state agencies receiving federal funds, to develop strategies to address this problem. The agencies are required to identify and address disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority populations and low-income populations.

TRANSMISSION SYSTEM ENGINEERING

- California Public Utilities Commission (CPUC) General Order 95 (GO-95), "Rules for Overhead Electric Line Construction", formulates uniform requirements for construction of overhead lines. Compliance with this order will ensure adequate service and safety to persons engaged in the construction, maintenance, operation or use of overhead electric lines and to the public in general.

- National Electric Safety Code (NESC-1997). The NESC recommends electrical safety and reliability standards for generating stations, powerplant switchyards, and transmission lines.

- Western Systems Coordinating Council (WSCC) Reliability Criteria provide the performance standards used in assessing the reliability of the interconnected system that provides continuity of service to loads as a first priority and preservation of interconnected operation as a secondary priority. The WSCC Reliability Criteria includes the Reliability Criteria For Transmission System Planning, Power Supply Design Criteria, and Minimum Operating Reliability Criteria. Analysis of the WSCC system is based to a large degree on WSCC Section 4 "Criteria for Transmission System Contingency Performance" which requires that the results of power flow and stability simulations verify established performance levels. Performance levels are defined by specifying the allowable variations in voltage, frequency and loading that may occur on systems other than the one in which a disturbance originated. Levels of performance range from no significant adverse effect outside a system area during a minor disturbance to a performance level which only seeks to prevent system cascading and the subsequent blackout of islanded areas. While controlled loss of generation, load, or system separation is permitted in extreme circumstances, their uncontrolled loss is not permitted (WSCC 1997). Western uses the WSCC reliability criteria in their service area.

- North American Electric Reliability Council (NERC) Planning Standards provide policies, standards, principles and guides to assure the adequacy and security of the electric transmission system. With regard to power flow and stability simulations, these Planning Standards are similar to WSCC's Criteria for Transmission System Contingency Performance. The NERC planning standards provide for acceptable system performance under normal and contingency conditions, however the NERC planning standards apply not only to interconnected system operation but also to individual service areas (NERC 1997). The Cal-ISO under its Grid

Planning Criteria Subcommittee is evaluating and interpreting the NERC, WSCC, and California local area transmission owners planning criteria in consideration of adoption of consistent planning criteria for the Cal-ISO controlled grid.

- Cal-ISO Scheduling Protocols and Dispatch Protocols require conformance with NERC, WSCC, and Local Area Reliability and Planning Criteria. These standards will be applied in assessing the system reliability implications of the Sutter Power Plant Project (SPP). Also of major importance to the SPP and other privately funded projects which may sell through the California Power Exchange (Cal-PX) is the Cal-ISO Day / Hour Ahead Inter-zonal Congestion Management Scheduling Protocol (SP 10), the Transmission System Loss Management Scheduling Protocol (SP 4), and the Creation of the Real Time Merit Order Stack (SP 11). The Congestion Management Scheduling Protocol provides that dispatch not violate system criteria as market participants are requesting generation dispatch or the use of major interties. The Real Time Merit Order Stack is developed based on increasing energy bid prices so that the least cost bids are accepted early on and if congestion is anticipated the highest bids are not selected. The Transmission System Loss Management Scheduling Protocol uses the Cal-ISO power flow model to identify the effects on total transmission losses at each generating unit and scheduling point. Additional calculations are performed to determine if the participant will be paid more or less than, for instance, the generating units dispatched net power output (Cal-ISO 1997a, Cal-ISO 1997b).

TRANSMISSION LINE SAFETY AND NUISANCE

FEDERAL

Aviation Safety

Title 14, Part 77 of the Code of Federal Regulations (CFR), "Objects Affecting the Navigation Space".

Provisions of these regulations specify the criteria used by the Federal Aviation Administration (FAA), for determining whether a "Notice of Proposed Construction or Alteration" is required for potential obstruction hazards. The need for such a notice depends on factors related to the height of the structure, the slope of an imaginary surface extending from the end of nearby runways to the top of the structure, and the length of the runways involved.

Federal Aviation Administration Advisory Circular (AC) No. 70/7460-2H, "Proposed Construction and or alteration of Objects that May Affect the Navigation Space". This circular informs each proponent of a project that could pose an aviation hazard of the need to file the "Notice of Proposed Construction or Alteration" with the FAA.

FAA, AC No. 70/7460-1G, "Obstruction Marking and Lighting", which describes the FAA standards for marking and lighting objects that may pose a navigation hazard as established using the criteria in Title 14, Part 77 of the CFR.

Interference with Radio-Frequency Communication

Federal Communications Commission (FCC) regulations in Title 47 CFR, Section 15.25.

Provisions of these regulations prohibit operation of any devices producing force fields which interfere with radio communications even when (as with transmission lines), such devices are not intentionally designed to produce radio-frequency energy. Such interference is due to the radio noise produced by the action of the electric fields from the energized line. Such noise effects will usually manifest as interference with radio or television signal reception and usually depend on factors such as distance from the line to the receiving device, orientation of the antenna, signal level, line configuration and weather conditions.

Hazardous Shocks

National Electrical Safety Code, Part 2: Safety Rules for Overhead Lines

Provisions in this part of the code specify the national safe operating clearances applicable in areas where the line might be accessible to the public. Such requirements are intended to minimize the potential for direct or indirect contact with the energized line. Calpine will design the line in keeping with these requirements (Calpine 1998a)

STATE

General Order 52 (GO-52), California Public Utilities Commission (CPUC).

Provisions of this order govern the construction and operation of power and communications lines and specifically deal with measures to prevent or mitigate inductive interference. Calpine has stated that all requirements of the order will be implemented in the construction and operation of the proposed line (Calpine 1997, pp 6-12 through 6-14).

Audible Noise

As with radio noise, any audible noise from a transmission line will usually result from the action of the electric field at the surface of the line conductor and could be perceived as a characteristic crackling, frying, or hissing sound or hum. Such noise is usually generated during wet weather and from lines of 345 kV or higher. Research by the Electric Power Research Institute, (EPRI 1982) has shown the fair-weather audible noise from modern transmission lines to be generally indistinguishable from ambient noise at the edge of a 100-ft right-of-way.

There are no design-specific regulations intended to limit the noise from transmission and other high-voltage lines. The noise from such sources is limited instead through design standards established from research and industry experience as effective for noise reduction without significant impacts on line safety, efficiency and reliability.

According to information from Calpine, the proposed line will be designed to specifically reduce its operational noise which, as with the existing lines to which it will be connected, would be only slightly perceivable (above background) during wet weather. The maximum noise from the line would be 2.4 dBA in fair weather and 27 dBA in the rain. For the areas beyond the proposed right-of-way, these noise levels would translate into values between 0 dBA and 10 dBA, the threshold of hearing. These noted maximum values would be much below the County Noise Ordinance levels.

Fire Hazards

General Order 95 (GO-95), CPUC, "Rules for Overhead Electric Line construction". This order specifies tree trimming criteria to minimize the potential for power line-related fires.

Title 14 Section 1250 of the California Code of Regulations, "Fire Prevention Standards for Electric Utilities". This code specifies utility-related measures for fire prevention.

Hazardous Shocks

GO-95, CPUC, "Rules for Overhead Line Construction".

Title 8,CCR, Section 2700 et seq., "High Voltage Electric Safety Orders".

LOCAL

There are no local laws or regulations specifically aimed at the field-related design of electric power lines.

TRAFFIC AND TRANSPORTATION

FEDERAL

The federal government addresses transportation of goods and materials in Title 49, Code of Federal Regulations:

- Title 49, Code of Federal Regulations, Sections 171-177, governs the transportation of hazardous materials, the types of materials defined as hazardous, and the marking of the transportation vehicles.

- Title 49, Code of Federal Regulations, Sections 350-399, and Appendices A-G, Federal Motor Carrier Safety Regulations, addresses safety considerations for the transport of goods, materials, and substances over public highways.

STATE

The California Vehicle Code and the Streets and Highways Code contain requirements applicable to the licensing of drivers and vehicles, the transportation of hazardous materials and rights-of-way. In addition the California Health and Safety Code addresses the transportation of hazardous materials. Specifically, these codes include:

- California Vehicle Code, section 353 defines hazardous materials. California Vehicle Code, sections 31303-31309, regulates the highway transportation of hazardous materials, the routes used, and restrictions thereon.

- California Vehicle Code, sections 31600-31620, regulates the transportation of explosive materials.

- California Vehicle Code, sections 32000-32053, regulates the licensing of carriers of hazardous materials and includes noticing requirements.

- California Vehicle Code, sections 32100-32109, establishes special requirements for the transportation of inhalation hazardand poisonous gases.
- California Vehicle Code, sections 34000-34121, establishes special requirements for the transportation of flammable and combustible liquids over public roads and highways.

- California Vehicle Code, sections 34500, 34501, 34501.2, 34501.3, 34501.4, 34501.10, 34505.5-.7, 34506, 34507.5 and 34510-11, regulates the safe

operation of vehicles, including those which are used for the transportation of hazardous materials.

- California Health and Safety Code, sections 25160 et seq., addresses the safe transport of hazardous materials.

- California Vehicle Code, sections 2500-2505 authorizes the issuance of licenses by the Commissioner of the California Highway Patrol for the transportation of hazardous materials including explosives.

- California Vehicle Code, sections 13369, 15275, and 15278 address the licensing of drivers and the classifications of licenses required for the operation of particular types of vehicles. In addition, it requires the possession of certificates permitting the operation of vehicles transporting hazardous materials.

- California Streets and Highways Code, sections 117 and 660-72, and California Vehicle Code sections 35780 et seq., require permits for the transportation of oversized loads on county roads.

- California Street and Highways Code, sections 660, 670, 1450, 1460 et seq., 1470, and 1480 regulates right-of-way encroachment and the granting of permits for encroachments on state and county roads.

LOCAL

Sutter County

The Sutter County General Plan, Policy Document - Section 2, includes the following policies which are pertinent to the proposed project:

- The county shall strive to maintain a minimum Level of Service D in developing and maintaining its roadway system.

- The county shall require all new development projects to analyze their contribution to increased traffic and implement improvements necessary to address the increase.

The Sutter County Public Works Department requires a transportation permit for oversized vehicles using a county road (see also California Vehicle Code sections above) and an encroachment permit for any opening or excavation in any county highway (see California Streets and Highways Code above).

VISUAL RESOURCES

FEDERAL AND STATE

The proposed project, including the transmission rights-of-way, is located on private lands and is thus not subject to federal or state land management requirements. Likewise, no roadway in the project vicinity is a designated or eligible State Scenic Highway (California Department of Transportation, 1992; AFC, p.5.9-1). Therefore, no federal or state regulations pertaining to scenic resources are applicable to the project.

LOCAL

County of Sutter

General Plan

The land use element of the Sutter County General Plan (November 1996) sets forth visual and scenic resources policies that are applicable to the project. They are as follows:

- The county shall require that new development be designed to use vegetation for screening structures and parking areas.

- The county shall require that design and development standards be applied to all industrial and commercial areas to improve the aesthetic appearance of those developments (Sutter County 1996a, p.17).

Zoning Code

Chapter 15 of the Sutter County Zoning Code sets forth landscaping and height requirements (Sutter County 1996b, Division 55 (PD District), pp. 41, 44, 62, and 63).

WASTE MANAGEMENT

FEDERAL

Resource Conservation and Recovery Act (42 U.S.C. §6901 et seq.)

The Act, known as RCRA, sets forth standards for the management of hazardous solid wastes. The provisions of RCRA may be administered in each state by the U.S. Environmental Protection Agency (EPA). However, the law allows EPA to delegate the administration of RCRA to the various states. When a state receives final EPA authorization, its regulations have the force and effect of federal law. EPA grants final authorization when a state program is shown to be equivalent to the federal requirements. The Department of Toxic Substances Control in California received final authorization on August 1, 1992.

The Resource Conservation and Recovery Act establishes requirements for the management of hazardous wastes from the time of generation to the point of ultimate treatment or disposal. Section 6922 requires generators of hazardous waste to comply with requirements regarding:

- record keeping practices which identify quantities of hazardous wastes generated and their disposition,
- labeling practices and use of appropriate containers,
- use of a manifest system for transportation, and
- submission of periodic reports to the EPA or authorized state.

The Resource Conservation and Recovery Act also establishes requirements applicable to hazardous waste transporters, including record keeping, compliance with the manifest system, and transportation only to permitted facilities.

Title 40, Code of Federal Regulations, part 260

These sections contain regulations promulgated by the EPA to implement the requirements of RCRA as described above. Characteristics of hazardous waste are described in terms of ignitability, corrosivity, reactivity, and toxicity, and specific types of wastes are listed.

STATE

Public Resources Code section 40000 et seq. (California Integrated Waste Management Act of 1989)

These sections, comprising Division 30 of the Public Resources Code, regulate solid waste management in California and created the California Integrated Waste Management Board. The Board is required to adopt and revise minimum standards for solid waste handling and disposal, including design, operation, maintenance and ultimate reuse of solid waste processing or disposal facilities.

California Water Code section 13000 et seq. (Porter-Cologne Water Quality Control Act)

This law regulates the discharge of wastes which could affect water quality and is designed to protect surface and groundwaters of the state against contamination and loss of beneficial use. The Act requires the State Water Resources Control Board to classify wastes according to the risk of impairing water quality and the types of disposal sites according to the level of protection provided for water quality. Regional boards issue waste discharge requirements addressing the nature and limiting the release of any wastes which could degrade waters of the state.

Title 14, California Code of Regulations, section 17200 et seq. (Minimum Standards for Solid Waste Handling and Disposal)

These regulations set forth minimum standards for solid waste handling and disposal, guidelines to ensure conformance of solid waste facilities with county solid waste management plans, as well as enforcement and administration provisions.

California Health and Safety Code section 25100 et seq. (Hazardous Waste Control Act of 1972, as amended).

This act creates the framework under which hazardous wastes must be managed in California. It mandates the State Department of Health Services (now the Department of Toxic Substances Control under the California Environmental Protection Agency, or Cal EPA) to develop and publish a list of hazardous and extremely hazardous wastes, and to develop and adopt criteria and guidelines for the identification of such wastes. It also requires hazardous waste generators to file notification statements with Cal EPA and creates a manifest system to be used when transporting such wastes.

Title 22, California Code of Regulations, section 66262.10 et seq. (Generator Standards)

These sections establish requirements for generators of hazardous waste. Under these sections, waste generators must determine if their wastes are hazardous according to either specified characteristics or lists of wastes. As in the federal program, hazardous waste generators must obtain EPA identification numbers, prepare manifests before transporting the waste off-site, and use only permitted treatment, storage, and disposal facilities. Additionally, hazardous waste must only be handled by registered hazardous waste transporters. Generator requirements for record keeping, reporting, packaging, and labeling are also established.

LOCAL

There are no additional local LORS to be considered.

SOIL & WATER RESOURCES

FEDERAL

Clean Water Act

The Clean Water Act (33 USC section 1257 et seq.) requires states to set standards to protect water quality. Point source discharges to surface water are regulated by this act through requirements set forth in specific or general National Pollutant Discharge Elimination System (NPDES) Permits. Stormwater discharges during construction and operation of a facility and incidental non-stormwater discharges associated with pipeline construction also fall under this act and are addressed through a general NPDES permit. In California, the requirements of the Clean Water Act are administered by the nine Regional Water Quality Control Boards (RWQCB). Section 404 of the act regulates the discharge of dredged or fill material into waters of the United States, including rivers, streams and wetlands. Site specific or general (nationwide) permits for such discharges are issued by the Army Corp of Engineers (ACOE).

STATE

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act of 1967, Water Code section 13000 et seq., requires the State Water Resources Control Board and the nine RWQCBs to adopt water quality criteria to protect state waters. These criteria include the identification of beneficial uses, narrative and numerical water quality standards and implementation procedures. The criteria for the project area are contained in the Central Valley Region Water Quality Control Plan (Basin Plan 1994). In addition to the requirements of the Basin Plan, the SWRCB (1971) adopted the Plan for the Control of Temperature in Coastal and Interstate Waters and Enclosed Bays and Estuaries. This plan sets numerical and narrative water quality standards controlling the discharge of wastes with elevated temperature to the state's waters. These standards are applied to the proposed project through the NPDES permit.

The Porter-Cologne Water Quality Control Act also requires the SWRCB and the nine RWQCBs to ensure the protection of water quality through the regulation of waste discharges to land. Such discharges of waste to land, including evaporation ponds, are regulated under Chapter 15, Division 3, Title 23 of the Code of California Regulations. These regulations require that the RWQCB issue a Waste Discharge Requirement which specifies conditions regarding the construction, operation, monitoring and closure of the waste disposal site.
Section 13552.6 of the Water Code specifically identifies that the use of potable domestic water for cooling towers, if suitable recycled water is available, is an unreasonable use of water. The availability of recycled water is based upon a number of criteria, which

must be taken into account by the SWRCB. These criteria are that: the quality and quantity of the reclaimed water are suitable for the use; the cost is reasonable; the use is not detrimental to public health, will not impact downstream users or biological resources and will not degrade water quality.

Section 13552.8 of the Water Code states that any public agency may require the use of recycled water in cooling towers if certain criteria are met. These criteria include that recycled water is available and meets the requirements set forth in section 13550; the use does not adversely affect any existing water right; and if there is public exposure to cooling tower mist using recycled water, appropriate mitigation or control is necessary.

The SWRCB has also adopted a number of policies that provide guidelines for water quality protection. The principle policy of the State Board which addresses the specific siting of energy facilities is the Water Quality Control Policy on the Use and Disposal of Inland Waters Used for Powerplant 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 powerplant cooling if other sources or other methods of cooling would be environmentally undesirable or economically unsound. This SWRCB policy requires that power plant cooling water should, in order of priority come from wastewater being discharged to the ocean, ocean water, brackish water from natural sources or irrigation return flow, inland waste waters of low total dissolved solids, and other inland waters. This policy goes on to address cooling water discharge prohibitions.

Under the NPDES program, the SWRCB has adopted the Construction Activities Storm Water General Permit for earth moving activities disturbing five acres or more and the Industrial Activities Storm Water General Permit for operation of industrial facilities. The Central Valley Regional Water Quality Control Board (1997) has also adopted General Order (No. 93-230) for Dewatering and Other Low Threat Discharges to Surface Water. This general permit sets forth waste discharge requirements to address the discharge of low volume, clean wastewater resulting from dewatering, well testing, pipeline flushing and other miscellaneous construction and operation activities.

Section 401 of the Clean Water Act provides for state certification of federal permits allowing discharge of dredged or fill material into waters of the United States. These certifications are issued by the RWQCBs.

The Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65)

The Safe Drinking Water and Toxic Enforcement Act of 1986, Health and Safety Code sections 25249.5 et seq., prohibits the discharge or release of chemicals known to cause cancer or reproductive toxicity into drinking water sources.

LOCAL

Sutter County General Plan

Policy 3.D-1

The County shall continue to require that all new development outside the Special Flood Hazard Area as defined by the Federal Emergency Management Agency (FEMA) be protected from a 50 year storm event (Sutter County 1996). FEMA (1996) defines Special Flood Hazard Areas as those areas subject to inundation by a 100-year flood. The project is located in Zone X, which is not in the Special Flood Hazard Area and therefore, this general plan policy applies to the project.

WORKER SAFETY AND FIRE PROTECTION

FEDERAL

- 29 U.S.C. § 651 et seq. (Occupational Safety and Health Act of 1970)

- 29 C.F.R. §§ 1910.1 - 1910.1500 (Occupational Safety and Health Administration Safety and Health regulations)

- 29 C.F.R. §§ 1952.170 - 1952.175 (Approval of California's plan for enforcement of its own Safety and Health requirements, in lieu of most of the federal requirements found in §§ 1910.1 - 1910.1500)

- 29 C.F.R. § 1926 (Occupational Safety and Health Construction Safety regulations.)

STATE

- Title 8, California Code of Regulations, § 450 et seq. (Applicable requirements of the Division of Industrial Safety, including Unfired Pressure Vessel Safety Orders, Construction Safety Orders, Electrical Safety Orders, and General Industry Safety Orders)

LOCAL

- Uniform Fire Code (UFC). The uniform fire code contains provisions necessary for fire prevention and information about fire safety, special occupancy uses, special processes, and explosive, flammable, combustible and hazardous materials. The project owner shall design construct and inspect the project in accordance with LORS in effect at the time initial design plans are submitted to the Chief Building Officer (CBO) for review and approval.

- Uniform Fire Code Standards. This is a companion publication to the UFC and contains standards of the American Society for Testing and Materials and of the National Fire Protection Association.