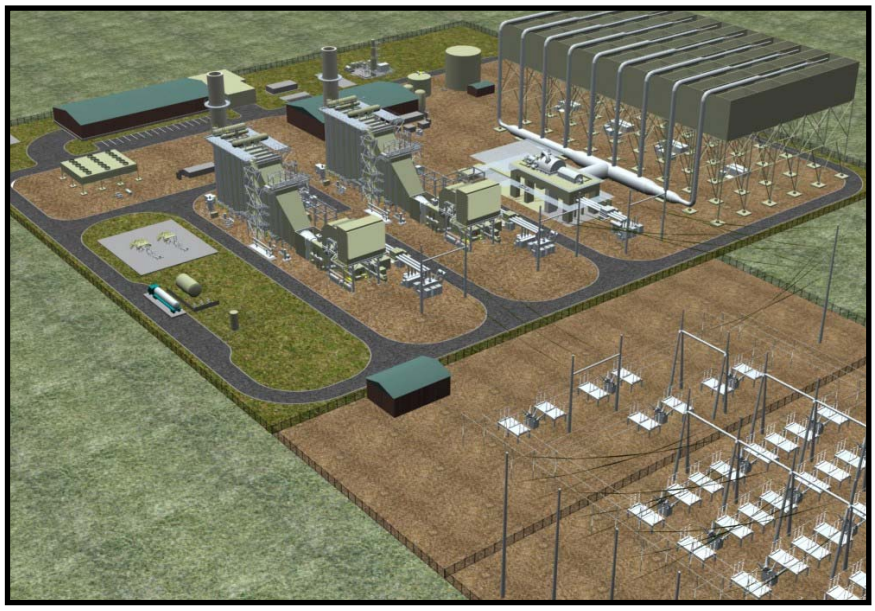
CALIFORNIA
ENERGY
COMMISSION

COLUSA GENERATING STATION

Application For Certification (06-AFC-9)
Colusa County



FINAL COMMISSION DECISION

APRIL 2008
(06-AFC-9)
CEC-800-2008-001-CMF

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CALIFORNIA ENERGY COMMISSION

1516 9th Street
Sacramento, CA 95814
www.energy.ca.gov/sitingcases/colusa/index.html

JAMES D. BOYD
Presiding Committee Member

RAOUL RENAUD
Hearing Officer

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JEFFREY D. BYRON
Commissioner

KAREN DOUGLAS, J.D.
Commissioner

BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION OF THE STATE OF CALIFORNIA

APPLICATION FOR CERTIFICATION FOR THE COLUSA GENERATING STATION	**DOCKET NO. 06-AFC-09**

COMMISSION ADOPTION ORDER

This Commission Order adopts the Commission Decision on the **COLUSA GENERATING STATION.** It incorporates the Presiding Member's Proposed Decision (PMPD) in the above-captioned matter and the Committee Errata. The Commission Decision is based upon the evidentiary record of these proceedings and considers the comments received at the April 23, 2008, business meeting. The text of the attached Commission Decision contains a summary of the proceedings, the evidence presented, and the rationale for the findings reached and Conditions imposed.

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

FINDINGS

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

1. The **COLUSA GENERATING STATION** will provide a degree of economic benefits and electricity reliability to the local area.

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

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

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

5. The project is subject to Fish and Game Code section 711.4 and the project owner must therefore pay an eight hundred fifty dollar ($850) fee to the California Department of Fish and Game.

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

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

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

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

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

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

ORDER

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

1. The Application for Certification of the **COLUSA GENERATING STATION** as described in this Decision is hereby approved and a certificate to construct and operate the project is hereby granted.

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

3. This Decision is adopted, issued, effective, and final on April 23, 2008.

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

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

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

7. The project owner shall provide the Executive Director a check in the amount of eight hundred fifty dollars ($850), payable to the California Department of Fish and Game.

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

Dated April 23, 2008, at Sacramento, California.

BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION

JACKALYNE PFANNENSTIEL
Chairman

(Absent)
JAMES D. BOYD
Vice Chair

ARTHUR H. ROSENFELD
Commissioner

JEFFREY D. BYRON
Commissioner

KAREN DOUGLAS
Commissioner

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INTRODUCTION

A. SUMMARY OF THE DECISION

This Decision sets forth the Commission's rationale in determining that the proposed Colusa Generating Station (CGS) complies with all applicable laws, ordinances, regulations, and standards (LORS), and may therefore be licensed. It is based exclusively upon the record established during this certification proceeding and summarized in this document. We have independently evaluated the evidence, provided references to the record[1] supporting our findings and conclusions, and specified the measures required to ensure that the CGS is designed, constructed, and operated in the manner necessary to protect public health and safety, promote the general welfare, and preserve environmental quality.

On November 6, 2006, E&L Westcoast, LLC (E&L W or Applicant), a subsidiary of Competitive Power Ventures, filed an Application for Certification (AFC) seeking approval from the California Energy Commission (Energy Commission) to develop the Colusa Generating Station (CGS). On December 13, 2006, the Energy Commission accepted the AFC as complete, thus starting the Energy Commission's formal review of the proposed CGS project. The CGS project is in response to Pacific Gas and Electric Company's (PG&E) "Request for Offer" and a contract agreement signed with the Applicant in 2006. The contract between PG&E and the Applicant would transfer the ownership and operation of the proposed power plant to PG&E after a license is issued and a commissioning phase of the facility is completed.[2]

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[1] The Reporter's Transcript of the January 23, 2008, evidentiary hearing is cited as "RT, p. __." The exhibits included in the evidentiary record are cited as "Ex. number." A list of all exhibits is contained in **Appendix A** of this Decision.

[2] The transfer of ownership was subsequently accelerated; PG&E became the owner and Applicant effective January 11, 2008. (see Ex. 111.)

The proposed CGS project is a 660-megawatt (MW) natural gas-fired, dry-cooled, combined-cycle electric generating facility. The project would use air-cooled condenser ("dry") cooling technology for its operation, significantly reducing the amount of water needed for plant operation compared with "wet" cooling.

The proposed CGS would be located in the unincorporated portion of Colusa County, approximately six miles north of the community of Maxwell and 14 miles north of the community of Williams. The site is four miles west of Interstate 5 (I-5) bounded by the Tehama-Colusa Canal to the west, the Glenn/Colusa county line to the north, the Glenn-Colusa Canal to the east, and Dirks Road to the southeast.

The project would be located on a 31-acre portion of a 100-acre parcel leased from the 4800-acre Holthouse Ranch. The PG&E Delevan natural gas compressor station and Cottonwood to Vaca-Dixon transmission corridor (230-kilovolt overhead electric lines) are located immediately to the east of the proposed project site. Grazing land surrounds the 100-acre leased area immediately to the west, north, and south. The nearest actively farmed land is Emerald Farms, located approximately one mile southeast of proposed project location. The closest residences are more than one mile from the site.

The Applicant proposes to initiate construction of the CGS in the spring of 2008, and be completed by spring of 2010, provided there are no delays. The on-site construction workforce would peak at 669 workers in April of 2009. Construction costs are estimated to be $450 to $500 million. Operation of the CGS will require 31 full-time permanent staff. The plant would be staffed 7 days a week, 24 hours a day. On the northeast side of the site, 43 acres of the 100-acre parcel will serve as a laydown area accommodating storage of construction materials, equipment, construction offices, and parking, which the Applicant proposes to restore and re-vegetate after construction is complete.

Agencies, including the California Independent System Operator and relevant local, state and federal agencies such as the Colusa County Air Pollution Control District, Colusa County Planning and Building Department, Maxwell Fire Protection District, Central Valley Regional Water Quality Control Board, US Fish and Wildlife Service, US Army Corp of Engineers, the Glenn-Colusa Irrigation District and Native American tribes and other interested parties all cooperated with the California Energy Commission in completing the review process.

B. SITE CERTIFICATION PROCESS

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

The Commission's certification process provides a thorough review and analysis of all aspects of the proposed power plant project. During this process, the Commission conducts a comprehensive examination of a project's potential economic, public health and safety, reliability, engineering, and environmental ramifications. Section 25523(h) of the Public Resources Code also requires a discussion of the project's benefits. We address this issue in the **SOCIOECONOMICS** section of this Decision.

Public participation is a valued part of the licensing process. The Commission's public outreach program is primarily facilitated by the Public Adviser's Office. The

certification process encourages public participation so that members of the public may become involved either informally or, on a more formal level, as Intervenors with an opportunity to present evidence and cross-examine witnesses. The only formal Intervenor in this case was Emerald Farms c/o Allen L. Etchepare.
The certification process begins when an Applicant submits an Application for Certification (AFC). Commission staff reviews the data submitted as part of the AFC and recommends to the Commission whether the AFC contains adequate information to begin the review. Once the Commission determines an AFC contains sufficient analytic information, it appoints a Committee of two Commissioners to conduct the licensing process.

The initial portion of the certification process is weighted heavily toward assuring public awareness of the proposed project and obtaining such technical information as is necessary. During this time, the Commission staff sponsors public workshops which give intervenors, agency representatives, and members of the public the opportunity to meet with Staff and Applicant to discuss, clarify, and negotiate pertinent issues. Staff publishes its initial technical evaluation of a project in a document called the Preliminary Staff Assessment (PSA), which is made available for public comment. Staff's responses to public comment on the PSA and its complete analyses are then published in the Final Staff Assessment (FSA).

Following this, the Committee conducts a Prehearing Conference to assess the adequacy of available information, identify issues, and determine the positions of the parties. Based on information presented at this event, the Committee will then issue a Hearing Order and schedule formal Evidentiary Hearings. At these hearings, all entities that have formally intervened as parties may present sworn testimony, which is subject to cross-examination by other parties and questioning by the Committee. Members of the public whether or not they have intervened, may present public comments. Evidence adduced during these hearings provides the basis for the Presiding Member's Proposed Decision (PMPD). In the

PMPD, the Committee evaluates the evidence presented, determines a project's conformity with applicable laws, ordinances, regulations, and standards, and provides recommendations to the full Commission.

The PMPD is available for a 30-day public comment period. Depending upon the extent of revisions necessary after considering comments received during this period, the Committee may elect to publish a revised version. If so, this Revised PMPD triggers an additional 15-day public comment period. Finally, the full Commission decides whether to accept, reject, or modify the Committee's recommendations at a public hearing.

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

C. PROCEDURAL HISTORY

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

The Energy Commission determined that the CGS AFC was data adequate on December 13, 2006. Commissioner John L. Geesman was appointed Presiding Member and Vice-Chairman James D. Boyd Associate Member of the committee assigned to the matter. Commissioner Geesman’s term on the Commission

ended February 5, 2008, and Vice Chair Boyd assumed responsibility as the Presiding Member.

On January 8, 2007, the Committee issued a “Notice of Informational Hearing and Site Visit." The notice was mailed to members of the community who were known to be interested in the project, including the owners of land adjacent to or in the vicinity of the CGS. The notice was also published in The Appeal Democrat, a local general circulation newspaper, and on the Commission website.

The Committee conducted this event in the City of Williams, on Thursday, January 25, 2007. The Committee, the parties, and other participants discussed the proposal for developing the CGS, described the Commission's review process, and explained opportunities for public participation. The participants also viewed the site where the CGS would be situated.

As part of the review process, Staff conducted a publicly noticed Data Response and Issue Resolution Workshop at Energy Commission headquarters in Sacramento on February 21, 2007. Workshops allow Staff and the Applicant to discuss data requests, data responses, the Preliminary Staff Assessment and resolve issues. Additionally, workshops provide opportunities to hear opinions on the project and the proceeding from intervenors, interested agencies, and members of the public.

Staff issued its Preliminary Staff Assessment on August 1, 2007, and on August 22, 2007, conducted a Preliminary Staff Assessment workshop in Colusa. The Final Staff Assessment was issued on November 30, 2007.

The Committee then held a Prehearing Conference on Thursday, January 10, 2008, the purpose of which was to thoroughly discuss the process and procedures to be utilized during the Evidentiary Hearings. The Committee

conducted its Evidentiary Hearing in Sacramento on January 23, 2008. At this publicly noticed hearing, all parties were afforded the opportunity to present evidence, cross examine witnesses, and rebut the testimony of other parties, thereby creating an evidentiary basis for this Commission Decision. The hearing also allowed all parties to argue their positions on disputed matters and provided a forum for the Committee to receive comments from the public and governmental agencies.

After reviewing the evidentiary record and exhibits, the Committee published the PMPD on March 14, 2008. A Committee Conference was conducted on April 14, 2008, at the Energy Commission, to receive and discuss comments submitted by the parties and public. The 30-day comment period on the PMPD ended on April 14, 2008. The full Commission considered the PMPD at regularly scheduled Business Meeting held on April 23, 2008.

I. PROJECT DESCRIPTION

The CGS project is being developed in response to a PG&E "Request for Offer" which led to a contract agreement between PG&E and E&L W in 2006. That contract calls for transfer of ownership and operation of the proposed power plant to PG&E after a license was issued and a commissioning phase of the facility was completed. However, pursuant to a subsequent agreement, effective January 11, 2008, PG&E assumed ownership of the project and is now considered the Applicant.

The proposed CGS would be located in the unincorporated portion of Colusa County, approximately six miles north of the community of Maxwell and 14 miles north of the community of Williams. The site is four miles west of Interstate 5 (I-5). It is generally bounded by the Tehama-Colusa Canal to the west, the Glenn/Colusa county line to the north, the Glenn-Colusa Canal to the east, and Dirks Road to the southeast.

The CGS would be located within a 31-acre portion of a 100-acre parcel site leased from the 4800-acre Holthouse Ranch. The PG&E Delevan natural gas compressor station and Cottonwood-to-Vaca-Dixon transmission corridor (230-kilovolt overhead electric lines) are located immediately to the east of the proposed project site. (Ex. 3, Figures 3.2-1, 3.3-1 and 3.4-1.) Grazing land surrounds the 100-acre leased area immediately to the west, north, and south. The nearest actively farmed land is Emerald Farms, located approximately one mile southeast of proposed project location. (Ex. 200, § 3-1.) The nearest residences are over one mile away.

1. Equipment and Linear Facilities

The proposed CGS project is a 660-megawatt (MW) natural gas-fired, dry-cooled, combined-cycle electric generating facility. The project would use air-

cooled condenser ("dry") cooling technology for its operation, thereby significantly reducing the amount of water needed for plant operation compared with "wet" cooling. The project would also employ a zero-liquid discharge system which recovered the water from the combustion turbine generator's evaporative coolers for reuse in the plant, and the remaining salts are concentrated for disposal off site. As required, makeup water is added to replace the water that is lost to evaporation blowdown. (Ex. 200, § 3-1.) Output of the generators would be connected to step-up transformers and then to a new CGS switchyard that would require 12 new lattice transmission towers for the 1,800 foot electrical tie-in to PG&E's existing four double circuit 230-kV transmission lines.

The locations of the new power plant site access road, new water supply intake access road, and new transmission interconnection are shown on Exhibit 3, Figures 3.2-1, 3.3-1 and 3.4-1.

The following are the major components of the power plant:

- two General Electric (GE) Power Systems Frame 7FA combustion turbine generators (CTGs) equipped with dry, low-NOx combustors designed for natural gas;
- two multi-pressure heat recovery steam generators (HRSG) with duct burners and a selective catalytic reduction system (to be used with aqueous ammonia). Each HRSG is equipped with an oxidation catalyst to control volatile organic compounds (VOCs) and carbon monoxide (CO) emissions;
- one steam turbine generator (STG) system with multi-cell, air cooled condenser and associated auxiliary system and equipment (i.e., lubrication oil system including oil coolers and filters and generator coolers);
- a 1,000-kilowatt (kW) standby diesel generator for extended utility outages during maintenance and shutdowns;
- 12 new transmission towers to interconnect to the existing PG&E transmission system;
- a 4-inch, 2,700-foot water pipeline providing water to the project from the Tehama- Colusa Canal and a related 12-foot wide permanent gravel access road that would parallel the pipeline;
- an 8-inch, 1,500-foot natural gas pipeline from PG&E's Delevan natural gas compressor station; and

- a 2,500-foot paved access road linking PG&E's Delevan natural gas compressor station to the facility site. (Ex. 3.)

2. Natural Gas Supply

Natural gas would be supplied to the CGS site via a new 8-inch, 1,500-foot-long pipeline interconnected to the PG&E gas transmission system located east of the proposed project site. The pressure reducing/metering station would be located within the CGS facility. The pipeline tap would be located adjacent to the existing PG&E natural gas compressor station. (Ex. 3, Figure 3.3-1.)

3. Water Supply

The CGS project would require approximately 126 acre-feet of water per year to meet its operational needs. The Glenn-Colusa Irrigation District would provide water to the CGS. (Ex. 104.) The Central Valley Project provides water to the Glenn-Colusa Irrigation District. Construction of a new 4-inch diameter, 2,700-foot-long water pipeline from the Tehama-Colusa Canal to the CGS site would be required. (Ex. 3, Figure 3.3-1.)

4. Wastewater Discharge

Wastewater would be collected in a general plant drainage system and routed to an oily water separator and then sent to a stormwater detention basin. This stormwater detention basin would not receive off-site stormwater runoff. The CGS site is located above surrounding stormwater runoff and the 100-year floodplain. The CGS processed-water treatment system would send water through a reverse osmosis system and electro-deionizer unit. The recycle feed water becomes a distillate water from an evaporator unit of the zero liquid discharge system (ZLD). The wastewater concentrates are mechanically dried and solid waste is transported to a licensed waste disposal facility. (Ex. 200, § 3-3.)

5. Hazardous Waste

Hazardous wastes generated by the plant would include spent selective catalytic reduction and oxidation catalyst, used oil filters, used oil and chemical waste. Used oil will be recovered and recycled by a waste recycling contractor. All other wastes will be disposed of in accordance with applicable laws, ordinances, regulations and standards at appropriately licensed waste disposal facilities. (*id*.)

6. Transmission System

As part of the CGS project, a new switchyard connected to step-up transformers linked to the CTGs would be constructed immediately north of the power plant site. Generation from the CGS would be delivered to PG&E's high voltage transmission grid (the 230-kV Cottonwood-to-Vaca-Dixon transmission corridor), located approximately 1,800 feet east of the proposed switchyard. The transmission interconnection would require the installation of approximately 12 new steel lattice transmission towers. The structure heights vary from 100 to 125 feet, depending on configuration of the site and terrain. (Ex. 200, Project Description, Figure 4.)

7. Construction and Operation Schedule

If approved by the Energy Commission, PG&E proposes to initiate construction of the CGS in the spring of 2008, to be completed by spring of 2010, provided there are no delays. The on-site construction workforce would peak at 669 workers in April of 2009. Construction costs are estimated to be $450 to $500 million. Operation of the CGS will require 31 full-time permanent staff. The plant will be staffed 7 days a week, 24 hours a day. Primary construction access would be from I-5 to Delevan Road to McDermott Road to Dirks Road. On the northeast side of the site, 43 acres of the 100-acre parcel will serve as a laydown area, accommodating storage of construction materials, equipment, construction

offices, and parking, which the Applicant proposes to restore and re-vegetate after construction is complete. (Ex. 200, Project Description, Figure 3.)

8. Existing Bridge and Road Modifications

a. Teresa Creek Bridge

The Teresa Creek Bridge (on McDermott Road, 5/8-mile north of Delevan Road) cannot currently accommodate heavy construction truck traffic and would be replaced by the Applicant. Replacement of the bridge will entail one of two options. One option would be to install a temporary bridge to the east of the existing bridge prior to replacement of Teresa Creek Bridge that would be a clear span bridge or a prefabricated bridge. The new bridge would either be a clear span bridge or a prefabricated bridge. Currently the plan for the bridge type selected is dependent upon the project schedule. (Ex. 200, Project Description, Figure 3.) The second option would be to detour traffic using McDermott Road to an alternate route during construction of the new bridge. (Ex. 1, pp. 3-20, 3-21.)

b. Glenn-Colusa Canal Bridge

The Applicant filed supplementary information on January 18, 2008, describing a new proposal for providing adequate load-bearing capacity at the existing Glenn-Colusa Canal Bridge location during construction. The Glenn-Colusa Canal Bridge located on Dirks Road west of I-5 cannot accommodate heavy construction loads or two-way truck traffic. The bridge was originally designed for a 40-ton load but is currently rated for 20-ton loads.

The Applicant's new proposal entails installation of a temporary "jumper bridge" supplied by Bigge Construction. This bridge would be temporarily placed above the existing bridge, sufficiently elevated so as to avoid transferring load to the existing bridge, but, due to its alignment with the existing bridge, able to make use of the existing bridge approaches. All traffic, whether or not related to the project, would use the jumper bridge, and the existing bridge would not be in service during construction of the project. The jumper bridge is capable of

handling loads nearly four times as heavy as any that will be required for the construction and operation or the power plant. The jumper bridge would be removed after construction of the project is completed, and the existing bridge returned to service. (Ex. 109.)

c. Delevan and McDermott Road

Widening of Delevan and McDermott roads will be required. The Applicant also proposes to widen the northeastern and southeastern corners of the intersection of Delevan and McDermott roads in order to accommodate large-turning-radius heavy construction vehicles. The Applicant would grade and place gravel at these corners. This would require relocation of the stop sign and telephone conduit box currently located at the northeastern corner of the intersection (Ex. 200, Project Description, Figure 3.)

FINDINGS AND CONCLUSIONS

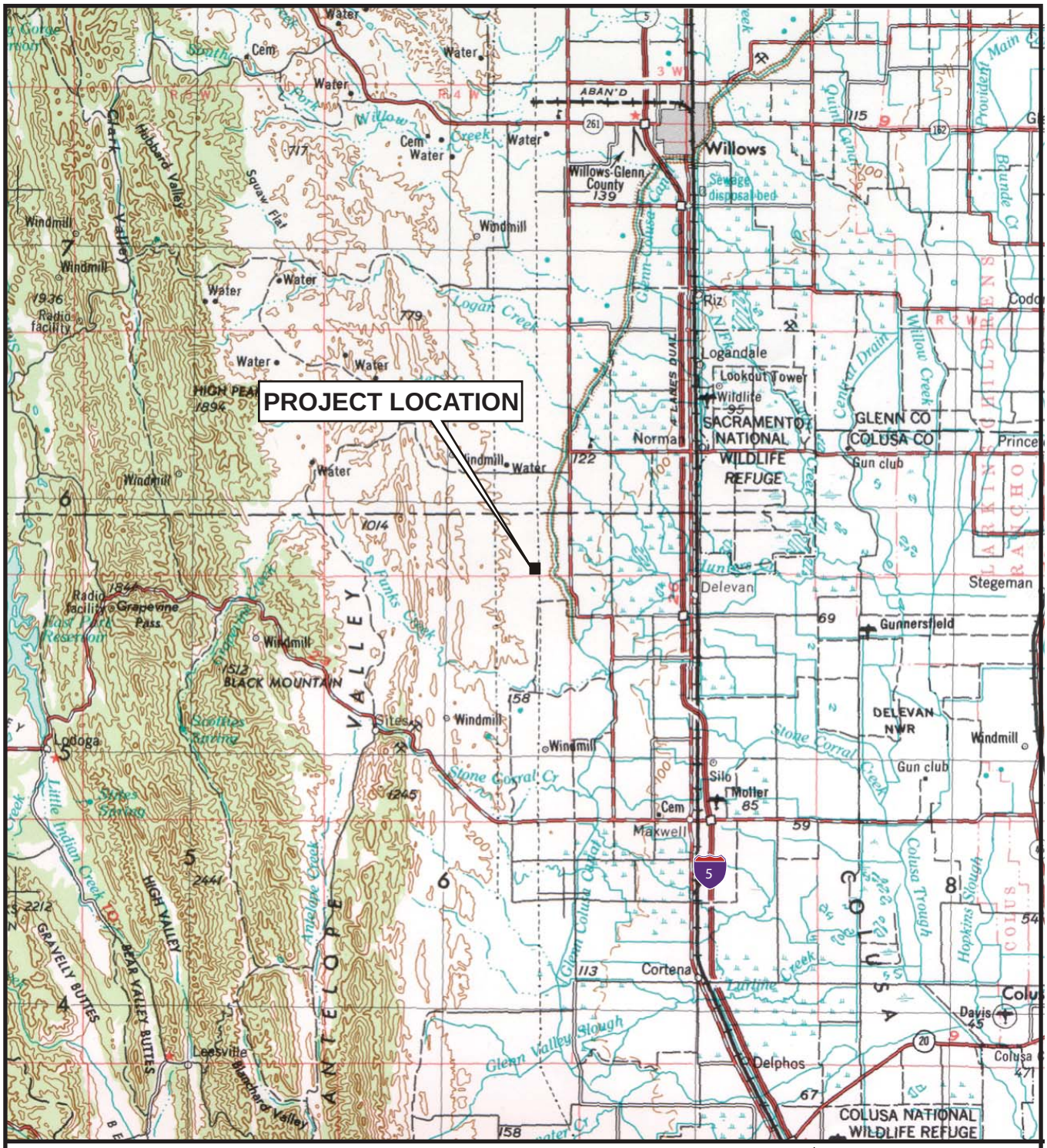
Based on the evidence, we find as follows:

1. Pacific Gas and Electric Company will own and operate the project.
2. The CGS project involves the construction and operation of a nominal 660-MW natural gas-fired, combined-cycle, electrical generating facility in Colusa County, to be used as a baseload source of electricity generation.
3. The project includes associated transmission, gas supply, and water supply lines.
4. The project and its objectives are adequately described by the relevant documents contained in the record.

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

PROJECT DESCRIPTION - FIGURE 1

Colusa Generating Station - Regional Map



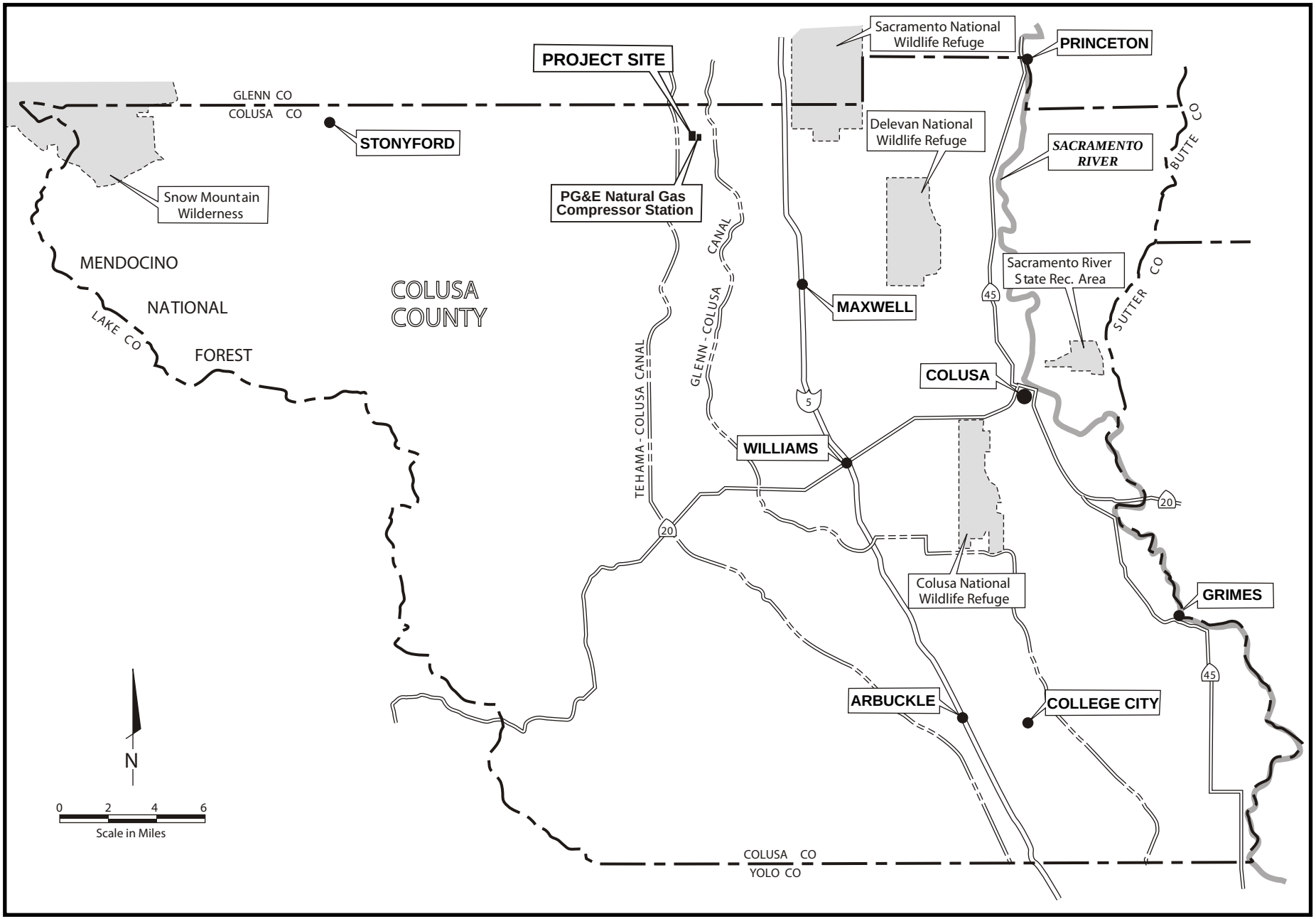
Source:
USGS Topographic-Bathymetric Series
Ukiah, California, 1979

CALIFORNIA ENERGY COMMISSION

SOURCE: Exhibit 200

PROJECT DESCRIPTION - FIGURE 2

Colusa Generating Station - Local Communities

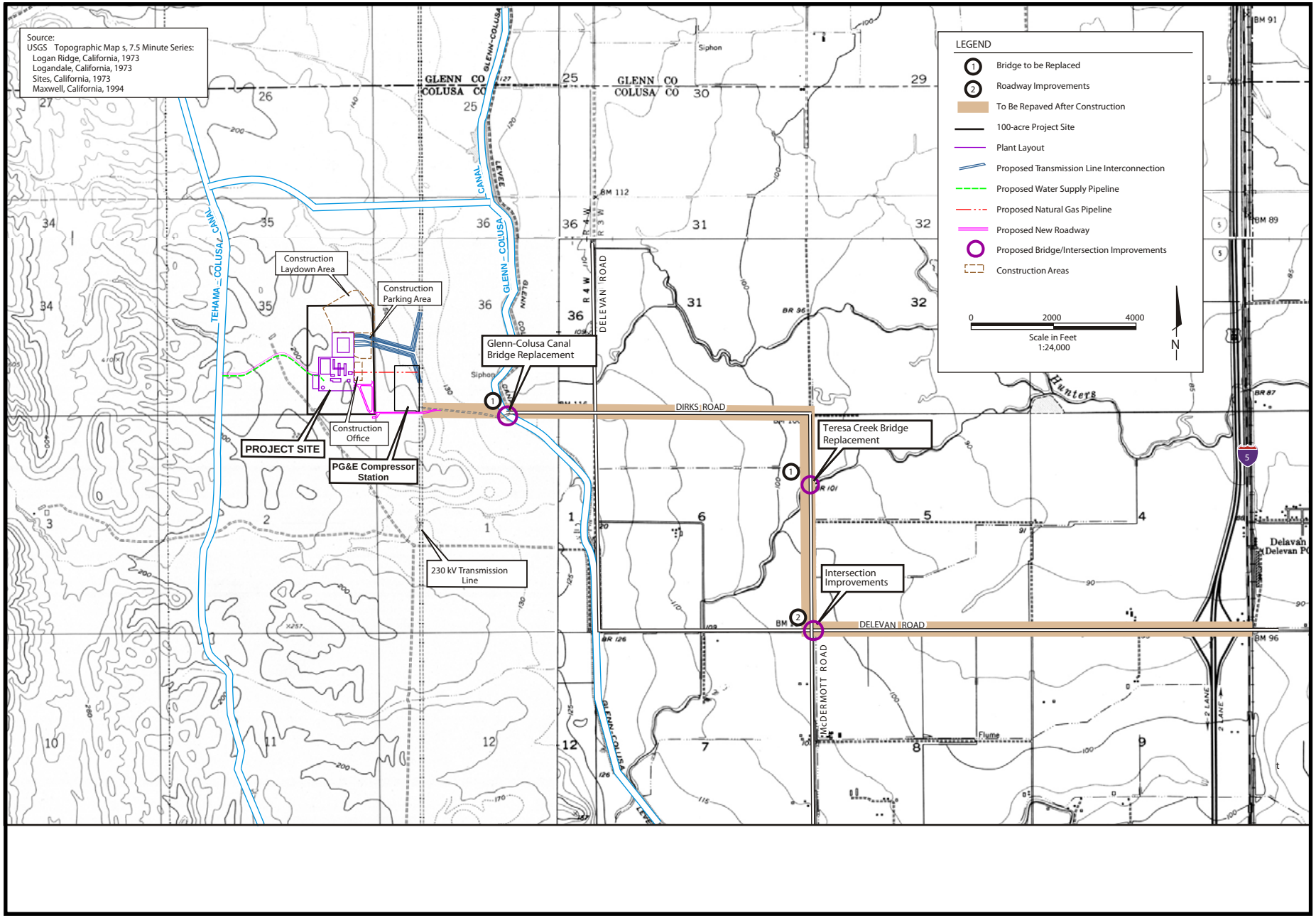


CALIFORNIA ENERGY COMMISSION

SOURCE: Exhibit 200

PROJECT DESCRIPTION - FIGURE 3

Colusa Generating Station - Construction Locations & Route



CALIFORNIA ENERGY COMMISSION

SOURCE: Exhibit 200

II. PROJECT ALTERNATIVES

The California Environmental Quality Act (CEQA) Guidelines and the Energy Commission's regulations require an evaluation of the comparative merits of a range of feasible site and facility alternatives which achieve the basic objectives of the proposed project but would avoid or substantially lessen potentially significant environmental impacts. [Cal. Code Regs., tit. 14, §§ 15126.6(c) and (e); *see also*, tit. 20, § 1765.]

Selection of alternatives for evaluation, including the "No Project" alternative, is governed by the "rule of reason" and need not include those alternatives whose effects cannot be reasonably ascertained or whose implementation is remote and speculative. [Cal. Code Regs., tit. 14, § 15126.6(f).] Only alternatives that the "lead agency determines could feasibly attain most of the basic objectives of the project" [Cal. Code Regs., tit. 14, § 15126.6(f)] are compared with the proposed site and facility in conducting the alternatives analysis.

The Applicant provided an 'alternatives analysis' in the AFC and related data responses (Ex. 24, § 9), describing the site selection process and project configuration in light of project objectives. Staff included a similar analysis in the FSA. (Ex. 200, pp. 6.1 — 6.12.)

SUMMARY AND DISCUSSION OF THE EVIDENCE

CGS' basic objectives are to satisfy PG&E's "Request for Offer" to obtain a power resource at the proposed location; to provide 660-MW of electrical energy to PG&E; to locate the project near key infrastructure (natural gas, high-voltage transmission lines, and water source); to have minimal impact on the surrounding communities, environment and northern central valley; and to locate the proposed plant in northern California. (Ex. 200, p. 6-3.)

In considering site alternatives, Staff defined a geographic area within which alternative sites were evaluated. Since alternatives must consider the underlying objectives of the proposed project, Staff confined the geographic area for location alternatives to locations near Colusa County. Potential alternative sites were considered if they met the following requirements:

- availability of sufficient land to construct and operate a generating facility of this size (approximately 100 acres would be required) and
- availability of connections to infrastructure (for example, gas, water, transmission) within a reasonable distance.

Two location alternatives were ultimately selected due to their consistency with the Applicant's project objectives and siting criteria: the southeast portion of the Holthouse Ranch boundary, and the western area adjacent to PG&E's Cortina Substation

1. Southeastern Holthouse Ranch Site

This site is located approximately 14 miles north of the community of Williams, approximately five miles west of I-5 near Delevan Road near the southeastern boundary of the Holthouse Ranch property in Colusa County. The same landholder owns Holthouse Ranch and the proposed site. The site is in the same proximity to PG&E's natural gas and transmission lines and the Tehama-Colusa and Glenn-Colusa Canals as the proposed project site The site is currently zoned as Agricultural by Colusa County.

The site has adequate water resources and natural gas and transmission infrastructure are located near the site. However, this land is being used for grazing and would require a General Plan change amendment.

The site is not zoned for industrial use and would require a change of land use designation and zoning, as would the proposed project site, to comply with land use regulations. Potential for significant biological impacts exists due to the

presence of wetlands and vernal pools impacted by the transmission interconnection. As a result, we find that this alternative site has no advantages over the Applicant's proposed site and, in the areas of land use and biological impacts, is less desirable than the proposed site. (Ex. 200, pp. 6-5 – 6-6.)

2. PG&E's Cortina Substation Site

This alternative site is located approximately 4.5 miles southwest of the community of Williams and west of I-5, adjacent to PG&E's Cortina Substation, which is connected to the PG&E 230-kV transmission lines. The site is in the same proximity to PG&E's natural gas and transmission lines and the Tehama-Colusa and Glenn-Colusa Canals as the proposed project site and alternative. However, the site is within 1.7 miles of a residence and within two miles of many others. The site is zoned and used for agriculture.

The Cortina site has adequate water resources. Natural gas and transmission infrastructure are located near the site. However, in order to create a large enough footprint for the project, adjacent farmland currently in active agricultural production would have to be taken out of production. The evidence shows that a biological survey of the Cortina Substation site was conducted in 2001. The alternative site appears to contain habitat similar to the proposed project site; therefore, similar biological resources could suffer adverse impacts. Swainson's Hawk habitat and potential nest sites for other raptors are located within one mile of the proposed site; therefore, the project has a greater potential to impact special-status raptor species than the proposed site. Impacts to other sensitive species, if any, are unknown. (Ex. 200, pp 6-6 – 6-7.)

The site is not zoned for industrial use. A change of land use designation and zoning would be required for this site just as for the proposed project site in order to comply with land use regulations. However, the site is closer to multiple residences than the proposed project and could therefore have a greater

potential for impacts--noise, hazardous materials, traffic and visual--on those residences than the proposed site.

We thus find that this alternative site has certain biological, land use, and visual disadvantages when compared to the proposed site. The site has no discernable advantages over the proposed site.

3. Conservation Alternative

One alternative to meeting California's electricity demand with new generation is to reduce the demand for electricity. Such "demand side" measures include programs that increase energy efficiency, reduce electricity use, or shift electricity use away from peak hours of demand.

Despite the great variety of federal, state, and local demand side management programs, which have been effective in keeping per capita electricity consumption from increasing over the last 30 years, the state's overall electricity use continues to increase as a result of population growth and business expansion. Current demand-side programs are not sufficient to satisfy future electricity needs, nor is it likely that even much more aggressive demand side programs could accomplish this at the economic and population growth rates of the last ten years. Therefore, although it is likely that federal, state, and local demand side programs will receive even greater emphasis in the future, both new generation and new transmission facilities are needed in order to maintain adequate supplies.

4. No Project Alternative

CEQA requires an evaluation of the No Project alternative "… to allow decision-makers to compare the impacts of approving the proposed project with the impacts of not approving the proposed project." [14 Cal. Code Regs., § 15126.6(e)(1).] The No Project analysis assumes: (a) that baseline

environmental conditions would not change because the proposed project would not be built; and (b) that the events or actions reasonably expected to occur in the foreseeable future would occur whether or not the project is approved.

While no project-related impacts would be created under the No Project scenario, the evidentiary record shows that all potentially significant impacts could be avoided or mitigated. If this project is not built, the same market conditions that led to its proposal will still exist, leaving open the possibility that other similar projects could be proposed in the absence of this project. The Commission can reasonably expect California's need for new electric power plants to be filled with or without the proposed project, and there is no reason to assume that the total amount of capacity eventually built would differ with or without this project.

The extent to which older, less efficient generation capacity will be replaced by newer, more efficient capacity should be the same with or without this project. The extent to which generation from existing power plants would consume fuel and emit pollutants should be the same with or without this project.

The "no project" alternative would eliminate the expected economic benefits that the proposed project would bring to Colusa County, including increased property taxes, employment, sales taxes, and sales of services, manufactured goods, and equipment.

The "no project" alternative would be environmentally superior to the project, if not mitigated, because the original proposal could have had significant environmental impacts on local and regional air quality, biological resources and agricultural lands. However, implementation of the mitigation measures described in this decision will reduce any impacts to less than significant levels, and economic benefits will be derived from the project. Therefore, the Commission concludes that the "no project" alternative is not the preferred alternative.

5. Alternative Fuels and Technologies

Various alternative technologies were compared with the proposed project, scaled to meet the project's objectives. Technologies examined were those principal electricity generation technologies which do not burn fossil fuels—solar, wind, geothermal, biomass and hydropower. Both solar and wind generation have no emissions and no visible plumes. In the case of biomass, however, emissions can be substantially greater. Water consumption for both solar and wind is substantially less than for a natural gas-fired plant because there is no thermal cooling requirement.

Solar generation, however, requires large amounts of land upon which to place equipment. To generate 660 MW of power would require approximately 3,300 acres of land, one hundred times the amount to be occupied by the proposed project. Additionally, solar energy technologies cannot provide full-time availability due to the natural intermittent availability of sunlight. Therefore, solar energy technologies are not practicable for the project location and needs. Wind generation similarly consumes large amounts of land and can only be sited where steady winds are prevalent. The amount of land needed would be significantly more than the amount of land used by the proposed project. With these characteristics, wind energy generation is not feasible in this location.

Many biomass facilities would be required to meet the project goal of generating 660 MW. Land and project infrastructure impacts would be significantly more damaging to the environment than the proposed project. Emissions from the large number of generating units would be greater than the proposed project, and air quality standards would not be achievable. Geothermal facilities can only be sited where naturally-occurring geothermal resources exist—and none exist at the proposed site. Hydropower facilities require large quantities of water (either stored or flowing water), and sufficient topography to allow power generation as water drops in elevation and flows through a turbine. Neither the water resources

nor the topographic conditions are present in the project region. (Ex. 200, pp. 6-7 – 6-9.)

We find that alternative technologies do not currently present feasible alternatives to the proposed project, since the major objective of the CGS project is to provide 660 MW of electricity with minimal impacts to the environment and the public.

FINDINGS AND CONCLUSIONS

Based upon the evidence, we find and conclude as follows:

1. The evidence contains an acceptable analysis of a reasonable range of alternatives to the project as proposed.
2. The evidence contains an adequate review of alternative sites, fuels, technologies, and the “no project” alternative.
3. Alternative fuels and technologies are not currently capable of meeting project objectives.
4. Current demand-side programs are not sufficient to satisfy future electricity needs.
5. No site alternative meets the stated project objectives and applicable siting criteria better than the proposed site.
6. The “no project” alternative would not avoid or substantially lessen potentially significant environmental impacts since no unmitigable impacts have been established.
7. The “no project” alternative would not provide electrical system benefits.
8. If all Conditions of Certification contained in this Decision are implemented, construction and operation of the CGS will not create any significant direct, indirect, or cumulative environmental impacts.

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

III. COMPLIANCE AND CLOSURE

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

SUMMARY OF THE EVIDENCE

The evidence contains a full explanation of the purposes and intent of the Compliance Plan (Plan). (Ex. 200, pp. 7-1 – 7-20.) The Plan is the administrative mechanism used to ensure that the Colusa Generating Station is constructed and operated according to the Conditions of Certification. It essentially describes the respective duties and expectations of the project owner and the Staff Compliance Project Manager (CPM) in implementing the design, construction, and operation criteria set forth in this Decision.

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

The Compliance Plan is composed of various general elements which:

- Set forth the duties and responsibilities of the Compliance Project Manager (CPM), the project owner, delegate agencies, and others;
- Set forth the requirements for handling confidential records and maintaining the compliance record;
- Establish procedures for settling disputes and making post-certification changes;

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

- Establish requirements for facility closure.

The Plan also contains the specific "Conditions of Certification". These Conditions are found following the summary and discussion of each individual topic area in this Decision. The individual Conditions set forth the measures required to comply with LORS or mitigate potentially adverse impacts associated with construction, operation, and closure of the project to an insignificant level. Each condition also includes a verification provision describing the method of assuring that the condition has been satisfied.

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

FINDINGS AND CONCLUSIONS

The evidence establishes:

1. The Compliance Plan and the specific Conditions of Certification contained in this Decision ensure that the Colusa Generating Station Project will be designed, constructed, operated, and closed in conformity with applicable law.

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

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

GENERAL CONDITIONS
INCLUDING
COMPLIANCE MONITORING AND CLOSURE PLAN

INTRODUCTION

The project's General Compliance Conditions of Certification, including Compliance Monitoring and Closure Plan (Compliance Plan) have been established as required by Public Resources Code section 25532. The plan provides a means for assuring that the facility is constructed, operated and closed in compliance with public health and safety, environmental and other applicable regulations, guidelines, and Conditions adopted or established by the California Energy Commission and specified in the written decision on the Application for Certification or otherwise required by law.

The Compliance Plan is composed of elements 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;
- state the requirements for periodic compliance reports and other administrative procedures that are necessary to verify the compliance status for all Energy Commission approved Conditions of Certification;
- establish requirements for facility closure plans; and
- specify Conditions of Certification for each technical area containing the measures required to mitigate any and all potential adverse project impacts associated with construction, operation and closure to an insignificant level. Each specific condition of certification also includes a verification provision that describes the method of assuring that the condition has been satisfied.

DEFINITIONS

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

Pre-construction Site Mobilization

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

Construction Ground Disturbance

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

Construction Grading, boring, and trenching

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

Construction

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

1. the installation of environmental monitoring equipment;

2. a soil or geological investigation;

3. a topographical survey;

4. any other study or investigation to determine the environmental acceptability or feasibility of the use of the site for any particular facility; and

5. any work to provide access to the site for any of the purposes specified in "Construction" 1, 2, 3, or 4 above.

Start of Commercial Operation

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

COMPLIANCE PROJECT MANAGER RESPONSIBILITIES

The CPM will oversee the compliance monitoring and shall be responsible for:

1. ensuring that the design, construction, operation, and closure of the project facilities are in compliance with the terms and Conditions of the Energy Commission Decision;

2. resolving complaints;

3. processing post-certification changes to the Conditions of Certification, project description (petition to amend), and ownership or operational control (petition for change of ownership); (see instructions for filing petitions)

4. documenting and tracking compliance filings; and

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

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

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

PRE-CONSTRUCTION AND PRE-OPERATION COMPLIANCE MEETING

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

ENERGY COMMISSION RECORD

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

1. all documents demonstrating compliance with any legal requirements relating to the construction and operation of the facility;

2. all monthly and annual compliance reports filed by the project owner;

3. all complaints of noncompliance filed with the Energy Commission; and

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

PROJECT OWNER RESPONSIBILITIES

The project owner is responsible for ensuring that the compliance Conditions of Certification and all of the other Conditions of Certification that appear in the Commission Decision are satisfied. The compliance Conditions regarding post-

certification changes specify measures that the project owner must take when requesting changes in the project design, Conditions of Certification, or ownership. Failure to comply with any of the Conditions of Certification or the compliance Conditions may result in reopening of the case and revocation of Energy Commission certification, an administrative fine, or other action as appropriate. A summary of the Compliance Conditions of Certification is included as **Compliance Table 1** at the conclusion of this section.

COMPLIANCE CONDITIONS OF CERTIFICATION

Unrestricted Access (COMPLIANCE-1)

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

Compliance Record (COMPLIANCE-2)

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

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

Compliance Verification Submittals (COMPLIANCE-3)

Each condition of certification is followed by a means of verification. The verification describes the Energy Commission’s procedure(s) to ensure post-certification compliance with adopted conditions. The verification procedures, unlike the conditions, may be modified as necessary by the CPM, and in most cases without full Energy Commission approval.

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

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

2. providing appropriate letters from delegate agencies verifying compliance;

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

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

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

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

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

All hardcopy submittals shall be addressed as follows:

Compliance Project Manager
(Docket No. 06-AFC-9C)
California Energy Commission
1516 Ninth Street (MS-2000)
Sacramento, CA 95814

Those submittals shall be accompanied by a searchable electronic copy included on a CD disc or via e-mail as agreed upon by the CPM.

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

Pre-Construction Matrix and Tasks Prior to Start of Construction (COMPLIANCE-4)

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

Construction shall not commence until the pre-construction matrix is submitted, all pre-construction Conditions have been complied with, and the CPM has issued a letter to the project owner authorizing construction. Various lead times for submittal of compliance verification documents to the CPM for Conditions of Certification are established to allow sufficient staff time to review and comment and, if necessary, allow the project owner to revise the submittal in a timely manner. This will ensure that project construction may proceed according to schedule.

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

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

Compliance Reporting

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

Compliance Matrix (COMPLIANCE-5)

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

1. the technical area;

2. the condition number;

3. a brief description of the verification action or submittal required by the condition;

4. the date the submittal is required (e.g., 60 days prior to construction, after final inspection, etc.);

5. the expected or actual submittal date;

6. the date a submittal or action was approved by the Chief Building Official (CBO), CPM, or delegate agency, if applicable; and

7. the compliance status of each condition, e.g., “not started,” “in progress” or “completed” (include the date).

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

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

Monthly Compliance Report (COMPLIANCE-6)

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

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

1. a summary of the current project construction status, a revised/updated schedule if there are significant delays, and an explanation of any significant changes to the schedule;

2. documents required by specific Conditions to be submitted along with the Monthly Compliance Report. Each of these items must be identified in the transmittal letter, as well as the Conditions they satisfy and submitted as attachments to the Monthly Compliance Report;

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

4. a list of Conditions that have been satisfied during the reporting period, and a description or reference to the actions that satisfied the Condition;

5. a list of any submittal deadlines that were missed, accompanied by an explanation and an estimate of when the information will be provided;

6. a cumulative listing of any approved changes to Conditions of Certification;

7. a listing of any filings submitted to, or permits issued by, other governmental agencies during the month;

8. a projection of project compliance activities scheduled during the next two months. The project owner shall notify the CPM as soon as any changes are made to the project construction schedule that would affect compliance with Conditions of Certification;

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

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

All sections, exhibits, or addendums shall be separated by tabbed dividers.

Annual Compliance Report (COMPLIANCE-7)

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

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

2. a summary of the current project operating status and an explanation of any significant changes to facility operations during the year;

3. documents required by specific Conditions to be submitted along with the Annual Compliance Report. Each of these items must be identified in the transmittal letter, with the condition it satisfies, and submitted as attachments to the Annual Compliance Report;

4. a cumulative listing of all post-certification changes approved by the Energy Commission or cleared by the CPM;

5. an explanation for any submittal deadlines that were missed, accompanied by an estimate of when the information will be provided;

6. a listing of filings submitted to, or permits issued by, other governmental agencies during the year;

7. a projection of project compliance activities scheduled during the next year;

8. a listing of the year's additions to the on-site compliance file;

9. an evaluation of the on-site contingency plan for unplanned facility closure, including any suggestions necessary for bringing the plan up to date [see Compliance Conditions for Facility Closure addressed later in this section]; and

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

All sections, exhibits, or addendums shall be separated by tabbed dividers.

Confidential Information (COMPLIANCE-8)

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

Annual Energy Facility Compliance Fee (COMPLIANCE-9)

Pursuant to the provisions of Section 25806(b) of the Public Resources Code, the project owner is required to pay an annual fee of seventeen thousand six hundred seventy-six dollars ($17,676), which will be adjusted annually on July 1. The initial payment is due on the date the Energy Commission adopts the final decision. All subsequent payments are due by July 1 of each year in which the facility retains its certification. The payment instrument shall be made payable to the California Energy Commission and mailed to: Accounting Office MS-02, California Energy Commission, 1516 9th St., Sacramento, CA 95814.

Reporting of Complaints, Notices, and Citations (COMPLIANCE-10)

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

http://www.energy.ca.gov/sitingcases/power_plants_contacts.html

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

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

FACILITY CLOSURE

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

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

CLOSURE DEFINITIONS

Planned Closure

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

Unplanned Temporary Closure

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

Unplanned Permanent Closure

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

COMPLIANCE CONDITIONS FOR FACILITY CLOSURE

Planned Closure (COMPLIANCE-11)

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

The plan shall:

1. identify and discuss any impacts and mitigation to address significant adverse impacts associated with proposed closure activities and to address facilities, equipment, or other project related remnants that will remain at the site;

2. identify a schedule of activities for closure of the power plant site, transmission line corridor, and all other appurtenant facilities constructed as part of the project;

3. identify any facilities or equipment intended to remain on site after closure, the reason, and any future use; and

4. address conformance of the plan with all applicable laws, ordinances, regulations, standards, and local/regional plans in existence at the time of facility closure, and applicable Conditions of Certification.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Amendment

The project owner shall petition the Energy Commission, pursuant to Title 20, California Code of Regulations, Section 1769(a), when proposing modifications to the project (including linear facilities) design, operation, or performance requirements. If a proposed modification results in deletion or change of a condition of certification, or makes changes that would cause the project not to comply with any applicable laws, ordinances, regulations or standards, the petition will be processed as a formal amendment to the final decision, which requires public notice and review of the Energy Commission staff analysis, and approval by the full Commission. The petition shall be in the form of a legal brief and fulfill the requirements of Section 1769(a). (To obtain a sample petition to amend, log on at http://www.energy.ca.gov/compliance)

Change of Ownership

Change of ownership or operational control also requires that the project owner file a petition pursuant to section 1769 (b). This process requires public notice and approval by the full Commission. The petition shall be in the form of a legal brief and fulfill the requirements of Section 1769(b). (To obtain a sample petition for change of ownership, log on at http://www.energy.ca.gov/compliance.)

Insignificant Project Change

Modifications that do not result in deletions or changes to Conditions of Certification, and that are compliant with laws, ordinances, regulations and standards may be authorized by the CPM as an insignificant project change pursuant to section 1769(a) (2). This process usually requires minimal time to complete, and it requires a 14-day public review of the Notice of Insignificant Project Change that includes staff's intention to approve the modification unless substantive objections are filed. These requests must also be submitted in the form of a "petition to amend" as described above.

Verification Change

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

CBO DELEGATION AND AGENCY COOPERATION

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

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

ENFORCEMENT

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

NONCOMPLIANCE COMPLAINT PROCEDURES

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

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

Informal Dispute Resolution Process

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

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

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

Request for Informal Investigation

Any individual, group, or agency may request the Energy Commission to conduct an informal investigation of alleged noncompliance with the Energy Commission's terms and Conditions of Certification. All requests for informal investigations shall be made to the designated CPM.

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

Request for Informal Meeting

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

1. immediately schedule a meeting with the requesting party and the project owner, to be held at a mutually convenient time and place;

2. secure the attendance of appropriate Energy Commission and staff of any other agencies with expertise in the subject area of concern, as necessary;

3. conduct such meeting in an informal and objective manner so as to encourage the voluntary settlement of the dispute in a fair and equitable manner;

4. After the conclusion of such a meeting, promptly prepare and distribute copies to all in attendance and to the project file, a summary memorandum that fairly and accurately identifies the positions of all parties and any understandings reached. If an agreement has not been reached, the CPM shall inform the complainant of the formal complaint process and

requirements provided under Title 20, California Code of Regulations, section 1230 et seq.

Formal Dispute Resolution Procedure-Complaints and Investigations

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

KEY EVENTS LIST

PROJECT: _____

DOCKET #: _____

COMPLIANCE PROJECT MANAGER: _____

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

COMPLIANCE TABLE 1
SUMMARY of COMPLIANCE CONDITIONS OF CERTIFICATION

CONDITION NUMBER	SUBJECT	DESCRIPTION
COMPLIANCE-1	Unrestricted Access	The project owner shall grant Energy Commission staff and delegate agencies or consultants unrestricted access to the power plant site.
COMPLIANCE-2	Compliance Record	The project owner shall maintain project files on-site. Energy Commission staff and delegate agencies shall be given unrestricted access to the files.
COMPLIANCE-3	Compliance Verification Submittals	The project owner is responsible for the delivery and content of all verification submittals to the CPM, whether such condition was satisfied by work performed or the project owner or his agent.
COMPLIANCE-4	Pre-construction Matrix and Tasks Prior to Start of Construction	Construction shall not commence until the all of the following activities/submittals have been completed: ▪ property owners living within one mile of the project have been notified of a telephone number to contact for questions, complaints or concerns, ▪ a pre-construction matrix has been submitted identifying only those Conditions that must be fulfilled before the start of construction, ▪ all pre-construction Conditions have been complied with, ▪ the CPM has issued a letter to the project owner authorizing construction.
COMPLIANCE-5	Compliance Matrix	The project owner shall submit a compliance matrix (in a spreadsheet format) with each monthly and annual compliance report which includes the status of all compliance Conditions of Certification.
COMPLIANCE-6	Monthly Compliance Report including a Key Events List	During construction, the project owner shall submit Monthly Compliance Reports (MCRs) which include specific information. The first MCR is due the month following the Energy Commission business meeting date on which the project was approved and shall include an initial list of dates for each of the events identified on the Key Events List.
COMPLIANCE-7	Annual Compliance Reports	After construction ends and throughout the life of the project, the project owner shall submit Annual Compliance Reports instead of Monthly Compliance Reports.
COMPLIANCE-8	Confidential Information	Any information the project owner deems confidential shall be submitted to the Energy Commission's Dockets Unit with a request for confidentiality.

CONDITION NUMBER	SUBJECT	DESCRIPTION
COMPLIANCE-9	Annual fees	Payment of Annual Energy Facility Compliance Fee
COMPLIANCE-10	Reporting of Complaints, Notices and Citations	Within 10 days of receipt, the project owner shall report to the CPM, all notices, complaints, and citations.
COMPLIANCE-11	Planned Facility Closure	The project owner shall submit a closure plan to the CPM at least 12 months prior to commencement of a planned closure.
COMPLIANCE-12	Unplanned Temporary Facility Closure	To ensure that public health and safety and the environment are protected in the event of an unplanned temporary closure, the project owner shall submit an on-site contingency plan no less than 60 days prior to commencement of commercial operation.
COMPLIANCE-13	Unplanned Permanent Facility Closure	To ensure that public health and safety and the environment are protected in the event of an unplanned permanent closure, the project owner shall submit an on-site contingency plan no less than 60 days prior to commencement of commercial operation.
COMPLIANCE-14	Post-certification changes to the Decision	The project owner must petition the Energy Commission to delete or change a condition of certification, modify the project design or operational requirements and/or transfer ownership of operational control of the facility.

ATTACHMENT A
COMPLAINT REPORT/RESOLUTION FORM

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

IV. ENGINEERING ASSESSMENT

The engineering assessment conducted for the CGS consisted of separate analyses that examined the design, engineering, efficiency, and reliability of the project. These analyses included the on-site power generating equipment and project-related facilities (natural gas supply pipeline, water supply pipelines, and transmission interconnection).

A. FACILITY DESIGN

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

SUMMARY AND DISCUSSION OF THE EVIDENCE

The AFC describes the preliminary facility design (Exhibits 26 – 31.) In considering the adequacy of the design plans, Staff reviewed whether the power plant and linear facilities are described with sufficient detail to assure the project can be designed and constructed in accordance with applicable engineering LORS. The review also included the identification of special design features that are necessary to deal with unique site conditions which could impact public health and safety, the environment, or the operational reliability of the project.

The CGS will be located approximately four miles west of Interstate 5 and approximately 72 miles north of the City of Sacramento. The project will be located on a 100-acre site off Dirks Road in an unincorporated area of Colusa County. (Ex. 200, p. 5.1-2.)

We adopt Conditions of Certification that establish a design review and construction inspection process to verify compliance with applicable standards and requirements. In addition, the Conditions of Certification specify the roles,

qualifications, and responsibilities of engineering personnel who will oversee project design and construction. They require approval by the Chief Building Official (CBO) after appropriate inspections by qualified engineers, and no element of construction subject to CBO review may proceed without the CBO's approval. (Ex. 200, p. 5.1-4.)

The project will be designed and constructed in conformance with the 2001 edition of the California Building Code and other applicable codes and standards. Condition of Certification **GEN-1** incorporates this requirement.

Potential geological hazards were also considered, and the evidence contains a review of preliminary project design, site preparation and development, major project structures, systems and equipment, mechanical systems, electrical systems, and related facilities.

The project will implement site preparation and development criteria consistent with accepted industry standards. This includes design practices and construction methods for grading, flood protection, erosion control, site drainage, and site access. (Ex. 200, pp. 5.1-2 – 5.1-3.) Condition **CIVIL-1** ensures that these activities will be conducted in compliance with applicable LORS.

Major structures, systems, and equipment include those structures and associated components necessary for power production as well as facilities used for storage of hazardous or toxic materials. Condition **GEN-2** includes a list of the major structures and equipment included in the initial engineering design for the project.

The power plant site is located in Seismic Zone 3. (Ex. 200, p. 5.1-2.) The 2001 CBC requires specific "lateral force" procedures for different types of structures to determine their seismic design. To ensure that project structures are analyzed using the appropriate lateral force procedure, Condition **STRUC-1** requires the

project owner to submit its proposed procedures to the CBO for review and approval prior to the start of construction.

Conditions **MECH**-1 through **MECH**-3 ensure the project's mechanical systems will comply with appropriate standards. Condition **ELEC-1** ensures that design and construction of major electrical features will comply with applicable LORS.

The evidence also addresses facility closure. (Ex. 200, p. 5.1-5.) To ensure that decommissioning of the facility will conform with applicable LORS to protect the environment and public health and safety, the project owner shall submit a decommissioning plan. This plan is described in the general closure provisions of the Compliance and Closure section of this Decision.

FINDINGS AND CONCLUSIONS

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

1. The evidence contains sufficient information to establish that the proposed facility can be designed and constructed in conformity with the applicable laws, ordinances, regulations, and standards. This will occur through the use of design review, plan checking, and field inspections.

2. The Conditions of Certification below and the provisions of the Compliance and Closure Plan contained in this Decision set forth requirements to be followed in the event of the planned, the unexpected temporary, or the unexpected permanent closure of the facility.

3. The Conditions of Certification ensure that the project will be designed, constructed, and ultimately closed in a manner that protects environmental quality and public health and safety.

We therefore conclude that with the implementation of the Conditions of Certification listed below and elsewhere in this Decision, the CGS will be designed and constructed in conformity with applicable laws pertinent to its geologic, civil, structural, mechanical, and electrical engineering aspects and will

not cause any significant environmental impacts arising from its design or construction.

CONDITIONS OF CERTIFICATION

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

In the event that the initial engineering designs are submitted to the CBO when a successor to the 2001 CBSC is in effect, the 2001 CBSC provisions identified herein shall be replaced with the applicable successor provisions. Where, in any specific case, different sections of the code specify different materials, methods of construction, or other requirements, the most restrictive shall govern. Where there is a conflict between a general requirement and a specific requirement, the specific requirement shall govern.

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

Verification: Within 30 days after receipt of the certificate of occupancy, the project owner shall submit to the compliance project manager (CPM) a statement of verification, signed by the responsible design engineer, attesting that all designs, construction, installation, and inspection requirements of the applicable

LORS and the Energy Commission's decision have been met in the area of facility design. The project owner shall provide the CPM a copy of the certificate of occupancy within 30 days of receipt from the CBO (2001 CBC, § 109, Certificate of Occupancy).

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

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

Verification: At least 60 days (or project owner- and CBO-approved alternative timeframe) prior to the start of rough grading, the project owner shall submit to the CBO and to the CPM the schedule, the master drawing list and the master specifications list of documents to be submitted to the CBO for review and approval. These documents shall be the pertinent design documents for the major structures and equipment listed in **FACILITY DESIGN Table 1** below. Major structures and equipment shall be added to or deleted from the table only with CPM approval. The project owner shall provide schedule updates in the monthly compliance report.

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FACILITY DESIGN Table 1
Major Structures and Equipment List

Equipment/System	Quantity (Plant)
Combustion Turbine & Generator (CTG) Foundation and Connections	2
Steam Turbine & Generator (STG) Foundation and Connections	1
Heat Recovery Steam Generator (HRSG) & Stack Structure, Foundation and Connections	2
CTG Main Transformer Foundation and Connections	2
STG Main Transformer Foundation and Connections	1
Electrical Auxiliary Transformers Foundation and Connections	5
CTG Air Inlet Structure, Foundation and Connections	2
CEMS Enclosure Structure, Foundation and Connections	2
Air Cooled Condenser Structure, Foundation and Connections	1
Auxiliary Boiler Structure, Foundation and Connections	1
Boiler Feed Water Pump Foundation and Connections	2
Fuel Gas Separator and Heating Foundation and Connections	2
CTG Support Skid Foundation and Connections	2
Power Distribution Center Foundation and Connections	5
Demineralized Water Storage Tank Structure, Foundation and Connections	1
Fire Water Pump Skid Foundation and Connections	1
HRSG Blowdown Tank and Sump Structure, Foundation and Connections	2
Gas Metering and Regulating with Fuel Gas Filter/Separators Foundation and Connections	2
Water Treatment Area Structure, Foundation and Connections	1
Ammonia Transfer Pumps Foundation and Connections	3
Raw/Firewater Tank Structure, Foundation and Connections	1
Septic Tank Structure, Foundation and Connections	1
Storage Building Structure Foundation and Connections	2
Condensate Tank and Pumps Foundation and Connections	1
Fin Fan Coolers Structure, Foundation and Connections	1
Ammonia Dilution Skid Foundation and Connections	2
STG Electrical Equipment Foundation and Connections	1
Switchgear Building Structure, Foundation and Connections	1
Unit Auxiliary Transformer Foundation and Connections	2
Generator Breaker Foundation and Connections	2
Emergency Diesel Generator Foundation and Connections	1
Hydrogen Storage Area Tank Structure, Foundation and Connections	1
Phosphate Feed Skid Foundation and Connections	2

Equipment/System	Quantity (Plant)
Sample Panel Foundation and Connections	2
Auxiliary Cooling Water Pumps & Heat Exchanger Foundation and Connections	1
Oil/Water Separator Foundation and Connections	1
Control Room/Administration Building Structure, Foundations and Connections	1
STG Lube Oil Skid Foundations and Connections	1
Switchyard Control House Structure, Foundation and Connections	1
Drainage Systems (including sanitary drain and waste)	1 Lot
High Pressure and Large Diameter Piping and Pipe Racks	1 Lot
HVAC and Refrigeration Systems	1 Lot
Temperature Control and Ventilation Systems (including water and sewer connections)	1 Lot
Building Energy Conservation Systems	1 Lot
Switchyard, Buses and Towers	1 Lot
Electrical Duct Banks	1 Lot
Glenn-Colusa Canal Bridge Replacement Structure, Foundation and Connections	1
Teresa Creek Bridge Replacement Structure, Foundation and Connections	1

Source: Ex. 200, pp. 5.1-8—5.1-9.

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

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

GEN-4 Prior to the start of rough grading, the project owner shall assign a California registered architect, structural engineer or civil engineer, as a resident engineer (RE), to be in general responsible charge of the project (Building Standards Administrative Code, Cal. Code Regs., tit.

24, § 4-209, Designation of Responsibilities). All transmission facilities (lines, switchyards, switching stations, and substations) are handled in conditions of certification in **TRANSMISSION SYSTEM ENGINEERING**.

The RE may delegate responsibility for portions of the project to other registered engineers. Registered mechanical and electrical engineers may be delegated responsibility for mechanical and electrical portions of the project, respectively. A project may be divided into parts, provided each part is clearly defined as a distinct unit. Separate assignment of general responsible charge may be made for each designated part.

The RE shall:

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

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

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

4. be responsible for providing the project inspectors and testing agency(ies) with complete and up-to-date set(s) of stamped drawings, plans, specifications, and any other required documents;

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

6. be responsible for notifying the CBO of corrective action or the disposition of items noted on laboratory reports or other tests as not conforming to the approved plans and specifications.

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

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

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

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

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

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

The project owner shall submit to the CBO for review and approval, the names, qualifications, and registration numbers of all responsible engineers assigned to the project (2001 CBC, section 104.2, Powers and Duties of Building Official).

If any one of the designated responsible engineers is subsequently reassigned or replaced, the project owner shall submit the name, qualifications, and registration number of the newly assigned

responsible engineer to the CBO for review and approval. The project owner shall notify the CPM of the CBO's approval of the new engineer.

A. The civil engineer shall:

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

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

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

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

1. review all the engineering geology reports;

2. prepare the foundation investigations report, geotechnical report, or soils report containing field exploration reports, laboratory tests, and engineering analysis detailing the nature and extent of the soils that may be susceptible to liquefaction, rapid settlement, or collapse when saturated under load (2001 CBC, Appendix Chapter 33, Section 3309.5, Soils Engineering Report; Section 3309.6, Engineering Geology Report; and Chapter 18, Section 1804, Foundation Investigations);

3. be present, as required, during site grading and earthwork to provide consultation and monitor compliance with the requirements set forth in the 2001 CBC, Appendix Chapter 33; Section 3317, Grading Inspections (depending on the site conditions, this may be the responsibility of either the soils engineer or engineering geologist or both); and

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

   This engineer shall be authorized to halt earthwork and to require changes if site conditions are unsafe or do not conform

with predicted conditions used as a basis for design of earthwork or foundations (2001 CBC, section 104.2.4, Stop Orders).

C. The engineering geologist shall:

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

2. be present, as required, during site grading and earthwork to provide consultation and monitor compliance with the requirements set forth in the 2001 CBC, Appendix Chapter 33; Section 3317, Grading Inspections (depending on the site conditions, this may be the responsibility of either the soils engineer or engineering geologist or both).

D. The design engineer shall:

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

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

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

4. evaluate and recommend necessary changes in design; and

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

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

F. The electrical engineer shall:

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

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

Verification: At least 30 days (or project owner- and CBO-approved alternative timeframe) prior to the start of rough grading, the project owner shall submit to the CBO for review and approval, resumes and registration numbers of

the responsible civil engineer, soils (geotechnical) engineer, and engineering geologist assigned to the project.

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

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

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

GEN-6 Prior to the start of an activity requiring special inspection, the project owner shall assign to the project qualified and certified special inspector(s) who shall be responsible for the special inspections required by the 2001 CBC, Chapter 17, Section 1701, Special Inspections; Section 1701.5, Types of Work (requiring special inspection); and Section 106.3.5, Inspection and Observation Program. All transmission facilities (lines, switchyards, switching stations, and substations) are handled in conditions of certification in **TRANSMISSION SYSTEM ENGINEERING**.

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

The special inspector shall:

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

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

3. furnish inspection reports to the CBO and RE (all discrepancies shall be brought to the immediate attention of the RE for correction, then, if uncorrected, to the CBO and the CPM for corrective action [2001 CBC, Chapter 17, Section 1701.3, Duties and Responsibilities of the Special Inspector]); and

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

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

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

GEN-7 If any discrepancy in design and/or construction is discovered in any engineering work that has undergone CBO design review and approval, the project owner shall document the discrepancy and recommend the corrective action required (2001 CBC, Chapter 1, Section 108.4, Approval Required; Chapter 17, Section 1701.3, Duties and Responsibilities of the Special Inspector; Appendix Chapter 33, Section 3317.7, Notification of Noncompliance). The discrepancy documentation shall be submitted to the CBO for review and approval. The discrepancy documentation shall reference this condition of certification and, if appropriate, the applicable sections of the CBC and/or other LORS.

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

GEN-8 The project owner shall obtain the CBO's final approval of all completed work that has undergone CBO design review and approval. The project owner shall request the CBO to inspect the completed structure and review the submitted documents. The project owner shall notify the CPM after obtaining the CBO's final approval. The project owner shall retain one set of approved engineering plans, specifications, and calculations (including all approved changes) at the project site or at another accessible location during the operating life of the project (2001 CBC, Section 106.4.2, Retention of Plans). Electronic

copies of the approved plans, specifications, calculations, and marked-up as-builts shall be provided to the CBO for retention by the CPM.

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

Within 90 days of the completion of construction, the project owner shall provide to the CBO three sets of electronic copies of the above documents at the project owner's expense. These are to be provided in the form of "read only" Adobe .Acrobat (pdf — version 6.0 or later) files, with restricted printing privileges (i.e., password protected) on archive-quality compact discs.

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

1. the design of the proposed drainage structures and the grading plan;

2. an erosion and sedimentation control plan;

3. related calculations and specifications, signed and stamped by the responsible civil engineer; and

4. soils report, geotechnical report, or foundation investigations report required by the 2001 CBC (Appendix Chapter 33, Section 3309.5, Soils Engineering Report; Section 3309.6, Engineering Geology Report; and Chapter 18, Section 1804, Foundation Investigations).

Verification: At least 15 days (or project owner- and CBO-approved alternative timeframe) prior to the start of site grading, the project owner shall submit the documents described above to the CBO for design review and approval. In the next monthly compliance report following the CBO's approval, the project owner shall submit a written statement certifying that the documents have been approved by the CBO.

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

approval from the CBO before resuming earthwork and construction in the affected area (2001 CBC, Section 104.2.4, Stop Orders).

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

CIVIL-3 The project owner shall perform inspections in accordance with the 2001 CBC, Chapter 1, Section 108, Inspections; Chapter 17, Section 1701.6, Continuous and Periodic Special Inspection; and Appendix Chapter 33, Section 3317, Grading Inspection. All plant site-grading operations, for which a grading permit is required, shall be subject to inspection by the CBO.

If, in the course of inspection, it is discovered that the work is not being performed in accordance with the approved plans, the discrepancies shall be reported immediately to the resident engineer, the CBO and the CPM (2001 CBC, Appendix Chapter 33, Section 3317.7, Notification of Noncompliance). The project owner shall prepare a written report, with copies to the CBO and the CPM, detailing all discrepancies, noncompliance items, and the proposed corrective action.

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

CIVIL-4 After completion of finished grading, erosion and sedimentation control, and drainage work, the project owner shall obtain the CBO's approval of the final grading plans (including final changes) for the erosion and sedimentation control work. The civil engineer shall state that the work within his/her area of responsibility was done in accordance with the final approved plans (2001 CBC, Section 3318, Completion of Work).

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

shall submit a copy of the CBO's approval to the CPM in the next monthly compliance report.

STRUC-1 Prior to the start of any increment of construction of any major structure or component listed in **FACILITY DESIGN Table 2** of Condition of Certification **GEN-2** above, the project owner shall submit to the CBO for design review and approval the proposed lateral force procedures for project structures and the applicable designs, plans, and drawings for project structures. Proposed lateral force procedures, designs, plans, and drawings shall be those for the following items (from **Table 2**, above):

1. major project structures;

2. major foundations, equipment supports, and anchorage; and

3. large field-fabricated tanks.

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

The project owner shall carry out the following:

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

2. Obtain approval from the CBO for the final design plans, specifications, calculations, soils reports, and applicable quality-control procedures. If there are conflicting requirements, the more stringent shall govern (i.e., highest loads, or lowest allowable stresses shall govern). All plans, calculations, and specifications for foundations that support structures shall be filed concurrently with the structure plans, calculations, and specifications (2001 CBC, Section 108.4, Approval Required).

3. Submit to the CBO the required number of copies of the structural plans, specifications, calculations, and other required documents of the designated major structures prior to the start of on-site fabrication and installation of each structure, equipment support, or foundation (2001 CBC, Section 106.4.2, Retention of Plans; and Section 106.3.2, Submittal Documents).

4. Ensure that the final plans, calculations, and specifications clearly reflect the inclusion of approved criteria, assumptions, and methods used to develop the design. The final designs, plans, calculations, and specifications shall be

signed and stamped by the responsible design engineer (2001 CBC, Section 106.3.4, Architect or Engineer of Record).

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

Verification: At least 60 days (or project owner- and CBO-approved alternative timeframe) prior to the start of any increment of construction of any structure or component listed in **FACILITY DESIGN Table 2** of Condition of Certification **GEN-2** above, the project owner shall submit to the CBO the above final design plans, specifications, and calculations, with a copy of the transmittal letter to the CPM.

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

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

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

2. concrete pour sign-off sheets;

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

4. field weld inspection reports (including type of weld, location of weld, inspection of nondestructive testing procedure and results, welder qualifications, certifications, qualified procedure description or number (ref: AWS); and

5. Reports covering other structural activities requiring special inspections shall be in accordance with the 2001 CBC, Chapter 17, Section 1701, Special Inspections; Section 1701.5, Type of Work (requiring special inspection); Section 1702, Structural Observation; and Section 1703, Nondestructive Testing.

Verification: If a discrepancy is discovered in any of the above data, the project owner shall, within five days, prepare and submit an NCR describing the nature of the discrepancies and the proposed corrective action to the CBO, with a copy of the transmittal letter to the CPM (2001 CBC, Chapter 17, Section 1701.3, Duties and Responsibilities of the Special Inspector). The NCR shall reference the condition(s) of certification and the applicable CBC chapter and section. Within five days of resolution of the NCR, the project owner shall submit a copy of the corrective action to the CBO and the CPM.

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

STRUC-3 The project owner shall submit to the CBO design changes to the final plans required by the 2001 CBC, Chapter 1, Section 106.3.2, Submittal Documents and Section 106.3.3, Information on Plans and Specifications, including the revised drawings, specifications, calculations, and a complete description of, and supporting rationale for, the proposed changes, and shall give to the CBO prior notice of the intended filing.

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

STRUC-4 Tanks and vessels containing quantities of toxic or hazardous materials exceeding amounts specified in 2001 CBC, Chapter 3, Table 3-E shall, at a minimum, be designed to comply with the requirements of that chapter.

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

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

MECH-1 The project owner shall submit, for CBO design review and approval, the proposed final design, specifications, and calculations for each plant major piping and plumbing system listed in **FACILITY DESIGN**

Table 2 in Condition of Certification **GEN-2** above. Physical layout drawings and drawings not related to code compliance and life safety need not be submitted. The submittal shall also include the applicable QA/QC procedures. Upon completion of construction of any such major piping or plumbing system, the project owner shall request the CBO's inspection approval of said construction (2001 CBC, Section 106.3.2, Submittal Documents; Section 108.3, Inspection Requests; Section 108.4, Approval Required; 2001 California Plumbing Code, Section 103.5.4, Inspection Request; Section 301.1.1, Approval).

The responsible mechanical engineer shall stamp and sign all plans, drawings, and calculations for the major piping and plumbing systems subject to the CBO design review and approval, and submit a signed statement to the CBO when the said proposed piping and plumbing systems have been designed, fabricated, and installed in accordance with all of the applicable laws, ordinances, regulations, and industry standards (2001 CBC, Section 106.3.4, Architect or Engineer of Record), which may include, but not be limited to:

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

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

Verification: At least 30 days (or project owner- and CBO-approved alternative timeframe) prior to the start of any increment of major piping or plumbing construction listed in **FACILITY DESIGN Table 2** in Condition of Certification **GEN-2** above, the project owner shall submit to the CBO for design review and approval the final plans, specifications, and calculations, including a copy of the signed and stamped statement from the responsible mechanical

engineer certifying compliance with the applicable LORS, and shall send the CPM a copy of the transmittal letter in the next monthly compliance report.

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

MECH-2 For all pressure vessels installed in the plant, the project owner shall submit to the CBO and to California Occupational Safety and Health Administration (Cal-OSHA), prior to operation, the code certification papers and other documents required by the applicable LORS. Upon completion of the installation of any pressure vessel, the project owner shall request the appropriate CBO and/or Cal-OSHA inspection of said installation (2001 CBC, Section 108.3, Inspection Requests).

The project owner shall:

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

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

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

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

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

The project owner shall design and install all HVAC and refrigeration systems within buildings and related structures in accordance with the CBC and other applicable codes. Upon completion of any increment of construction, the project owner shall request the CBO's inspection and approval of said construction. The final plans, specifications, and calculations shall include approved criteria, assumptions, and methods used to develop the design. In addition, the responsible mechanical engineer shall sign and stamp all plans, drawings, and calculations and submit a signed statement to the CBO that the proposed final design plans, specifications, and calculations conform with the applicable LORS (2001 CBC, Section 108.7, Other Inspections; Section 106.3.4, Architect or Engineer of Record).

Verification: At least 30 days (or project owner- and CBO-approved alternative timeframe) prior to the start of construction of any HVAC or refrigeration system, the project owner shall submit to the CBO the required HVAC and refrigeration calculations, plans, and specifications, including a copy of the signed and stamped statement from the responsible mechanical engineer certifying compliance with the CBC and other applicable codes, with a copy of the transmittal letter to the CPM.

ELEC-1 Prior to the start of any increment of electrical construction for all electrical equipment and systems 480 volts and higher (see a representative list below), with the exception of underground duct work and any physical layout drawings and drawings not related to code compliance and life safety, the project owner shall submit, for CBO design review and approval, the proposed final design, specifications, and calculations (CBC 2001, Section 106.3.2, Submittal Documents). Upon approval, the above-listed plans, together with design changes and design change notices, shall remain on the site or at another accessible location for the operating life of the project. The project owner shall request that the CBO inspect the installation to ensure compliance with the requirements of applicable LORS (2001 CBC, Section 108.4, Approval Required, and Section 108.3, Inspection Requests). All transmission facilities (lines, switchyards, switching stations, and substations) are handled in conditions of certification in **TRANSMISSION SYSTEM ENGINEERING**.

A. Final plant design plans shall include:

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

B. Final plant calculations must establish:

1. short-circuit ratings of plant equipment;
2. ampacity of feeder cables;
3. voltage drop in feeder cables;
4. system grounding requirements;
5. coordination study calculations for fuses, circuit breakers, and protective relay settings for the 13.8-kV, 4.16-kV, and 480-V systems;
6. system grounding requirements; and
7. lighting energy calculations.

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

1. receipt or delay of major electrical equipment;
2. testing or energization of major electrical equipment; and
3. a signed statement by the registered electrical engineer certifying that the proposed final design plans and specifications conform to requirements set forth in the Energy Commission decision.

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

B. POWER PLANT EFFICIENCY

In accordance with CEQA, the Commission must consider whether the project's consumption of energy in the form of non-renewable fuel will result in adverse environmental impacts on energy resources. [Cal. Code Regs., tit. 14, § 15126.4(a)(1), Appendix F.] This analysis reviews the efficiency of project design and examines whether the project will incorporate measures that prevent wasteful, inefficient, or unnecessary energy consumption.

SUMMARY AND DISCUSSION OF THE EVIDENCE

Pursuant to CEQA, Staff analyzed whether the CGS use of natural gas would result in: 1) an adverse effect on local and regional energy supplies and resources; 2) whether any adverse impacts are significant; and 3) whether mitigation measures exist to reduce or eliminate wasteful, inefficient, or unnecessary consumption of fuel or energy. (Ex. 200, p. 5.3-1.)

Under normal conditions, the CGS will burn natural gas at a nominal rate of 3,214 million Btu per hour, LHV (lower heating value), during base load operation. The estimated fuel consumption at the same conditions with duct firing is 4,426 million Btu per hour, LHV. (Ex. 3, §3.4.5.) This is a substantial rate of energy consumption and holds the potential to impact energy supplies.

Natural gas fuel will be supplied to the project by PG&E via a new pipeline connection. (Ex. 200, p. 5.3-3.) There appears to be no real likelihood that the CGS will require the development of additional energy supply capacity, since PG&E's regional natual gas supplies are considered plentiful. Therefore, it appears unlikely that the project could cause a substantial increase in demand for natural gas in California.

Under expected project conditions, electricity will be generated at a full load efficiency of approximately 56 percent LHV. This efficiency level compares favorably to the average fuel efficiency of a typical existing base-load power plant. (Ex. 200, p. 5.3-2.)

The CGS will be configured as a combined-cycle power plant, in which electricity is generated by two gas turbines and additionally by a reheat steam turbine that operates on heat energy recovered from the gas turbines' exhaust. (Ex. 200, p. 5.3-3.) By recovering this heat, which would otherwise be lost up the exhaust stacks, the efficiency of any combined-cycle power plant is considerably better than that of either a gas turbine or a steam turbine operating alone. Such a configuration is well suited to the large, steady loads met by a base-load plant intended to supply energy efficiently for long periods of time.

The Applicant proposes to use inlet air coolers, HRSG duct burners (re-heaters), multi-pressure HRSGs, and a steam turbine unit and circulating cooling water system. (Ex. 3, p. 3-4.) We find that these features will contribute to meaningful efficiency enhancement to the CGS. The two-train combustion turbine (CT)/HRSG configuration also allows for high efficiency during unit turndown because one CT can be shut down, leaving the other fully loaded, efficiently operating one CT instead of having two CTs operating at an inefficient 50 percent load.

The CGS includes HRSG duct burners, partially to replace heat to the ST cycle during high ambient temperatures when CT capacity drops, and partially for added power. Duct firing also provides a number of operational benefits such as load following and balancing and optimizing the operation of the ST cycle.

The gas turbines to be employed in the CGS are among the most modern and efficient such machines now available. The Applicant will employ two GE Frame 7FA combustion gas turbine generators in a two-on-one combined-cycle power train nominally rated at 530-MW and 56.5 percent maximum full load efficiency

LHV at the International Organization for Standardization (ISO) conditions. (Ex. 200. p. 5.3-4.)

Consideration of various alternative power plant equipment selections showed that any differences among them in actual operating efficiency would be insignificant. Selecting among these machines is thus based on other factors, such as generating capacity, cost, commercial availability, and ability to meet air pollution limitations. (Ex. 200, p. 5.3-4.)

There are no nearby power plant projects that hold the potential for cumulative energy consumption impacts when aggregated with the project. Nor are there any other facilities that could result in cumulative energy impacts. (Ex. 200, p. 5.3-6.)

We find that construction and operation of the project would not bring about indirect impacts, in the form of additional fuel consumption, that would not have occurred but for the project. The older, less efficient power plants consume more natural gas to operate than the new, more efficient plants such as the CGS. Since natural gas would be burned by the power plants that are most competitive on the spot market, the most efficient plants would likely run the most. The high efficiency of the proposed CGS should allow it to compete very favorably, running at a high capacity factor, replacing less efficient power generating plants in the market, and therefore not impacting or even reducing the cumulative amount of natural gas available for power generation.

FINDINGS AND CONCLUSIONS

Based upon the evidence, we find and conclude as follows:

1. The CGS project will consist of two combined-cycle GE Frame 7FA power plants, two multi-pressure heat recovery steam generators (HRSGs) with duct burners, and one three-pressure, reheat, condensing steam turbine

(ST) generator producing 320-MW (nominal), arranged in a two-on-one combined-cycle train, totaling approximately 660-MW at nominal gross output. The gas turbines and HRSGs will be equipped with dry low-NOx combustors and selective catalytic reduction to control air emissions.

2. Existing natural gas resources far exceed the fuel requirements of the project.

3. The CGS will not consume natural gas in a wasteful, inefficient, or unnecessary manner.

4. The project configuration and choice of generating equipment represent an acceptable combination to achieve project objectives.

5. The project will not require additional sources of energy supply.

6. The project will have no significant impacts on energy resources.

The Commission therefore concludes that the Colusa Generating Station will not cause any significant direct or indirect impacts on energy resources. No Conditions of Certification are required for this topic.

C. POWER PLANT RELIABILITY

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

SUMMARY AND DISCUSSION OF THE EVIDENCE

A power plant is considered reliable if it does not degrade the reliability of the utility system to which it is connected or if it exhibits reliability at least equal to that of other power plants on the system. Reliable operation is a combination of factors, i.e., the power plant should be available when called upon to operate and it should be expected to operate for extended periods without shutdown for maintenance or repairs. Project safety and reliability are achieved by ensuring equipment availability, plant maintainability with scheduled maintenance outages, fuel and water availability, and adequate resistance to natural hazards. (Ex. 200, pp. 5.4-2 – 5.4-3.)

The project owner will ensure equipment availability by use of quality assurance/quality control programs (QA/QC) typical of the power industry. These include inventory review and equipment inspection, as well as testing on a regular basis during design, procurement, construction, and operation. Qualified vendors of plant equipment and materials will be selected based on past performance and independent testing contracts to ensure that reliable equipment is acquired. To ensure implementation of the QA/QC programs, the **FACILITY DESIGN** portion of this document contains appropriate conditions of certification. (Ex. 200, p. 5.4-3.)

The project's design includes appropriate redundancy of functions. The project's two combustion turbine-generators are configured as independent, parallel equipment trains. This provides inherent reliability allowing the facility to continue to operate at reduced output in the event that a non-redundant component in one train should fail. Furthermore, all plant ancillary systems are also designed with adequate redundancy to ensure continued operation in the face of equipment failure. Project maintenance will be typical of the industry, including preventative and predictive techniques. Any necessary maintenance outages will be planned for periods of relatively low electricity demand. (Ex. 200, pp. 5.4-3 - 5.4-4.)

Reasonable long-term availability of fuel and water is also necessary to ensure project reliability. As discussed in the section on **POWER PLANT EFFICIENCY**, the project will be supplied natural gas through a new 8-inch diameter 1,500 foot-long interconnection from the existing PG&E lines east of the project site. This natural gas system offers adequate supply and pipeline capacity to meet project needs.

The CGS will use water from the Glenn-Colusa Irrigation District via the Tehama-Colusa Canal located west of the project for steam cycle, evaporative inlet air cooler makeup, fire and service water, potable water for drinking, showers, eyewash stations, and sanitation. Water usage will be minimized by employing an air cooled condenser as the ultimate heat sink and a zero liquid discharge system. A 400,000 gallon raw water/firewater storage tank will allow the plant to continue operating for eight hours in case of an interruption in water supply. These sources, combined with the on-site storage capacity, yield sufficient likelihood of a reliable supply of water. (Ex. 200, p. 5.4-4.)

The site is located in Seismic Zone 3. The CGS will be designed and constructed to comply with current applicable LORS for seismic design. These standards improve seismic stability compared with older power plants, and

ensure that the project will perform at least as well as existing plants in the electrical system. (Ex. 200, p. 5.4-5.) The Conditions of Certification in the **FACILITY DESIGN** section of this Decision ensure that the project will conform with seismic design LORS.

The project site varies in elevation from 170 to 190 feet above mean sea level, well above the local valley floor. It does not receive stormwater runoff from off site and is not within a 100-year flood plain. Therefore the availability of the project is unlikely to be affected by flooding of the project site. (Ex. 200, p. 5.4-5.)

Applicant predicts the project will have an annual availability factor of 92 to 96 percent. Industry statistics for power plant availability, which are compiled by the North American Electric Reliability Council (NERC), show an equivalent availability factor of 89.00 percent for combined cycle units of all sizes. (Ex. 200, p. 5.4-5.) The project's predicted availability factor is reasonable and exceeds the NERC average. The procedures for design, procurement, and construction are in keeping with industry norms and will likely result in an adequately reliable plant. (Ex. 200, pp. 5.4-5 – 5.4-6.)

FINDINGS AND CONCLUSIONS

Based on the evidence, we make the following findings:

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

2. Adequate fuel and water capacity are available for project operations.

3. The project's estimated 92 to 96 percent availability factor is consistent with industry norms for power plant reliability.

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

We therefore conclude that the project will be constructed and operated in accordance with typical power industry norms for reliable electricity generation. No Conditions of Certification are required for this topic. To ensure implementation of the QA/QC programs and conformance with seismic design criteria as described above, appropriate Conditions of Certification are included in the **FACILITY DESIGN** portion of this Decision.

D. TRANSMISSION SYSTEM ENGINEERING

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

The California Independent System Operator (CAISO) is responsible for ensuring electric system reliability for participating entities, and determines both the standards necessary to achieve system reliability and whether a proposed project conforms to those standards. The Commission works in conjunction with the CAISO in assessing a project's potential impacts of connecting to the electricity grid. The California ISO has reviewed a utility System Impact Study (SIS), and provided its analysis, conclusions and recommendations, in a preliminary approval or concurrence letter to PG&E, the local system utility, dated January 11, 2006, Docket Log No. 45474.

SUMMARY AND DISCUSSION OF THE EVIDENCE

1. Project Description

Each generating unit would be connected to the low side of its dedicated 18/242-kV generator step-up transformer through disconnect switches. The high side of each transformer would be connected to the CGS switchyard via disconnect switches. The transformers for the combustion turbine generating units are rated

at 18/242 kV and 205 megavolt ampere (MVA); the transformer for the steam turbine generating unit is rated at 18/242 kV and 410 MVA.

The CGS would be interconnected with the transmission system by looping the Cottonwood-Cortina, Logan Creek-Vaca Dixon, Cottonwood-Vaca Dixon, and Glenn-Vaca Dixon 230-kV lines into the CGS switchyard. The switchyard would use a breaker and a half configuration with six bays and ten positions. It will include 230-kV circuit breakers, 230-kV disconnect switches, and other switching gear to allow delivery of CGS output to the Cottonwood and Vaca-Dixon lines and to allow the lines to operate independently when the CGS is off line.

A total of eight new circuits will be constructed between the transmission corridor and the new switchyard (four in and four out of the switchyard). Two circuits are carried on each tower line. All eight circuits are within the transmission corridor adjacent to the project site. Twelve new double circuit lattice steel transmission towers will be installed to accommodate both the looping of the 230-kV lines into the plant switchyard and for the connections from the generator step-up transformers to the switchyard. (Ex. 3, § 3.4.4 and 5.0; Ex. 5; Ex. 200, pp. 5.5-4 — 5.5-5.)

2. Study Results

The System Impact Study was performed to identify the transmission system impacts the CGS would cause on PG&E's 115/230/500-kV system. The SIS included a Power Flow Study, Short Circuit Study, and Dynamic Stability Analysis. The study modeled the proposed CGS for a net output of 700-MW. The base cases included all approved major transmission projects in PG&E, and the transmission system for the Western Area Power Administration (Western), the Sacramento Municipal Utility District (SMUD), and the Transmission Agency of Northern California. The detailed study assumptions are described in the SIS. (Ex. 31.) The Power Flow studies were conducted with and without the CGS connected to the PG&E grid at the Colusa switchyard using 2010 Summer Peak,

2010 Summer Off Peak, and 2010 Spring Off Peak base cases. The Power Flow study assessed the project's impact on thermal loading of the transmission lines and equipment. A governor power flow analysis was performed to assess project-rated impacts for 500-kV N-1 contingencies and selected 500-kV N-2 contingencies on the north of the Tesla/Tracy transmission system. Dynamic stability studies were conducted with the CGS using the 2007 Summer Peak base case to determine whether the CGS would create instability in the system following certain selected outages. Short circuit studies were conducted with and without the CGS to determine if the CGS would result in overstressing existing substation facilities. (Ex. 200, p. 5.5-6.)

The SIS identifies existing overloads in the power systems and new or increased overloads resulting from operation of the CGS. The overloading problems affect transmission line facilities under N-0 (normal conditions), N-1 (single contingency), and N-2 (double contingency) conditions.

Western's O'Banion–Elverta 230-kV transmission line overloads under N-0, N-1, and N-2 system conditions without CGS, and the addition of CGS would exacerbate the pre-project overloads. The SIS identified 23 N-1 outages that increase the post-project overloads from three percent to six percent. The overloads are mitigated by constructing a new, approximately 26-mile-long, double-circuit, 230-kV transmission line from the O'Banion substation to the Elverta substation. Western, SMUD, and the City of Roseville are currently evaluating the Environmental Impact Statement (EIS) and the Environmental Impact Report (EIR) for that project. The draft EIS/EIR was released in July 2007, and the Record of Decision is expected in Spring 2008. The anticipated in-service date for this mitigation project has not yet been identified. Should this new line not be constructed by the CGS operation date, the CGS would have to devise other methods, such as a remedial action scheme (RAS), or an operating agreement/procedure, to curtail the project generation to reduce the post-project overloads.

PG&E's Palermo-East Marysville Junction 2 115-kV transmission line overloads under N-0, N-1, and N-2 system conditions without CGS, and the addition of CGS exacerbates those pre-project overloads. A two percent incremental overload would occur under the N-1 contingency due to outage of Palermo-Pease or Palermo-Bouge 115-kV transmission lines. PG&E's Palermo 230/115-kV transformer overloads under pre-project N-1 and N-2 system conditions. The worst post-project incremental overloading is two percent under an N-1 contingency. These overloads are mitigated by reconductoring the Palermo-Bogue and Palermo-East Nicolaus 115 kV-lines and installing a second 230/115-kV transformer at the Palermo substation. PG&E indicated to Staff that an environmental evaluation is currently being conducted of the Palermo-Bogue and East Nicolaus reconductoring project; the service date is expected to be end of 2008 or early May 2009. The project is therefore expected to be completed by the CGS in-service date.

PG&E's Olinda 500/230-kV transformer overloads under N-1 and N-2 contingency conditions. The N-1 outage of the Captain Jack-Olinda 500-kV line causes a pre-project overload of 16 percent on the Olinda 500/230-kV transformer. This is mitigated by installing a second transformer at Olinda or use of a remedial action scheme to drop CGS generation when there is a critical 500-kV contingency.

SMUD's Hurley S-Carmichael 230-kV line overloads under pre-project system conditions. The addition of CGS increases the overloads caused by the outage of the Elverta South-Elverta West 230-kV transmission line by two percent. The overloads would be mitigated by expanding Western's Folsom 230-kV substation and looping SMUD's existing Orangeville-Lake 230-kV line into the substation via two short tie lines. Whether these system improvements will be in place when the CGS begins operation is not clear; if they are not in place, the post-project

overloads could be mitigated by implementing RAS. (Ex. 200, pp. 5.5-7 — 5.5-8.)

Category B contingency overloads would occur on the Flanagan-Shasta-Keswick 230-kV transmission line. These would be mitigated by reconductoring 8.75 miles of that line to the south of Lake Shasta. This reconductoring is required solely based on overloads caused by CGS operation. While this reconductoring is not part of the project licensed by the Energy Commission, it is a reasonably foreseeable consequence of the project's approval and therefore subject to environmental review as part of the Commission's analysis of the "whole" of the project. Western would have authority over the reconductoring of its line but at this point has not finally designed the project. That leaves uncertain whether the work would involve simply pulling a new cable between existing towers by using the existing cable or something more involved such as the construction of additional or replacement transmission towers. Commission staff prepared an analysis of the reconductoring potential environmental impacts based on available information, including Western's construction methods, Standard Operating Procedures (SOPs), and Project Conservation Measures (PCMs) and concluded as follows:

- Biological Resources: Some of the reconductoring work would occur in or near sensitive species or habitats and could adversely impact sensitive biological resources in or adjacent to the transmission line corridor. Impact avoidance measures discussed by the Applicant and in Western's SOPs and PCMs will reduce potentially significant biological impacts to less than significant levels. Once construction plans are finalized, Western would conduct its own environmental analysis and adopt appropriate mitigation measures.

- Cultural Resources: Approximately 70 cultural resources have been identified in the 0.5-mile wide research area of the reconductored line based on the Applicant's data search and Western surveys. The majority of the documented resources consist of historic sites related to mining activity, such as roads, trails, refuse dumps, mining sites, ditches, and prospect pits. Prehistoric resources, consisting of lithic scatters, seasonal campsites, and village sites, and sites containing

both prehistoric and historic components, are also present. While the reconductoring route would be sensitive for cultural resources, and some of the resources may be impacted as a result of the reconductoring effort, the impacts can be mitigated to less than significant levels through the Section 106 process and implementation of Western's SOPs and PCMs.

- Land Use: The reconductoring project utilizes existing transmission towers in an established utility corridor and conforms to all applicable regulations and general plan goals of Shasta County. Zoning along the established utility corridor consists of public property managed by the BLM, Shasta-Trinity National Forest managed by the U.S. Forest Service and the Bureau of Reclamation, and open space within Shasta County. Reconductoring of the transmission line would not cause a change in land use, disrupt or divide the physical arrangement of an established community or restrict existing or future land uses along the route. No land use impacts are expected.

- Noise: The entire area within the right-of-way is undeveloped, with the exception of a few roads that pass underneath the transmission line. There are a few residences within 500 feet of the transmission line right-of-way, including a residential community southeast of the Keswick Substation and south of the line. Short-term noise impacts to these residences may occur during the six to eight weeks of construction from operation of heavy equipment at the five to eight pull and tensioning sites. Western would use existing access roads to complete work. Implementing mitigation measures similar to the Conditions of Certification that we adopt for construction of the CGS itself, along with Western SOPs, would avoid potential significant noise impacts from the reconductoring work. After the work is complete and the line operational, there would be no change in corona noise levels.

- Traffic and Transportation: About 15 to 20 workers, intermittent delivery of equipment, and eight to 10 vehicles on a daily basis would be involved in the reconductoring. The local roads most likely to be affected would be State Route 151, Keswick Dam Road, Quartz Hill Road and Old Diggins Road. Since the majority of reconductoring activities would take place in undeveloped areas, it is projected that the activities would have minimal impact on the traffic level of service for the roadways in the vicinity of the activities, except during peak hours where there could be as much as a 10 percent increase in peak hour traffic on SR151 near Shasta Dam. Movement of heavy machinery on local roads would occur intermittently, but infrequently over the 6- to 8-week schedule. The temporary nature of the reconductoring activities and the minimal staffing and equipment expected to be required for

this effort, coupled with implementation of mitigation measures similar to the Traffic and Transportation Conditions of Certification, such as scheduling trips during non-peak hours, would ensure that any potential traffic and transportation impacts would be less than significant.

- Transmission Line Safety and Nuisance: The reconductored line would be operated at the same voltage (230-kV) as the existing line and the magnitude of the electric field along the line route would not change from current levels. The magnetic field would increase in intensity due to the increased current on the line. There are no Federal or State standards against which the electro-magnetic field (EMF) can be compared. The reconductored line would be designed, built and operated (within the existing route) according to Western's requirements, which satisfy non-EMF related health and safety LORS. The line's operation is not expected to pose a significant health and safety hazard to individuals in the area.

- Visual Resources: The reconductoring project would require only temporary disturbance necessary for replacement of existing transmission lines. Implementation of Western's SOPs or similar mitigation would mitigate this impact. With use of non-specular conductors and non-reflective and non-refractive insulators, the reconductored line would appear largely as it does now, and the project would not cause a reduction in scenic quality along the transmission corridor. No significant visual impacts are expected.

- Soil and Water Resources: The transmission line crosses several creeks that are tributaries to the Sacramento River. Construction activities would not occur within the watercourses. Therefore, impacts to water quality for would be less than significant. If tower replacement is necessary, implementation of SOPs and PCMs typically employed by Western, such as temporary erosion control measures, best management practices or similar mitigation would ensure less than significant impacts to soils.

- Geology and Paleontology: No significant geologic or paleontologic resources were identified in the project area. The existing transmission line was most likely designed and constructed in accordance with seismic requirements of Western's Construction Standards. No significant impacts to geologic and paleontologic resources are expected.

(Ex. 200, p. 5.5-8, pp. A-1 — A-51 [follows p. 5.5-18].)

Dynamic Stability studies for CGS were conducted using 2010 Summer Peak base case to determine if the CGS would create any adverse impact on the stable operation of the transmission grid following selected California ISO categories “B” (N-1) and “C” (N-2) outages. No transient stability concerns on the transmission system were identified.

Short circuit studies were performed to determine the degree to which the addition of the CGS increases fault duties at PG&E’s substations; adjacent utility substations; and the other 115-kV, 230-kV, and 500-kV busses within the study area. The SIS indicates that there would likely be overstressed breakers at the Cottonwood and Vaca-Dixon substations for the conditions studied. Based on the “close-in fault” analysis and PG&E’s replacement policy, the following breaker replacements will be the responsibility of the project owner:

- Cottonwood 230-kV substation breakers 412, 522, and 542.
- Vaca-Dixon 230-kV substation breaker 412. (Ex. 200, p. 5.5-9.)

With implementation of the above mitigation measures, Staff found that the project interconnection would comply with NERC/WECC planning standards and California ISO reliability criteria.

FINDINGS AND CONCLUSIONS

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

1. The record includes a System Impact Study (SIS) which analyzes potential reliability and congestion impacts that would occur when the CGS interconnects to the grid.

2. The SIS identified pre-project overloads in the transmission system which the addition of the CGS will exacerbate.

3. The record contains a general analysis of reconductoring of the Flanagan-Shasta-Keswick 230-kV transmission line sufficient to address CEQA requirements for indirect project impacts.

4. Other adverse transmission system impacts can be mitigated by installation of Remedial Action Schemes (RAS), operating procedures, disconnect switches, and replacement of breakers.

5. Dynamic Stability studies conducted for CGS indicated that the project will have no adverse impacts on the stable operation of the transmission system.

6. A Short Circuit Study demonstrated that the CGS would increase the fault currents of three circuit breakers at the Cottonwood substation and one breaker at the Vaca-Dixon substation. Replacement of the affected breakers will mitigate the impact.

7. The project interconnection will comply with NERC/WECC planning standards and California ISO reliability criteria and applicable LORS.

8. The Conditions of Certification below are adequate to ensure the CGS does not adversely impact the transmission grid.

9. The preliminary approval letter which has been issued by the CAISO indicates that the CGS project can be interconnected to the CAISO grid after making the required system upgrades.

We therefore conclude that with the implementation of the various mitigation measures specified in this Decision, the proposed transmission interconnection for the project will not contribute to significant direct, indirect, or cumulative impacts. The Conditions of Certification below ensure that the transmission-related aspects of the Colusa Generating Station will be designed, constructed, and operated in conformance with the applicable laws, ordinances, regulations, and standards identified in the record.

CONDITIONS OF CERTIFICATION

TSE-1 The project owner shall furnish to the Compliance Project Manager (CPM) and to the Chief Building Official (CBO) a schedule of transmission facility design submittals, a Master Drawing List, a Master Specifications List, and a Major Equipment and Structure List. The

schedule shall contain a description and list of proposed submittal packages for design, calculations, and specifications for major structures and equipment. To facilitate audits by Energy Commission staff, the project owner shall provide designated packages to the CPM when requested.

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

TRANSMISSION SYSTEM ENGINEERING Table 1
Major Equipment List

Breakers	Electrical Control Building
Step-Up Transformer	Switchyard Control Building
Switchyard	Transmission Pole/Tower
Busses	Grounding System
Surge Arrestors	Electrical Control Building
Disconnects	Switchyard Control Building
Take Off Facilities	

TSE-2 Prior to the start of construction, the project owner shall assign an electrical engineer and at least one of each of the following to the project: A) a civil engineer; B) a geotechnical engineer or a civil engineer experienced and knowledgeable in the practice of soils engineering; C) a design engineer who is either a structural engineer or a civil engineer fully competent and proficient in the design of power plant structures and equipment supports; or D) a mechanical engineer. (Business and Professions Code Sections 6704 et seq., require state registration to practice as a civil engineer or structural engineer in California.)

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

conformance with Facility Design condition **GEN-5**, may be responsible for design and review of the TSE facilities.

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

The electrical engineer shall:

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

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

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

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

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

within five days, the reason for disapproval, and the revised corrective action required obtaining the CBO's approval.

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

Compliance Report:

- Receipt or delay of major electrical equipment;
- Testing or energization of major electrical equipment; and
- The number of electrical drawings approved, submitted for approval, and still to be submitted.

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

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

1. The CGS will be interconnected to the PG&E grid via a 230-kV, 954-ACSR, approximately 2,000-foot double circuit tie line. The proposed Colusa switchyard would use a breaker and a half configuration with six-bays and 10 positions.
2. The power plant outlet line shall meet or exceed the electrical, mechanical, civil, and structural requirements of CPUC General Order 95 or National Electric Safety Code (NESC), Title 8 of the California Code and Regulations (Title 8), Articles 35, 36, and 37 of the "High Voltage Electric Safety Orders", California ISO standards, National Electric Code (NEC), and related industry standards.
3. Breakers and busses in the power plant switchyard and other switchyards, where applicable, shall be sized to comply with a short-circuit analysis.

4. Outlet line crossings and line parallels with transmission and distribution facilities shall be coordinated with the transmission line owner and comply with the owner's standards.
5. The project conductors shall be sized to accommodate the full output from the project.
6. Termination facilities shall comply with applicable PG&E interconnection standards.
7. The project owner shall provide to the CPM:
    a. The final Detailed Facility Study (DFS) including a description of facility upgrades, operational mitigation measures, and/or Special Protection System (SPS) sequencing and timing if applicable,
    b. Executed project owner and California ISO Facility Interconnection Agreement.

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

1. Design drawings, specifications, and calculations conforming with CPUC General Order 95 or NESC; Title 8, California Code of Regulations, Articles 35, 36, and 37 of the "High Voltage Electric Safety Orders"; NEC; applicable interconnection standards, and related industry standards for the poles/towers, foundations, anchor bolts, conductors, grounding systems, and major switchyard equipment.

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

3. Electrical one-line diagrams signed and sealed by the registered professional electrical engineer in responsible charge, a route map, and an engineering description of equipment and the configurations covered by requirements **TSE-5** 1) through 6) above.

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

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

TSE-6 The project owner shall inform the CPM and CBO of any impending changes, which may not conform to the requirements **TSE-5** 1) through 6) and have not received CPM and CBO approval and request approval to implement such changes. A detailed description of the proposed change and complete engineering, environmental, and economic rationale for the change shall accompany the request. Construction involving changed equipment or substation configurations shall not begin without prior written approval of the changes by the CBO and the CPM.

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

TSE-7 The project owner shall provide the following Notice to the California Independent System Operator (California ISO) prior to synchronizing the facility with the California transmission system:

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

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

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

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

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

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

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

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

DEFINITION OF TERMS

Ampacity — Current-carrying capacity, expressed in amperes, of a conductor at specified ambient conditions, at which damage to the conductor is nonexistent or deemed acceptable based on economic, safety, and reliability considerations.

Ampere — The unit of current flowing in a conductor.

Bundled — Two wires, 18 inches apart.

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

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

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

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

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

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

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

Megavar — One megavolt ampere reactive.

Megavars — Mega-volt-Ampere-Reactive. One million Volt-Ampere-Reactive. Reactive power is generally associated with the reactive nature of motor loads that must be fed by generation units in the system.

Megavolt ampere (MVA) – A unit of apparent power. It equals the product of the line voltage in kilovolts, current in amperes, and the square root of 3, divided by 1,000.

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

Normal operation/normal overload – The condition arrived at when all customers receive the power they are entitled to, without interruption and at steady voltage, and with no element of the transmission system loaded beyond its continuous rating.

N-1 condition – See "single contingency."

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

Power flow analysis – A forward-looking computer simulation of essentially all generation and transmission system facilities that identifies overloaded circuits, transformers, and other equipment and system voltage levels.

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

Remedial action scheme (RAS) – An automatic control provision, which, for instance, will trip a selected generating unit upon a circuit overload.

SF6 (sulfur hexafluoride) – An insulating medium.

Single contingency – Also known as “emergency” or “N-1 condition,” the occurrence when one major transmission element (circuit, transformer, circuit breaker, etc.) or one generator is out of service.

Solid dielectric cable – Copper or aluminum conductors that are insulated by solid polyethylene type insulation and covered by a metallic shield and outer polyethylene jacket.

Switchyard An integral part of a power plant and used as an outlet for one or more electric generators.

Thermal rating – See “ampacity.”

TSE Transmission system engineering.

Tap A transmission configuration creating an interconnection through a sort single circuit to a small or medium sized load or a generator. The new single circuit line is inserted into an existing circuit by utilizing breakers at existing terminals of the circuit, rather than installing breakers at the interconnection in a new switchyard.

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

Underbuild A transmission or distribution configuration where a transmission or distribution circuit is attached to a transmission tower or pole below (under) the principle transmission line conductors.

E. TRANSMISSION LINE SAFETY AND NUISANCE

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

SUMMARY AND DISCUSSION OF THE EVIDENCE

The CGS will be interconnected to the PG&E electric transmission grid by looping (rerouting) the four existing north-south 230-kilovolt (kV) Cottonwood to Vaca-Dixon transmission lines into the new project switchyard and then back to the transmission corridor which is approximately 1,800 feet east of the CGS site. Eight 1,800-foot double-circuit lines (four in and four out) will be constructed between the CSG switchyard and the transmission corridor. The CGS site and new transmission lines are located in an agricultural area with the nearest residence approximately 1.7 miles to the southeast.

The specific transmission components are:

- an on-site 230-kV switchyard operated by PG&E;
- eight 1,800 foot-long, 230-kV lines used for the looping connection between the switchyard and the existing Cottonwood to Vaca-Dixon lines; and
- twelve new double-circuit lattice steel transmission towers on which the lines would be carried.

The proposed lines will be designed according to PG&E safety and field-reducing design guidelines. The transmission towers will be between 100 and 125 feet high, allowing for a minimum conductor height of 45 feet above ground.

The lines would exit from the switchyard northern portion of project site and run east for approximately 1800 feet to the Cottonwood to Vaca-Dixon corridor. (Ex. 200, pp. 3-3, 4.11-3 — 4.11-4.)

Potential Impacts

Aviation Safety. Any potential hazard to area aircraft would arise from the potential for collision in the navigable airspace. There are no public airports in the vicinity of the new transmission tie lines. The proposed lines and structures will not pose an obstruction-related aviation hazard to area aircraft under FAA criteria, which require a "Notice of Construction or Alteration" for structures 200 feet and higher. (Ex. 200, p. 4.11- 5.)

Interference: Radio-Frequency Communication and Audible Noise. Transmission line-related radio-frequency interference is due to the radio noise produced by the action of the electric fields on the surface of the energized conductor, known as "corona discharge." The level of any such interference usually depends on the magnitude of the electric fields involved and the distance from the line. The potential for such impacts is, therefore, minimized by reducing the line electric fields and locating the line away from inhabited areas.

The proposed line will use low-corona designs to reduce surface-field strengths. Similar existing lines do not currently cause corona-related complaints along their routes, so there should not be any corona-related radio-frequency interference or related complaints in the general project area. However, Condition of Certification **TLSN-3** will ensure mitigation as required by the FCC in the unlikely event of complaints.

Audible noise can occur from corona discharges, though it is generally limited to transmission lines of 345-kV and larger, not the 230-kV lines proposed here. This noise does not generally extend beyond the transmission line right-of-way

and thus would be inaudible to any sensitive receptor in the vicinity. (Ex. 200, pp. 4.11-5 — 4.11-6; 4.6-14.)

Fire Hazards. Fire hazards include fires that could be caused by sparks from overhead conductors or direct contact between the conductors and nearby trees and other combustible objects. Standard fire prevention and suppression measures used for similar PG&E lines will be implemented for the proposed project lines. (Ex. 200, p. 4.11-6.)

Hazardous Shocks. Hazardous shocks could result from direct or indirect contact between an individual and the energized line, whether overhead or underground. Such shocks are capable of causing serious injury or death. Compliance with California Public Utilities Commission (CPUC) GO-95, as required by Condition of Certification **TLSN-1**, will satisfactorily mitigate any hazard. (Ex. 200, pp. 4.11-6 — 4.11-7.)

Nuisance Shocks. Nuisance shocks are caused by current flow at levels generally incapable of causing significant physiological harm. They result mostly from direct contact with metal objects electrically charged by fields from the energized line. The potential for nuisance shocks around the proposed line will be minimized through standard industry grounding practices. Condition of Certification **TLSN-2** will ensure their implementation. (Ex. 200, p 4.11-7.)

Electric and Magnetic Field (EMF) Exposure. The possibility of deleterious health effects from exposure to electric and magnetic fields (EMF) has raised public health concerns about living near high-voltage lines. While the available evidence has not established that such fields pose a significant health hazard to exposed humans, neither does it serve as proof of a definite lack of a hazard.

While there is considerable uncertainty about EMF health effects, the following facts have been established from the available information:

- Any exposure-related health risk to the exposed individual will likely be small.
- No biologically significant exposures have been established.
- Most health concerns are about the magnetic field.
- The measures employed for such field reduction can affect line safety, reliability, efficiency, and maintainability, depending on the type and extent of such measures.

Field intensities are estimated or measured for a height of one meter above the ground, in units of kilovolts per meter (kV/m) for the electric field, and milligauss (mG) for the companion magnetic field. Their magnitude depends on line voltage (in the case of electric fields), the geometry of the support structures, degree of cancellation from nearby conductors, distance between conductors, and in the case of magnetic fields, amount of current in the line.

Specific field strength-reducing measures are incorporated into power line designs to ensure the field strength minimization currently required by the CPUC in light of the concern over EMF exposure and health. These reduction measures may include the following:

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

Since optimum field-reducing measures will be incorporated into the proposed line design, further mitigation is unnecessary. Under Condition of Certification **TLSN-4,** however, validation of assumed reduction efficiency by taking before and after field strength measurements is required. (Ex. 200, pp. 4.11-7 - 4.11-9.)

FINDINGS AND CONCLUSIONS

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

1. The proposed lines and related facilities are not close enough to the nearest airport to pose an aviation hazard according to current FAA criteria.

2. The long-term, mostly residential magnetic exposure from the proposed line would be insignificant as a health concern given the absence of residences along the proposed route. On-site worker or public exposure would be short term and at levels expected for lines of similar design and current-carrying capacity. Such exposure has not been established as posing a significant human health hazard.

3. The potential for nuisance shocks will be minimized through grounding the project's lines and other field-reducing measures required by standard industry practices.

4. The Conditions of Certification reasonably ensure that the project's transmission tie-line will not have significant environmental impacts on public health and safety, nor cause impacts in terms of, radio/TV communication interference, audible noise, fire hazards, nuisance or hazardous shocks, or electromagnetic field exposure.

We therefore conclude that with implementation of the Conditions of Certification the project will conform with all applicable laws, ordinances, regulations, and standards relating to Transmission Line Safety and Nuisance.

CONDITIONS OF CERTIFICATION

TLSN-1 The project owner shall construct the proposed CGS transmission line according to the requirements of CPUC's GO-95; GO-52; GO-131D; Title 8, Section 2700 et seq. of the California Code of Regulations; and PG&E's EMF reduction guidelines arising from CPUC Decision 93-11-013 of 1989.

Verification: At least 30 days before starting construction of CGS's transmission line or related structures and facilities, the project owner shall submit to the Energy Commission's Compliance Project Manager (CPM) a letter signed by a California registered electrical engineer affirming that the line will be constructed according to the requirements GO-95; GO 52; GO-131D; Section

2700 et seq. of Title 8, California Code of Regulations; and PG&E's EMF-reduction guidelines arising from CPUC Decision 93-11-013.

TLSN-2 The project owner shall ensure that all metallic objects along the route of the CGS lines are grounded according to industry standards.

Verification: At least 30 days before the lines are energized, the project owner shall transmit to the CPM a letter confirming compliance with this condition.

TLSN-3 The project owner shall take reasonable steps to resolve any complaints of interference with radio or television signals from operation of the proposed lines.

Verification: Any reports of line-related complaints shall be summarized along with related mitigation measures for the first five years and provided in an annual report to the CPM.

TLSN-4 The project owner shall engage a qualified consultant to measure the strengths of the line electric and magnetic fields from the lines before and after they are energized. Measurements should be made at the representative points along the proposed route for which the applicant provide specific field strength estimates. These measurements shall be completed not later than six months after the start of operations.

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

V. PUBLIC HEALTH AND SAFETY ASSESSMENT

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

A. AIR QUALITY

This section examines the potential adverse impacts of criteria air pollutant emissions resulting from project construction and operation. In consultation with the local air pollution control district, the Commission determines whether the project will likely conform with applicable LORS, whether it will likely result in significant air quality impacts, including violations of ambient air quality standards, and whether the project's proposed mitigation measures will likely reduce potential impacts to insignificant levels. Applicant and Staff reached agreement on all relevant issues, including the proposed Conditions of Certification.

SUMMARY AND DISCUSSION OF THE EVIDENCE

In carrying out this analysis, the Commission evaluated the following three major points:

- Whether the CGS is likely to conform with applicable federal, state and Colusa County Air Pollution Control District air quality laws, ordinances, regulations, and standards (Title 20, Cal. Code Regs., § 1744 [b]),
- Whether the CGS is likely to cause significant new violations of air quality standards or contribute to existing violations of those standards (Title 20, Cal. Code Regs., § 1742 [b]), and
- Whether the mitigation proposed for the CGS is adequate to lessen the potential impacts to a level of insignificance (Title 20, Cal. Code Regs., § 1742 [b]).

In addition to review by the Commission, the project was reviewed by the Colusa County Air Pollution Control District (District), which has issued its Final Determination of Compliance (FDOC) for the project. The District found the project to be in compliance with all District rules and regulations. The Conditions of Certification recommended by the District in the FDOC are incorporated into the Conditions of Certification in this Decision.

The proposed CGS would be located on an agricultural 100-acre site in northern Colusa County near the Colusa County–Glenn County border. The foothills of the Coastal Range are located approximately one mile to the west of the subject site. The proposed site is located approximately four miles west of Interstate five, six miles north-northeast of Maxwell, 11 miles south-southwest of Willows, and 14 miles north-northwest of Williams.

The project is located within the jurisdiction of the Colusa County Air Pollution Control District. The applicable federal and California ambient air quality standards (AAQS) are presented in **AIR QUALITY Table 1**. The standards are presented in parts per million (ppm), or in milligrams or micrograms of pollutant per cubic meter of air (mg/m^3 or $\mu g/m^3$).

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AIR QUALITY Table 1
Federal and State Ambient Air Quality Standards

Pollutant	Averaging Time	Federal Standard	California Standard
Ozone (O_3)	8 Hour	0.08 ppm (157 µg/m^3)	0.070 ppm (137 µg/m^3)
	1 Hour	—	0.09 ppm (180 µg/m^3)
Carbon Monoxide (CO)	8 Hour	9.0 ppm (10 mg/m^3)	9.0 ppm (10 mg/m^3)
	1 Hour	35.0 ppm (40 mg/m^3)	20.0 ppm (23 mg/m^3)
Nitrogen Dioxide (NO_2)	Annual	0.053 ppm (100 µg/m^3)	under review
	1 Hour	—	0.25 ppm (470 µg/m^3)
Sulfur Dioxide (SO_2)	Annual	0.030 ppm (80 µg/m^3)	—
	24 Hour	0.14 ppm (365 µg/m^3)	0.04 ppm (105 µg/m^3)
	3 Hour	0.5 ppm (1300 µg/m^3)	—
	1 Hour	—	0.25 ppm (655 µg/m^3)
Respirable Particulate Matter (PM10)	Annual	—	20.0 µg/m^3
	24 Hour	150.0 µg/m^3	50.0 µg/m^3
Fine Particulate Matter (PM2.5)	Annual	15.0 µg/m^3	12.0 µg/m^3
	24 Hour	35.0 µg/m^3	—
Sulfates (SO_4)	24 Hour	—	25.0 µg/m^3
Lead	30-Day Average	—	1.5 µg/m^3
	Calendar Quarter	1.5 µg/m^3	—
Hydrogen Sulfide (H_2S)	1 Hour	—	0.03 ppm (42 µg/m^3)
Vinyl Chloride (chloroethene)	24 Hour	—	0.01 ppm (26 µg/m^3)
Visibility Reducing Particulates	8 Hour	—	In sufficient amount to produce an extinction coefficient of 0.23 per kilometer due to particles when the relative humidity is less than 70 percent.

Source: Ex. 200, p. 4.1-5.

The U.S. Environmental Protection Agency (U.S. EPA), California Air Resources Board (ARB), and the local air district classify an area as attainment, unclassifiable, or nonattainment, depending on whether or not the monitored ambient air quality data show compliance, are insufficient, or show non-compliance with the ambient air quality standards, respectively. **AIR QUALITY Table 2** summarizes federal and state attainment status for criteria pollutants for Colusa County.

AIR QUALITY Table 2
Federal and State Attainment Status for Colusa County

Pollutant	Attainment Status	
	Federal	State
Ozone	Unclassifiable/Attainment [a]	Nonattainment-Transitional
CO	Unclassifiable/Attainment [a]	Unclassified
NO_2	Unclassifiable/Attainment [a]	Attainment
SO_2	Attainment	Attainment
PM10	Unclassifiable/Attainment [a]	Nonattainment
PM2.5	Unclassifiable/Attainment [a]	Unclassified

[a] Unclassified/Attainment – The attainment status for the subject pollutant is classified as either attainment or unclassified.
Source: Ex. 200, p. 4.1-6.

The proposed CGS is a nominal 660-megawatt (MW) natural gas-fired, combined cycle electric generating facility. The proposed major air emissions sources are:

- Two General Electric 7FA natural gas-fired combustion turbine generators (CTGs) with dry, low NOx combustors and inlet air evaporative coolers;
- Two heat recovery steam generators (HRSGs) each equipped with 688-MMBtu/hr duct burners;
- One diesel-fueled 1,340-horsepower emergency generator engine;
- One diesel-fueled 300-horsepower fire water pump; and
- One natural gas-fired auxiliary boiler with 44-MMBtu/hr heat input.

(Ex. 200, p. 4.1-17.)

Construction at the CGS project site is expected to occur over a period of 24 months, with off-site construction starting one month before project site construction. The CGS construction will consist of laydown and construction of the power plant buildings and switchyard. This includes the following major structures:

- Two CTGs and one steam turbine generator,
- Two HRSGs and stacks,
- Air-cooled condenser,
- Aqueous ammonia storage tank and piping,
- Fin-fanned cooler,
- Administration and control building,

- Water treatment building,
- Main transformer, suspension pole, and lattice tower,
- Two water storage tanks,
- Zero liquid discharge (ZLD) wastewater treatment system,
- Storm water collection system including a 2.5-acre detention basin,
- Auxiliary boiler and steam lines.

(Ex. 200, pp. 4.1-17 – 4.1-18.)

1. Linear and Off-Site Construction

The CGS will include the following linear and off-site improvements:

- Asphalt paved roadway approximately 2,700 feet in length and 30 feet in width,
- Twelve new transmission lattice towers, four on-site and eight off-site,
- Natural gas pipeline from the adjacent PG&E natural gas main, approximately 1,500 feet of 8-inch pipe,
- Water supply pipeline from the nearby Tehama-Colusa Canal, approximately 2,700 feet of 4-inch pipe,
- Widening of the Delevan and McDermott Roads intersection,
- Reconstruction of the existing Teresa Creek Bridge,
- Tehama-Colusa Canal Access Road.

(Ex. 200, p. 4.1-18):

The construction of these facilities will generate air emissions, primarily fugitive dust from earth moving activities and combustion emissions generated from the construction equipment and vehicles. The projected highest daily emissions, based on the highest monthly emissions over the 24 month construction activity, are shown in **AIR QUALITY Table 3**. The peak short-term emissions, particularly the peak PM10 and PM2.5 emissions, will occur for site grading and construction laydown activities, which are scheduled during months two through four of project construction.

AIR QUALITY Table 3
CGS Project Construction Emissions

Pollutant	Worst-Case Hour (lb/hr)	Worst-Case Month (lb/month)	Worst-Case Annual (tons/yr)
NOx	33.40	6,677.9	33.58
CO	17.10	3,420.1	17.68
VOC	5.40	1,071.3	5.53
SOx	0.03	6.0	0.03
Exhaust PM10	1.60	328.8	2.19
Fugitive PM10	15.30	3,056.6	7.27
Exhaust PM2.5	1.60	328.8	2.19
Fugitive PM2.5	3.20	635.8	1.51

Based on 10-hour day where the exhaust PM values correspond to the peak fugitive dust period and the fugitive dust PM2.5 was calculated using a PM2.5 to PM10 factor of 0.208 for construction.
Source: Ex. 200, p. 4.1-19.

For fugitive dust emission calculation, the Applicant utilized an uncontrolled emission factor of 0.11 tons of PM10 per month per acre, assuming a 90 percent control efficiency resulting from on-site mitigation measures, to estimate the fugitive dust emissions from the acres disturbed during construction. The Applicant also calculated fugitive dust emissions from specific on-site dirt pushing activities and unpaved on-site travel using U.S. EPA emission factor calculations. (Ex. 200, p. 4.1-19.)

2. Initial Commissioning Impacts on Air Quality

Initial commissioning refers to the time period between completion of construction and reliable production of electricity for sale on the market. For most power plants, operating emission limits usually do not apply during the initial commissioning procedures. During the initial testing phases of initial commissioning, the post-combustion controls systems such as selective catalytic reduction (SCR) and oxidation catalysts are generally not operational. The short-

term, worst-case, and entire initial commissioning period emissions estimated for each pollutant are presented in **AIR QUALITY Table 4**.

AIR QUALITY Table 4
Emissions from Initial Commissioning Activities

Pollutant	Turbine Load for Peak Emissions	Peak Emission Rate (lb/hr) [a]	Total Emissions for Commissioning (tons) [b]
NOx	50%	475.0	97.0
CO	25%	1,287.3	303.6
VOC	25%	47.1	13.1
SO_2	100% w/DB	7.4	0.6
PM10	100% w/DB	18.0	13.8

Peak hourly SO_2 corrected to 1.0 grain/100 standard cubic feet (SCF) natural gas sulfur content, and total corrected to 0.3 grain/100 SCF with duct burners (DB) operating.
[a] Emissions per turbine/HRSG.
[b] Emissions for both turbines/HRSGs.
Source: Ex. 200, p. 4.1-21.

3. Operational Emission Controls and Monitoring

NOx Controls

A SCR emission control system including catalyst and ammonia injection system is proposed for installation on the two HRSGs. In addition, the CTGs will be equipped with a Dry Low NOx Combustion System (DLN).The combined DLN and SCR systems will limit exhaust concentrations of NOx, which will be reduced to 2.0 parts per million by volume, dry (ppmvd) at 15 percent O_2. Stack emissions of ammonia from the SCR system (ammonia slip) will be limited to five ppmvd at 15 percent O_2 . (Ex. 200, p. 4.1-21.)

The auxiliary boiler will be limited to 15 ppmvd NOx at 15 percent O_2. The emergency generator engine and the firewater pump engine will meet the latest U.S. EPA/ARB diesel engine standards. (*id*.)

CO and VOC Controls

Installation of an oxidation catalyst is proposed for the two HRSGs to limit CO emissions to three ppmvd and VOC emissions to two ppmvd at 3 percent O_2. As

noted above, the auxiliary boiler will meet specific emission limits. In the case of CO and VOC emissions, these limits are 50 and 10 ppmvd, respectively, at 3 percent O2. As also noted above, the two diesel engines will meet appropriate EPA/ARB Tier standards, which will also control CO and VOC emissions.

PM and SO_2 Controls

The exclusive use of pipeline-quality natural gas, a relatively clean-burning fuel, will limit the formation of PM and SO_2 emissions from the turbine/HRSGs and auxiliary boiler. Natural gas contains very little non-combustible gas or solid residues and only a small amount of reduced sulfur compounds, thus resulting in relatively low emissions of the above-mentioned pollutants. It is assumed for emission calculations purposes that the short-term maximum natural gas sulfur content is 1.0 grains/100 SCF, while the long-term or annual average sulfur content is 0.3 grains/100 SCF. This is a revision from the 0.2 grains/100 SCF used by the Applicant in the AFC. (Ex. 200, p. 4.1-22.)

In addition to meeting appropriate EPA/ARB Tier standards, which will also control PM emissions, the exclusive use of ultra-low sulfur (15 ppm by weight) diesel fuel will control their SO_2 emissions. (*id*.)

Emission Monitoring

Continuous emission monitors (CEMs) will be installed to measure NOx, CO, and O_2 emissions to assure adherence with the proposed turbine/HRSG emission limits. The CEM system will generate reports of emissions data in accordance with permit requirements and will send alarm signals to the plant's control room when the level of emissions approaches or exceeds pre-selected limits. (*id*.)

4. Project Operating Emissions

The CGS will emit NO_x, CO, VOC (volatile organic compounds), SO_x, and PM_{10}. The emissions will vary depending on the activity being conducted. The operational activities of CGS include startup of the power plant and nominal and

maximum operation of the power plant. The estimated emissions from each activity are discussed below.

5. Startup/Shutdown

Startup and shutdown events typically have higher NOx, CO, and VOC emission rates than full load operations. The expected emission rates during startup and the required time for each activity are summarized in **AIR QUALITY Table 5**. Emissions of SOx and PM10 are a function of the quantity of fuel burned. Since fuel consumption will be less during start-up and shutdown than at full load duct firing operation, emissions of these pollutants are equal to or less than the emission rates shown for normal operations in **AIR QUALITY Table 6**.

AIR QUALITY Table 5
Startup and Shutdown Emission Estimates

Startup/Shutdown Type	Timeframe	NOx	CO	VOC	SO_2	PM10
Cold Startup (270 min)	lb/hr/CT	333.3	373.6	27.7	1.80	12.0
	lb/event/CT	779.1	1,355.6	106.7	4.56	48.8
Warm Startup (180 min)	lb/hr/CT	152.0	370.3	27.7	1.80	12.0
	lb/event/CT	456.2	790.5	47.4	2.61	30.8
Hot Startup (90 min)	lb/hr/CT	249.9	429.6	27.7	1.80	12.0
	lb/event/CT	259.9	679.6	38.0	1.50	12.8
Shutdown (30 min)	lb/hr/CT	115.0	483.5	23.9	0.90	6.0
	lb/event/CT	115.0	483.5	23.9	0.90	6.0

Source: Ex. 200, p. 4.1-23.

6. Normal Operating Emissions

Operating emissions from two gas turbine/HRSGs were estimated using base case emission rates and emissions from startup and shutdown. They are shown in **AIR QUALITY Table 6**.

AIR QUALITY Table 6

Normal Hourly Emissions for the CGS Turbines/HRSGs

Operating Load and Temperature	Two Turbine/HRSG Pollutant Emission Rates (lb/hr)					
	NOx	CO	VOC	SOx	PM10	NH_3
50% Load, 18°F	19.4	17.8	4.4	7.1	25.2	18.0
50% Load, 59°F	18.2	16.6	4.2	6.6	25.0	16.8
50% Load, 114°F	17.2	15.6	4.2	6.3	25.0	15.8
75% Load, 18°F	24.6	22.6	5.4	8.9	25.4	22.8
75% Load, 59°F	23.0	21.0	5.0	8.3	25.4	21.2
75% Load, 114°F	22.0	20.0	5.0	7.9	25.2	20.4
100% Load, 18°F (no DB)	30.6	28.0	6.8	11.0	25.8	28.4
100% Load, 59°F (no DB)	28.4	26.0	6.2	10.2	25.6	26.2
100% Load, 114°F (no DB)	27.0	24.6	6.0	9.7	25.6	25.0
100% Load, 18°F (w/DB)	41.4	37.8	14.4	14.8	40.0	38.4
100% Load, 59°F (w/DB)	39.2	35.8	13.6	14.0	39.8	36.4
100% Load, 114°F (w/DB)	38.0	34.8	13.2	13.6	40.2	35.2

Source: Ex. 200, p. 4.1-23.

Maximum Expected Emissions

Maximum operating emissions from the turbines are based on short-term, worst-case emissions from both turbines. The worst-case operating conditions for each criteria pollutant are pollutant specific. PM10 and SOx emissions are directly proportional to fuel usage; therefore, worst case emissions are at 100 percent load with duct burners operating. For other pollutants, the worst-case operating condition is during startups or shutdown. The worst-case scenario for each pollutant is given in **AIR QUALITY Table 7**. Maximum operating emissions from the turbines as modeled for impact analysis purposes are presented in **AIR QUALITY Table 8**.

AIR QUALITY Table 7
Worst Case Operating Conditions for Each Criteria Pollutant

1-Hour Emissions	NOx, CO	Cold startup
	CO	Shutdown
	VOC	Startup – any kind
	PM10, SO_2	100% load with duct burners operating at 114°F and 18°F
3-Hour Emissions	SO_2	100% load with duct burners operating at 18°F
8-Hour Emissions	CO	6 hours of startup and shutdown with the balance at 100% load with duct burners operating at 18°F
24-Hour Emissions	NOx, CO, VOC	6 hours of startup and shutdown with the balance at 100% load with duct burners operating at 18°F
	PM10, SO_2	100% load with duct burners operating at 114°F and 18°F

Source: Ex. 200, p. 4.1-25.

AIR QUALITY Table 8
Maximum Short-Term Emissions for Both Turbines

	Units	NOx	CO	VOC	SOx	PM10
1-Hour	(lb/hr)	666.6	967.0	55.4	14.8	40.2
3-Hour	(lb/3 hrs)	--	--	--	44.4	--
8-Hour	(lb/8 hrs)	--	7,054.2	--	--	--
24-Hour	(lb/day)	2,994.6	7,659.0	630.6	355.2	964.8

Source: Ex. 200, p. 4.1-25.

Auxiliary Equipment Emissions

CGS has an auxiliary boiler, an emergency generator engine, and an emergency firewater pump engine. The auxiliary boiler is used to maintain turbine seals and provide steam to the air cooled condenser steam jet air injectors during shutdown, facilitate startup, and include capacity to operate the zero liquid discharge system. The requested maximum hours of operation for the auxiliary boiler are 3,744 hours per year. The non-emergency operation of the emergency generator and firewater pump will be limited to 50 hours of testing per year. Emissions from the auxiliary equipment are presented in **AIR QUALITY Table 9**.

AIR QUALITY Table 9
Annual Emissions from Auxiliary Equipment

	NOx		CO		VOC		SOx		PM10	
Equipment	**(lb/hr)**	**(ton/yr)**	**(lb/hr)**	**(ton/yr)**	**(lb/hr)**	**(ton/yr)**	**(lb/hr)**	**(ton/yr)**	**(lb/hr)**	**(ton/yr)**
Auxiliary Boiler	0.79	1.48	1.61	3.01	0.18	0.10	0.13	0.07	0.33	0.62
Emergency Gen.	13.90	0.35	0.32	0.008	0.15	0.004	0.01	0.003	0.09	0.002
Firewater Pump	1.98	0.05	0.22	0.006	a	A	<0.01	0.003	0.08	0.002

a – Included in Tier 3 NOx emission limit, which is specified as non-methane hydrocarbons (NMHC) + NOx.
Source: Ex. 200, p. 4.1-26.

Total Facility Emissions

The total quarterly and annual emission levels for both gas turbine/HRSGs and auxiliary equipment are provided in **AIR QUALITY Table 10**. Actual operating conditions at the CGS will vary, but will not exceed these quarterly and annual emission levels.

AIR QUALITY Table 10
Criteria Pollutant Quarterly and Annual Emissions for CGS

Period	Units	NOx	CO	VOC	SOx	PM10
1st Quarter	(ton/qtr)	45.60	54.20	12.36	4.05	35.29
2nd Quarter	(ton/qtr)	43.62	52.40	11.69	3.83	35.39
3rd Quarter	(ton/qtr)	51.34	107.06	11.90	3.87	35.70
4th Quarter	(ton/qtr)	44.31	53.86	11.82	3.87	35.69
Annual	(ton/yr)	184.87	267.52	47.77	15.62	142.08

Source: Ex. 200, p. 4.1-26.

Ammonia Emissions

The Applicant has estimated that the maximum ammonia slip emissions for both turbines will be 38.4 pounds/hour. (Ex. 8, p. 8.1-44.)

7. Assessment of Impacts and Discussion of Mitigation

We assess three kinds of impacts: construction, operation, and cumulative effects. Construction impacts result from the emissions that occur during construction of the project. Operation impacts result from the operating emissions of the proposed project over the proposed lifetime of the project. Cumulative effects analysis assesses the impacts that result from the proposed project's incremental effect together with other closely related past and present projects and those reasonably foreseeable future projects, whose impacts may compound or increase the incremental effect of the proposed project. Cumulative impacts are also assessed in terms of conformance with the District's attainment or maintenance plans.

Staff used two main significance criteria in evaluating this project. First, all project emissions of non-attainment criteria pollutants and their precursors (NOx, VOC, PM10, and SO_2) are considered significant and must be mitigated. Second, any ambient air quality standard (AAQS) violation or any contribution to any AAQS violation caused by any project emissions is considered to be significant and must be mitigated. For construction emissions, the mitigation that is considered is

limited to controlling both construction equipment tailpipe emissions and fugitive dust emissions to the maximum extent feasible. For operating emissions, the mitigation includes both feasible emission controls (BACT) and the use of emission reduction credits to offset emissions of non-attainment criteria pollutants and their precursors.

The ambient air quality standards used as a basis for determining project significance are health-based standards established by the ARB and U.S. EPA. They are set at levels adequate to protect the health of all members of the public, including those most sensitive to adverse air quality impacts such as the aged, people with existing illnesses, children, and infants, including a margin of safety.

8. Construction Impacts and Mitigation

The following section discusses the project's short-term direct construction ambient air quality impacts, as estimated by the Applicant, and provides a discussion of appropriate mitigation. Staff reviewed the construction emissions estimates and air dispersion modeling procedures and considers them to be adequate for impact determination and generally conservative for this siting case.

Construction Impact Analysis

As can be seen from the modeling results provided in **AIR QUALITY Table 11**, the construction impacts of PM10 and PM2.5 (24-hour and annual) exceed the ambient air quality standards and are, therefore, potentially significant. The Applicant's construction modeling analysis indicates that the maximum NOx, CO, and SO_2 impacts will remain below the California ambient air quality standards (CAAQS) and national ambient air quality standards (NAAQS).

AIR QUALITY Table 11
CGS Construction Impacts (μg/m^3)*

Pollutant	Averaging Period	Project Impact (μg/m^3)	Background (μg/m^3)	Total Impact (μg/m^3)	Limiting Standard (μg/m^3)	Type of Standard	Percent of Standard
NO_2	1 hour	120.3	131.6	251.9	470	CAAQS	54
	annual	6.3	22.6	28.9	100	NAAQS	29
PM10	24hour	332.6	92.0	424.6	50	CAAQS	849
	annual	3.3	25.5	28.8	20	CAAQS	144
PM2.5	24 hour	26.6	27.0	53.6	35	NAAQS	150
	Annual	0.61	11.2	11.8	12	CAAQS	98
CO	1 hour	1354.7	6,670.0	8,025.0	23,000	CAAQS	35
	8 hour	190.0	3,778.0	3,968.0	10,000	CAAQS	40
SO_2	1 hour	2.1	47.2	49.3	655	CAAQS	8
	3 hour	0.69	42.5	43.2	1,300	NAAQS	3
	24 hour	0.10	7.1	7.2	105	CAAQS	7
	Annual	0.008	2.7	2.7	80	NAAQS	3

* Micrograms per cubic meter.
Source: Ex. 200, p. 4.1-29.

The Applicant's modeling procedures, specifically the use of area sources to model the fugitive dust emissions, greatly overestimate the PM10 and PM2.5 impacts at fence line. Therefore, we find that the construction PM2.5 impacts, after the mitigation proposed by the Applicant, will not cause a new exceedance of the 24-hour standard; however, the PM10 impacts remain potentially significant and would require all feasible mitigation measures.

Construction Mitigation

Due to the potentially significant PM10 impacts from construction, we require that construction emission impacts be mitigated to the greatest feasible extent.

Applicant's Proposed Mitigation

The Applicant has proposed, and we require, the implementation of the following measures to reduce emissions during construction activities. (Ex. 8, pp. 8.1-29, 30.)

- Water unpaved roads and disturbed areas frequently (at least twice a day).
- Limit speed of vehicles on the construction areas to no more than 10 miles per hour.

- Post visible speed limit signs at construction site entrance.
- Sweep paved internal roads after the evening peak period.
- Increase frequency of watering when wind speeds exceed 15 miles per hour.
- Employ tire washing and gravel ramps prior to entering a public roadway to limit deposits of accumulated mud and dirt on the roads.
- Treat the entrance roadways to the construction site with soil stabilization compounds.
- Place sandbags adjacent to roadways to prevent runoff to public roadways.
- Install windbreaks at the windward sides on construction areas prior to the soil being disturbed. The windbreaks shall remain in place until the soil is stabilized or permanently covered.
- Employ dust sweeping vehicles at least twice a day to sweep at least the first 500 feet of public roadways that are used by construction and worker vehicles.
- Sweep newly paved roads at least twice weekly.
- Replace ground cover in disturbed areas as quickly as possible.
- Cover all trucks hauling dirt, sand, soil, or other loose materials and maintain a minimum of six inches of freeboard between the top of the load and the top of the trailer.
- Apply covers or dust suppressants to soil storage piles and disturbed areas that remain inactive for more than two weeks.
- Pre-wet the soil to be excavated during construction.
- Designate a person to oversee the implementation of the fugitive dust control program.

Applicant-proposed heavy diesel construction equipment exhaust emission control measures include:

- All diesel-fueled engines used for construction of the facility shall be fueled only with ultra-low sulfur diesel which contains no more than 15 ppm sulfur.
- All diesel-fueled engines used in the construction shall have clearly visible tags showing that the engine meets the conditions set forth in this program.
- All construction diesel engines rated at 100 horsepower or above shall meet at least the California Tier 2 Emissions Standards. If a Tier 2 engine is not available, a Tier 1 engine shall be provided. In the case that no Tier 1 engine is available for a particular application, the engine shall be equipped with a catalyzed diesel particulate filter (soot filter), unless the use of a soot filter is certified as not practical by the engine manufacturer.

- All earthmoving equipment and heavy-duty construction-related trucks shall be properly maintained and the engines tuned to the manufacturer's specifications.
- Diesel heavy construction equipment shall not remain running at idle for more than five minutes, to the extent practical.
- All equipment idle times shall be limited to no more than 15 minutes.
- Electric motors shall be employed for construction equipment when feasible.

Adequacy of Proposed Mitigation

The Applicant's proposed construction emissions mitigation measures are substantial. However, the Applicant's revised PM10 emission estimate assumes a very aggressive 90-percent control efficiency factor for fugitive dust, which may be overly optimistic. All reasonably feasible construction emission mitigation measures, including some not already proposed by the Applicant, are needed to mitigate the potentially significant construction PM10 impacts.

Required Additional Mitigation

The Applicant shall implement construction PM10 and NOx emission mitigation measures that include both the mitigation measures proposed by the Applicant and additional mitigation measures and compliance assurance measures in Conditions of Certification **AQ-SC1** through **AQ-SC5**.

Based on the relatively short-term nature of the worst-case construction impacts, the distance to sensitive receptors, and the required implementation of all reasonably feasible construction emission mitigation measures, we find that the construction air quality impacts will be less than significant.

9. Operation Impacts and Mitigation

The following section discusses the project's direct ambient air quality impacts, as estimated by the Applicant and evaluated by Staff, and the required mitigation measures.

Operational Modeling Analysis

A refined modeling analysis was performed to identify off-site criteria pollutant impacts from operational emissions of the proposed project. Turbine emission rates were first calculated from equipment vendor estimates for 12 load conditions:

- Four load cases: 50 percent load, 75 percent load, 100 percent load, and 100 percent load with duct firing.
- Each load case was evaluated at three different ambient conditions: winter minimum, yearly average, and summer maximum.

These conditions were then modeled to determine the worst-case, short- term conditions, the assumptions to be used for the quarterly emission estimates, and the stack parameters to be used in the modeling analysis. The Applicant's predicted maximum concentrations of the non-reactive pollutants for the CGS are summarized below in **AIR QUALITY Table 12.**

AIR QUALITY Table 12
CGS Normal Operating Impacts (μg/m^3)

Pollutant	Averaging Period	Project Impact (μg/m^3)	Background (μg/m^3)	Total Impact (μg/m^3)	Limiting Standard (μg/m^3)	Type of Standard	Percent of Standard
NO_2	1 hour	40.10	131.6	171.7	470	CAAQS	37
	annual	0.64	22.6	23.2	100	NAAQS	23
PM10	24 hour	6.10	92.0	98.1	50	CAAQS	196
	annual	0.51	25.5	26.0	20	CAAQS	130
PM2.5	24 hour	2.73	27.0	29.7	35	NAAQS	82
	annual	0.51	11.2	11.7	12	CAAQS	98
CO	1 hour	1,395.80	6,670.0	8,066.0	23,000	CAAQS	35
	8 hour	293.10	3,778.0	4,071.0	10,000	CAAQS	41
SO_2	1 hour	20.33	47.2	67.5	655	CAAQS	10
	3 hour	8.58	42.5	51.1	1,300	NAAQS	4
	24 hour	1.62	7.1	8.7	105	CAAQS	8
	annual	0.04	2.7	2.7	80	NAAQS	3

Source: Ex. 200, p. 4.1-33.

The Applicant's modeling results indicate that the project's normal operational impacts would not create violations of NO_2, SO_2, CO, or PM2.5 standards, but could further exacerbate existing violations of the PM10 standards. In light of the

existing PM10 and PM2.5 non-attainment status for the project site area, we find that the modeled impacts are significant and require mitigation.

Fumigation Modeling Impact Analysis

During the early morning hours before sunrise, the air is usually very stable. During such meteorological conditions, emissions from elevated stacks rise through this stable layer and are dispersed. When the sun first rises, the air at ground level is heated, resulting in a vertical (both rising and sinking air) mixing of air for approximately a few hundred feet. Emissions from a stack that enter this vertically mixed layer of air will also be vertically mixed, bringing some of those emissions down to the ground level. Later in the day, as the sun continues to heat the ground, this vertical mixing layer rises higher and higher, and the emissions plume becomes better dispersed. The early morning pollution event, called fumigation, usually lasts approximately 30 to 90 minutes. There is the potential for higher short-term concentrations to occur during such conditions.

Fumigation conditions are generally only compared to one-hour standards. The Applicant analyzed the maximum one-hour air quality impacts under fumigation conditions from the project using the SCREEN3 model. (Ex. 8, p. 8.1-51.) The results of the analysis, as shown in **AIR QUALITY Table 13**, indicate that the fumigation impacts would be lower than the maximum normal operating emission impacts.

AIR QUALITY Table 13
Maximum CGS Fumigation Impacts (μg/m^3)

Pollutant	Averaging Period	Project Impact (μg/m^3)	Background (μg/m^3)	Total Impact (μg/m^3)	Limiting Standard (μg/m^3)	Type of Standard	Percent of Standard
NO_2	one hour	3.09	131.6	134.7	470	CAAQS	29
CO	one hour	2.82	6,670.0	6,673.0	23,000	CAAQS	29
SO_2	one hour	1.16	47.2	48.4	655	CAAQS	7

Source: Ex. 8, p. 8.1-51.

Maximum fumigation impacts for the turbines were predicted to occur about 16 kilometers (km) from the facility. The impacts under fumigation conditions have been determined to be lower than the maximum concentrations calculated by AERMOD in complex terrain. This is due to the gas turbine/HRSG stack temperatures which reduce the potential for fumigation and the fact that the SCREEN3 fumigation modeling does not consider elevated terrain.

Startup Modeling Impact Analysis

The Applicant modeled facility impacts during the startup of the new turbines/HRSGs along with operation of the auxiliary boiler. Emissions rates for this scenario were based on requested permitted NOx and CO emission rates during startup (see **AIR QUALITY Table 5**). Startup impacts were evaluated using the AERMOD model, and NOx impacts were determined using the NOx OLM modeling option. As shown in **AIR QUALITY Table 14**, the worst-case emissions would not cause an exceedance of the one-hour NO_2 standard or the one-hour and eight-hour CO standards. Therefore, the modeling results indicate that the startup emissions do not have the potential to cause significant short-term ambient air quality impacts.

AIR Quality Table 14
CGS Startup Worst-Case Short-Term Impacts, (μg/m^3)

Pollutant	Averaging Period	Project Impact (μg/m^3)	Background (μg/m^3)	Total Impact (μg/m^3)	Limiting Standard (μg/m^3)	Type of Standard	Percent of Standard
NO_2	one hour	329.7	131.6	461.3	470	CAAQS	98
CO	one hour	1,395.8	6,670.0	8,066.0	23,000	CAAQS	35
CO	eight hour	293.1	3,778.0	4,071.0	10,000	CAAQS	41

Source: Ex. 200, p. 4.1-34.

Commissioning Modeling Impact Analysis

The Applicant evaluated nine separate initial commissioning activities that would occur prior to meeting normal emission limits. The worst case conditions for the short-term NOx and CO impacts were determined and modeled. The Applicant

has committed to commissioning one turbine at a time prior to installation of the emission control systems and has modeled the impacts considering that only one turbine is operating at the worst-case initial commissioning conditions.

The AERMOD model was used for the modeling analysis, and the NOx OLM option was used for the one-hour NOx modeling. As shown in **AIR QUALITY Table 15**, the worst-case emissions would not cause an exceedance of the one-hour NO_2 standard or the one-hour and eight-hour CO standards. Therefore, the modeling results indicate that the commissioning emissions do not have the potential to cause significant short-term ambient air quality impacts.

AIR QUALITY Table 15
Maximum CGS Initial Commissioning Impacts

Pollutant	Averaging Period	Project Impact ($\mu g/m^3$)	Background ($\mu g/m^3$)	Total Impact ($\mu g/m^3$)	Limiting Standard ($\mu g/m^3$)	Type of Standard	Percent of Standard
NO_2	one hour	197.0	131.6	328.6	470	CAAQS	70
CO	one hour	2,504.0	6,670.0	9,174.0	23,000	CAAQS	40
	eight hour	888.0	3,778.0	4,666.0	10,000	CAAQS	47

Source: Ex. 200, p. 4.1-35 .

Class I Area Impacts

A criteria pollutant, visibility, and air quality related values (AQRV) analysis of a project's operating emissions impacts to Class 1 areas is required under the federal Prevention of Significant Deterioration (PSD) permitting program. The analysis provided by the Applicant showed that the only Class 1 PSD area (which pertains to national parks and national wildlife refuges) located within the 100-kilometer distance prescribed in the PSD regulation is the Yolla Bolly-Middle Eel Wilderness approximately 88 km northwest of the proposed project site. The Applicant provided a modeling analysis which showed that the impacts for CGS are well below all of the Class 1 area impact criteria. (Ex. 8, Table 8.1-26, p. 8.1-51; Ex. 47, Table 6-4, p. 6-7.)

The Applicant provided an assessment of the potential changes to visibility and of nitrogen and sulfur deposition which showed that visibility passed all screening

criteria and that the project's total sulfur and nitrogen deposition values were well below the United States Forest Service prescribed values. (Ex. 8, p. 8.1-13 and Table 8.1-27, p. 8.1-52.) We find that the potential air visibility and deposition impacts to Class 1 PSD areas from the exhaust emissions of the project are less than significant.

Impacts to Emerald Farms

Emerald Farms, an Intervenor in this siting case, has significant and sensitive farming operations located near the proposed power plant project site. The Applicant provided an analysis regarding the concerns noted by Emerald Farms in its petition to intervene, including air quality impacts to area farming operations. (Ex. 55.) The Applicant's analysis focused on the impacts of ozone pollution and other criteria and air toxics impacts from the CGS plant operation. The general findings of the Applicant's analysis--that the project should not cause significant increases in ozone pollution or otherwise increase ground level pollutants in a manner that would significantly impact Emerald Farms, or other local farming operations—are uncontroverted.

Emerald farms also raised the issue of potential crop damage from sulfur emissions, stating both that their farming operations include crops that are sensitive to sulfur emissions (SO_2) and that their crops are being damaged by the existing PG&E Delevan Compressor Station gas turbines. Recognition of Air Pollution Injury to Vegetation (Flagler, 1998), cited by Emerald Farms, indicates that there are many factors that can mimic SO_2 damage, such as damage from salt, anhydrous ammonia, and various pests and parasites. Further, it is uncontroverted that project SO_2 emissions will be below any LORS requirements. Therefore we find that the crop damage claimed by Emerald Farms is probably being caused by factors other than SO_2 emissions from the Delevan compressors and further find that the proposed CGS SO_2 emissions will not have any significant impacts to local crops.

There is potential for crop damage caused by particulate fallout. The Applicant has proposed extensive particulate emissions controls to mitigate fugitive dust emissions that Staff has formalized and augmented in Conditions of Certification **AQ-SC1** to **AQ-SC5**; we find that these measures will adequately control particulate emissions during construction.

10. Operations Mitigation

Emission Controls

The Applicant proposes to employ DLN, SCR with ammonia injection, and an oxidation catalyst, and to operate exclusively on pipeline-quality natural gas to limit turbine emission levels. The auxiliary boiler will use BACT. The emergency engines will meet the most recent ARB/U.S. EPA engine standards. (Ex. 51, DR 27.)

Emission Offsets

District Rule 3.6 requires that the Applicant provide emission offsets, in the form of banked Emission Reduction Credits (ERC) for the project's emissions exceeding the CCAPCD offset threshold of 25 tons per year. The CGS would require offsets for NOx, VOC, and PM10 based on District Rule 3.6. **AIR QUALITY Table 16** shows the summary of the emission liabilities that need to be offset under Rule 3.6 requirements.

AIR QUALITY Table 16
CGS District Offset Requirements (lb/year)

	NOx	**VOC**	**PM10**	**SO_2**	**CO [a]**
CGS Emissions	369,736.3	95,534.1	284,154.7	31,233.7	535,049.3
Offset Threshold	50,000	50,000	50,000	50,000	50,000
Offsets Triggered?	**Yes**	**Yes**	**Yes**	**No**	**No**

Source: Ex. 200, p. 4.1-38.

All air pollutant offsets provided for the project, by rule, are estimated on a quarterly basis. The Applicant is proposing over 20 different sources of ERCs to mitigate the project's potential emissions. Two of these ERC sources are stationary source shutdowns, and 20 are agricultural burning cessation ERCs.

The Appendix to the Air Quality Conditions of Certification in this Decision provides a complete listing of all of the ERC sources proposed by the Applicant, and for the agricultural burning cessation ERCs, identifies the specific crops associated with the burning cessation.

For this project the District's offset requirements would meet or exceed the Energy Commission's minimum offsetting goal of a 1:1 ratio of annual operating emissions for all pollutants other than VOC and SO_2. The Applicant has proposed to provide VOC and SO_2 emission reduction credits to offset the permitted annual emissions at a 1:1 ratio. The Applicant has demonstrated, per District requirements and Energy Commission policy, that it owns ERCs in quantities sufficient to offset the project's NOx, VOC, PM10, and SO_2 emissions. A brief discussion of each category of ERC's follows.

NOx Emission Offsets

The Applicant has proposed the use of VOC-for-NOx interpollutant offsets. VOC and NOx are accepted as the principle precursors of ozone, and through a set of complex reactions these pollutants form ground level ozone. Reductions in either VOC or NOX pollution can reduce ozone formation. Therefore, interpollutant offsets VOC-for-NOx and NOx-for-VOC can be used to reach the goal of mitigating a project's impacts to ozone formation. The key issue is the determination of an appropriate interpollutant offset ratio, which depends on the ambient amounts of VOC and NOx emissions and general air chemistry of the area in question. The interpollutant ratio proposed by the Applicant (1.4:1) is primarily based on the methods of a study conducted for the San Francisco Bay Area. (Ex. 51, DR 10.) Even using the emissions within the greater Sacramento Valley air basin would predict a VOC-for-NOx interpollutant offset ratio of less than 1.4:1.

The Air Resources Board has challenged VOC-for-NOx interpollutant offsets for this project but has not supported its challenge with information that would fully explain and substantiate its position. The Applicant appears to be in compliance

with the District's NOx offset requirements and is providing ERCs at a total offset ratio of greater than the Commission-required 1:1 for the CGS project. We therefore find that this offset proposal satisfies CEQA mitigation requirements and accept the proposed VOC-for-NOx interpollutant ratio, which has been accepted by the CCAPCD in its FDOC. (Ex. 201.)

VOC Emission Offsets

The evidence shows that the Applicant is in compliance with the District's VOC offset requirements; however, the District's offset requirements are less than the Commission's required total offset ratio of 1:1. Therefore, we are imposing a requirement that the VOC ERCs provided meet a minimum of a 1:1 ratio in the Conditions of Certification. We find that this offset proposal, as mitigated, satisfies CEQA mitigation requirements.

PM10 Emission Offsets

The evidence shows that the Applicant is in compliance with the District's PM10 offset requirements and is providing PM10 ERCs at a greater than 1:1 total offset ratio for the CGS project.

The District does not specifically require the offsetting of PM2.5 emissions or require PM10 ERCs to break out their PM2.5 fractions. The PM emissions from the CGS are controlled combustion emissions and are therefore predominantly PM2.5. Therefore, we find that most of the ERCs being used to offset the PM10 emissions are also PM2.5 emission reductions and will provide a minimum 1:1 offset ratio for the project's PM2.5 emissions.

SO_2 Emission Offsets

The Applicant is not required by the District to provide SO_2 offsets, but is proposing to offset annual SO_2 emissions per Commission mitigation requirements. The offset proposal exceeds the quarterly emissions in every quarter except the third quarter. However, this third quarter deficit would be adequately covered by providing the necessary additional 731.6 pounds of SO_2

ERCs using an ERC certificate from any combination of calendar quarters. Therefore, we find that this offset proposal, as recommended to be adjusted by Staff, satisfies CEQA mitigation requirements.

Adequacy of Proposed Mitigation

The District has determined that the project's proposed emission controls/emission levels meet BACT requirements and that the proposed emission levels are reduced to the lowest technically feasible levels. This, coupled with Staff's determination that the proposed emission controls and emission levels and the proposed emission offset package mitigate all project impacts to less than significant, provide substantial support for our determination that the Applicant's offset proposal meets CEQA mitigation requirements.

11. Cumulative Impacts

"Cumulative impacts" are defined as "two or more individual effects which, when considered together, are considerable or . . . compound or increase other environmental impacts. . . A cumulative impact consists of an impact that is created as a result of a combination of the project evaluated in the EIR together with other projects causing related impacts." (CEQA Guidelines §§ 15355 and 15130[a][1].) Such impacts may be relatively minor and incremental, yet still be significant because of the existing environmental background, particularly when one considers other closely related past and present projects as well as those in the reasonably foreseeable future.

Much of the preceding discussion is concerned with cumulative impacts; air quality measurement, by its very nature, involves measuring pollutants accumulated from many sources.

The Colusa County Air Pollution Control District (CCAPCD) is the agency with principle responsibility for analyzing and addressing cumulative air quality impacts, including the impacts of ambient ozone and particulate matter. Colusa

County is currently designated either as attainment or unclassifiable with respect to the federal ambient air quality standards; therefore the District is not required to have a federal Air Quality Management Plan. Colusa County Air Pollution Control has jointly developed an Air Quality Attainment Plan (AQAP) for the Northern Sacramento Valley Air Basin (NSVAB) to deal with state ambient air quality attainment. This plan includes certain stationary source, area source, and transportation control measures (TCMs). These plans are updated roughly every three years and the most recently adopted plan is the 2003 AQAP. (Ex. 200, p. 4.1-44.) Since the project will comply with all existing emission control LORS and will fully offset all non-attainment pollutant and precursor emissions, we find that the project will not conflict with the District's AQAP.

Localized Cumulative Impacts

The power plant's localized cumulative impacts can be estimated through air dispersion modeling. The modeling results are added to the background ambient air quality monitoring data to determine the cumulative project emission impacts. The necessity and extent of mitigation can then be determined.

The cumulative assessment for the CGS includes the adjacent PG&E Delevan Compressor Station gas turbines, the only other nearby industrial emission source, to ensure that there are no significant localized impacts due to the proximity of these two major sources. The results of this cumulative modeling effort, **AIR QUALITY Table 17**, show that the CGS along with the PG&E Delevan Compressor Station will contribute slightly to existing violations of the PM10 AAQS standards.

AIR QUALITY Table 17
Cumulative Impacts Modeling Results (ug/m^3)

Pollutant	Averaging Time	Maximum Modeled Concentration (ug/m^3)	Background (ug/m^3)	Total Impact (ug/m^3)	Limiting AAQS (ug/m^3)	Percent of Limiting Standard
NO_2	1 Hour	332.80	125.98	**458.79**	470	**98**
	Annual	1.23	22.6	23.8	100	24
CO	1 Hour	952.36	6,670.0	7,622.0	23,000	33
	8 Hour	172.66	3,778.0	3,951.0	10,000	40
PM10	24 Hour	4.78	**92.0**	**96.8**	50	**194**
	Annual	0.51	**25.5**	**26.0**	20	**130**
PM2.5	24 Hour	2.59	27.0	29.6	35	85
	Annual	0.51	11.2	11.7	12	98
SO_2	1 Hour	14.17	47.2	61.4	655	9
	3 Hour	8.30	42.5	50.8	1300	4
	24 Hour	1.81	7.1	8.9	105	8
	Annual	0.04	2.7	2.7	80	3

Source: Ex. 200, p. 4.1-47.

However, determination of cumulative impact requires taking into account the proposed project's incremental effect together with other closely related past, present, and reasonably foreseeable future projects whose impacts may compound or significantly increase the incremental effect of the proposed project. We find that the CGS would not have a significant cumulative impact. The project's slight impact on existing PM10 violations is not sufficient to support a finding of significant cumulative impact.

12. Secondary Pollutant Impacts

Ozone and PM2.5 Impacts

The project's gaseous emissions of NOx, SO_2, VOC, and ammonia can contribute to the formation of secondary pollutants ozone and PM10/PM2.5.

The Applicant is proposing to mitigate the project's NOx, VOC, SO_2, and PM10 emissions through the use of emission offsets and to limit the ammonia slip emissions to 5 ppm. The NOx, VOC, SO_2, and PM10 offsets are proposed by the Applicant to be provided at a minimum 1:1 ratio and will be higher than 1:1 for

PM10 and NOx as required by District rules. With the proposed emission offsets, we find that the project will not cause significant secondary pollutant impacts.

Greenhouse Gases

The generation of electricity can produce air emissions known as greenhouse gases in addition to the criteria air pollutants. Greenhouse gases are known to contribute to the warming of the earth's atmosphere. These include primarily carbon dioxide, nitrous oxide (N_2O, not NO or NO_2, which are commonly known as NOx or oxides of nitrogen), and methane (unburned natural gas). Also included are sulfur hexafluoride (SF_6), hydrofluorocarbons (HFCs), and perfluorocarbons (PFCs) from transformers and chillers.

Climate change from rising temperatures represents a risk to California's economy, public health, and environment. (Ex. 200, p. 4.1-49.) In 1998, the Commission identified a range of strategies to prepare for an uncertain climate future, including a need to account for the environmental impacts associated with energy production, planning, and procurement. (*id.*) In 2003, the Commission recommended that the state require reporting of greenhouse gas emissions as a condition of state licensing of new electric generating facilities (*id*.) Such reporting would be done in accordance with reporting protocols currently in place or that will be adopted with the implementation of new laws. The Intergovernmental Panel on Climate Change (IPCC), an international scientific body, has developed standard reporting protocols and methodologies for governments and agencies to follow in calculating GHG inventories. (*id*.)

The California Global Warming Solutions Act of 2006 (AB32) requires the ARB to adopt a statewide greenhouse gas emissions limit equivalent to the statewide GHG emissions levels in 1990 to be achieved by 2020. ARB has a mandate to adopt rules and regulations requiring the maximum technologically feasible and cost-effective GHG emission reductions.

The ARB was scheduled to adopt regulations requiring mandatory GHG emissions reporting and defining the statewide GHG emissions cap for 2020 by January 2008. ARB would adopt a plan by January 1, 2009, that would indicate how emission reductions would be achieved from significant sources of GHGs via regulations, market mechanisms, and other actions. Then, during 2009, ARB Staff would draft rule language to implement its plan and hold public workshops on each measure including market mechanisms. Strategies that the state might pursue for managing GHG emissions in California are identified in the California Climate Action Team's Report to the Governor. (*id*.)

The Electricity Greenhouse Gas Emission Standards Act (SB 1368) was also enacted in 2006, imposing a GHG or Environmental Performance Standard upon generation and contracts. At its January 25, 2007 meeting, the CPUC adopted an Emissions Performance Standard for the state's Investor Owned Utilities of 1,100 pounds (or 0.5 metric tons) CO_2 per megawatt-hour (MWh). The Emissions Performance Standard applies to base load power from new power plants, new investments in existing power plants, and new or renewed contracts with terms of five years or more, including contracts with power plants located outside of California. A similar performance standard is undergoing rulemaking by the CEC for the Publicly Owned Utilities.

We adopt condition of certification **AQ-SC8**, which requires the project owner to report the quantities of relevant greenhouse gases emitted as a result of electric power production. We find that **AQ-SC8**, with the reporting of GHG emissions, will enable the project to be consistent with the regulations and policies described above. The greenhouse gas emissions to be reported in condition of certification **AQ-SC8** are carbon dioxide, methane, nitrous oxide, sulfur hexafluoride, HFCs and PFCs emissions that are directly associated with the production and transmission of electric power.

13. Compliance with Laws, Ordinances, Regulations, and Standards

The Colusa County Air Pollution Control District's Final Determination of Compliance (FDOC) was published on June 11, 2007, and its addendum was published on June 29, 2007, showing compliance with all District rules and regulations had been demonstrated to the District's satisfaction. (Ex. 201.) The District's FDOC conditions are presented in the Conditions of Certification.

Commission Staff has considered minority populations in its analysis of air quality impacts. The minority populations (as identified in **Socioeconomics Figure 1**) are well below 50 percent, which indicates that the site area would not have the potential for local environmental justice issues. Additionally, no potential significant adverse impacts have been identified, and therefore, there are no environmental justice issues.

The District is responsible for issuing the federal New Source Review (NSR) permit. This project will require a PSD permit from U.S. EPA prior to initiating construction. The PSD permit will include compliance requirements for the New Source Performance Standard for gas turbines (40 CFR 60 Subpart KKKK). The Applicant provided the PSD permit application to the U.S. EPA (Ex. 47), and the application has been deemed complete (U.S. EPA response to PSD Application, Docket No. 39683). The PSD permit may not be completed until after the completion of this licensing case.

The Applicant will demonstrate that the project will comply with Section 41700 of the California State Health and Safety Code, which restricts emissions that would cause nuisance or injury, with the issuance of the District's Final Determination of Compliance and the Energy Commission's affirmative finding for the project.

FINDINGS AND CONCLUSIONS

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

1. The proposed CGS is located within the jurisdiction of the Colusa County Air Pollution Control District.

2. The project will employ the best available technology to control emissions of criteria pollutants.

3. Project emissions will be fully offset.

4. Use of emission reduction credits in this case is appropriate, and is consistent with applicable federal and state emission control strategies.

5. The District issued a Final Determination of Compliance that finds the CGS will comply with all applicable District rules for project operation.

6. The project's construction-related impacts are temporary and short-term in nature. They are mitigated to below a level of significance by measures identified in the Conditions of Certification.

7. The record contains an adequate analysis of the project's contributions to cumulative air quality impacts.

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

CONDITIONS OF CERTIFICATION

AQ-SC1 Air Quality Construction Mitigation Manager (AQCMM): The project owner shall designate and retain an on-site AQCMM who shall be responsible for directing and documenting compliance with conditions **AQ-SC3, AQ-SC4,** and **AQ-SC5** for the entire project site and linear facility construction. The on-site AQCMM may delegate responsibilities to one or more AQCMM Delegates. The AQCMM and AQCMM Delegates shall have full access to all areas of construction on the project site and linear facilities and shall have the authority to stop any or all construction activities as warranted by applicable construction mitigation conditions. The AQCMM and AQCMM Delegates may have other responsibilities in addition to those described in this condition.

The AQCMM shall not be terminated without written consent of the CPM.

Verification: At least 60 days prior to the start of ground disturbance, the project owner shall submit to the CPM, for approval, the name, resume, qualifications, and contact information for the on-site AQCMM and all AQCMM Delegates. The AQCMM and all Delegates must be approved by the CPM before the start of ground disturbance.

AQ-SC2 Air Quality Construction Mitigation Plan (AQCMP): The project owner shall provide an AQCMP, for approval, which details the steps that will be taken and the reporting requirements necessary to ensure compliance with conditions **AQ-SC3, AQ-SC4,** and **AQ-SC5**.

Verification: At least 60 days prior to the start of any ground disturbance, the project owner shall submit the AQCMP to the CPM for approval. The CPM will notify the project owner of any necessary modifications to the plan within 30 days from the date of receipt. The AQCMP must be approved by the CPM before the start of ground disturbance.

AQ-SC3 Construction Fugitive Dust Control: The AQCMM shall submit documentation to the CPM in each Monthly Compliance Report (MCR) that demonstrates compliance with the following mitigation measures for the purposes of preventing all fugitive dust plumes from leaving the project site and linear facility routes. Any deviation from the following mitigation measures shall require prior CPM notification and approval.

a) Areas to be excavated shall be thoroughly pre-wetted prior to excavation.

b) All unpaved roads and disturbed areas in the project and linear construction sites shall be watered as frequently as necessary to comply with the dust mitigation objectives of **AQ-SC4**. The frequency of watering may be reduced or eliminated during periods of precipitation.

c) No vehicle shall exceed 10 miles per hour within the construction site.

d) The construction site entrances shall be posted with visible speed limit signs.

e) All construction equipment vehicle tires shall be inspected and washed as necessary to be cleaned free of dirt prior to entering paved roadways.

f) Gravel ramps of at least 20 feet in length must be provided at the tire washing/cleaning station.

g) All unpaved exits from the construction site shall be graveled or treated to prevent track-out to public roadways.

h) All construction vehicles shall enter the construction site through the treated entrance roadways, unless an alternative route has been submitted to and approved by the CPM.

i) Construction areas adjacent to any paved roadway shall be provided with sandbags or other measures as specified in the Storm Water Pollution Prevention Plan (SWPPP) to prevent runoff to roadways.

j) All paved roads within the construction site shall be swept at least twice daily (or less during periods of precipitation) on days when construction activity occurs to prevent the accumulation of dirt and debris.

k) At least the first 500 feet of any public roadway exiting from the construction site shall be swept at least twice daily (or less during periods of precipitation) on days when construction activity occurs or on any other day when dirt or runoff from the construction site is visible on the public roadways.

l) On-site paved roads shall be swept at least once daily after the evening peak period.

m) All soil storage piles and disturbed areas that remain inactive for longer than 10 days shall be covered or shall be treated with appropriate dust suppressant compounds.

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

o) Wind erosion control techniques (such as windbreaks, water, chemical dust suppressants, and/or vegetation) shall be used on all construction areas that may be disturbed. Any windbreaks installed to comply with this condition shall remain in place until the soil is stabilized or permanently covered with vegetation.

p) Ground cover will be replaced in disturbed areas as soon as possible.

Verification: The project owner shall include in the MCR (1) a summary of all actions taken to maintain compliance with this condition, (2) copies of any complaints filed with the air district in relation to project construction, and (3) any other documentation deemed necessary by the CPM and AQCMM to verify compliance with this condition. Such information may be provided via electronic format or disk at the project owner's discretion.

AQ-SC4 Dust Plume Response Requirement: The AQCMM or an AQCMM Delegate shall monitor all construction activities for visible dust plumes. Observations of visible dust plumes that have the potential to be

transported (1) off the project site or (2) 200 feet beyond the centerline of the construction of linear facilities or (3) within 100 feet upwind of any regularly occupied structures not owned by the project owner indicate that existing mitigation measures are not resulting in effective mitigation. The AQCMM or Delegate shall implement the following procedures for additional mitigation measures in the event that such visible dust plumes are observed:

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

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

Step 3: The AQCMM or Delegate shall direct a temporary shutdown of the activity causing the emissions if Step 2 specified above fails to result in effective mitigation within one hour of the original determination. The activity shall not restart until the AQCMM or Delegate is satisfied that appropriate additional mitigation or other site conditions have changed so that visual dust plumes will not result upon restarting the shutdown source. The owner/operator may appeal to the CPM any directive from the AQCMM or Delegate to shut down an activity, provided that the shutdown shall go into effect within one hour of the original determination, unless overruled by the CPM before that time.

Verification: The AQCMP shall include a section detailing how the additional mitigation measures will be accomplished within the time limits specified.

AQ-SC5 Diesel-Fueled Engines Control: The AQCMM shall submit to the CPM, in the MCR, a construction mitigation report that demonstrates compliance with the following mitigation measures for the purposes of controlling diesel construction-related emissions. Any deviation from the following mitigation measures shall require prior CPM notification and approval.

a) All diesel-fueled engines used in the construction of the facility shall be fueled only with ultra-low sulfur diesel, which contains no more than 15 ppm sulfur.

b) All diesel-fueled engines used in the construction of the facility shall have clearly visible tags issued by the on-site AQCMM showing that the engine meets the conditions set forth herein.

c) All construction diesel engines, which have a rating of 100 hp or more, shall meet, at a minimum, the Tier 2 California Emission Standards for Off-Road Compression-Ignition Engines as specified in Title 13, California Code of Regulations Section 2423(b)(1) unless certified by the on-site AQCMM that such engine is not available for a particular item of equipment. In the event a Tier 2 engine is not available for any off-road engine larger than 100 hp, that engine shall be equipped with a Tier 1 engine. In the event a Tier 1 engine is not available for any off-road engine larger than 100 hp, that engine shall be equipped with a catalyzed diesel particulate filter (soot filter), unless certified by engine manufacturers or the on-site AQCMM that the use of such devices is not practical for specific engine types. For purposes of this condition, the use of such devices is "not practical" if, among other reasons:

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

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

(3) The CPM may grant relief from this requirement if the AQCMM can demonstrate that he/she has made a good faith effort to comply with this requirement and that compliance is not possible.

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

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

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

(3) The soot filter is causing or is reasonably expected to cause a significant risk to workers or the public.

(4) Any other seriously detrimental cause which has the approval of the CPM prior to the termination being implemented.

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

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

g) Construction equipment will employ electric motors when feasible.

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

AQ-SC6 The project owner shall submit to the CPM for review and approval any modification proposed by the project owner to any project air permit. The project owner shall submit to the CPM any modification to any permit proposed by the District or U.S. EPA and any revised permit issued by the District or U.S. EPA, for the project.

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

AQ-SC7 The project owner shall surrender the emission offset credits listed in the Appendix to these Air Quality Conditions of Certification, or a modified list, as allowed by this condition, at the time and in the quantities required by condition **AQ-27** and herein. The project owner may request CPM approval for any substitutions or modification of credits listed in said Appendix. The CPM, in consultation with the District, may approve any such change to the ERC list provided that the project remains in compliance with all applicable laws, ordinances, regulations, and standards; the requested change(s) clearly will not cause the project to result in a significant environmental impact; and each requested change is consistent with applicable federal and state laws and regulations. In addition to the offset requirements in **AQ-27**, the Applicant will provide sufficient VOC and SO_2 ERCs to mitigate the VOC and SO_2 emissions on a 1:1 basis annually, which will require the Applicant to obtain 731.6 pounds of additional SO_2 ERCs prior to initiation of construction.

Verification: The project owner shall provide a record of the required additional SO_2 ERC source(s) prior to initiation of construction. The project owner shall submit to the CPM a list of the ERC certificates and quantities surrendered to the District within 30 days of their surrender. The project owner shall request any changes to the ERC certificates to be surrendered at least 60 days prior to their surrender date as required in condition **AQ-27**. If the CPM, in consultation with the District, approves a substitution or modification, the CPM shall file a statement of the approval with the commission docket and mail a copy of the statement to every person on the post-certification mailing list. The CPM shall maintain an updated list of approved ERCs for the project.

AQ-SC8 Until the California Global Warming Solutions Act of 2006 (AB32) is implemented, the project owner shall either participate in a GHG registry approved by the CPM, or report on an annual basis to the CPM the quantity of greenhouse gases (GHG) emitted as a direct result of facility electricity production.

The project owner shall maintain a record of fuels types and carbon content used on-site for the purpose of power production. These fuels shall include but are not limited to each fuel type burned: (1) in combustion turbines, (2) HRSGs (if applicable) or auxiliary boiler (if applicable), (4) internal combustion engines, (4) flares, and/or (5) for the purpose of startup, shutdown, operation or emission controls.

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

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

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

The project owner shall convert the N_2O and CH_4 emissions into CO_2 equivalent emissions using the current IPCC Global Warming Potentials (GWP). The project owner shall maintain a record of all SF_6 that is used for replenishing on-site transformers. At the end of each reporting period, the project owner shall total the mass of SF_6 used and convert that to a CO_2 equivalent emission using the IPCC GWP for SF_6. The project owner shall maintain a record of all PFCs and HFCs that are used for replenishing on-site refrigeration and chillers directly related to electricity production. At the end of each reporting period, the project owner shall total the mass of PFCs and HFCs used and convert that to a CO_2 equivalent emission using the IPCC GWP.

On an annual basis, the project owner shall report the CO_2 and CO_2 equivalent emissions from the described emissions of CO_2, N_2O, CH_4, SF_6, PFCs, and HFCs.

Verification: The project annual greenhouse gas emissions shall be reported, as a CO_2 equivalent, by the project owner to a climate action registry approved by the CPM, or to the CPM as part of the fourth Quarterly or the annual Air Quality Report, until such time that GHG reporting requirements are adopted and in force for the project as part of the California Global Warming Solutions Act of 2006.

AQ-SC9 The project owner shall submit to the CPM Quarterly Operation Reports, following the end of each calendar quarter, as also required under Condition of Certification **AQ-22**, that include operational and emissions information as necessary to demonstrate compliance with the Conditions of Certification herein. The Quarterly Operation Report will specifically note or highlight incidences of noncompliance.

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

DISTRICT FINAL DETERMINATION OF COMPLIANCE CONDITIONS (COC2007H, CEC 2007P)

AQ-1 All facility operating Staff shall be advised of and familiar with these permit conditions.

Verification: The project owner shall submit to the CPM and APCO signed records of facility operating Staff indicating review of permit conditions at least 30 days prior to commencement of operation and shall maintain this training and records documenting this training at the site for inspection.

AQ-2 The "Right of Entry," as provided by the California Health and Safety Code Section 41510 of Division 26, shall apply at all times.

Verification: The project owner shall make the site available to representatives of the District, ARB, and the Energy Commission for inspection, including securing samples of emissions or any records required to be maintained in connection with the emissions sources.

AQ-3 In the case of shutdown or restart of air pollution control equipment for necessary scheduled maintenance, the intent to shut down such equipment shall be reported to the Air Pollution Control Officer at least 24 hours prior to the planned shutdown. Such notification does not exempt the facility from complying with all permit limits and requirements.

Verification: The project owner shall submit to the CPM and APCO notification of scheduled maintenance of air pollution control equipment at least 24 hours prior to any planned shutdowns.

AQ-4 If any upset or breakdown occurs with equipment under permit in such a manner that may cause excess emissions of air contaminants, the APCO shall be notified of such failure or breakdown within 24 hours or by 9:00 a.m. by the following working day. The person responsible shall also submit a written statement of full disclosure of the upset/breakdown to the District within 72 hours. The report shall contain the date, time, duration, estimated emissions, cause, and remedy.

Verification: The project owner shall comply with the notification requirements of the District and submit written copies of these notification reports to the CPM and the APCO as part of the Quarterly Operation Reports (**AQ-22**).

AQ-5 Fugitive emissions, including dust and odors, shall be controlled at all times such that a nuisance is not created at any point beyond the facility's property lines.

Verification: The project owner will document any complaints that it has received from the public in the Quarterly Operation Reports (**AQ-22**). The project owner shall make the site available for inspection by representatives of the District, ARB, and the Energy Commission.

AQ-6 A person shall be designated to oversee the fugitive dust control program described in the application and this document. Entry roads to the proposed facility site will be paved prior to commencing construction. During construction, the people on site shall access real-time weather information from the Western Weather Group to determine the prevailing local wind speed. If wind gusts at the Maxwell weather station exceed 15 mph, construction personnel shall increase the frequency of watering the exposed soil. All of the mitigation measures will be implemented.

Verification: The project owner shall make the site available for inspection by representatives of the District, ARB, and the Energy Commission.

AQ-7 The placement of the source testing ports shall be as specified in 40 CFR Part 60, Appendix A, Method 1. A source test protocol shall be submitted to the District for approval the Air Pollution Control Officer (APCO), at least 45 days prior to conducting the annual source tests. The District shall be notified at least 10 days prior to actual source testing.

Verification: The project owner shall supply diagrams of the proposed source testing port design and location for approval at least 30 days before erecting the HRSG stacks. The project owner shall provide a source test plan to the CPM and District for approval 45 days prior to testing. The project owner shall notify the CPM and the District 10 days prior to any compliance source test.

AQ-8 Stack gas testing, using EPA, ARB, or other APCO approved methods shall be required on an annual basis for NOx, VOC, and CO on the HRSG stacks and the auxiliary boiler stack. The HRSG stacks and the auxiliary boiler stack shall also be tested for SOx and PM10 emissions during the first year and if requested by the APCO, in subsequent years. The emergency generator and firewater pump engines shall be tested for NOx, SOx, VOC, CO, and PM10 during the first year and thereafter only as requested by the APCO.

Verification: The results and field data collected during source tests shall be submitted to the CPM and the District within 60 days of testing.

AQ-9 Annual testing of the HRSG stacks shall include quantification of formaldehyde and ammonia (NH_3) emissions for compliance with permit limits. The facility owner/operator shall verify, by continuous recording, the ammonia injection rate to the system. The ammonia source test shall be conducted over the expected operating range of the turbine (including, but not limited to 50%, 75%, and 100% load) to establish the range of ammonia injection rates necessary to achieve NOx emission reductions while maintaining the ammonia slip levels. The source test shall also determine the correlation between the heat input rates of each gas turbine and ammonia mass emissions.

Verification: The results and field data collected during source tests shall be submitted to the CPM and the District within 60 days of testing. The proposed ammonia injection/emission rate correlation will be provided to the District and CPM for approval with the ammonia source test report.

AQ-10 The gas turbines, duct burners, and auxiliary boiler shall be fired exclusively on pipeline quality natural gas.

Verification: The project owner shall submit information on the quality and type of fuel used for the gas turbines, duct burners, and auxiliary boiler to the CPM and the APCO in the Quarterly Operation Reports (**AQ-22**).

AQ-11 The annual average sulfur content in the natural gas used at the facility shall be less than or equal to 0.3 grains per 100 SCF. Monthly testing, at the site, using approved methods (i.e., EPA 19 and ASTM D-3246) is required to determine the sulfur content of the natural gas. Pacific Gas and Electric natural gas testing data from Burney will be also be reviewed and provided to the District.

Verification: The project owner shall compile the required data on the sulfur content of the natural gas and submit the information to the CPM and the APCO in the Quarterly Operation Reports (**AQ-22**).

AQ-12 The sulfur content limit in diesel fuel used in the construction equipment and emergency generator and firewater pump engines shall be no more than 15 ppm. Emissions from the two stationary engines mentioned above shall not exceed Ringelmann 0.5 or 10 percent opacity for an aggregate of three minutes in a one-hour period.

Verification: The project owner shall compile the required data on the sulfur content of the diesel fuel and emissions from the emergency generator and firewater pump engines and submit the information to the CPM and the APCO in the Quarterly Operation Reports (**AQ-22**). The project owner shall make the site available for inspection by representatives of the District, ARB, and the Energy Commission.

AQ-13 All applicable federal standards and test procedures of Subpart KKKK --Standards of Performance for Stationary Combustion Turbines shall be met.

Verification: The project owner shall provide copies of all correspondence with U.S.EPA regarding compliance with Subpart KKKK provisions to the District and CPM in the Quarterly Operation Reports (**AQ-22**), and shall integrate required testing procedures into the facility source testing plan (**AQ-8**).

AQ-14 The CTGs shall meet a VOC limit of 2.0 ppmvd with duct burner firing and 1.38 ppmvd without duct burner firing @ 15% O_2 averaged over one hour. Maximum hourly steady state emission limits for each CTG are:

Pounds VOC with Duct Firing	Pounds VOC without Duct Firing
7.2	3.4

Verification: The project owner shall submit to the CPM and APCO CTG source test emissions data demonstrating compliance with this condition as required by condition **AQ-8** and shall provide operating data that establishes ongoing compliance with this condition using a determined relationship with CO emissions, previously approved by the CPM and APCO using source test data, as part of the Quarterly Operation Reports (**AQ-22**).

AQ-15 The CTGs shall meet a NOx limit of 2.0 ppmvd @ 15% O_2 averaged over one hour except during commissioning. Maximum hourly steady state emission limits for each CTG are:

Pounds NOx with Duct Firing	Pounds NOx without Duct Firing
20.7	15.3

Verification: The project owner shall submit to the CPM and APCO CTG continuous emissions monitoring system data demonstrating compliance with this condition as part of the Quarterly Operation Reports (**AQ-22**).

AQ-16 The CTGs shall meet a CO limit of 3.0 ppmvd @ 15% O_2 over a three-hour rolling average except during commissioning. Maximum hourly steady state emission limits for each CTG are:

Pounds CO with Duct Firing	Pounds CO without Duct Firing
18.9	14.0

Verification: The project owner shall submit to the CPM and APCO CTG continuous emissions monitoring system data demonstrating compliance with this condition as part of the Quarterly Operation Reports (**AQ-22**).

AQ-17 The auxiliary boiler shall meet a NOx limit of 15.0 ppmvd @ 3% O_2 over one hour.

Verification: The project owner shall submit to the CPM and APCO auxiliary boiler source test emissions data demonstrating compliance with this condition as required in condition **AQ-8** and shall provide confirmation of normal operations of the boiler as part of the Quarterly Operation Reports (**AQ-22**).

AQ-18 Ammonia slip shall be limited to 5.0 ppmvd @ 15% O_2 over one hour. Formaldehyde emissions will be limited to 0.917 lbs per million standard cubic feet (MMscf) of natural gas. Maximum hourly steady state emission limits for each CTG are:

Pounds NH_3 with Duct Firing	Pounds NH_3 without Duct Firing
19.2	14.2

Verification: The project owner shall submit to the CPM and APCO CTG emissions data demonstrating compliance with this condition as part of the Quarterly Operation Reports (**AQ-22**). The project owner shall provide for approval of the CPM and APCO a calculation method to determine the ammonia slip emissions, using source test data, based on the NOx concentration and the ammonia injection rate; and this calculation shall be revised for approval as necessary after each source test performed under **AQ-9**.

AQ-19 Continuous emission monitoring (CEM) systems shall be installed to sample, analyze, and record NOx, CO, and O_2 concentration in the

exhaust gas of both HRSG stacks. This system will generate reports of emissions data in accordance with permit requirements and will send alarm signals to the plant distributed control system (DCS) control room when the level of emissions approaches or exceeds pre-selected limits. Relative accuracy test audits (RATA) shall be conducted annual to verify the performance of the CEM system.

Verification: The project owner shall make the site available for inspection by representatives of the District, ARB, and the Energy Commission to verify the continuous monitoring system is properly installed and operational. Emissions data generated by the CEMS system shall be submitted to the CPM and APCO as part of the Quarterly Operation Reports (**AQ-22**). The RATA test results shall be provided along with the annual source test report as required under **AQ-8**.

AQ-20 The Colusa County APCD shall have remote access to the data logger at the facility to enable District staff to monitor real-time emissions as recorded by the CEMs.

Verification: The project owner shall make the site available for inspection by representatives of the District, ARB, and the Energy Commission to confirm remote access to CEMs data is accessible remotely by Colusa County Air Pollution Control District.

AQ-21 The CEMs shall be installed, calibrated, and operational prior to the first firing of the gas turbines. The commissioning phase of the turbines and heat recovery steam generators without abatement of emissions shall not exceed 500 total hours. All reasonable efforts will be made to shorten the length of time of the commissioning phase. Only one gas turbine may be commissioned at a time. Emissions from the commissioning phase of the turbines and heat recovery steam generators shall accrue toward the quarterly and annual emission limits specified in these conditions.

Verification: The project owner shall provide notification to the District and the CPM of the anticipated dates for installation, calibration, and testing for the CEMS at least 10 days prior to installation. The project owner shall provide a report to the District and CPM for approval demonstrating compliance with CEMS calibration requirements prior to turbine first fire. The project owner shall provide monthly commissioning status reports, which include hours of operation without abatement and associated emissions data.

AQ-22 Quarterly reports of CEM and process data, including startup information, shall be submitted to the District within 30 days after the end of each quarter. Format of the data submission will be determined by the District and may include both electronic spreadsheet and hard copy files.

Verification: The project owner shall submit to the CPM and APCO the CEM audits demonstrating compliance with this condition in Quarterly Operation Reports.

AQ-23 The emissions from the emergency generator and firewater pump engines shall not exceed the hourly limits established in the table below. Total annual operating hours shall not exceed 50 per engine. Testing of these two engines shall not be allowed during gas turbine commissioning and facility startup operations. The generator and firewater pump engines must comply with the Tier rating emissions for their model years.

One-Hour Maximum Emissions (lbs)		
Source	**Generator**	**Fire Pump**
NOx	13.88	1.98
CO	0.32	1.72
VOC	0.15	Incl. in NOx
PM10	0.09	0.10
SO_2	0.01	<0.01

Verification: The project owner shall submit to the CPM and APCO for approval the emergency generator and firewater pump selected manufacturer emissions data and engines specifications demonstrating compliance with this condition at least 30 days prior to installation. The project owner shall provide 12-month rolling engine operating hours data to show compliance with the operating hours restriction limits in this condition as part of the Quarterly Operation Reports (**AQ-22**).

AQ-24 The emission rates from the auxiliary boiler shall not exceed the hourly limits established in the table below. The boiler shall not operate more than 3,744 hours per year.

One-Hour Maximum Emissions (lbs)		
Source		**Auxiliary Boiler**
NOx		0.79
CO		1.61
VOC		0.18
PM10		0.33
SO_2		0.13

Verification: The project owner shall submit to the CPM and APCO for approval the auxiliary boiler selected manufacturer emissions data and specifications demonstrating compliance with this condition and condition **AQ-17** at least 30 days prior to installation. The project owner shall submit to the CPM and APCO auxiliary boiler source test emissions data required under condition **AQ-8** demonstrating compliance with the emission limits for the pollutants included in the source test.

AQ-25 The total emissions from the CTGs and HRSGs shall not exceed those established below for hourly and daily operations.

Maximum Emissions Both Turbines (lbs)		
Pollutant	**1-Hour Emissions**	**24-Hour Emissions**
NOx	666.60	2,994.60
CO	967.00	7,659.00
VOC	55.40	630.60
PM10	40.20	964.80
SO_2	14.80	355.20

Verification: The project owner shall submit to the CPM and APCO CTG and HRSG emissions data demonstrating compliance with this condition as part of the Quarterly Operation Reports (**AQ-22**).

AQ-26 The total emissions from the Colusa Power Plant shall not exceed the limits established below.

Quarterly and Annual Estimated Combustion Emissions from CGS Facility					
Pollutant	1st Quarter Emissions (tons)	2nd Quarter Emissions (tons)	3rd Quarter Emissions (tons)	4th Quarter Emissions (tons)	Annual Emissions (tons)
NOx	45.60	43.62	51.34	44.31	184.87
CO	54.20	52.40	107.06	53.86	267.52
VOCs	12.36	11.69	11.90	11.82	47.77
PM10	35.29	35.39	35.70	35.69	142.08
SO_2	4.05	3.83	3.87	3.87	15.62

Verification: The project owner shall submit to the CPM and APCO plant emissions data demonstrating compliance with this condition as part of the Quarterly Operation Reports (**AQ-22**).

AQ-27 Offsets for the Colusa Generating Station power plant shall be in effect prior to operation of the facility and will not be less than the following amounts at any time. The offsets presented in the table below reflect distance factors and the VOC:NOx interpollutant ratio. Sufficient ERCs for PM10 will be provided prior to start of construction activities to offset construction PM10 emissions.

Emission Offsets by Calendar Quarter				
Pollutant in tons	**Quarter 1**	**Quarter 2**	**Quarter 3**	**Quarter 4**
Oxides of nitrogen (NO_2)	50.75	47.01	36.55	53.80
Volatile organic compounds (CH_4)	12.36	11.69	11.90	11.82
Particulate Matter PM10	32.51	30.75	24.09	34.74
Oxides of sulfur (SO_2)	3.50	2.94	1.39	3.85

Verification: At least 30 days prior to commencing construction, the project owner shall surrender no less than 5.08 tons of PM10 ERCs per quarter to the

District and provide documentation of that surrender to the CPM and APCO. At least 60 days prior to commencing CTG first fire, the project owner shall surrender the remaining ERC certificates to offset the emissions in the amounts shown above, and as required in Condition **AQ-SC7**, to the District and provide documentation of that surrender to the CPM and APCO.

AQ-28 The construction of the facility cannot commence until all construction permits, including the U.S. EPA PSD permit, are obtained.

Verification: The project owner shall keep proof of the project's District air permit and Energy Commission certification including copies of all permit conditions and Conditions of Certification on site starting at the commencement of construction through the final decommissioning of the project. The project owner shall make the District's permit conditions and Conditions of Certification available at the project site to representatives of the District, ARB and the Energy Commission for inspection. The project owner shall provide a copy of the U.S. EPA PSD permit to the CPM once it is available.

AQ-29 Total facility emissions of Hazardous Air Pollutants (HAP) shall not exceed 10 tons per year for any single pollutant except ammonia, formaldehyde, and propylene.

Verification: The project owner shall submit to the CPM and APCO a HAPs emissions estimation plan for approval within one year of initiating operation that will consider integrating both emission source test data and recognized HAPs emission factors for the calculation of HAPs emissions. The project owner shall submit to the CPM and APCO emission estimates using the approved emission estimation plan methodology to demonstrate compliance with this condition as part of the Quarterly Operation Reports (**AQ-22**) fourth quarter report.

AIR QUALITY CONDITIONS OF CERTIFICATION APPENDIX

EMISSION REDUCTION CREDITS

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

ERC Certificate Number and Number Reduction Source Location Distance from Project	Pollutant	Total Q1 (lb)	Total Q2 (lb)	Total Q3 (lb)	Total Q4 (lb)	Annual (lbs)
Stationary Source ERCs						
Highway 70 Industrial Park, LP // Oroville, CA // Butte County [b] (Cert. 08-05-36, 08-05-37, 08-05-39) > 20 < 50 miles	NOx	35,000.0	35,000.0	35,000.0	35,000.0	140,000.0
	VOC	87,500.0	87,500.0	87,500.0	87,500.0	350,000.0
	PM10	33,500.0	33,500.0	33,500.0	33,500.0	134,000.0
	SO_2	0.0	0.0	0.0	0.0	0.0
Jack W. Baber // Sierra Mountain Mills, Camptonville, CA // Yuba County [c] (Cert. ERC-9937006-00T) > 50 miles	NOx	420.0	707.0	641.0	501.0	2,269.0
	VOC	199.0	335.0	304.0	238.0	1,076.0
	PM10	6,034.0	10,156.0	9,218.0	7,201.0	32,609.0
	SO_2	166.0	279.0	254.0	198.0	897.0
Agricultural Burn Cessation ERCs						
Baber Family Trust // Colusa, CA // Colusa County [d] (Cert. 06-01-02-03) < 20 miles	NOx	1,004.8	810.3	324.1	1,102.0	3,241.2
	VOC	908.1	732.4	292.9	996.0	2,929.4
	PM10	1,217.3	981.7	392.7	1,335.1	3,926.8
	SO_2	212.5	171.4	68.6	233.1	685.6
Jack W. Baber and Judith S. Baber // Colusa, CA // Colusa County [d] (Cert. 06-01-02-04) < 20 miles	NOx	2,401.8	1,936.9	774.8	2,634.2	7,747.7
	VOC	2,170.8	1,750.7	700.3	2,380.9	7,002.7
	PM10	2,909.8	2,346.6	938.7	3,191.4	9,386.5
	SO_2	508.1	409.7	163.9	557.2	1,638.9
Estate of Jack W. Baber Jr. // Colusa, CA // Colusa County [d] (Cert. 06-01-02-05) < 20 miles	NOx	848.5	684.3	273.7	930.7	2,737.2
	VOC	767.0	618.5	247.4	841.2	2,474.1
	PM10	1,028.0	829.1	331.6	1,127.5	3,316.2
	SO_2	179.5	144.8	57.9	196.9	579.1
Pixie E. Baber // Colusa, CA // Colusa County [d] (Cert. 06-01-02-05.2) < 20 miles	NOx	809.0	625.5	261.0	887.3	2,582.8
	VOC	731.2	589.7	235.9	802.0	2,358.8
	PM10	980.2	790.5	316.2	1,075.0	3,161.9
	SO_2	171.1	138.0	55.2	187.7	552.0
Jack W. Baber and Judith S. Baber // Colusa, CA // Colusa County [d] (Cert. 06-01-02-06) < 20 miles	NOx	587.8	474.1	189.6	644.7	1,896.2
	VOC	531.3	428.5	171.4	582.7	1,713.9
	PM10	712.2	574.3	229.7	781.1	2,297.3
	SO_2	124.3	100.3	40.1	136.4	401.1
Inez Garrette // Colusa, CA // Colusa County [d] (Cert. 06-01-02-07) < 20 miles	NOx	195.9	158.0	63.2	214.9	632.0
	VOC	177.1	142.8	57.1	194.2	571.2
	PM10	237.4	191.4	76.6	260.4	765.8
	SO_2	41.4	33.4	13.4	45.5	133.7

Jack W. Baber and Judith S. Baber // Colusa, CA // Colusa County [d] (Cert. 06-01-02-08) < 20 miles	NOx	2,083.5	1,680.2	672.1	2,285.1	6,720.9
	VOC	1,883.1	1,518.7	607.5	2,065.4	6,074.7
	PM10	2,524.2	2,035.6	814.3	2,768.5	8,142.6
	SO_2	440.7	355.4	142.2	483.4	1,421.7
Jack W. Baber Jr. // Colusa, CA // Colusa County [d] (Cert. 06-01-02-09) < 20 miles	NOx	1,577.2	1,271.9	508.8	1,729.8	5,087.7
	VOC	1,425.5	1,149.6	459.9	1,563.5	4,598.5
	PM10	1,910.8	1,541.0	616.4	2,095.7	6,163.9
	SO_2	333.6	269.1	107.6	365.9	1,076.2
Davis Ranches // Colusa, CA // Colusa County [d] (Cert. 06-7-2001-1) > 20 miles < 50 miles	NOx	13,034.2	10,511.5	4,204.6	14,295.6	42,045.9
	VOC	11,780.9	9,500.7	3,800.3	12,921.0	38,002.9
	PM10	15,791.4	12,735.0	5,094.0	17,319.6	50,940.0
	SO_2	2,752.2	2,223.6	889.4	3,024.1	8,889.3
Gunnersfield Ent., Inc. // Maxwell, CA // Colusa County [d] (Cert. 06-01-02-02) < 20 miles	NOx	5,616.0	4,529.0	1,811.6	6,159.4	18,116.0
	VOC	5,076.0	4,093.5	1,637.4	5,567.2	16,374.1
	PM10	6,803.9	5,487.0	2,194.8	7,462.4	21,948.1
	SO_2	1,188.0	958.1	383.2	1,303.0	3,832.3
Jon B. Chaney // Maxwell, CA // Colusa County [d] (Cert. 06-01-02-01) < 20 miles	NOx	2,104.1	1,696.9	678.5	2,307.8	6,787.3
	VOC	1,901.8	1,533.7	613.5	2,085.9	6,134.9
	PM10	2,549.3	2,055.8	822.3	2,796.0	8,223.4
	SO_2	445.1	359.0	143.6	488.2	1,435.9
Jack DeWit // Maxwell, CA // Colusa County [d] (Cert. 06-07-02-05) < 20 miles	NOx	1,143.0	921.8	368.7	1,253.7	3,687.2
	VOC	1,033.1	833.2	333.3	1,133.1	3,332.7
	PM10	1,384.8	1,116.8	446.7	1,518.8	4,467.1
	SO_2	241.8	195.0	78.0	265.2	780.0
Jerry Maltby et. al. // Williams, CA // Colusa County [d] (Cert. 06-06-11-01) < 20 miles	NOx	4,522.5	3,647.2	1,458.9	4,960.2	14,588.8
	VOC	4,087.7	3,296.5	1,318.6	4,483.3	13,186.1
	PM10	5,479.2	4,418.7	1,767.5	6,009.5	17,674.9
	SO_2	956.7	771.5	308.6	1,049.3	3,086.1
Keeley Family Limited Partnership // Colusa, CA // Colusa County [d] (Cert. 06-07-06-01) < 20 miles	NOx	1,685.2	1,359.0	543.6	1,848.2	5436.0
	VOC	1,523.1	1,228.3	491.3	1,670.5	4913.3
	PM10	2,041.6	1,646.5	658.6	2,239.2	6585.9
	SO_2	356.5	287.5	115.0	391.0	1149.9
Jim Lagrande // Colusa, CA // Colusa County [e] (Cert. 06-01-03-01) < 20 miles	NOx	1,315.0	1,118.2	567.0	1,448.9	4,449.1
	VOC	1,192.2	1,110.7	634.7	1,312.5	4,250.1
	PM10	1,598.0	1,496.9	864.4	1,758.3	5,717.6
	SO_2	279.0	242.7	119.6	305.5	946.8
Charles Tuttle, Gordon Ranch // Maxwell, CA // Colusa County [e] (Cert. 06-07-02-01) < 20 miles	NOx	1,592.3	1,448.5	789.1	1,750.8	5,580.7
	VOC	1,439.2	1,451.0	951.0	1,586.3	5,427.5
	PM10	1,929.2	1,960.9	1,301.1	2,126.8	7,318.0
	SO_2	336.8	306.0	166.3	370.3	1,179.5

Charles Tuttle, Tenant Ranch // Maxwell, CA // Colusa County [f] (Cert. 06-07-02-03) < 20 miles	NOx	1.6	118.8	352.8	3.2	476.4
	VOC	5.1	210.0	857.5	5.7	1,078.3
	PM10	5.1	292.9	1,095.4	7.9	1,401.3
	SO_2	0.2	24.9	62.2	0.7	88.0
Charles Tuttle, Helphenstine Ranch // Maxwell, CA // Colusa County [g] (Cert. 06-07-02-02) < 20 miles	NOx	0.0	85.8	143.8	2.3	232.0
	VOC	0.0	151.7	254.2	4.1	410.0
	PM10	0.0	211.6	354.5	5.7	571.8
	SO_2	0.0	18.0	30.1	0.5	48.5
Charles Tuttle, Williams Ranch // Maxwell, CA // Colusa County [g] (Cert. 06-07-02-04) < 20 miles	NOx	0.0	60.9	102.1	1.6	164.7
	VOC	0.0	107.7	180.4	2.9	291.0
	PM10	0.0	150.2	251.7	4.1	405.9
	SO_2	0.0	12.8	21.4	0.3	34.5
William Payne // Woodland, CA // Sutter County [d] (Cert. ERC 2001-26) > 20 miles < 50 miles	NOx	1,701.0	1,874.0	3,033.0	1,901.0	8,509.0
	VOC	1,538.0	2,362.0	8,034.0	1,718.0	13,652.0
	PM10	2,061.0	3,240.0	9,931.0	2,303.0	17,535.0
	SO_2	360.0	395.0	489.0	402.0	1,646.0

Source: E&LW, 2006d.

[a] The quantities listed are the certificate totals. The total quantity required for offsetting may be less than the total for each pollutant shown above, and those remaining credits can be retained by the applicant at their discretion after surrendering the amounts required as shown in Condition of Certification AQ-SC7.

[b] These emission reductions were the result of the permanent shutdown of the Louisiana Pacific fiberboard production plant and associated emission sources (hardboard production line, two boilers, etc.) in Oroville.

[c] These emission reductions were the result of the permanent shutdown of two wood-fired boilers at Sierra Mountain Mills.

[d] Agricultural burn cessation crop is rice for these sources.

[e] Agricultural burn cessation crop is rice and wheat for these sources.

[f] Agricultural burn cessation crop is safflower and wheat for this source.

[g] Agricultural burn cessation crop is wheat for these sources.

B. PUBLIC HEALTH

The public health analysis supplements the previous discussion of air quality and considers the potential public health effects from project emissions of toxic air contaminants. In this analysis, we review the evidence concerning whether such emissions will result in significant public health impacts or violate standards for public health protection.[4]

SUMMARY AND DISCUSSION OF THE EVIDENCE

Project construction and operation will result in routine emissions of toxic air contaminants (TACs). These substances are categorized as noncriteria pollutants because there are no ambient air quality standards established to regulate their emissions.[5] In the absence of standards, state and federal regulatory programs have developed a health risk assessment procedure to evaluate potential health effects from these emissions.

The risk assessment consists of the following steps:

- Identify the types and amounts of hazardous substances that the CGS could emit to the environment;
- Estimate worst-case concentrations of project emissions in the environment using dispersion modeling;
- Estimate amounts of pollutants to which people could be exposed through inhalation, ingestion, and dermal contact;[6] and

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[4] This Decision discusses other potential public health concerns in the following sections. The accidental release of hazardous materials is discussed in **HAZARDOUS MATERIALS MANAGEMENT** and **WORKER SAFETY AND FIRE PROTECTION**. Electromagnetic fields are discussed in the section on **TRANSMISSION LINE SAFETY AND NUISANCE**. Potential impacts to soils and surface water sources are discussed in the **SOIL AND WATER RESOURCES** section. Hazardous and non-hazardous wastes are described in **WASTE MANAGEMENT**.

[5] Criteria pollutants are discussed in the **AIR QUALITY** section, *supra*.

[6] Exposure pathways, or ways in which people might come into contact with toxic substances, include inhalation, dermal (through the skin) absorption, soil ingestion, consumption of locally grown plant foods, and mother's milk.

- Characterize potential health risks by comparing worst-case exposure to safe standards based on known health effects. (Ex. 200, p. 4.7-5.)

Typically, the initial risk analysis for a project is performed at a "screening level" which is designed to conservatively estimate actual health risks. The risks for screening purposes are based on examining conditions that would lead to the highest, or worst-case, risks and then using those conditions in the study. Such conditions include:

- Using the highest levels of pollutants that could be emitted from the plant;
- Assuming weather conditions that would lead to the maximum ambient concentration of pollutants;
- Using the type of air quality computer model which predicts the greatest plausible impacts;
- Calculating health risks at the location where the pollutant concentrations are estimated to be the highest;
- Using health-based standards designed to protect the most sensitive members of the population (i.e., the young, elderly, and those with respiratory illnesses); and
- Assuming that an individual's exposure to cancer-causing agents occurs continuously for 70 years.

(*id*.)

The risk assessment process addresses three categories of health impacts: acute (short-term) health effects; chronic (long-term) non-cancer effects; and cancer risk (also long-term). Acute health effects result from short-term (one-hour) exposure to relatively high concentrations of pollutants. Chronic health effects are those which arise as a result of long-term exposure to lower concentrations of pollutants. The exposure period is considered to be approximately from ten to one hundred percent of a lifetime, or from seven to seventy years. (Ex. 200, pp. 4.7-5 – 4.7-6.)

The analysis for non-cancer health effects compares the maximum project contaminant levels to safe levels called "reference exposure levels" or RELs. These are amounts of toxic substances to which even sensitive people can be

exposed and suffer no adverse health effects. These exposure levels are designed to protect the most sensitive individuals in the population such as infants, the aged, and people suffering from illness or disease which makes them more sensitive to the effects of toxic substance exposure. The RELs are based on the most sensitive adverse health effects reported, and include margins of safety.

For carcinogenic substances, the health assessment considers the risk of developing cancer and assumes that continuous exposure to the cancer-causing substance occurs over a 70-year lifetime. The risk that is calculated is not meant to project the actual expected incidence of cancer, but rather a theoretical upper-bound number based on worst-case assumptions. (Ex. 200, p. 4.7-6.)

Cancer risk is expressed in chances per million, and is a function of the maximum expected pollutant concentration, the probability that a particular pollutant will cause cancer, and the length of the exposure period. Cancer risks for each carcinogen are added to yield total cancer risk. The conservative nature of the screening assumptions used means that actual cancer risks due to project emissions are likely to be considerably lower than those estimated.

If the screening analysis predicts no significant risks, then no further analysis is required. However, if risks are above the significance level, then further analysis, using more realistic, site-specific assumptions, is performed to obtain a more accurate assessment of potential public health risks. A total hazard index of less than one indicates that cumulative worst-case exposures are less than, or below, the safe levels[7]. Cancer risks are calculated based on the total risk from exposure to all cancer causing chemicals. A significant increased lifetime cancer risk occurs if one excess case of cancer in an exposed population of 100,000

[7] The hazard index for every toxic substance which has the same type of health effect is added to yield a total hazard index. The total hazard index is calculated separately for acute and chronic effects.

(equivalent to a risk of ten in one million or 10×10^{-6}) is calculated to occur. (Ex. 200, pp. 4.7-7 - 4.7-8.)

Toxic emissions will be attributable to the project during both its construction and its operation phases. Applicant and Staff each performed an analysis of the impacts of the CGS which evaluated potential cancer and non-cancer health risks to the public. (Ex 200, pp. 4.7-10 - 4.7-14.)

The evidence explains, in depth, the methodology used in identifying and quantifying the emission rates of the toxic non-criteria pollutants which could adversely affect public health. The Applicant's estimates of CGS's potential contribution to the area's carcinogenic and non-carcinogenic pollutants were obtained from a screening-level health risk assessment consistent with OEHHA's Air Toxics Hot Spots Program Risk Assessment Guidelines. The results from this assessment are summarized in **Public Health Table 1**. (Ex. 200, p. 4.7-12.)

PUBLIC HEALTH Table 1
CGS Operation Hazard/Risk

Type of Hazard/Risk	Hazard Index/Risk	Significance Level	Significant?
Acute Non-cancer	0.42	1.0	No
Chronic Non-cancer	0.03	1.0	No
Individual Cancer	1.19×10^{-6}	10.0×10^{-6}	No

Source: Ex. 200, p. 4.7-12.

This modeling shows that all cancer risks due to emissions from CGS are less than the significance threshold of ten in one million and that all chronic and acute non-cancer hazard indices are less than the 1.0 threshold. CGS's emissions would not present significant cancer risk or non-cancer hazards to any member of the public. Staff's analysis, while slightly different from the Applicant's, also shows that the CGS emissions would not present significant cancer risk or

noncancer hazards to any member of the public, including low income and minority populations. (*id*.)

Cumulative Impacts and Mitigation

The maximum cancer risk for emissions from CGS is 1.17 in one million located at the facility western fence line. The maximum impact location occurs where pollutant concentrations from CGS would theoretically be the highest. Even at this location, we do not expect any significant change in lifetime risk to any person, and the increase does not represent any real contribution to the average lifetime cancer incidence rate due to all causes (environmental as well as life-style and genetic). Modeled facility-related residential risks are lower at more distant locations, and actual risks are expected to be much lower since worst-case estimates are based on conservative assumptions and thus overstate the true magnitude of the risk expected. Therefore, we do not consider the incremental impact of the additional risk posed by the CGS to be either individually or cumulatively significant.

The calculated worst-case long-term noncancer health impact from CGS (0.028 hazard index) is well below the significance level of 1.0 at the location of maximum impact. At this level, we do not expect any cumulative health impacts to be the result of emissions from the proposed power plant. As with cancer risk, long-term hazard would be lower at all other locations.

The only existing facility in the vicinity of the proposed CGS project that may contribute to a cumulative public health impact is the PG&E Delevan Compressor Station, adjacent to the project site, which has three gas turbines. The Applicant conducted a Cumulative Impact Analysis (CIA) for criteria pollutants emitted by this facility and the proposed CGS, which is presented in Table 8.1-28 of Exhibit 8. With the exception of one proposal for an 18-unit subdivision development, there are no known developments planned in the vicinity of the CGS site.

We find that the CGS will not cause a significant cumulative public health impact even when added to the impact from the compressor station because: 1) the maximum individual cancer risk at the point of maximum impact (PMI) is very low -1.2 in one million - which is far less than the level of significance 10 in one million; 2) this risk is found at the western fence line, not near the compressor station; 3) the risk at any other location would be lower than that at the PMI; and 4) even if the compressor station risk was significant, the CGS contribution to a cumulative risk would be less than 10 percent of the total, thus rending the contribution insignificant.

FINDINGS AND CONCLUSIONS

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

1. Construction and normal operation of the project will result in the routine release of criteria and noncriteria pollutants that have the potential to adversely impact public health.

2. Emissions of criteria pollutants, which are discussed in the **AIR QUALITY** section of this Decision, will be mitigated to levels consistent with applicable standards.

3. Applicant performed a health risk assessment, using well-established scientific protocol, to analyze potential adverse health effects of toxic air contaminants.

4. Emission of non-criteria pollutants from the CGS will not cause acute or chronic adverse public health effects.

5. The maximum non-cancer and the maximum cancer risks associated with the project are substantially below the significance thresholds commonly accepted for risk analysis purposes.

6. Emissions from the construction, operation, and closure of the proposed natural gas-burning CGS will not have a significant impact on the public health of the surrounding population.

7. The impact of the proposed CGS, combined with the existing Delevan Compressor Station, would not create a cumulatively significant impact. There are no known or reasonable foreseeable future developments which would add to or create a significant cumulative impact.

We therefore conclude that project emissions of noncriteria pollutants do not pose a significant direct, indirect, or cumulative public health risk and that the project will comply with all applicable laws, ordinances, regulations, and standards. No Conditions of Certification are proposed.

C. HAZARDOUS MATERIALS MANAGEMENT

This analysis considers whether the construction and operation of the CGS project will create significant impacts to public health and safety resulting from the use, handling, or storage of hazardous materials. Several factors affect the potential for project-related hazardous materials to cause adverse impacts. These include local meteorological conditions, terrain characteristics, any special site factors, and the proximity of population centers and sensitive receptors. The evidence incorporates these factors in the analysis of potential impacts.

SUMMARY AND DISCUSSION OF THE EVIDENCE

During the construction phase of the project, hazardous materials proposed for use include paint, paint thinner, cleaners, solvents, sealants, gasoline, diesel fuel, motor oil, hydraulic fluid, lubricants, and welding flux. (Ex. 19, p. 8.12-3.) During operations, hazardous chemicals such as hydraulic and lubricating oils, sodium hypochlorite, sodium hydroxide, sulfuric acid, and aqueous ammonia would be used and stored. (Ex. 19, pp. 8.12-14 -- 8.12-16.)

Engineering controls and administrative controls affect the significance of potential impacts from hazardous materials usage and storage. Engineering controls are those physical or mechanical systems (such as storage tanks or automatic shut-off valves) which can prevent a hazardous material release from occurring, which can limit the release to a small amount, or which can confine it to a small area. Administrative controls are those rules and procedures that workers at the facility must follow to help prevent accidents or keep them small if they do occur. These are specified at length in the evidence. (Ex. 200, pp. 4.4-10 — 4.4-11.) The goal is to prevent a release from moving off-site and causing harm. Timely and adequate emergency release response is also a crucial factor.

Some hazardous materials present at the CGS pose a minimal potential for off-site impacts as they will be stored in a solid form or in small quantities, have low

mobility, or have low levels of toxicity. These hazardous materials include paint, paint thinner, cleaners, solvents, sealants, gasoline, diesel fuel, motor oil, hydraulic fluid, lubricants, and welding flux. Any impact of releases of these materials will be limited to the site due to the small quantities involved, the infrequent use and hence reduced chances of release, and/or the temporary containment berms used by contractors. Petroleum hydrocarbon-based motor fuels, mineral oil, lube oil, and diesel fuel are all of very low volatility and represent limited off-site hazard even in larger quantities. (Ex. 200, p. 4.4-7.)

While natural gas will be used in significant quantities, it will not be stored on site. The risk of a fire and/or explosion on site can be reduced to insignificant levels through adherence to applicable codes and development and implementation of effective safety management practices. The National Fire Protection Association (NFPA section 85A) requires the use of double-block and bleed valves for gas shut-off, and automated combustion controls. These measures will significantly reduce the likelihood of an explosion in gas-fired equipment. Additionally, start-up procedures would require air purging of the gas turbines prior to start-up, thus precluding the presence of an explosive mixture. The safety management plan proposed by the Applicant would address the handling and use of natural gas and would significantly reduce the potential for equipment failure due to improper maintenance or human error.

Aqueous ammonia is the only hazardous material to be used at the CGS that may pose a risk of off-site impacts. It will be used in controlling NOx emissions from the combustion of natural gas in the facility. However, the use of aqueous ammonia poses far less risk than would the much more hazardous anhydrous ammonia (ammonia that is not diluted with water). The accidental release of aqueous ammonia without proper mitigation can result in significant down-wind concentrations of ammonia gas. A single 20,000-gallon capacity above-ground storage tank will be used to store the 19% aqueous ammonia solution. (Ex. 200, p. 4.4-8.)

The maximum CGS usage of aqueous ammonia each year will require up to 104 annual tanker-truck loads, each delivering about 4000 gallons. Each tanker truck would travel approximately five miles from Interstate 5 to the facility on local roads. This would result in about 420 miles of tanker-truck travel in the project area per year. We find that the risk over this distance is insignificant. Data from the U.S. DOT show that the actual risk of a fatality over the past five years from all modes of hazardous material transportation (rail, air, boat, and truck) is approximately 0.1 in 1,000,000 per mile traveled. (Ex. 200, p. 4.4-12.)

In addition, the evidence shows that the risk of an accident associated with aqueous ammonia delivery from the freeway to the facility is 0.3 in 1,000,000 for one trip and 31 in 1,000,000 for 104 deliveries. This risk was calculated using accident rates on various types of roads (urban, one-lane, and two-lane) with distances traveled on each type of road computed separately. This is an extremely conservative model that does not include the low probability of many other factors, such as dispersion of released material, that decrease the risk of impact. However, even these conservative results show that the risk of transportation impacts is insignificant. (*id*.)

To address the issue of spill response, the Applicant will prepare and implement an emergency response plan which includes information on hazardous materials contingency and emergency response procedures, spill containment and prevention systems, personnel training, spill notification, onsite spill containment, prevention equipment and capabilities, and related topics. Emergency procedures will be established that include evacuation, spill cleanup, hazard prevention, and emergency response.

The Maxwell Fire Protection District is the first responder for hazardous materials incidents. The Maxwell Fire Protection District has expressed concern over the equipment, training, and staffing of this rural volunteer fire department. (Ex. 200, p. 4.4-11.) The concern expressed by the District is consistent with a recent fire-

services impact study prepared by The McMullen Company dated April 11, 2007. (*id*.) That study recommended several measures designed to improve the fire department's ability to respond to emergencies. However, the study was silent as to any recommended funding for these measures and none of its recommendations involved hiring staff or purchasing equipment. The District's position was that it would need at least $230,000 per year in order to hire staff and obtain equipment needed to handle emergencies arising from the construction and operation of the CGS. (1/23/08 RT 45:18; 52:22.) The Applicant characterized this figure as "unquestionably" excessive (Applicant's Prehearing Conference Statement, p. 10), but offered no evidence to support this contention.

Staff's position set forth in the FSA (Ex. 200, p. 4.14-13) was that the Applicant should pay the District $230,000 per year as requested by the District. However, at the Evidentiary Hearing, Staff and the Applicant presented two proposed Conditions of Certification which would require the Applicant, CEC CPM, and MFPD to agree upon a series of measures designed to ensure adequate fire protection and emergency response, and for the Applicant to fund a further study of impacts if they were unable to agree. The selection of the consultant hired to perform the study would be under the direction of the CEC CPM. Any impasse would be resolved by the CEC CPM whose decision would be binding. Those Conditions of Certification are set forth under **WORKER SAFETY and FIRE PROTECTION** as **WORKER SAFETY-6** and **WORKER SAFETY-7**. If implemented, they will result either in an agreement between the Applicant and the MFPD, or in an expert analysis and recommendation as to appropriate mitigation measures and funding therefor, and we adopt those Conditions with this Decision. **WORKER SAFETY-7** also provides for a payment of $230,000 by PG&E to MFPD which would ultimately be credited against any other funding to be provided by PG&E as a result of future agreement and/or third party recommendations.

The proposed CGS site is within Seismic Risk Zone 3. (Ex. 19, p. 8.12-2.) The possibility exists that an earthquake could cause release of hazardous materials from a storage tank. It could also cause the failure of the secondary containment system (berms and dikes) as well as the electrically controlled valves and pumps. The failure of all these preventive control measures might then result in a vapor cloud of hazardous materials moving off site and impacting the residents and workers in the surrounding community.

Information obtained after the Northridge earthquake of 1994 showed that some damage was caused to several large storage tanks and smaller tanks associated with the water treatment system of a cogeneration facility. Those tanks with the greatest damage, which included seam leakage, were older tanks, while the newer tanks sustained displacements and failures of attached lines. In the 2001 Nisqually earthquake near Olympia, Washington, a state with similar seismic design codes as California, no hazardous materials storage tanks were impacted by this quake. The CGS facility will be designed and constructed to the applicable standards of the 2003 California and International Building Codes and the Colusa County Building Code. (Ex. 19, p. 8.12-2.) Therefore, on the basis of the lack of failures during the Nisqually earthquake with newer tanks designed to standards similar to those in California, we find that tank failures at the project site during seismic events are not probable and do not represent a significant risk to the public.

To help assure that hazardous materials stored at the site are not accessed by unauthorized persons, we adopt Conditions **HAZ-8** and **HAZ-9**, which require Construction and Operations Security Plans, respectively. (Ex. 200, pp. 4.4-13 – 4.4-14.)

The very small risk of any release migrating off site from the CGS site and the even lower risk of simultaneous release from another facility in the area make

any cumulative hazardous material impacts very unlikely and therefore insignificant.

We impose nine Conditions of Certification in this topic area. **HAZ-1** ensures that no hazardous materials would be used at the facility except those listed in the AFC, unless there is prior approval by the Colusa County Department of Environmental Health and the Energy Commission CPM. **HAZ-2** requires that an RMP be prepared and submitted prior to the delivery of aqueous ammonia. We find that an accidental release of aqueous ammonia during transfer from the delivery tanker to the storage tank, although highly unlikely, is the most probable accident scenario, and therefore impose Condition **HAZ-3**, requiring development of a safety management plan for the delivery of aqueous ammonia. The development of a safety management plan addressing delivery of ammonia will further reduce the risk of any accidental release not addressed by the proposed spill prevention mitigation measures and the required RMP. **HAZ-4** requires that the aqueous ammonia storage tank be designed to comply with applicable LORS. **HAZ-5** addresses the storage of sulfuric acid, and the transportation of hazardous materials is addressed in **HAZ-6** and **HAZ-7**. Site security during both the construction and operations phases is addressed in **HAZ-8** and **HAZ-9.**

FINDINGS AND CONCLUSIONS

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

1. The CGS will use hazardous materials during construction and operation, including aqueous ammonia and natural gas.
2. The major public health and safety hazard is associated with the catastrophic release of aqueous ammonia.
3. A worst-case catastrophic release of aqueous ammonia will not pose a hazard to the public.
4. Compliance with appropriate administrative, engineering, and regulatory requirements for safe transportation, delivery, and storage of aqueous

ammonia will reduce potential risks of accidental release to insignificant levels.

5. The risk of fire and explosion from natural gas will be reduced to insignificant levels through adherence to applicable codes and the implementation of effective safety management practices.

6. The hazardous materials used in the construction and operation of the CGS, when considered in conjunction with those used at other facilities in the project vicinity, will not cumulatively result in a significant risk to the public.

7. Implementation of the mitigation measures described in the evidence and contained in the Conditions of Certification, below, ensures that the project will not cause significant impacts to public health and safety as the result of the handling, storage, or transportation of hazardous materials.

8. Implementation of the Conditions of Certification set forth in the **WORKER SAFETY** section of this decision will reduce to insignificant any concerns over the ability of the Maxwell Fire Protection District to respond to hazardous materials incidents in an appropriate manner.

9. With implementation of the Conditions of Certification, below, the CGS will comply with all applicable laws, ordinances, regulations, and standards related to hazardous materials management.

We conclude, therefore, that the use of hazardous materials by the CGS will not result in any significant direct, indirect, or cumulative public health and safety impacts.

CONDITIONS OF CERTIFICATION

HAZ-1 The project owner shall not use any hazardous materials not listed in **Appendix C** of the FSA, reproduced below, or in greater quantities than those identified by chemical name in said **Appendix C**, unless approved in advance by the CPM.

Verification: The project owner shall provide to the CPM, in the annual compliance report, a list of hazardous materials and storage quantities contained at the facility.

HAZ-2 The project owner shall concurrently provide a business plan and a risk management plan (RMP) to the Certified Unified Program Authority (CUPA – Colusa County Department of Environmental Health) and the CPM for review at the time the RMP is first submitted to the U.S. Environmental Protection Agency (EPA). After receiving comments from the CUPA, the EPA, and the CPM, the project owner shall reflect all recommendations in the final documents. Copies of the final business

plan and RMP shall then be provided to the CUPA and EPA for information and to the CPM for approval.

Verification: At least sixty (60) days prior to receiving any hazardous material on the site for commissioning or operations, the project owner shall provide a copy of a final business plan to the CPM for approval. At least sixty (60) days prior to delivery of aqueous ammonia to the site, the project owner shall provide the final RMP to the CUPA for information and to the CPM for approval.

HAZ-3 The project owner shall develop and implement a safety management plan for delivery of aqueous ammonia. The plan shall include procedures, protective equipment requirements, training, and a delivery procedures checklist. It shall also include a section describing all measures to be implemented to prevent mixing of aqueous ammonia with incompatible hazardous materials.

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

HAZ-4 The aqueous ammonia storage facility shall be designed to either the American Society for Material Engineering Pressure Vessel Code and ANSI K61.6 or to API 620. In either case, the storage tank shall be protected by a secondary containment basin capable of holding 125 percent of the storage volume or the storage volume plus the volume associated with 24 hours of rain assuming the 25-year storm. The final design drawings and specifications for the ammonia storage tank and secondary containment basins shall be submitted to the CPM for review and approval.

Verification: At least sixty (60) days prior to the first delivery of aqueous ammonia to the facility, the project owner shall submit final design drawings and specifications for the ammonia storage tank and secondary containment basin to the CPM for review and approval.

HAZ-5 The project owner shall ensure that no flammable material is stored within 50 feet of the sulfuric acid tank.

Verification: At least sixty (60) days prior to the first receipt of sulfuric acid on site, the project owner shall provide to the CPM copies of the facility design drawings showing the location of the sulfuric acid storage tank and the location of any tanks, drums, or piping containing any flammable materials.

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

Verification: At least sixty (60) days prior to the first receipt of aqueous ammonia on site, the project owner shall submit to the CPM for review and

approval copies of the notification letter to supply vendors indicating the transport vehicle specifications.

HAZ-7 The project owner shall direct all vendors delivering any hazardous material to the site to use only the route approved by the CPM (from Interstate 5 to Delevan Road, north on McDermott Road, and left (west) on Dirks Road.) The project owner shall submit any desired change to the approved delivery route to the CPM for review and approval.

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

HAZ-8 At least 30 days prior to commencing construction, a site-specific construction site security plan for the construction phase shall be prepared and made available to the CPM for review and approval. The construction security plan shall include the following:

- perimeter security consisting of fencing enclosing the construction area;
- security guards;
- site access control consisting of a check-in procedure or tag system for construction personnel and visitors;
- written standard procedures for employees, contractors, and vendors when encountering suspicious objects or packages on site or off site;
- protocol for contacting law enforcement and the CPM in the event of suspicious activity or emergency; and
- evacuation procedures.

Verification: At least thirty (30) days prior to commencing construction, the project owner shall notify the CPM that a site-specific construction security plan is available for review and approval.

HAZ-9 To determine the level of security appropriate for this power plant, the project owner shall prepare and submit a vulnerability assessment as part of the operations security plan to the CPM for review and approval. The vulnerability assessment shall be prepared according to guidelines issued by the North American Electrical Reliability Council (NERC 2002), the U.S. Department of Energy (DOE 2002), and the U.S. Department of Justice Chemical Facility Vulnerability Assessment Methodology. Physical site security shall be consistent with the guidelines issued by the NERC (Version 1.0, June 14, 2002) and the U.S. DOE (2002) and will also be based, in part, on the use, storage, and quantity of hazardous materials present at the facility.

The project owner shall also prepare a site-specific security plan for the operational phase, which shall be made available to the CPM for

review and approval. The project owner shall implement site security measures addressing physical site security and hazardous materials storage. The level of security to be implemented will be determined by the results of the vulnerability assessment but in no case shall the level of security be less than that described below (NERC 2002).

The operation security plan shall include the following:

1. specifications for a permanent, full perimeter fence or wall, at least 8 feet high;
2. specifications for a main entrance security gate, either hand operated or motorized;
3. evacuation procedures;
4. protocol for contacting law enforcement and the CPM in the event of suspicious activity or emergency;
5. written standard procedures for employees, contractors, and vendors when encountering suspicious objects or packages on or off site;
6. requirements for site personnel background checks, including employee and routine onsite contractors. Site personnel background checks are limited to ascertaining that the employee's claims of identity and employment history are accurate. All site personnel background checks shall be consistent with state and federal law regarding security and privacy;
7. site access controls for employees, contractors, vendors, and visitors;
8. requirements for hazardous materials vendors to prepare and implement security plans as per 49 CFR 172.800 and to ensure that all hazardous materials drivers are in compliance with personnel background security checks as per 49 CFR Part 1572, subparts A and B;
9. specifications for a closed-circuit TV monitoring system, recordable and viewable in the power plant control room and security station (if separate from the control room), capable of viewing, at a minimum, the main entrance gate and the ammonia storage tank; and
10. additional measures to ensure adequate perimeter security consisting of either:

    A. security guards present 24 hours per day, 7 days per week; or

    B. power plant personnel on site 24 hours per day, 7 days per week and, all of the following:

1) the CCTV monitoring system required in number 9 above shall include cameras that are able to pan, tilt, and zoom, shall have low-light capability, shall be recordable, and shall be able to view 100 percent of the perimeter fence, the ammonia storage tank, the outside entrance to the control room, and the front gate from a monitor in the power plant control room; and

2) Perimeter breach detectors or onsite motion detectors

The project owner shall fully implement the security plans and obtain CPM approval of any substantive modifications to the security plans. The CPM may authorize modifications to these measures, or may require additional measures, such as protective barriers for critical power pant components (e.g., transformers, gas lines, compressors, etc.) depending on circumstances unique to the facility or in response to industry-related standards, security concerns, or additional guidance provided by the U.S. Department of Homeland Security, the U.S. Department of Energy, or the North American Electrical Reliability Council, after consultation with appropriate law enforcement agencies and the Applicant.

Verification: At least thirty (30) days prior to the initial receipt of hazardous materials on site, the project owner shall notify the CPM that a site-specific vulnerability assessment and operations site security plan are available for review and approval.

Proposed Onsite Inventory of Hazardous Materials

(Source: Exhibit 19)

Table 8.12-1
Anticipated Hazardous Materials Used at the Operational Colusa Generating Station
(Page 1 of 8)

Material	Label on Figure 8.12-1	CAS Number	Location/ Application	Hazardous Characteristics[a]	Maximum Quantity On Site	Regulatory Thresholds (lbs)			
							Federal RQ	Federal TPQ	Federal TQ
Hydrogen	A	1333-74-0	Generator Cooling	Acute, fire, pressure, reactive	24,000 scf		-	-	10,000
Sulfuric Acid 29.5 wt%	B	7664-93-9	Station and Gas Turbine Batteries	Acute, chronic, reactive	1,500 US gal		1,000	1,000	-
Carbon Dioxide gas	C	124-38-9	Generator Purging	Acute, chronic, pressure	25,200 scf		-	-	-
Carbon Dioxide liquid	D	124-38-9	Fire Suppression	Acute, chronic, pressure	25,000 lbs		-	-	-
Nitrogen gas	E	7727-37-9	Blanketing	Pressure	200 lbs		-	-	-
Propylene Glycol (Antifreeze)	F	57-55-6	Closed Cooling Water System	Acute, chronic, fire	25 US gal		-	-	-
Alkaline Phosphate Solution (Scale Inhibitor) e.g., Trisodium Phosphate[d]	G	7601-54-9	Boiler Feedwater Scale Control	Acute, chronic	5 × 55 US gal Containers 30 days storage[b]		[5,000]	-	-
Aqueous Ammonia 19.0 wt%	H	7664-41-7	NO_X Emissions Control	Acute, chronic, fire, pressure	20,000 US gal		100	500	20,000
Mineral Insulating Oil	I	None	Electrical Transformers	Acute, chronic, fire	55,000 US gal[c]		-	-	-
Lubricating Oil	J	None	Mechanical Equipment	Acute, chronic, fire	12,400 US gal[c]		-	-	-
Hydrochloric Acid[d]	Stored offsite	7647-01-0	HRSG Chemical Cleaning	Acute, chronic	Temporary Only[e]		5,000	-	15,000

D. WORKER SAFETY AND FIRE PROTECTION

Industrial workers are exposed to potential health and safety hazards on a daily basis. Power plants, which combust large quantities of fuel at high temperatures, present special concerns related to fire safety. Here we analyze whether Applicant's proposed health and safety plans will be adequate to protect industrial workers and provide fire protection and emergency response in accordance with all applicable LORS.

SUMMARY AND DISCUSSION OF THE EVIDENCE

Industrial environments are potentially dangerous during construction and operation activities. Workers at the proposed project will be exposed to loud noises, moving equipment, trenches, and confined space entry and egress problems. The workers may experience falls, trips, burns, lacerations, and numerous other injuries. They have the potential to be exposed to falling equipment or structures, chemical spills, hazardous waste, fires, explosions, and electrical sparks and electrocution. Thus, it is important for the CGS to have well-defined policies and procedures, training, and hazard recognition and controls to minimize such hazards and protect workers.

The evidence details the type and content of various plans which will be developed to ensure the protection of worker health and safety, as well as compliance with applicable LORS. For example, the project owner will develop and implement a "Construction Safety and Health Program" and an "Operations and Maintenance Safety and Health Program," which must be reviewed by the Compliance Project Manager prior to project construction and operation, respectively. Separate Injury and Illness Prevention Programs, Personal Protective Equipment Programs, Emergency Action Plans, Fire Prevention Plans, and other general safety procedures will be prepared for both the construction and operation phases of the project. (Ex. 200, pp. 4.14-4 -- 4.14-11.) Conditions

of Certification **WORKER SAFETY-1 and -2** ensure that these measures will be developed and implemented. Conditions **WORKER SAFETY-3 and -4** provide for a Construction Safety Supervisor, reporting to the project owner and a Safety Monitor, reporting to the Chief Building Official, to monitor safety conditions during project construction.

During project construction and operation there is the potential for both small fires and major structural fires. Electrical sparks, combustion of fuel oil, natural gas, hydraulic fluid, mineral oil, insulating fluid at the power plant switchyard, flammable liquids, explosions, and over-heated equipment may cause small fires. Major structural fires in areas without automatic fire detection and suppression systems are unlikely to develop at power plants. Fires and explosions of natural gas or other flammable gases or liquids are rare.

The project will rely on both on-site fire protection systems and local fire protection services. The on-site fire protection system provides the first line of defense for small fires. During construction, portable fire extinguishers will be located throughout the site, and safety procedures and training will be implemented. Following construction, fire suppression elements in the proposed plant will include both fixed and portable fire extinguishing systems. The fire water will be supplied from a dedicated 300,000 gallon fire-water storage tank and delivered to an underground firewater loop with fire hydrants at approximately 300-foot intervals. (Ex. 200, p. 4.14-12.)

A carbon dioxide fire protection system will be provided for the combustion turbine generators and accessory equipment. The system will have fire detection sensors that will trigger alarms, turn off ventilation, close ventilation openings, and automatically release the carbon dioxide gas. (Ex. 200, p. 4.14-12.)

Conditions of Certification **WORKER SAFETY-1** and **-2** require submittal of final Fire Protection and Prevention Programs to Staff and to the Maxwell Fire

Protection District prior to construction and operation, respectively, to confirm the adequacy of the fire protection measures.

A state-wide survey was conducted by Staff to determine the frequency of emergency medical response (EMS) and fire-fighter response for natural gas-fired power plants in California. Incidents at power plants that require fire or EMS response were found to be infrequent and representing an insignificant impact on the local fire departments, except for rare instances where a rural fire department has mostly volunteer fire-fighting Staff, such as here. However, Staff found that the potential for both work-related and non-work related heart attacks exists at power plants. Many of the responses in the survey were for cardiac emergencies involving non-work related incidents, including visitors. The need for prompt response within a few minutes is well documented in medical literature. The quickest medical intervention can only be achieved with the use of an on-site defibrillator; the response from an off-site provider would take longer regardless of the provider's location. Many private and public locations (e.g., airports, factories, government buildings) maintain on-site cardiac defibrillation devices and Staff believes it is prudent to have one at power generation facilities. (Ex. 200, p. 4.14-13.) Condition of Certification **WORKER SAFETY-5** requires that a portable automatic cardiac defibrillator be located on site.

Cumulative Impacts

In the event of a major fire, fire support services, including trained firefighters and equipment for a sustained response, will be provided by the Maxwell Fire Protection District. (Ex. 200, p. 4.14-11.) At present the MFPD is staffed by volunteer fire fighters, which significantly increases response time and limits the capability to respond to multiple events. Both the MFPD and a recent fire services impact study conducted by the McMullen Company dated April 11, 2007, indicate inadequacies in the capability of the MFPD to respond at the same time to the local community's needs and incidents that may occur at the proposed facility. (Ex. 200, p. 4.14-13.) The McMullen study recommended

several measures designed to improve the fire department's ability to respond to emergencies. However, the study was silent as to any recommended funding for these measures and none of its recommendations involved hiring staff or purchasing equipment. The District's position was that it would need to fund three new full time positions to ensure that both the community and the proposed facility can be serviced effectively. The MFPD estimated that it will cost about $230,000 per year to fund the new positions. (Ex. 200, p. 4.14-13.) The Applicant characterized this figure as "unquestionably" excessive (Applicant's Prehearing Conference Statement, p. 10), but offered no evidence to support this contention.

Staff's position set forth in the FSA (Ex. 200, p. 4.14-13) was that the Applicant should pay the District $230,000 per year as requested by the District. However, at the Evidentiary Hearing, Staff and the Applicant presented two proposed Conditions of Certification which would require the Applicant, CEC CPM, and MFPD to agree upon a series of measures designed to ensure adequate fire protection and emergency response, and for the Applicant to fund a further study of impacts if they were unable to agree. The selection of the consultant hired to perform such a study would be under the direction of the CEC CPM. Any impasse would be resolved by the CEC CPM, whose decision would be binding. PG&E would provide certain funding in advance which would be credited against any payments later made by PG&E as a result of agreement and/or third party recommendations. Those Conditions of Certification are set forth under **WORKER SAFETY and FIRE PROTECTION** as **WORKER SAFETY-6** and **WORKER SAFETY-7**. If implemented, they will result either in an agreement between the Applicant and the MFPD, or in an expert analysis and recommendation as to appropriate mitigation measures and funding therefor, and we adopt those Conditions with this Decision.

FINDINGS AND CONCLUSIONS

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

1. To protect workers from job-related injuries and illnesses, the project owner will implement comprehensive Safety and Health Programs for both the construction and the operation phases of the project.

2. Conditions of Certification in this section adequately protect construction workers from particulate matter and fugitive dust.

3. The CGS will include on-site fire protection and suppression systems for first line defense in the event of a fire.

4. The Maxwell Fire Protection District will provide fire protection and emergency response services to the project.

5. Implementation of the Conditions of Certification, below, and the mitigation measures contained therein will ensure that the project conforms with all applicable laws, ordinances, regulations, and standards on industrial worker health and safety.

6. Implementation of the Conditions of Certification set forth in the Worker Safety section of this decision will reduce to insignificant any concerns over the ability of the Maxwell Fire Protection District to respond to hazardous materials incidents in an appropriate manner.

The Commission therefore concludes that implementation of the project owner's Safety and Health Programs and Fire Protection measures, as well as the Conditions of Certification, will reduce potential impacts upon worker health and safety and fire protection to insignificant levels.

CONDITIONS OF CERTIFICATION

WORKER SAFETY-1 The project owner shall submit to the compliance project manager (CPM) a copy of the project construction safety and health program containing the following:

- a construction personal Protective equipment program;
- a construction exposure monitoring program;

- a construction injury and illness prevention program;
- a construction emergency action plan; and
- a construction fire prevention plan.

The personal protective equipment program, the exposure monitoring program, and the injury and illness prevention program shall be submitted to the CPM for review and approval concerning compliance of the program with all applicable safety orders. The construction emergency action plan and the fire prevention plan shall be submitted to the Maxwell Fire Protection District for review and comment prior to submittal to the CPM for approval.

Verification: At least thirty (30) days prior to the start of construction, the project owner shall submit to the CPM for review and approval a copy of the project construction safety and health program. The project owner shall provide a copy of a letter to the CPM from the Maxwell Fire Protection District providing the fire district's comments on the construction fire prevention plan and emergency action plan.

WORKER SAFETY-2 The project owner shall submit to the CPM a copy of the project operations and maintenance safety and health program containing the following:

- an operation injury and illness prevention plan;
- an emergency action plan;
- a hazardous materials management program;
- a fire prevention program (8 CCR § 3221);
- a fire protection program; and
- a personal protective equipment program (8 CCR §§ 3401 to 3411).

The operation injury and illness prevention plan, emergency action plan, and personal protective equipment program shall be submitted to the CPM for review and comment concerning compliance of the program with all applicable safety orders. The operation fire prevention program plan and the emergency action plan shall also be submitted to the Maxwell Fire Protection District for review and comment.

Verification: At least thirty (30) days prior to the start of power plant commissioning, the project owner shall submit to the CPM for approval a copy of the project operations and maintenance safety and health program. The project owner shall provide a copy of a letter to the CPM from the Maxwell Fire Protection District providing the fire district's comments on the operations hazardous materials management program, fire prevention plan and emergency action plan.

WORKER SAFETY-3 The project owner shall provide a site construction safety supervisor who, by way of training and/or experience, is

knowledgeable of power-plant construction activities and relevant laws, ordinances, regulations, and standards, is capable of identifying workplace hazards relating to the construction activities, and has authority to take appropriate action to assure compliance and mitigate hazards.

The construction safety supervisor shall:

- have overall authority for coordination and implementation of all occupational safety and health practices, policies, and programs;
- assure that the safety program for the project complies with Cal/OSHA and federal regulations related to power plant projects;
- assure that all construction and commissioning workers and supervisors receive adequate safety training;
- complete accident and safety-related incident investigations, emergency response reports for injuries, and inform the CPM of safety-related incidents; and
- assure that all the plans identified in **WORKER SAFETY-1 and WORKER SAFETY-2** are implemented.

Verification: At least thirty (30) days prior to the start of site mobilization, the project owner shall submit to the CPM the name and contact information for the construction safety supervisor . The contact information of any replacement construction safety supervisor shall be submitted to the CPM within one business day.

The construction safety supervisor shall submit in the monthly compliance report a monthly safety inspection report to include:

- a record of all employees trained for that month (all records shall be kept on site for the duration of the project);
- a summary report of safety management actions and safety-related incidents that occurred during the month;
- a report of any continuing or unresolved situations and incidents that may pose danger to life or health; and
- a report of accidents and injuries that occurred during the month.

WORKER SAFETY-4 The project owner shall make payments to the CBO for the services of a safety monitor based upon a reasonable fee schedule to be negotiated between the project owner and the CBO. Those services shall be in addition to other work performed by the CBO. The safety monitor shall be selected by and report directly to the CBO, and shall be responsible for verifying that the construction safety

supervisor, as required in **WORKER SAFETY-3**, implement all appropriate Cal/OSHA and Energy Commission safety requirements. The safety monitor shall conduct onsite (including linear facilities) safety inspections at intervals necessary to fulfill those responsibilities.

Verification: Prior to the start of construction, the project owner shall provide proof of its agreement to fund the safety monitor services to the CPM for review and approval.

WORKER SAFETY-5 The project owner shall ensure that a portable automatic cardiac defibrillator is located on site during construction and operation and shall implement a program to ensure that workers are properly trained in its use and that the equipment is properly maintained and functioning at all times.

Verification: At least 30 days prior to the start of site mobilization, the project owner shall submit to the CPM for review and approval proof that a portable automatic cardiac defibrillator exists on site and a copy of the defibrillator training and maintenance.

WORKER SAFETY-6 The project owner shall either (1) reach an agreement with the Maxwell fire department regarding the funding of resources to mitigate potential project-related impacts on fire protection services or if no agreement can be reached shall (2) fund an independent consultant's study to evaluate the following:

- Potential for impacts on local fire protection and costs of new local fire protection services necessary to mitigate such impacts;
- The risk of impact on the local population that could result from potential unmitigated impacts on local fire protection services;
- The extent to which local tax revenue from the project will provide funding to reduce impacts on local fire protection services;
- Recommend the amount of funding that should be provided to mitigate any identified significant impacts on local fire protection services.

Compliance Protocols:

- The project owner shall provide a protocol for conducting the independent consultant study for review and comment by the Maxwell Fire Department and review and approval by the CEC CPM prior to conducting the study.
- The independent consultant study shall be funded by the project owner and conducted by a consultant approved by the CEC CPM.
- No construction of permanent above ground structures shall occur until funding of mitigation occurs either pursuant to an agreement reached between the project owner and the Maxwell Fire

Department or pursuant to the staff-approved independent consultant's study.

- In the event that the parties disagree with the consultant's recommendations the CEC CPM shall, based on the results of the CEC CPM approved independent consultant study and comments form the project owner and the Maxwell Fire Department, make the final determination regarding the mitigation measures that will be required and the amounts of funding to be provided to the Maxwell Fire Department to accomplish any required mitigation.

Verification: The project owner shall provide the CEC CPM with a copy of the agreement with the Maxwell Fire Department; or a study outline and scope of work for the proposed independent consultant study and qualifications for proposed contractors for approval. The project owner shall provide the CEC CPM with a copy of the completed study prior to any construction of permanent above-ground structures at the project site. Annually thereafter, the owner shall provide the CEC CPM with verification of funding to the Maxwell Fire Department for required fire protection services mitigation pursuant to the agreement with the Department *or* the CEC CPM approved independent consultant study.

WORKER SAFETY-7 The project owner shall provide a $230,000 payment to the Maxwell Fire Department prior to the start of construction. This funding shall off-set any initial funding required by **WORKER SAFETY – 6** above until the funds are exhausted. This offsetting will be based on a full accounting by the Maxwell Fire Department regarding the use of these funds.

Verification: At least 30 days prior to the start of site mobilization the project owner shall provide documentation of the payment described above to the CEC CPM. The CEC CPM shall adjust the payments initially required by **WORKER SAFETY- 6** based on the accounting provided by the Maxwell Fire Department.

VI. ENVIRONMENTAL ASSESSMENT

A. BIOLOGICAL RESOURCES

The Commission must consider the potential impacts of project-related activities on biological resources, including state and federally listed species, species of special concern, wetlands, and other topics of critical biological interest such as unique habitats. The review contained in the record describes the biological resources in the vicinity of the project site and linear alignments, assesses the potential for adverse impacts, and determines whether mitigation measures are necessary to mitigate impacts or ensure compliance with applicable laws, ordinances, regulations, and standards.

SUMMARY AND DISCUSSION OF THE EVIDENCE

The site of the CGS project is in northern Colusa County on the west side of the Sacramento Valley near the southern end of the Mendocino National Forest and the foothills of the Coast Range. The Sacramento River meanders through the area. The Pacific Flyway, a major north-south route for migratory birds, encompasses the project site.

The predominant natural vegetation in the area consists of grasslands, oak woodlands, riparian forests, and wetlands, including vernal pools. Cropland occupies about one third of Colusa County's total land area. Ranches occupy just over one quarter of the county's land area. (Ex. 200, p. 4.2-4.)

1. Project Site and Vicinity Description

The CGS will occupy a 100-acre parcel located approximately 0.5 mile east of the Tehama-Colusa Canal and approximately 0.75 mile west of the Glenn-Colusa Canal. The power plant site and temporary construction areas are currently

annual grassland habitat that has been used for grazing cattle and is characterized by gently rolling hills typical of the transition area between the valley floor and low Coast Range foothills.

Habitat on the proposed power plant site is primarily annual grassland, but an area of alkali grassland is located in the southwest corner of the site. To the east and northeast of the proposed site and the existing PG&E compressor station is a complex of vernal pools and vernal pool grassland habitat. In addition, several stock ponds are in the project vicinity. The area between Interstate 5 and the proposed site is primarily rice and wheat fields, including a network of irrigation canals. (Ex. 200, p. 4.2-8.)

The project's twelve transmission towers will permanently disturb approximately 0.3 acres and temporarily disturb 7.3 acres of annual grassland. (Ex. 9, p. 3-47.) One of the new transmission line towers will be located in the vicinity of vernal pools. (Ex. 9, p. 5-1.) Construction of a new paved access road, 30 feet in width, extending west approximately 2,500 feet from the existing road from the PG&E Delevan Compressor Station to the proposed plant site, will temporarily disturb approximately 4.1 acres, and will permanently disturb approximately 1.7 acres. (Ex. 9, p. 3-47.) Construction of a 1,500 foot long natural gas pipeline interconnecting to PG&E's existing gas lines would temporarily disturb an area of approximately 1.7 acres of annual grassland habitat. (Ex. 9, pp. 3-47, 6-1; Ex. 200, pp. 4.2-9 -- 4.2-10.)

2. Permanent and Temporary Habitat Impacts

Construction of the CGS will cause temporary and permanent impacts to grassland habitat which may impact the following species that forage on grassland habitat in the project area: bald eagle (*Haliaeetus leucocephalus*), northern harrier (*Circus cyaneus*), Swainson's hawk (*Buteo swainsoni*), ferruginous hawk (*Buteo regalis*), western burrowing owl (*Athene cunicularia*

hypugea), California horned lark (*Eremophila alpestris*), and tricolored blackbird (*Agelaius tricolor*). Permanent impacts to grassland habitat due to construction of the power plant site and linear facilities will amount to approximately 33.4 acres. An additional 55.3 acres of grassland habitat will be temporarily disturbed during construction. (Ex. 9, pp. 3-47, 3-48; Ex. 200, pp. 4.2-9 -- 4.2-10.)

Wetlands under the jurisdiction of the U.S. Army Corps of Engineers (USACE) in the project area include vernal pools, vernal pool grasslands, seasonal wetlands, freshwater marsh, and cultivated rice fields. The Applicant submitted a Draft Jurisdictional Delineation and Draft U.S. Army Corps of Engineers Permit Application to the USACE for fill of wetlands and non-wetland waters of the U.S. (Ex. 56) which identified potential impacts to wetlands and other waters of the U.S. in the project area. The USACE verified the delineation and concurred with the Applicant's acreage estimate of waters of the U.S. on August 10, 2007. (Ex. 60.) Construction of the CGS will impact vernal pools, seasonal wetlands, cultivated rice fields, and freshwater marsh wetlands as discussed below. (Ex. 200, p. 4.2-13.)

Vernal pools are located in the vicinity of the transmission line interconnection and on either side of Dirks Road west of the Glenn-Colusa Canal. This sensitive habitat could contain special-status branchiopods and does contain a rare plant species (brittlescale, *Atriplex depressa*). Although construction will not directly impact vernal pools and their associated sensitive species, indirect impacts could occur since construction will occur in close proximity to vernal pools. (Ex. 200, pp. 4.2-9 -- 4.2-10.)

Seasonal wetlands in the project area are located on the south side of Dirks Road west of the Glenn-Colusa Canal and along the banks of Teresa Creek in the vicinity of the Teresa Creek Bridge. Construction would temporarily impact 0.08 acre of seasonal wetlands and permanently impact 0.02 acres of seasonal wetlands. (Ex. 200, p. 4.2-15.)

Freshwater marsh wetlands are located along Dirks Road west of the Glenn-Colusa Canal and along either side of Glenn-Colusa Canal north and south of Dirks Road. The construction of the temporary bridge over the Glenn-Colusa Canal will temporarily impact 0.12 acres of freshwater marsh. (Ex. 200, p. 4.2-15.)

Replacement of the Teresa Creek Bridge will temporarily impact 1.40 acres of cultivated rice fields and permanently impact 0.36 acre of rice fields. Construction of the Teresa Creek Bridge will likewise temporarily impact 0.04 acres of non-wetland waters of the U.S. and permanently fill 0.01 acres of non-wetland waters of the U.S. (Ex. 200, pp. 4.2-15 -- 4.2-16.)

3. Special-Status Species Impacts

"Special-status species" includes any state and federally listed species and species proposed for listing under the California and federal Endangered Species Acts, state species of special concern, plant species designated as rare, threatened, or endangered by the California Native Plant Society (CNPS), and other species designated as special-status or sensitive species by other state or federal agencies or non-governmental organizations. (Ex. 200, p. 4.2-5.)

Biological Resources Table 1 below is a list of special-status species known to occur or with the potential to occur in the project vicinity. (Ex. 200, pp. 4.2-6 -- 4.2-7.)

BIOLOGICAL RESOURCES Table 1

Special-Status Species with Potential to Occur in the Project Area

Common Name	Scientific Name	Status (Federal/ State/ CNPS List)	Notes on Occurrence(s)
PLANTS			
bent-flowered fiddleneck	*Amsinckia lunaris*	--/--/1B.2	Not likely to occur
Ferris' milk-vetch	*Astragalus tener* var. *ferrisiae*	--/--/1B.1	Potential to occur
heartscale	*Atriplex cordulata*	--/--/1B.2	Potential to occur
brittlescale	*Atriplex depressa*	--/--/1B.2	Potential to occur
San Joaquin spearscale	*Atriplex joaquiniana*	--/--/1B.2	Potential to occur
vernal pool smallscale	*Atriplex persistens*	--/--/1B.2	Potential to occur
round-leaved filaree	*California macrophylla*	--/--/1B.1	Potential to occur
pappose tarplant	*Centromadia parryi* ssp. *parryi*	--/--/1B.2	Potential to occur
Hoover's spurge	*Chamaesyce hooveri*	FT/ --/1B.2	Potential to occur
palmate-bracted bird's-beak	*Cordylanthus palmatus*	FE/SE/1B.2	Potential to occur
recurved larkspur	*Delphinium recurvatum*	--/--/1B.2	Potential to occur
diamond-petaled California poppy	*Eschscholzia rhombipetala*	--/--/1B.1	Not likely to occur
adobe-lily	*Fritillaria pluriflora*	--/--/1B.2	Potential to occur
rose-mallow	*Hibiscus lasiocarpus*	--/--/2.2	Potential to occur
Bolander's horkelia	*Horkelia bolanderi*	--/--/1B.2	Potential to occur
Coulter's goldfields	*Lasthenia glabrata* ssp. *coulteri*	--/--/1B.1	Potential to occur
Heckard's peppergrass	*Lepidium latipes* var. *heckardi*	--/--/1B.2	Potential to occur
little mousetail	*Myosurus minimus*	--/--/3.1	Potential to occur
Baker's navarretia	*Navarretia leucocephala* ssp. *bakeri*	--/--/1B.1	Potential to occur
Colusa grass	*Neostapfia colusana*	FT/SE/1B.1	Not likely to occur
hairy Orcutt grass	*Orcuttia pilosa*	FE/SE/1B.1	Potential to occur
caper-fruited tropidocarpum	*Tropidocarpum capparideum*	--/--/1B.1	Not likely to occur
Greene's tuctoria	*Tuctoria greenei*	FE/CR/1B.1	Potential to occur
INVERTEBRATES			
Conservancy fairy shrimp	*Branchinecta conservatio*	FE/--	Potential to occur
vernal pool fairy shrimp	*Branchinecta lynchi*	FT/--	Potential to occur
Sacramento Valley tiger beetle	*Cicindela hirticollis abrupta*	--/--	Not likely to occur
valley elderberry longhorn beetle	*Desmocerus californicus dimorphus*	FT/--	Not likely to occur
vernal pool tadpole shrimp	*Lepidurus packardi*	FE/--	Potential to occur
FISH			
North American green sturgeon	*Acipenser medirostris*	FT/ST	Not present
Delta smelt	*Hypomesus transpacificus*	FT/ST	Not present
Central Valley steelhead	*Oncorhynchus mykiss*	FT/--	Not present
winter-run chinook salmon	*Oncorhynchus tshawytscha*	FE/SE	Not present
spring-run chinook salmon	*Oncorhynchus tshawytscha*	FT/ST	Not present
AMPHIBIANS			
California tiger salamander	*Ambystoma californiense*	FT/CSC	Not likely to occur
California red-legged frog	*Rana draytonii*	FT/CSC	Not likely to occur
REPTILES			
giant garter snake	*Thamnophis gigas*	FT/ST	Likely to occur in rice fields and irrigation

Common Name	Scientific Name	Status (Federal/ State/ CNPS List)	Notes on Occurrence(s)
			ditches in project vicinity
BIRDS			
tricolored blackbird	*Agelaius tricolor*	--/CSC	Potential to occur
golden eagle	*Aquila chrysaetos*	--/CSC	Potential to occur
western burrowing owl	*Athene cunicularia hypugea*	--/CSC	Known to occur in project vicinity
Swainson's hawk	*Buteo swainsoni*	--/ST	Foraging habitat present
western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	FC/SE	Not likely to occur
snowy egret (rookery sites)	*Egretta thula*	--/--	Observed in project area but rookery sites absent
white-tailed kite	*Elanus leucurus*	--/CFP	Potential to occur
bald eagle	*Haliaeetus leucocephalus*	D/SE	Potential to occur
black-crowned night heron (rookery site)	*Nycticorax nycticorax*	--/--	Potential to occur but rookery sites absent
osprey	*Pandion haliaetus*	--/CSC	Not likely to occur
white-faced ibis	*Plegadis chihi*	--/CSC	Observed in project area
bank swallow	*Riparia riparia*	--/ST	Not likely to occur
northern spotted owl	*Strix occidentalis caurina*	FT/--	Not likely to occur
least Bell's vireo	*Vireo bellii pusillus*	FE/SE	Not likely to occur
Mammals			
pallid bat	*Antrozous pallidus*	--/CSC	Potential to occur
pale big-eared bat	*Corynorhinus townsendii pallescens*	--/CSC	Potential to occur
Townsend's western big-eared bat	*Corynorhinus townsendii*	--/CSC	Potential to occur
western red bat	*Lasiurus blossevillii*	--/--	Not likely to occur
hoary bat	*Lasiurus cinereus*	--/CSC	Not likely to occur
western small-footed myotis	*Myotis ciliolabrum*	--/--	Not likely to occur
San Joaquin pocket mouse	*Perognathus inornatus inornatus*	--/--	Potential to occur

Sources: Ex 9, pp. 8.2-61 -- 8.2-73; Ex. 200, pp. 4.2-6 -- 4.-8.

FE: Federally listed endangered; **FT**: Federally listed threatened; **FPE**: Federally proposed for listing as endangered; **FPT**: Federally proposed for listing as threatened; **FPD**: Federally proposed for Delisting; **FC**: Candidate for Listing as threatened or endangered; **D**: Delisted; **SE**: State-listed endangered; **ST**: State-listed threatened ; **SCE**: State candidate for listing as endangered; **SCT**: State candidate for listing as threatened; **CSC**: California species of special concern; **CR**: California rare; **List 1A**: Plants presumed extinct in California; **List 1B**: Plants rare, threatened, or endangered in California and elsewhere; **List 2**: Plants, rare, threatened, or endangered in California, more common elsewhere; **List 3**: Plants about which we need more information – a review list; threat rank extensions: .**1**: Very endangered in California; .**2**: Fairly endangered in California; .**3**: Not very endangered in California; **--** = Not listed in that category

4. Special-Status Plants

The majority of the special-status plant species in the project area are associated with wetland habitats so construction of the CGS has the potential to cause indirect impacts to one of the plant species identified in **Biological Resources Table 1.** The only special-status plant species that was observed during surveys at the project site was brittlescale (*Atriplex depressa*). Brittlescale observed during site surveys was located in the vernal pool complex to the north and east of the site. Brittlescale would not be impacted directly by construction; however, it is possible that indirect impacts, such as competition with weeds introduced into the area during construction, would occur. (Ex. 9, p. 8.2-34, Ex. 200, p. 4.2-17.)

5. Special-Status Branchiopods (Freshwater Crustaceans)

The project has the potential to impact the federally endangered Conservancy Fairy Shrimp (*Branchinecta conservatio*), the federally threatened Vernal Pool Tadpole Shrimp (*Lepidurus packardi*), and the federally threatened Vernal Pool Fairy Shrimp (*Branchinecta lynchi*). (Ex. 46, p. 6.) These species may be present in vernal pools and seasonal wetlands in the project vicinity. Both temporary and permanent impacts to vernal pools or seasonal wetlands would result in a significant adverse impact to invertebrates. Approximately 0.02 acre of branchiopod habitat will be directly impacted by construction, but the size of the two affected seasonal wetlands is 0.15 acres. The Applicant will implement mitigation measures for impacts to branchiopods including compensatory habitat mitigation. (Ex. 72, pp. 11 -- 13; see also, Condition of Certification **BIO-13**.)

6. Special-Status Fish

The Sacramento River and its tributaries are considered critical habitat for Chinook Salmon. Teresa Creek is a tributary of Hunter's Creek, which is a tributary of the Sacramento River. Use of culverts during construction of the new

Teresa Creek Bridge could create a barrier to salmon migration. In addition, if a cofferdam is needed during bridge construction, fish could become trapped and injured behind the cofferdam. Loss of creekside vegetation during construction could reduce habitat suitability.

The Applicant will be required to implement measures to mitigate potential impacts to salmon due to construction of the Teresa Creek Bridge. To minimize potential impacts, culverts installed must be large enough to maintain peak flows and provide temporary crossings. Screens will be used to prevent fish from being entrained into dewatering pumps, and a biologist must be present to relocate trapped fish and prevent injuries if dewatering is necessary during construction. Certification **BIO-17** requires that the Applicant implement measures to minimize impacts to fish species during construction at Teresa Creek, and Condition of Certification **BIO-18** requires the implementation of a revegetation and restoration plan to restore temporarily disturbed habitat. (Ex. 200, p. 4.2-19.)

7. Special-Status Amphibians

The project has the potential to impact the California tiger salamander *(Ambystoma californiense)* and the California red-legged frog (*Rana draytonii).* Both amphibians are a federally threatened species. Neither the California tiger salamander nor the California red-legged frog are known to currently exist in the project area, so impacts to these species are unlikely. Nevertheless, in the event that either species is observed by project biologists or construction personnel during construction of the CGS, mitigation measures will include consultation with USFWS, inspection of trenches during construction, training construction personnel on species identification, regular disposal of trash, and timing construction to occur during the non-breeding season. Condition of Certification **BIO-2** requires that the Designated Biologist or Biological Monitor mark sensitive biological resource areas and inspect active construction areas for animals that

may be in harm's way, among other things. Condition of Certification **BIO-5** also requires a WEAP to educate workers about avoidance of impacts to sensitive species and Condition of Certification **BIO-14** prohibits the use of chemicals harmful to amphibians. (Ex. 200, p. 4.2-20.)

8. Giant Garter Snake

Giant garter snakes are listed as threatened under the federal and state endangered species acts. Giant garter snakes utilize aquatic habitats such as rice fields, canals, and irrigation ditches that are prevalent in the project area during the spring-through-fall active season. Protection of existing habitat is one of the key components for the recovery strategy for this species. Existing giant garter snake habitat in Colusa County includes marshes, wetlands, and rice fields.

The Teresa Creek Bridge replacement will impact rice fields and other aquatic habitat that may be used by giant garter snakes. Increased traffic due to construction of the CGS could have a significant adverse impact on numbers of individual snakes which cross the road and use it as a basking surface during the active season.

To mitigate potential impacts to the giant garter snake and its habitat, conditions of certification include the following mitigation measures:

- construction affecting potential giant garter snake habitat will be conducted between May 1 and October 1 in order to avoid impacts to snakes in crevices during the winter dormancy period;
- dewatered habitat will remain dry for at least 15 consecutive days after April 15 and prior to excavating or filling;
- construction personnel will participate in a WEAP which will include information regarding the giant garter snake;
- exclusion fencing will be installed to minimize habitat disturbance;
- biologists will inspect work areas prior to commencement of construction activities, and will have the authority to stop work if a giant garter snake is encountered during construction;

- temporarily disturbed areas will be returned to pre-construction conditions;
- speed limits of 20 miles per hour will be imposed for traffic to and from the construction site; and
- 2.05 acres of aquatic habitat and 1.5 acres of upland habitat will be replaced for permanently impacted giant garter snake habitat.

Condition of Certification **BIO-16** requires that the project owner comply with USFWS avoidance and minimization measures for construction impacts to giant garter snake and purchase habitat credits at an approved mitigation bank. Conditions of Certification **BIO-11** and **BIO-6** require that the project owner comply with the terms and conditions in the USFWS Biological Opinion, which serves as the federal Incidental Take Permit and provides guidance on minimizing impacts to listed species. In addition, if CDFG determines that the federal permit is not consistent with CESA, Condition of Certification **BIO-8** requires the Applicant to apply for a state Incidental Take Permit under section 2081(b) of the Fish and Game Code. Conditions of Certification **BIO-1, BIO-2, BIO-3**, **BIO-4**, and **BIO-5** are necessary to ensure that impacts to special-status reptiles are mitigated to less-than-significant levels. (Ex. 200, pp. 4.2-21 -- 4.2-23.)

9. Special-Status Birds

A number of special-status birds, such as golden eagle, white-faced ibis, and white-tailed kite, could be impacted by the project through the loss of foraging habitat. Mitigation measures, which are required for impacts to Swainson's hawk foraging habitat, will also address this impact for other bird species that use similar foraging habitats. (Ex. 200, p. 4.2-23.)

a. Swainson's Hawk

Swainson's hawks (state-listed Threatened) require large, open grasslands with abundant prey in association with suitable nest trees. The species range is restricted to portions of the Central Valley and the Great Basin where suitable

nesting and foraging habitat is still available. Central Valley populations are centered on Sacramento, San Joaquin, and Yolo Counties.

The project site's grasslands provide Swainson's hawk foraging habitat, and construction of the project will permanently impact approximately 33.4 acres of this habitat; however, the construction of the CGS is not expected to have direct adverse impacts on specific individuals or breeding pairs of Swainson's hawks. No trees will be removed at the site so there will be no direct impacts to nest trees. Condition of Certification **BIO-20** requires pre-construction surveys for the Swainson's hawk be conducted within 1 mile of construction activities. If surveys identify Swainson's hawks that will be directly impacted by the project, additional mitigation measures are required.

The Applicant must provide at least 25.05 acres (33.4 acres x 0.75 mitigation ratio) of offsite Swainson's hawk foraging habitat to mitigate for the loss of 33.4 acres of foraging habitat due to construction of the CGS. Condition of Certification **BIO-20** requires the implementation of Swainson's hawk mitigation measures and requires habitat compensation for permanent impacts to Swainson's hawk foraging habitat. (Ex. 200, pp. 4.2-12 -- 4.2-13.)

b. Burrowing Owl

The western burrowing owl, a state species of special concern, inhabits dry, open grasslands and typically nests in small burrows that have been constructed and abandoned by burrowing mammals such as ground squirrels or badgers. Burrowing owls and burrowing owl burrows have been observed in several locations on the CGS site, in the vicinity of the site, and along the roads leading to the site. (Ex. 9, p 8.2-18, 19.) The CGS would directly impact burrowing owls inhabiting construction areas at the onset of construction. Destruction of unoccupied burrows would cause impacts to burrowing owls. Noise and visual disturbance from construction may also impact owls in the surrounding area.

Condition of Certification **BIO-15** requires pre-construction surveys and the measures recommended in the CDFG's *Staff Report on Burrowing Owl Mitigation* (CDFG 1995), including passive relocation of birds in occupied burrows and protection of offsite burrowing owl habitat in the event that impacts to occupied burrows cannot be avoided. If occupied burrows are impacted, the Applicant must preserve 6.5 acres of burrowing owl habitat for each impacted burrow. Condition of Certification **BIO-15** would reduce the impacts to less then significant levels. In addition, Conditions of Certification **BIO-1, BIO-2, BIO-3**, **BIO-4**, **BIO-5**, and **BIO-6** are necessary to ensure that impacts to special-status birds are mitigated to less-than-significant levels. (Ex. 200, pp. 4.2-23 -- 4.2-24.)

10. Lighting Impacts

Lighting has the potential to impact wildlife in the project area. Some species of birds are believed to be attracted to night lighting. If lighting at the CGS attracts birds, those birds would be more likely to collide with structures associated with the CGS. To minimize the effects of lighting on birds and other wildlife, the Applicant will be require to use lighting that will direct light downwards, minimizing impacts to birds. (Ex. 9, p. 8.2-41.) Condition of Certification **BIO-13** regarding facility lighting will ensure that lighting impacts to wildlife are less than significant. (Ex. 200, p. 4.2-24.)

11. Electrocution Impacts

Large birds such as raptors and egrets may be impacted due to electrocution from transmission lines and towers. Birds are electrocuted when they simultaneously contact two conductors or a conductor and a ground wire. To mitigate potential electrocution impacts, Condition of Certification **BIO-13** requires that transmission lines under Energy Commission jurisdiction be designed and built in accordance with the Avian Power Line Interaction Committee's *Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006* (APLIC 2006). (Ex. 200, p. 4.2-24.)

12. Cumulative Impacts

Cumulative impacts are those that result from the incremental impacts of an action added to other past, present, and reasonably foreseeable future actions, regardless of who is responsible for such actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

The only other known project currently proposed in Colusa County is an 18-unit subdivision near the City of Maxwell. (Ex. 9, p. 8.2-32.) That project may result in additional loss of Swainson's hawk, western burrowing owl, and vernal pool habitat. In addition to the direct impacts to special-status species discussed above, the CGS project will have a significant cumulative impact with regard to its removal of potential habitat for special-status species such as Swainson's hawk. The special-status species impacted by the project were listed largely because of the continual degradation and conversion of suitable habitat in their range and this project will add incrementally to the reduction of actual or potential habitat for these species. The project Applicant must contribute to the preservation of areas that will serve as habitat for these species (see Conditions of Certification **BIO-15, BIO-16, BIO-19, BIO-20**). (Ex. 200, pp. 4.2-24 -- 4.2-25.)

FINDINGS AND CONCLUSIONS

Based on the evidence of record, we find as follows:

1. The project would impact United States Army Corps of Engineers' jurisdictional waters, including areas of freshwater marsh, seasonal wetlands, rice fields, and irrigation ditches, and grasslands that provide wildlife habitat.
2. The project, if constructed and operated in compliance with the mitigation measures and Conditions of Certification set forth herein, will reduce impacts to any habitat to less than significant levels.

3. The project has the potential to have significant impacts on the giant garter snake, protected vernal pool branchiopods, Swainson's hawks, burrowing owls, and other special-status species.
4. The project, if constructed and operated in compliance with the mitigation measures and Conditions of Certification set forth herein, will not create significant impacts to any special status species.

We therefore conclude that with implementation of the Conditions of Certification set forth below, construction and operation of the CGS will not create any significant direct, indirect, or cumulative impacts to biological resources, and the project will conform with all applicable laws, ordinances, regulations, and standards relating to biological resources.

CONDITIONS OF CERTIFICATION

Designated Biologist Selection

BIO-1 The project owner shall retain a Designated Biologist assigned to the project, and shall submit the resume of the proposed Designated Biologist, with at least 3 references and contact information, to the CPM for approval.

The Designated Biologist must at least meet all of 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; and
3. At least one year of field experience with biological resources found in or near the project area.

In lieu of the above requirements, the resume shall demonstrate to the satisfaction of the CPM that the proposed Designated Biologist or alternate has the appropriate training and background to effectively implement the Conditions of Certification.

Verification: The project owner shall submit the specified information at least 90 days prior to the start of any site (or related facilities) mobilization. No site or related facility activities shall commence until an approved Designated Biologist is available to be on site.

If a Designated Biologist needs to be replaced, the specified information of the proposed replacement must be submitted to the CPM at least ten working days prior to the termination or release of the preceding Designated Biologist. In an emergency, the project owner shall immediately notify the CPM to discuss the qualifications and approval of a short-term replacement while a permanent Designated Biologist is proposed to the CPM for consideration.

Designated Biologist Duties

BIO-2 The project owner shall ensure that the Designated Biologist performs the following during any site (or related facilities) mobilization, ground disturbance, grading, construction, operation, and closure activities. The Designated Biologist may be assisted by the approved Biological Monitor(s)

(see **BIO-3** below), but remains the contact for the project owner and CPM. The duties of the Designated Biologist are to:

1. advise the project owner's construction and operation managers on the implementation of the biological resources Conditions of Certification;
2. consult on the preparation of the Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP), to be submitted by the project owner;
3. be available to supervise, conduct, and coordinate 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 or their habitat;
4. clearly mark sensitive biological resource areas and inspect these areas at appropriate intervals for compliance with regulatory terms and conditions;
5. inspect active construction areas where animals may have become trapped prior to construction commencing each day. At the end of the day, inspect for the installation of structures that prevent entrapment or allow escape during periods of construction inactivity. Periodically inspect areas with high vehicle activity (i.e., parking lots) for animals in harm’s way;
6. notify the project owner and the CPM of any noncompliance with any biological resource Condition of Certification;
7. respond directly to inquiries of the CPM regarding biological resource issues;
8. maintain written records of the tasks specified above and those included in the BRMIMP. Summaries of these records shall be

submitted in the monthly compliance report and the annual compliance report; and

9. train the Biological Monitors as appropriate, and ensure their familiarity with the BRMIMP, Worker Environmental Awareness Program (WEAP) training, and all permits.

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

Biological Monitor Qualifications

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

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

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

Designated Biologist and Biological Monitor Authority

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

If required by the Designated Biologist and Biological Monitor(s), the project owner's construction/operation manager shall halt all site

mobilization, ground disturbance, grading, construction, and operation activities in areas specified by the Designated Biologist.

The Designated Biologist shall:

1. require a halt to all activities in any area when it is determined that there would be an unauthorized adverse impact to biological resources if the activities continued;
2. inform the project owner and the construction/operation manager when to resume activities; and
3. notify the CPM if there is a halt of any activities, and advise the CPM of any corrective actions that have been taken, or will be instituted, as a result of the work stoppage.

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

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

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

Worker Environmental Awareness Program

BIO-5 The project owner shall develop and implement a CPM-approved WEAP, in which each of its employees, as well as employees of contractors and subcontractors who work on the project site or any related facilities during site mobilization, ground disturbance, grading, construction, operation and closure, are informed about sensitive biological resources associated with the project.

The WEAP must:

1. be developed by or in consultation with the Designated Biologist and consist of an onsite or training center presentation in which supporting written material and electronic media are made available to all participants;
2. discuss the locations and types of sensitive biological resources on the project site and adjacent areas;

3. present the reasons for protecting these resources;
4. present the meaning of various temporary and permanent habitat protection measures;
5. identify whom to contact if there are further comments and questions about the material discussed in the program; and
6. include a training acknowledgment form to be signed by each worker indicating that they received training and shall abide by the guidelines.

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

Verification: At least 60 days prior to the start of any site (or related facilities) mobilization, the project owner shall provide to the CPM two (2) copies of the proposed draft WEAP and all supporting written materials and electronic media prepared or reviewed by the Designated Biologist and a resume of the person(s) administering the program.

The project owner shall provide in the monthly compliance report the number of persons who have completed the training in the prior month and a running total of all persons who have completed the training to date. At least 10 days prior to site and related facilities mobilization, two copies of the CPM-approved final WEAP shall be submitted.

The signed training acknowledgement forms from construction personnel shall be kept on file by the project owner for a period of at least six months after the start of commercial operation.

During project operation, signed statements for active project operational personnel shall be kept on file for six months following the termination of an individual's employment.

Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP)

BIO-6 The project owner shall prepare a BRMIMP and shall submit two copies of the proposed BRMIMP to the CPM (for review and approval) and to CDFG and USFWS (for review and comment) and shall implement the measures identified in the approved BRMIMP.

The BRMIMP shall be prepared in consultation with the Designated Biologist and shall identify:

1. all biological resources mitigation, monitoring, and Compliance measures proposed and agreed to by the project owner;

2. all biological resource Conditions of Certification, such as pre-construction Swainson's Hawk surveys, identified as necessary to avoid or mitigate impacts;

3. all biological resource mitigation, monitoring, and compliance measures required by federal agencies, such as those specified in the USFWS Biological Opinion and the USACE 404 water-quality permit;

4. all biological resource mitigation, monitoring, and compliance measures required by the state, such as those specified in the CDFG Incidental Take Permit, Streambed Alteration Agreement, and Regional Water Quality Control Board 401 water-quality certification;

5. all biological resource mitigation, monitoring, and compliance measures required in local agency permits, such as site grading and landscaping requirements;

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

7. all required mitigation measures for each sensitive biological resource;

8. the required habitat compensation strategy, including provisions for acquisition, enhancement, and management for any temporary and permanent loss of sensitive biological resources;

9. a detailed description of measures that shall be taken to avoid or mitigate temporary disturbances from construction activities;

10. all locations on a map, at an approved scale, of sensitive biological resource areas subject to disturbance and areas requiring temporary protection and avoidance during construction;

11. aerial photographs, at an approved scale, of all areas to be disturbed during project construction activities – one set prior to any site or related facilities mobilization disturbance and one set subsequent to completion of project construction. Include planned timing of aerial photography and a description of why times were chosen;

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

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

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

15. a preliminary discussion of biological resource-related facility closure measures;

16. restoration and revegetation plans;

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

18. a copy of all biological resource-related permits obtained.

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

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

The project owner shall notify the CPM no less than five working days before implementing any modifications to the approved BRMIMP to obtain CPM approval. Any changes to the approved BRMIMP must also be approved by the CPM in consultation with CDFG, the USFWS, and appropriate agencies to ensure no conflicts exist.

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

Closure Plan Measures

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

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

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

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

3. measures to restore wildlife habitat to promote the reestablishment of native plant and wildlife species; and

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

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

Incidental Take Permit or Consistency Determination

BIO-8 The project owner shall acquire an Incidental Take Permit or Consistency Determination from the California Department of Fish and Game and incorporate its terms and conditions into the project's BRMIMP.

Verification: At least 30 days prior to the start of any site or related facilities mobilization activities, the project owner shall submit to the CPM a copy of the final CDFG Incidental Take Permit or Consistency Determination.

Streambed Alteration Agreement

BIO-9 The project owner shall acquire a Streambed Alteration Agreement from the CDFG (per Section 1600 of the Fish and Game Code), and incorporate the biological resource related terms and conditions into the project's BRMIMP.

Verification: At least 30 days prior to the start of any site or related facilities mobilization activities, the project owner shall submit to the CPM a copy of the final CDFG Streambed Alteration Agreement.

Regional Water Quality Control Board Certification

BIO-10 The project owner shall acquire the Regional Water Quality Control Board Section 401 water-quality certification, or a waiver, and incorporate the biological resource-related terms and conditions into the project's BRMIMP.

Verification: At least 30 days prior to the start of any site or related facilities mobilization activities, the project owner shall provide the CPM with a copy of the Regional Water Quality Control Board's final 401 certification.

Federal Biological Opinion

BIO-11 The project owner shall provide a copy of the final Biological Opinion per Section 7 of the federal Endangered Species Act obtained from the U.S. Fish and Wildlife Service. The terms and conditions contained in the Biological Opinion shall be incorporated into the project's BRMIMP.

Verification: At least 30 days prior to the start of any site or related facilities mobilization activities, the project owner shall submit to the CPM a copy of the U.S. Fish and Wildlife Service's Biological Opinion.

U. S. Army Corps of Engineers Section 404 Permit

BIO-12 The project owner shall provide a copy of the final U.S. Army Corps of Engineers Section 404 permit. The biological resource-related terms and conditions contained in the permit shall be incorporated into the project's BRMIMP.

Verification: At least 30 days prior to the start of any site or related facilities mobilization activities, the project owner shall submit to the CPM a copy of the U.S. Army Corps of Engineers 404 permit.

Impact Avoidance Mitigation Measures

BIO-13 The project owner shall implement all feasible measures to avoid or minimize impacts to the local biological resources, including the following:

1. design, install, and maintain transmission line poles, access roads, pulling sites, and storage and parking areas to avoid identified sensitive resources;
2. screen dewatering pumps in a manner to avoid entrainment and impingement of fishes;

3. design, install, and maintain transmission lines and electrical components under Energy Commission jurisdiction in accordance with the Avian Power Line Interaction Committee's (APLIC) *Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006,* to reduce the likelihood of electrocutions of large birds;
4. eliminate any California exotic pest plants of concern (CalEPPC) List A species from landscaping plans;
5. prescribe a road sealant that is nontoxic to wildlife and plants and use only fresh water when adjacent to wetlands, rivers, or drainages canals;
6. design, install, and maintain facility lighting to prevent side casting of light towards wildlife habitat;
7. avoid wetland loss and impacts to wetlands;
8. avoid ground-disturbing activities within 250 feet of vernal pools
9. construction near vernal pools shall occur during the dry season to reduce potential impacts;
10. establish 250-foot buffer zones around vernal pools, to be marked by qualified biologists;
11. use only rubber-tired vehicles within buffer zones;
12. prohibit access of vehicles and personnel within wetland boundaries of vernal pools;
13. use straw wattles or silt fences to prevent sediment from reaching vernal pools;
14. fence alkali grassland during construction to minimize habitat disturbance;
15. clean construction equipment prior to transportation to the construction site in order to avoid the introduction of invasive weed species; and
16. restore temporarily impacted areas to approximate original site conditions.

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

Mitigation Management to Avoid Harassment or Harm

BIO-14 The project owner shall implement the following measures to manage their construction site, and related facilities, in a manner to avoid or minimize impacts to the local biological resources.

1. Install temporary fencing and provide wildlife escape ramps for construction areas that contain steep-walled holes or trenches if outside of an approved, permanent exclusionary fence. The temporary fence shall be hardware cloth or similar materials that are approved by USFWS and CDFG.
2. Make certain all food-related trash is disposed of in closed containers and removed at least once a week.
3. Prohibit feeding of wildlife by Staff and subcontractors.
4. Prohibit nonsecurity-related firearms or weapons from being brought to the site.
5. Prohibit pets from being brought to the site.
6. Report all inadvertent deaths of sensitive species to the appropriate project representative. Injured animals shall be reported to CDFG, and the project owner shall follow instructions that are provided by CDFG.
7. Minimize use of rodenticides and herbicides in the project area (or no use of the ones on the USFWS prohibitive list for areas where amphibians are an issue) and prohibit the use of chemicals and pesticides known to cause harm to amphibians.

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

Burrowing Owl Mitigation

BIO-15 The project owner shall implement all mitigation and avoidance measures outlined in CDFG's 1996 *Staff Report on Burrowing Owl Mitigation*. Pre-construction surveys for burrowing owls shall be conducted no more than 14 days prior to site mobilization. If occupied burrows cannot be avoided, the project owner shall select and protect in consultation with CDFG 6.5 acres of burrowing owl habitat for each occupied burrow impacted. In addition, for each burrow impacted, 2

artificial burrows shall be created or 2 existing burrows shall be enhanced for use by burrowing owls.

Verification: Within 15 days of site or related facilities mobilization the project owner shall submit a report on the results of burrowing owl surveys to the CPM. Implementation of burrowing owl mitigation and avoidance measures shall be submitted in the monthly compliance reports.

Giant Garter Snake Mitigation

BIO-16 To mitigate impacts to the giant garter snake and its habitat, the project owner shall implement the USFWS avoidance and minimization measures for construction activities in giant garter snake habitat. For each acre (or portion of an acre) of giant garter snake habitat permanently impacted, the project owner shall purchase three (3) acres of giant garter snake credit at a USFWS and CDFG-approved conservation bank. The project owner shall purchase credits for a minimum of 2.05 acres of giant garter snake aquatic habitat and 1.50 acres of giant garter snake upland habitat. Temporary impact areas shall be restored within one season, or if restored within two seasons then an additional 5.40 acres of credit at a USFWS and CDFG-approved conservation bank shall be purchased by the project owner.

Verification: Within 15 days of site or related facilities mobilization the project owner shall provide written evidence of purchase of giant garter snake credits to the CPM.

Teresa Creek Bridge Mitigation

BIO-17 The project owner shall develop a mitigation plan for impacts due to construction activities at Teresa Creek. The mitigation plan shall include measures to:

1. protect fish species during construction;
2. minimize habitat disturbance during construction;
3. avoid impingement and entrainment of fishes if dewatering is necessary during construction; and
4. maintain water flow at Teresa Creek.

Verification: The mitigation plan shall be included in the project's approved BRMIMP no less than 15 days prior to Teresa Creek Bridge replacement work begins.

Revegetation and Restoration Plan

BIO-18 The project owner shall submit a revegetation and restoration plan that includes seed mixes and success criteria for restoration of temporarily impacted habitat, and the project owner shall implement the approved plan.

Verification: At least sixty (60) days prior to start of any site or related facility mobilization activities, the project owner shall provide the CPM with two copies of the revegetation and restoration plan for the project, and provide copies to the CDFG and the USFWS. The CPM, in consultation with the CDFG, the USFWS, and any other appropriate agencies, will determine the revegetation and restoration plan's acceptability within 45 days of receipt.

Wetland and Special-Status Branchiopod Impacts Mitigation

BIO-19 The project owner shall replace a minimum of 1.28 acres of permanently impacted wetlands and special-status branchiopod habitat at a USFWS-approved wetland mitigation bank, and restore temporarily impacted wetlands and other waters of the U.S., as specified in the USACE Individual Permit.

Verification: Within 15 days of site or related facilities mobilization the project owner shall provide a copy of the check or other proof of wetland preservation to the CPM. The project owner shall also provide a letter from the land management organization stating the amount of funds received and the amount of acres purchased for long-term management.

Swainson's Hawk Mitigation

BIO-20 The project owner shall survey for Swainson's hawk as part of the Applicant's proposed pre-construction surveys within 1 mile of construction activities between March 20 and April 20. If active nests are found, mitigation measures consistent with the *Staff Report Regarding Mitigation for Impacts to Swainson's Hawks in the Central Valley of California* (CDFG 1994) shall be implemented.

To compensate for impacts to Swainson's hawk foraging habitat, the project owner shall provide habitat management lands to CDFG. Habitat management lands shall be protected through fee title acquisition or conservation easement and shall be suitable for Swainson's hawk foraging. A minimum of 25.05 acres of Swainson's hawk foraging habitat in Colusa County shall be protected by the project owner. The project owner shall provide additional monetary funds for long-term management and monitoring of the protected lands as necessary based on the Center for Natural Lands Management

property analysis record, or a similar cost analysis. The project owner shall identify the location of the mitigation area and the entity that shall preserve and manage the property in perpetuity for approval by the CPM prior to ground disturbance.

Verification: Pre-construction Swainson's hawk survey results shall be provided to the CPM within 60 days of completion of surveys. At least fifteen (15) days prior to site or related facilities mobilization, the project owner shall provide a copy of the check to the CPM. The project owner shall also provide a letter from the land management organization stating the amount of funds received and the number of acres purchased for perpetual management.

B. SOIL AND WATER RESOURCES

This section focuses on the soil and water resources associated with the project, including the project's potential to induce erosion and sedimentation, adversely affect water supplies, and degrade water quality. The analysis also considers site contamination and any potential cumulative impacts to water quality in the vicinity of the project. Mitigation measures are included in the Conditions of Certification to ensure that the project will have no significant impacts on the environment and that it will comply with all applicable laws, ordinances, regulations, and standards.

SUMMARY AND DISCUSSION OF THE EVIDENCE

1. Soil Resources

The entire CGS site, the adjacent construction laydown area, and the proposed linear facilities, are located in a predominantly agricultural area in northern Colusa County. The site, which is currently used as open range for cattle grazing, slopes gently to the east, and lies within the Hunters Creek watershed.

Soil types in the vicinity of the proposed CGS site are divided into two strata: surficial clay and silty deposit. The surficial clay consists of medium stiff to very stiff dark brown clay to sandy clay with trace amounts of roots. The silty deposit consists of very stiff to hard silts to sandy silts. The surficial clays just beneath the surface of the undisturbed site extended to a depth of approximately 16 feet and are poorly drained. (Ex. 16, p. 8.9-2.)

The evidence shows that potential adverse impacts caused by soil erosion and stormwater flows during construction and operation would be mitigated through the use of Best Management Practices (BMPs), a Drainage, Erosion, and Sedimentation Control Plan (DESCP), a Storm Water Pollution Prevention Plan

(SWPPPs), and compliance with General National Pollutant Discharge Elimination System (NPDES) Permits for Discharges of Storm Water Associated with Construction and Industrial Activities that are included in Conditions of Certification **SOIL&WATER-1, -2** and **-3**. (Ex. 200, pp. 4.9-7 – 4.9-10.)

2. Groundwater

A groundwater investigation was conducted in 2001. Three exploratory wells were drilled in the vicinity of the project site to a depth of approximately 300 feet below ground surface. Depth to groundwater was determined to be approximately 45 feet below ground surface. Groundwater in the vicinity of the site has not been greatly developed for consumptive uses due to the availability of surface water and the low potential for groundwater production. Elsewhere in the county, groundwater is used as a source of drinking water. (Ex. 21, §§ 8.14.1.1 and 1.2.)

3. Surface Water

The proposed CGS site is located within the Sacramento River Basin. The Sacramento River is the largest river in California, with its headwaters originating southwest of Mount Shasta and flowing south to the San Francisco Bay. Surface-water runoff from the Coast Range and surrounding area is conveyed via both man-made canals and natural streams to the Sacramento River.

The Tehama-Colusa and Glenn-Colusa canal systems are located in the vicinity of the proposed site. The Tehama-Colusa Canal Authority (TCCA) operates and maintains the TCC, which is owned by the US Bureau of Reclamation (USBR). Water for the TCC comes from the Sacramento River at the Red Bluff Diversion Dam. Water delivered through the TCC serves 14 water districts including Colusa County lands west of Maxwell, Williams, and Arbuckle.

The Glenn-Colusa Irrigation District (GCID) owns and operates the 65-mile-long GCC and provides water to various users. Water for the GCC comes primarily from the Sacramento River at Hamilton City and is supplemented from Stony Creek in Glenn County and with groundwater. GCID has senior water rights to the USBR's Central Valley Project. (Ex 21, § 8.14.1.2.)

4. Project Water Supply and Treatment

The Applicant has obtained contract rights to a sufficient quantity of water to supply the operational requirements of the CGS. The Agreement for the Transfer, Conveyance and Delivery of Water has been approved by the GCID and Colusa County. (Ex. 104.) The Agreement allows for the sale of 130 AFY of water annually and shall make available for sale and delivery up to an additional 50 AFY of Excess Water for purchase, subject to the water shortage provisions set forth in Article 9A of the Agreement. Construction water will also be supplied by GCID, pursuant to a separate letter agreement. [1/23/08 RT p. 24: 13-21.] Average daily use of construction water is estimated to be about 8,000 gallons. (Ex. 21, § 8.14.1.4.1.)

The project would use an air cooled condenser (ACC) in conjunction with a zero liquid discharge (ZLD) system that would recycle water through the plant. The combination of these technologies will minimize the required consumptive use of water for plant operation to approximately 126 acre-feet per year (AFY). No water is being evaporated for the plant cooling. Water consumption is restricted to demineralization for the steam cycle, for combustion turbine inlet air evaporative cooling, fire water, service water, and potable water for drinking and sanitation purposes. (Ex. 200, p. 4.9-10.)

The Applicant proposes two separate wastewater-collection systems for the CGS. The first is the plant wastewater system, which collects all wastewater generated from operation of the plant and delivers it to the ZLD system. All industrial wastewater streams are recycled through the water purification system

and returned to the demineralizer as a makeup supply. The remaining sludge is concentrated in a dryer, which reduces the sludge to solids for disposal in a landfill. No wastewater would be discharged to surface waters. (Ex. 20, § 8.13.2.1.2.)

The second wastewater-collection system proposed by the Applicant is the sanitary system. The sanitary system would collect wastewater from sinks, toilets, and other sanitary facilities for discharge to an on-site septic system. (Ex. 3, § 3.5.6.)

For the developed site, runoff collected on built-up areas would be detained in stormwater detention basins with discharge volume maintained at equal to or less than predevelopment peak levels as determined by standard hydrologic methods. The Applicant proposes to discharge all stormwater onto rip-rap aprons or level spreaders designed to avoid erosion and reduce the velocity of the flow before reaching the natural preexisting swales. (Ex. 200, p. 4.9-7.)

5. Cumulative Impacts and Mitigation

Temporary and permanent disturbances associated with construction of the project would cause accelerated wind- and water-induced erosion. However, Staff has concluded that the implementation of proposed mitigation measures within the construction SWPPP and the DESCP would ensure that the project's contribution to soil and water resources impacts from water and wind erosion would not be cumulatively considerable. (Ex. 200, p. 4.9-11.)

Industrial wastewater streams would be eliminated by the use of a ZLD system and impacts from sanitary wastewater are not expected to cumulatively contribute to surface-water or groundwater degradation. (Ex. 200, p. 4.9-12.)

The long term sale of 130 to 180 AFY of GCID water will not contribute to potential cumulative surface water supply impacts. (*id*.) Based upon Staff's evaluation of the potential impact of the 126 AFY of inland surface water consumption for the long term operation (30 – 35 years) of the GCS, we find this volume of consumption to be insignificant. The use of inland surface water for industrial purposes at the CGS is in compliance with state policy for the use of fresh water by power plants, and the project's impact on surface water supply would not be cumulatively considerable.

FINDINGS AND CONCLUSIONS

Based upon the evidence, we find and conclude as follows:

1. Potential adverse impacts caused by erosion and stormwater flows during construction and operation would be mitigated with the development and implementation of an effective stormwater pollution prevention plan and a drainage, erosion, and sediment control plan.
2. The water supply for the project is consistent with state water conservation and use policies.
3. With an approved long-term water supply agreement for 130 to 180 AFY that does not impact current of future surface water supply, the project would comply with all applicable federal, state, and local laws, ordinances, regulations, and standards.
4. The septic system design will comply with the State Water Resources Control Board's onsite wastewater treatment system regulations and Colusa County Environmental Health Division's sewage disposal system permit.

Based on these findings, we find that CGS would not result in any unmitigated, significant project-specific or cumulative adverse impacts to Soil or Water Resources and would comply with all applicable LORS with implementation of the Conditions of Certification set forth herein.

CONDITIONS OF CERTIFICATION

SOIL & WATER-1: The project owner shall comply with the requirements of the general National Pollutant Discharge Elimination System (NPDES) permit for discharge of stormwater associated with construction activity. The project owner shall develop and implement a construction stormwater pollution prevention plan (construction SWPPP) for the construction of the Colusa Generating Station (CGS) site, laydown area, and all linear facilities.

Verification: The project owner shall submit to the CPM a copy of the construction SWPPP prior to site mobilization and retain a copy on site. The project owner shall submit copies to the compliance project manager (CPM) of all correspondence between the project owner and the Central Valley Regional Water Quality Control Board regarding the NPDES permit for the discharge of stormwater associated with construction activity within 10 days of its receipt or submittal. Copies of correspondence shall include the notice of intent sent to the State Water Resources Control Board, and the board's confirmation letter indicating receipt and acceptance of the notice of intent.

SOIL & WATER-2: Prior to site mobilization, the project owner shall obtain CPM approval for a site-specific drainage, erosion, and sediment control plan (DESCP). The DESCP must ensure proper protection of water quality and soil resources, demonstrate no increase in off-site flooding potential, include a provision for stormwater retention basin(s) to capture polluted stormwater, meet Colusa County requirements, and identify all monitoring and maintenance activities. The DESCP shall contain elements A through I below outlining site management activities and erosion- and sediment-control BMPs to be implemented during site mobilization, excavation, construction, and post construction activities.

A. Vicinity Map – A map(s) at a minimum scale 1"=100' shall be provided indicating the location of all project elements (construction site, laydown area, pipelines) with depictions of all significant geographic features including swales, storm drains, and sensitive areas.

B. Site Delineation – All areas subject to soil disturbance for the CGS (project site, laydown area, all linear facilities, landscaping areas, and any other project elements) shall be delineated showing boundary lines of all construction areas and the location of all existing and proposed structures, pipelines, roads, and drainage facilities.

C. Watercourses and Critical Areas – The DESCP shall show the location of all nearby watercourses including swales, storm drains, and drainage ditches. It shall indicate the proximity of those

features to the CGS construction, laydown, and landscape areas and all transmission and pipeline construction corridors.

D. Drainage Map – The DESCP shall provide a topographic site map(s) at a minimum scale 1”=100’ showing existing, interim, and proposed drainage swales and drainage systems and drainage-area boundaries. On the map, spot elevations are required where relatively flat conditions exist. The spot elevations and contours shall be extended off site for a minimum distance of 100 feet.

E. Drainage of Project Site Narrative – The DESCP shall include a narrative of the drainage measures to be taken to protect the site and downstream facilities. The narrative shall include the summary pages from the hydraulic analysis prepared by a professional engineer and erosion-control specialist. The narrative shall state the watershed size(s) in acres that was used in the calculation of drainage features. The hydraulic analysis shall be used to support the selection of BMPs and structural controls to divert off-site and on-site drainage around or through the CGS site and laydown and linear areas.

F. Clearing and Grading Plans – The DESCP shall provide a delineation of all areas to be cleared of vegetation and areas to be preserved. The plan shall provide elevations, slopes, locations, and extent of all proposed grading as shown by contours, cross sections, or other means. The locations of any disposal areas, fills, or other special features shall also be shown. Existing and proposed topography shall be illustrated tying in proposed contours with existing topography.

G. Clearing and Grading Narrative – The DESCP shall include a table with the quantities of material excavated or filled for the site and all project elements (project site, laydown area, transmission and pipeline corridors, roadways, and bridges) whether such excavation or fill is temporary or permanent, and the amount of such material to be imported or exported.

H. Best Management Practices Plan – The DESCP shall identify on the topographic site map(s) the location of the site specific BMPs to be employed during each phase of construction (initial grading, project element excavation and construction, and final grading/stabilization). BMPs shall include measures designed to prevent wind and water erosion.

I. Best Management Practices Narrative – The DESCP shall show the location (as identified in H above), timing, and maintenance schedule of all erosion- and sediment-control BMPs to be used prior to initial grading, during all project element (site, pipelines) excavations and construction, final grading/stabilization, and post-construction. Separate BMP implementation schedules shall be

provided for each project element for each phase of construction. The maintenance schedule shall include post-construction maintenance of structural-control BMPs, or a statement provided about when such information will be available.

Verification: No later than 90 days prior to start of site mobilization, the project owner shall submit a copy of the DESCP to Colusa County for review and comment. No later than 60 days prior to start of site mobilization, the project owner shall submit the DESCP with the County's comments to the CPM for review and approval. The CPM shall consider comments by the County before approval of the DESCP. The DESCP shall be consistent with the grading and drainage plan as required by Condition of Certification **Civil-1**, and relevant portions of the DESCP shall clearly show approval by the chief building official. The DESCP shall be a separate plan from the SWPPP developed in conjunction with any NPDES permit for Construction Activity. The project owner shall provide in the monthly compliance report a narrative on the effectiveness of the drainage, erosion, and sediment-control measures and the results of monitoring and maintenance activities. Once operational, the project owner shall provide in the annual compliance report information on the results of monitoring and maintenance activities.

SOIL & WATER-3: The project owner shall comply with the requirements of the general NPDES permit for discharges of stormwater associated with industrial activity. The project owner shall develop and implement an industrial stormwater pollution prevention plan (industrial SWPPP) for the operation of the Colusa Generation Station.

Verification: The project owner shall submit to the CPM a copy of the industrial SWPPP for operation of the CGS prior to commercial operation, and shall retain a copy on site. The project owner shall submit copies to the CPM of all correspondence between the project owner and the Central Valley Regional Water Quality Control Board regarding the general NPDES permit for discharge of stormwater associated with industrial activity within 10 days of its receipt or submittal. Copies of correspondence shall include the notice of intent sent by the project owner to the State Water Resources Control Board and the notice of termination for the construction SWPPP.

SOIL & WATER-4: The project owner shall use raw surface water provided by the Glenn Colusa Irrigation District (GCID) for all construction activities associated with the project. Prior to the use of GCID water for any construction activity, the project owner shall provide the CPM two copies of the Construction Water Agreement (agreement) issued by the GCID for the sale and delivery of construction water. The project owner shall not begin delivery or use of construction water without the final agreement in place. The project owner shall provide the CPM copies of all monitoring or other reports required by the agreement, as well as any changes made to the agreement by GCID related to the

delivery or sale of construction water. The CPM shall be notified of any violations of the agreement requirements, limits or amounts.

Verification: At least 60 days prior to site mobilization, the project owner shall submit copies of the final Construction Water Agreement to the CPM. Any changes to the agreement shall be submitted to the CPM within 10 days of their submittal to GCID. The project owner shall submit any metering and/or monitoring reports to the CPM in the monthly compliance report. The project owner shall submit any notice of violations from GCID to the CPM within 10 days of receipt and fully explain the corrective actions taken in the next monthly compliance report.

SOIL & WATER-5: Prior to the initiation of any construction-related activities that could affect streambeds or wetlands, the project owner shall provide a copy of the following permits to the CPM as appropriate:

A. section 401 water quality certification or a waiver of waste discharge requirements from the Central Valley Regional Water Control Board or the State Water Resources Control Board;

B. section 404 acceptance of preconstruction notification for nationwide permit(s) from the US Army Corps of Engineers; and

C. streambed alteration agreement(s) from the California Department of Fish and Game.

Modifications of the construction techniques to be used or the location of the crossing as a result of permit conditions shall be reviewed and approved by the CPM. The project owner shall implement the terms and conditions contained in all permits.

Verification: The project owner shall submit to the CPM a copy of the applicable permits no later than 30 days prior to any construction-related activities that could affect streambeds or wetlands. Written verification from the issuing agency that a permit is not necessary can be used to satisfy this condition. Any changes shall be reviewed and approved by the CPM 60 days prior to initiating any activities that could affect streambeds or wetlands. The terms and conditions of these permits shall be incorporated into the drainage, erosion, and sediment control plan.

SOIL & WATER-6: Prior to initiation of any construction activities within the Glenn-Colusa Canal (GCC) or other Glenn Colusa Irrigation District (GCID) right-of-way, the project owner shall provide the CPM a copy of the construction agreement with GCID for encroachment within the GCC or along its right-of- way. The agreement shall include any other conditions for the safe deconstruction, construction, and operation of the new bridge over and along the GCC.

Verification: No later than 90 days prior to days prior to construction activities within the GCC or within GCID's right-of-way the project owner shall submit a copy of the Construction Agreement (agreement) to GCID for review and

comment. No later than 60 days prior to construction activities within the GCC or within GCID's right-of-way, the project owner shall submit the agreement with GCID's comments to the CPM for review and approval. The CPM shall consider comments by GCID before approval of the agreement.

SOIL & WATER-7: The project owner shall provide two signed copies of the Agreement for Transfer, Conveyance and Delivery of Water (agreement) for turn-out and delivery of water from the Tehama Colusa Canal (TCC) to the CPM. The project shall not begin delivery or use of TCC water for project operation without the final agreement in place. The project owner shall provide the CPM copies of all monitoring or other reports required by the agreement, as well as any changes made to the agreement related to the source or delivery of water required for project operation. The CPM shall be notified of any violations of the agreement requirements. The project's water use shall not exceed 180 acre-feet per year.

Verification: No later than 60 days prior to the initial use of TCC water for project operation, the project owner shall submit copies of the signed Agreement for Transfer, Conveyance and Delivery of Water (agreement) to the CPM. All copies of changes to the agreement shall be submitted to the CPM within 10 days of their submittal to the project owner. The project owner shall submit any related monitoring required by the agreement to the CPM in the annual compliance report. The project owner shall submit any notice of violations from Glenn Colusa Irrigation District to the CPM within 10 days of receipt and fully explain the corrective actions taken in the next annual compliance report. For calculating the total water use, the term "year" will correspond to the date established for the annual compliance report submittal.

SOIL & WATER-8: The project owner shall use raw water from the Tehama-Colusa Canal (TCC) for all industrial, landscape irrigation, and sanitary purposes. Prior to the use of TCC water for any purpose, the project owner shall install and maintain metering devices as part of the water-supply and distribution system to monitor and record in gallons per day the total volume of water supplied to the CGS from the TCC. These metering devices shall be operational for the life of the project and must be able to record the volume of raw water consumed for industrial use, landscape irrigation, and potable and sanitary purposes.

The project owner shall prepare an annual water use summary, which will include the monthly range and monthly average of daily raw-water usage in gallons per day, and total water used by the project on a monthly and annual basis in acre-feet. Potable water use on site shall be recorded on a monthly basis. Following the initial report, the annual water use summary shall also include the yearly range and yearly average water use by the project. The annual water use summary shall be submitted to the CPM as part of the annual compliance report.

Verification: At least 60 days prior to commercial operation of the GCS, the project owner shall submit to the CPM evidence that metering devices have been installed and are operational on the raw and potable water supply and distribution systems The project owner shall submit a water use summary to the CPM in the annual compliance report. The report shall distinguish the recorded water uses for industrial, landscape irrigation, and potable and sanitary purposes. The project owner shall provide a report on the servicing, testing, and calibration of the metering devices in the annual compliance report.

SOIL & WATER-9: The project owner shall install an on-site septic system designed for site-specific soil and percolation conditions. The septic system design shall comply with the State Water Resources Control Board's onsite wastewater treatment system regulations (Title 27 CCR) and Colusa County Environmental Health Division's sewage disposal system permit. The project owner shall operate the septic system following an operations and maintenance manual prepared by a qualified professional. The project owner shall monitor the septic system for detectable effects on groundwater or surface water.

Verification: No later than 90 days prior to commercial operation, the project owner shall submit to the CPM evidence that the septic system design has the approval of the chief building official (CBO), and evidence that it has been reviewed by the Colusa County Environmental Health Division.

No later than 60 days prior to commercial operation, the project owner shall submit the operations and maintenance manual to the Colusa County Environmental Health Division for review and comment. No later than 30 days prior to commercial operation, the project owner shall submit the operations and maintenance manual to the CPM for review and approval. The submittal shall include copies of any agency comments the project owner has received.

The wastewater system shall be monitored following either the general standards adopted in State Water Resources Control Board's onsite wastewater treatment system regulations or the procedures outlined in the CPM-approved operations and maintenance manual. Any testing results or correspondence exchanged between the project owner and the California Department of Health Services or the Colusa County Environmental Health Division during operations shall be provided to the CPM in the annual compliance report.

SOIL & WATER-10: The project owner shall treat all process wastewater streams with a zero liquid discharge (ZLD) system that results in a residual solid waste. The solid waste shall be disposed of in the appropriate class of landfill suitable for the constituent concentrations in the waste. Surface or subsurface disposal of process wastewater from the CGS is prohibited. The project owner shall operate the ZLD system in accordance with a ZLD management plan approved by the CPM. The ZLD management plan shall include the following elements:

A. a flow diagram showing all water sources and wastewater disposal methods at the power plant;

B. a narrative of expected operation and maintenance of the ZLD system;

C. a narrative of the redundant or back-up wastewater disposal method to be implemented during periods of ZLD system shutdown or maintenance;

D. a maintenance schedule;

E. a description of on-site storage facilities and containment measures;

F. a table identifying influent water quality; and

G. a table characterizing the constituent concentrations of the solid waste or brine and specifying the permit limits of the selected landfill.

The CGS operation and wastewater production shall not exceed the treatment capacity of the ZLD system or result in an industrial wastewater discharge.

Verification: At least 60 days prior to the start of commercial operation, the project owner shall submit to the CPM evidence that the final design of the ZLD system has the approval of the CBO. At least 60 days prior to the start of commercial operation, the project owner shall prepare a ZLD management plan for review and approval by the CPM. The ZLD management plan shall be updated by the project owner and submitted to the CPM for review and approval if a change in water source or infrastructure is needed.

C. CULTURAL RESOURCES

Cultural resource materials such as artifacts, structures, and land modifications reflect the history of human development. Certain places that are important to Native Americans or local national/ethnic groups are also considered valuable cultural resources. Analysis in this topic area pertains to the structural and cultural evidence of human development in the project vicinity, as well as appropriate mitigation measures should cultural resources be disturbed by project excavation and construction.

The term “cultural resource” includes buildings, sites, structures, objects, and historic districts. When a cultural resource is determined to be significant, it is eligible for inclusion in the California Register of Historic Resources (CRHR). [Pub. Resources Code, § 5024.1; Cal. Code Regs., tit. 14 § 4850 et seq.] An archaeological resource that does not qualify as an historic resource may be considered a “unique” archaeological resource under CEQA. [Pub. Resources Code, § 21083.2.] In addition, structures older than 50 years (or less if the resource is deemed exceptional) can be considered for listing as significant historic structures. (Ex. 200, p. 4.3-6.)

Under CEQA, a resource is generally considered to be historically significant if it meets the criteria for listing in the CRHR. These criteria are essentially the same as the eligibility criteria for the National Register of Historic Places (NRHP). In addition to being at least 50 years old, a resource must meet at least one of the following four criteria: is associated with events that have made a significant contribution to the broad patterns of our history or, is associated with the lives of persons significant in our past or, that embodies the distinctive characteristics of a type, period, or method of construction, or represents the work of a master, or possesses high artistic values or, that has yielded, or may be likely to yield, information important to history or prehistory. [Pub. Resources Code § 5024.1.] In addition, historical resources must also possess integrity of location, design,

setting, materials, workmanship, feeling, and association. [Cal. Code Regs., title 14, § 4852(c); Pub. Resources Code §§ 5020.1(j) or 5024.1.] Even if a resource is not listed or determined to be eligible for listing in the CRHR, CEQA allows the lead agency to make a determination as to whether the resource is a historical resource. (Ex. 200, p. 4.3-13.)

SUMMARY AND DISCUSSION OF THE EVIDENCE

1. Setting

The project, associated fuel, water, and electrical transmission lines, access road, and construction staging areas are located in the northern part of rural unincorporated Colusa County. The site is approximately six miles north of the farm community of Maxwell and 14 miles north of the community of Williams. The project site is adjacent to an existing PG&E natural gas compressor station located four miles west of Interstate 5 and one mile west of the junction of Delevan Road and Dirks Road. The area reflects intensive agricultural activity characteristic of the Sacramento Valley. The site lies between the Glenn-Colusa Canal, located 0.75 mile to the west, and the Tehama-Colusa Canal, located 0.5 mile to the east. Soils in the immediate project area have been used historically for grazing and are otherwise largely undisturbed. (Ex. 200, p. 4.3-4.)

The earliest known documented occupation in the area dates from 5,000 to 2,500 years ago. In the Late Period from 1,500 to about 120 years ago, archaeological evidence indicates the presence of speakers of the Wintuan language, such as the Patwin of the lower Sacramento Valley where the project is located. The closest known Patwin villages were situated along the banks of the Sacramento River approximately 14 miles east of the project. The Patwin were hunter-gatherer-fishers who depended on seasonally available plant foods (chiefly acorns) and a range of terrestrial and riverine animals. Salmon and sturgeon were caught with weirs; smaller fish were netted or speared. Patwin material

culture featured skillful basketry, tule balsa boats, flaked and ground stone tools, and items fashioned from shell, wood, and bone. (Ex. 200, p. 4.3-4.)

The Spanish began to establish missions in Alta California in 1769, starting with Mission San Diego de Alcalá and ending in 1823 with Mission San Francisco Solano in Sonoma, the mission closest to the project. After Mexico became independent from Spain in 1821, former mission lands were granted to soldiers, prominent Mexican citizens, and other individuals for use as cattle ranches. However, neither Spanish nor Mexican control over the region resulted in substantial settlements near the project. The earliest land grant in the area, known as the Larkin Children's Rancho, was located along the west bank of the Sacramento River and was conferred in 1844. (Ex. 200, p. 4.3-5.)

California became part of the United States in 1848 when the territory was formally ceded by Mexico in the Treaty of Guadalupe Hidalgo. The State of California was admitted to the Union in 1850, and Colusa County and the town of Colusa were founded that year. The town of Colusa (the county seat) was located on the Sacramento River, the principal means of transportation in the region prior to the arrival of the railroad in the 1870s. The Southern Pacific Railroad spurred the founding of towns away from the river, such as Williams (1876) and Maxwell (1878). (Ex. 200, p. 4.3-5.)

Agriculture in the western Sacramento Valley prior to 1900 consisted mostly of wheat farming and was dependent on seasonal rainfall. Construction of a major irrigation system was not successful until the early 1920s when the Glenn-Colusa Irrigation District completed the 65-mile Glenn-Colusa Canal. The availability of abundant water along with relatively impermeable clay subsoil made rice farming practical. Rice is still the principal crop in the area. (Ex. 200, p. 4.3-6.)

The 1920s also saw development of large-scale hydroelectric transmission line systems in northern California, including the 140-mile-long PG&E Pit-Vaca Dixon

line that passes through the project area. This line brought hydroelectric power produced in Shasta County to the San Francisco Bay Area. This system was the first in the country designed to operate at 220-kV, rather than 110-kV. (Ex. 200, p. 4.3-6.)

2. Cultural Resources

A search of site records and maps at the Northwest Information Center of the California Historical Resources Information System (CHRIS) did not identify any previously recorded prehistoric or historic archaeological resources within one mile of the project (the power plant and associated linear routes). Applicant also carried out research to identify historical resources more than 45 years old in the vicinity of the project. Their research included consulting local and state-wide record databases and contacting local libraries, historical organizations, and individuals at various Colusa and Glenn County offices, departments, and utility companies. (Ex. 10, p. 8.3-9.)

Commission staff obtained a list of 12 Native American tribes and individuals that might have heritage concerns in the project area from the Native American Heritage Commission (NAHC). Staff sent out letters to all 12 contacts on the NAHC list on December 26, 2006. Only Ren Reynolds, EPA Site Monitor for Enterprise Rancheria, responded, with a letter dated January 22, 2007. Mr. Reynolds's letter identified the project site as a known tribal traveling area and homeland and offered tribal monitors to assist the project. (Ex. 200, p. 4.3-7.)

Archaeological field surveys were conducted in the areas that could be directly impacted by construction of the project and linear features such as transmission lines, water supply pipeline, natural gas pipeline, and roadway improvements. Staging areas were also surveyed. These surveys were conducted in March 2001, October 2006, and October 2007. No archaeological resources were identified as a result of the surveys. (Ex. 200, p. 4.3-8; Ex. 10, p. 8.3-13.)

The Applicant also performed an historic architectural resources survey. As a result of the survey for historic architectural resources and a previous survey in 2001, six resources were identified that appeared to be more than 45 years old. (Ex. 10, page 8.3-15.) These consist of:

- Two 230-Kv transmission lines,
- The Glenn-Colusa Canal,
- Ranch buildings In Assessor's Parcel Number (APN) 11-14-4,
- A farmstead In APN 11-22-1,
- The Teresa Creek Bridge, and
- A small animal feeder in APN 11-14-21.

The two 230-kV transmission lines run north to south through the project area and are owned by PG&E. The eastern line is known as the Cottonwood-Vaca section of the Pit-Vaca Dixon 220-kV line, completed in 1922. It was the first in the nation designed to operate at 220 - rather than 110-kV. (Ex. 200, pp. 4.3-8 -- 8.3-9.)

The Glenn-Colusa Canal is the main distribution canal for the Glenn-Colusa Irrigation District that provides water to 175,000 acres of farmland in the two counties. Most of the canal system was completed by the end of 1920. The canal begins near the town of Artois in Glenn County, where water is diverted from the Sacramento River, and runs south for about 65 miles, ending near the town of Williams. A segment comprising somewhat less than two miles of the Glenn-Colusa Canal is within the project area. The canal is unlined, and there is an earthen levee on either side. Unpaved maintenance roads run along the tops of both levees. (Ex. 200, p. 4.3-9.)

The project is located within the Delevan Unit of the Glenn-Colusa Irrigation District. Infrastructure for the Delevan Unit that is in the project area includes interconnections, ditches, valves, concrete turnouts and gates, and a bridge

across the canal at Dirks Road. Except for the Dirks Road bridge (built circa 1960), most of the infrastructure dates to the 1920s when the district was originally formed. It is likely that the Glenn-Colusa Irrigation District and the Glenn-Colusa Canal would be eligible for listing on the California Register based on the development of irrigation districts for the irrigation infrastructure of the Sacramento Valley. (Ex. 200, p. 4.3-9.)

The ranch buildings on APN 11-14-4 consist of three buildings, one collapsed building, one manufactured home, one water tank, and one abandoned truck with a mounted water tank on a 360-acre parcel. These buildings are not shown on a 1958 USGS quadrangle map and no buildings are shown on this property on earlier maps, indicating that the structures were built circa 1960 or later. There is no evidence that the property would meet criteria for consideration as resources that are less than 50 years old but possess exceptional significance. (Ex. 200, pp. 4.3-9 -- 4.3-10.)

The farmstead at APN 11-22-1 consists of two houses, a barn, an automobile garage, a farm-vehicles garage, and a bunkhouse. This cluster of structures is located southeast of the project site. Based on stylistic characteristics, all structures except the automobile garage appear to have been built circa 1945. The automobile garage appears to be less than 45 years old. It is likely that the farmstead was established in the 1940s for rice farming, as were many similar farms in the area which still survive today. The farmstead does not appear to be eligible for listing on the CRHR. (Ex. 200, p. 4.3-10; Ex. 35, Appendix A.)

The Teresa Creek Bridge is a wood bridge with concrete abutments on McDermott Road southeast of the project area. The wooden planks are paved with asphalt. The bridge was built in 1940 and repaired in 1959. The Teresa Creek Bridge would be demolished as a result of this project and a new bridge would be built in its place. There is no evidence to suggest that the bridge would meet eligibility criteria for CRHR listing. (Ex. 35, Appendix J1; Ex. 200, p. 4.3-10.)

The animal feeder is a portable wooden structure located in parcel APN 11-14-21. There is no evidence that the animal feeder would be eligible for CRHR listing. (Ex. 35, Appendix J1; Ex. 200, p. 4.3-10.)

3. Potential Impacts

Direct impacts to cultural resources are those associated with project development, construction, and co-existence. Construction usually entails surface and subsurface disturbance of the ground and direct impacts to archaeological resources may result from the immediate disturbance of the deposits, whether from vegetation removal, vehicle travel over the surface, earth-moving activities, excavation, or demolition of overlying structures. Construction can have direct impacts on historic standing structures when those structures must be removed to make way for new structures or when the vibrations of construction impair the stability of historic structures nearby. New structures can have direct impacts on historic structures when the new structures are stylistically incompatible with their neighbors and the setting, and when the new structures produce something harmful to the materials or structural integrity of the historic structures, such as emissions or vibrations. (Ex. 200, p. 4.3-13.)

Generally speaking, indirect impacts to archaeological resources are those that may result from increased erosion due to site clearance and preparation, or additional access to an area that leads to vandalism or increased weather exposure. (Ex. 200, p. 4.3-13.)

The evidence of record is uncontradicted in that no significant known archaeological resources have been identified in any of the areas affected by project construction. Consequently, no project-related construction impacts from the project that would materially impair the significance of known archaeological

resources have been identified, so no mitigation would be required for impacts to known archaeological resources. (Ex. 200, p. 4.3-14.)

No ethnographic resources, either previously recorded or newly disclosed in the communications with Native Americans, were identified in the vicinity of the project. Consequently, no mitigation measures would be required for identified ethnographic resources. (Ex. 200, p. 4.3-15.)

No significant standing historic structures would be demolished for this project. The Cottonwood-Vaca Dixon transmission line is a significant historic structure located within the project impact area. Construction of the power plant would affect the transmission line because the project requires the removal of two, and alteration of up to four transmission towers. However, since the historic setting has already been altered the impact of replacing or removing, at most, four towers out of a total of 1,491 towers on the line, would not significantly affect the transmission line. No project-related construction impacts to standing historic structures that would materially impair their significance have been identified, so no mitigation would be required for this class of cultural resources. Likewise, since there is no evidence in the record identifying any indirect impacts to cultural resources in the area of the project, no mitigation of indirect impacts would be required for any class of cultural resources. (Ex. 200, p. 4.3-15.)

If newly found cultural resources are eligible for the CRHR, the direct impacts from construction could materially impair the resources. Procedures for identifying, evaluating, and mitigating impacts to newly discovered cultural resources are incorporated into Conditions of Certification **CUL-1** through **CUL-7**, along with requirements that the project owner retain a qualified archaeologist to serve as a cultural resources specialist prior to ground disturbance who would prepare a Cultural Resources Monitoring and Mitigation Plan (CRMMP), implement an employee training program and, monitor ground disturbance during construction with an interested Native American, where appropriate.

4. Cumulative Impacts

A cumulative impact refers to a project's incremental effect together with other closely related past, present, and reasonably foreseeable future projects whose impacts may compound or increase the incremental effect of the project. The construction of other projects in the same vicinity as the project could affect unknown subsurface archaeological deposits (both prehistoric and historic). According to the Colusa County Planning Department, there are no known projects proposed or under construction within 0.5 mile of the project site. Therefore, it does not appear that the project would contribute to a cumulative impact. (Ex. 200, p. 4.3-16.)

FINDINGS AND CONCLUSIONS

Based on the evidence we find as follows:

1. There are no recorded or known archaeological resources within the project area.
2. There are six potential historical resources in the general project area of which two are eligible for listing on the CRHR One is the above-ground Cottonwood-Vaca section of the Pit-Vaca Dixon 230-kV transmission line which will be impacted by the project, but the impact of removing two towers and replacing four towers and associated conductors will be less than significant. The Glenn-Colusa Canal will be impacted by the project, but due to a lack of integrity, including on-going maintenance, the impact is not significant.

3. The potential for impacts to unknown cultural resources may not be discovered until subsurface soils are exposed during excavation and construction.
4. The project owner will obtain the services of a Native American monitor to observe ground disturbance activities in areas where Native American artifacts are discovered.
5. The project owner will provide a cultural resources specialist monitor with authority to halt construction if unknown resources are discovered.
6. The potential for cumulative impacts to cultural resources is insignificant.

7. The mitigation measures contained in the Conditions of Certification below ensure that any direct, indirect, or cumulative adverse impacts to cultural resources resulting from project-related activities will be insignificant.

We therefore conclude that with implementation of the Conditions of Certification, the project will conform to all applicable laws, ordinances, regulations, and standards relating to cultural resources.

CONDITIONS OF CERTIFICATION

CUL-1 Prior to the start of preconstruction site mobilization; construction ground disturbance; construction grading, boring, and trenching; and construction, the project owner shall obtain the services of a Cultural Resources Specialist (CRS), and one or more alternates, if alternates are needed. The CRS shall manage all monitoring, mitigation, curation, and reporting activities required in accordance with these Conditions of Certification (conditions). The CRS may elect to obtain the services of Cultural Resource Monitor(s) (CRMs) and other technical specialists, if needed, to assist in monitoring, mitigation, and curation activities. The project owner shall ensure that the CRS makes recommendations regarding the eligibility to the California Register of Historical Resources (CRHR) of any cultural resources that are newly discovered or that may be affected in an unanticipated manner (Discovery). No preconstruction site mobilization, construction ground disturbance, construction grading, boring and trenching, or construction shall occur prior to CPM approval of the CRS, unless specifically approved by the Energy Commission Compliance Project Manager (CPM). Approval of a CRS may be denied or revoked for non-compliance issues.

CULTURAL RESOURCES SPECIALIST

The resumes for the CRS and alternate(s) shall include information demonstrating to the satisfaction of the CPM that their training and backgrounds conform to the U.S. Secretary of Interior's Professional Qualifications Standards, as published in the Code of Federal Regulations, 36 CFR Part 61. In addition, the CRS shall have the following qualifications:

1. The CRS's qualifications shall be appropriate to the needs of the project and shall include a background in anthropology, archaeology, history, architectural history, or a related field; and

2. at least three years of archaeological or historic, as appropriate, resource mitigation and field experience in California

3. At least one year of experience in a decision-making capacity on cultural resources projects in California, and the appropriate training and experience to knowledgably make recommendations regarding the significance of cultural resources.

The resume(s) of the CRS and alternate CRS shall include the names and telephone numbers of contacts familiar with the work of the CRS/alternate CRS on referenced projects. The resume(s) shall demonstrate to the satisfaction of the CPM that the CRS and alternate CRS have the appropriate education, and experience to accomplish the cultural resources tasks that must be addressed during pre-construction, site mobilization, ground disturbance, grading, construction, and operation.

CULTURAL RESOURCES MONITORS

CRMs shall have the following qualifications:

1. a BS or BA degree in anthropology, archaeology, historical archaeology, or a related field and one year experience monitoring in California, or

2. an AS or AA degree in anthropology, archaeology, historical archaeology, or a related field, and four years experience monitoring in California, or

3. enrollment in upper division classes pursuing a degree in the fields of anthropology, archaeology, historical archaeology, or a related field, and two years of monitoring experience in California.

CULTURAL RESOURCES TECHNICAL SPECIALISTS

The resume(s) of any additional technical specialists, for example, historical archaeologist, historian, architectural historian, and/or physical anthropologist, shall be submitted to the CPM for approval.

Verification:

1. At least 45 days prior to the start of preconstruction site mobilization; construction ground disturbance; construction grading, boring, and trenching; and construction, the project owner shall submit the resume for the CRS, and alternate(s) if desired, to the CPM for review and approval.

2. At least 10 days prior to a termination or release of the CRS, or within 10 days after the resignation of a CRS, the project owner shall submit the resume of the proposed new CRS to the CPM for review and approval. At the same time, the project owner shall also provide to the approved new CRS the AFC and all cultural documents, field notes, photographs, and other cultural materials generated by the project.

3. At least 20 days prior to preconstruction site mobilization, construction ground disturbance, construction grading, boring and trenching, and construction, the CRS shall provide a letter naming anticipated CRMs for the project and stating that the identified CRMs meet the minimum qualifications for cultural resource monitoring required by this condition. If additional CRMs are obtained during the project, the CRS shall provide additional letters to the CPM identifying the CRMs and attesting to their qualifications at least five days prior to the CRMs beginning on-site duties.

4. At least 10 days prior to beginning tasks, the resume(s) of any additional technical specialists shall be provided to the CPM for review and approval.

5. At least 10 days prior to the start of preconstruction site mobilization, construction ground disturbance, construction grading, boring and trenching, and construction, the project owner shall confirm in writing to the CPM that the approved CRS will be available for onsite work and is prepared to implement the cultural resources Conditions of Certification.

CUL-2 Prior to the start of preconstruction site mobilization; construction ground disturbance; construction grading, boring, and trenching; and construction, if the CRS has not previously worked on the project, the project owner shall provide the CRS with copies of the AFC, data responses, and confidential cultural resources reports for the project. The project owner shall also provide the CRS and the CPM with maps and drawings showing the footprint of the power plant and all linear facilities. Maps shall include the appropriate USGS quadrangles and a map at an appropriate scale (for example, 1:2000 or 1” = 200’) for plotting cultural features or materials. If the CRS requests enlargements or strip maps for linear facility routes, the project owner shall provide copies to the CRS and CPM. The CPM shall review submittals and, in consultation with the CRS, approve those that are appropriate for use in cultural resources planning activities.

If construction of the project would proceed in phases, maps and drawings, not previously provided, shall be submitted prior to the start of each phase. Written notification identifying the proposed schedule of each project phase shall be provided to the CRS and CPM.

At a minimum, the CRS shall consult weekly with the project construction manager to confirm area(s) to be worked during the next week until ground disturbance is completed.

The project owner shall notify the CRS and CPM of any changes to the scheduling of the construction phases. No preconstruction site mobilization, construction ground disturbance, construction grading, boring and trenching, or construction shall occur prior to CPM approval of maps and drawings, unless specifically approved by the CPM.

Verification:

1. At least 40 days prior to the start of preconstruction site mobilization; construction ground disturbance; construction grading, boring, and trenching; and construction, the project owner shall provide the AFC, data responses, and confidential cultural resource documents to the CRS, if needed, and the subject maps and drawings to the CRS and CPM. The CPM will review submittals in consultation with the CRS and approve maps and drawings suitable for cultural resources planning activities.

2. If there are changes to any project-related footprint, revised maps and drawings shall be provided at least 15 days prior to start of preconstruction site mobilization, construction ground disturbance, construction grading, boring and trenching, and construction for those changes.

3. If project construction is phased, if not previously provided, the project owner shall submit the subject maps and drawings 15 days prior to each phase.

4. On a weekly basis during preconstruction site mobilization, construction ground disturbance, construction grading, boring and trenching, and construction, a current schedule of anticipated project activity shall be provided to the CRS and CPM by letter, email, or fax.

5. Within five days of identifying changes, the project owner shall provide to the CPM written notice of any changes to scheduling of construction phase.

CUL-3 Prior to the start of preconstruction site mobilization; construction ground disturbance; construction grading, boring, and trenching;, and construction, the project owner shall submit the Cultural Resources Monitoring and Mitigation Plan (CRMMP), as prepared by or under the direction of the CRS, to the CPM for review and approval. The CPM shall provide the project owner with a model CRMMP to adapt for project use. The CRMMP shall be provided in the Archaeological Resource Management Report (ARMR) format, and, per ARMR guidelines, the author's name shall appear on the title page of the CRMMP. The CRMMP shall identify general and specific measures to minimize potential impacts to sensitive cultural resources. Implementation of the CRMMP shall be the responsibility of the CRS and the project owner. Copies of the CRMMP shall reside with the CRS, alternate CRS, each monitor, and the project owner's onsite construction manager. No preconstruction site mobilization, construction ground disturbance, construction grading, boring and trenching, or construction shall occur prior to CPM approval of the CRMMP, unless specifically approved by the CPM.

The CRMMP shall include, but not be limited to, the following elements and measures:

1. A proposed general research design that includes a discussion of archaeological research questions and testable hypotheses specifically applicable to the project area, and a discussion of artifact collection, retention or disposal, and curation policies as related to the research questions formulated in the research design. A prescriptive treatment plan may be included in the CRMMP for limited resource types. A refined research design will be prepared for any resource where data recovery is required.

2. The following statement included in the Introduction: "Any discussion, summary, or paraphrasing of the conditions in this CRMMP is intended as general guidance and as an aid to the user in understanding the conditions and their implementation. The conditions, as written in the Commission Decision, shall supersede any summarization, description, or interpretation of the conditions in the CRMMP. The Cultural Resources Conditions of Certification from the Commission Decision are contained in Appendix A."

3. Specification of the implementation sequence and the estimated time frames needed to accomplish all project-related tasks during ground disturbance, construction, and post-construction analysis phases of the project.

4. Identification of the person(s) expected to perform each of the tasks, their responsibilities, and the reporting relationships between project construction management and the mitigation and monitoring team.

5. A description of the manner in which Native American observers or monitors will be included, the procedures to be used to select them, and their role and responsibilities.

6. A description of all impact avoidance measures (such as flagging or fencing) to prohibit or otherwise restrict access to sensitive resource areas that are to be avoided during construction and/or operation, and identification of areas where these measures are to be implemented. The description shall address how these measures would be implemented prior to the start of construction and how long they would be needed to protect the resources from project-related effects.

7. A statement that all cultural resources encountered shall be recorded on a Department of Parks and Recreation (DPR) form 523 and mapped and photographed. In addition, all archaeological materials retained as a result of the archaeological investigations (survey, testing, data recovery) shall be curated in accordance with the California State Historical Resources Commission's

"Guidelines for the Curation of Archaeological Collections," into a retrievable storage collection in a public repository or museum.

8. A statement that the project owner shall pay all curation fees and a copy of an agreement with, or other written commitment from, a curation facility to accept artifacts from this project. Any agreements concerning curation shall be retained and available for audit for the life of the project.

9. A statement that the CRS has access to equipment and supplies necessary for site mapping, photography, and recovery of any cultural resource materials that are encountered during construction and cannot be treated prescriptively.

10. A description of the contents and format of the Cultural Resource Report (CRR), which shall be prepared according to ARMR Guidelines.

Verification:

1. At least 30 days prior to the start of preconstruction site mobilization; construction ground disturbance; construction grading, boring, and trenching; and construction, the project owner shall submit the subject CRMMP to the CPM for review and approval. Preconstruction site mobilization; construction ground disturbance; construction grading, boring, and trenching; or construction may not commence until the CRMMP is approved, unless specifically approved by the CPM.

2. At least 30 days prior to the start of preconstruction site mobilization; construction ground disturbance; construction grading, boring, and trenching; and construction, a letter shall be provided to the CPM indicating that the project owner agrees to pay curation fees for any materials collected as a result of the archaeological investigations (survey, testing, data recovery).

CUL-4 The project owner shall submit the Cultural Resources Report (CRR) to the CPM for approval. The CRR shall be written by or under the direction of the CRS and shall be provided in the ARMR format. The CRR shall report on all field activities including dates, times and locations, findings, samplings, and analyses. All survey reports, DPR 523 forms, and additional research reports not previously submitted to the California Historical Resources Information System (CHRIS) and the State Historic Preservation Officer (SHPO) shall be included as an appendix to the CRR.

If the project owner requests a suspension of construction activities, then a draft CRR that covers all cultural resources activities associated with the project shall be prepared by the CRS and submitted to the CPM for review and approval on the same day as the suspension or

extension request. The draft CRR shall be retained at the project site in a secure facility until construction resumes or the project is withdrawn. If the project is withdrawn, then a final CRR shall be submitted to the CPM for review and approval at the same time as the withdrawal request.

Verification:

1. Within 90 days after completion of ground disturbance (including landscaping), the project owner shall submit the CRR to the CPM for review and approval. If any reports have previously been sent to the CHRIS, then receipt letters from the CHRIS or other verification of receipt shall be included in an appendix.

2. Within 10 days after CPM approval, the project owner shall provide documentation to the CPM that copies of the CRR have been provided to the SHPO, the CHRIS, and the curating institution, if archaeological materials were collected.

3. Within 30 days after requesting a suspension of construction activities, the project owner shall submit a draft CRR to the CPM for review and approval.

CUL-5 Prior to and for the duration of preconstruction site mobilization; construction ground disturbance; construction grading, boring, and trenching; and construction, the project owner shall provide Worker Environmental Awareness Program (WEAP) training to all new workers within their first week of employment. The training shall be prepared by the CRS, may be conducted by any member of the archaeological team, and may be presented in the form of a video. The CRS shall be available (by telephone or in person) to answer questions posed by employees. The training shall include:

1. a discussion of applicable laws and penalties under the law,

2. samples or visuals of artifacts that might be found in the project vicinity,

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

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

5. An informational brochure that identifies reporting procedures in the event of a Discovery;

6. An acknowledgement form signed by each worker indicating that they have received the training; and

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

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

Verification:

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

2. On a monthly basis, the project owner shall provide in the Monthly Compliance Report (MCR) the WEAP Training Acknowledgement forms of persons who have completed the training in the prior month and a running total of all persons who have completed training to date.

CUL-6 The project owner shall ensure that the CRS, alternate CRS, or CRMs monitor preconstruction site mobilization; construction ground disturbance; construction grading, boring, and trenching; and construction, full time at the project site and linear facilities, and ground disturbance full time at laydown areas or other ancillary areas, to ensure there are no impacts to undiscovered resources and to ensure that known resources are not impacted in an unanticipated manner (Discovery).

Full-time archaeological monitoring for this project shall be the archaeological monitoring of all earth-moving activities on the construction site or along the linear facility routes for as long as the activities are ongoing. Full-time archaeological monitoring shall require one monitor per active earth-moving machine working in archaeologically sensitive areas, as determined by the CRS in consultation with the CPM.

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

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

On forms provided or e-mailed by the CPM, CRMs shall keep a daily log of any monitoring and other cultural resource activities and any instances of noncompliance with the Conditions and/or applicable LORS. Copies of the daily logs shall be provided to the CPM by the CRS if requested by the CPM. The CRS shall use these logs to compile a monthly summary report on the progress or status of cultural resources-related activities. If there are no monitoring activities, the summary report shall specify why monitoring has been suspended. The CRS or alternate CRS shall report daily to the CPM on the status of cultural resources-related activities at the construction site and during ground disturbance for linears and other appurtenant facilities, unless reducing or ending daily reporting is requested by the CRS and approved by the CPM. The CRS, at his or her discretion, or at the request of the CPM, may informally discuss cultural resource monitoring and mitigation activities with Energy Commission technical staff.

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

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

A Native American monitor shall be obtained to monitor ground disturbance in areas where Native American artifacts may be discovered. Informational lists of concerned Native Americans and Guidelines for monitoring shall be obtained from the Native American Heritage Commission. Preference in selecting a monitor shall be given to Native Americans with traditional ties to the area that shall be monitored.

Verification:

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

2. Each day that no Discoveries are made, the CRS shall provide a statement that "no cultural resources over 50 years of age were discovered" to the CPM as an email or in some other form acceptable to the CPM, unless the CPM has agreed to suspend reporting.

3. On a monthly basis, while monitoring is ongoing, the project owner shall include in each MCR a copy of the monthly summary report of cultural resources-related monitoring prepared by the CRS. The summary report shall specify why monitoring has been suspended.

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

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

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

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

2. The CRS has completed field notes, measurements, and photography for a DPR 523 primary form. The "Description" entry of the DPR 523 form shall include a recommendation on the

significance of the find. The project owner shall submit completed forms to the CPM.

3. The CRS, the project owner, and the CPM have conferred, and the CPM has concurred with the recommended eligibility of the Discovery and has approved the CRS's proposed data recovery, if any, including the curation of the artifacts, or other appropriate mitigation and any necessary data recovery and mitigation have been completed.

Verification:

1. At least 30 days prior to the start of preconstruction site mobilization; construction ground disturbance; construction grading, boring and trenching; and construction, the project owner shall provide the CPM and CRS with a letter confirming that the CRS, alternate CRS, and CRMs have the authority to halt construction activities in the vicinity of a cultural resources Discovery, and that the project owner shall ensure that the CRS notifies the CPM within 24 hours of a Discovery, or by Monday morning if the cultural resources Discovery occurs between 8:00 a.m. on Friday and 8:00 a.m. on Sunday morning.

2. Completed DPR form 523s shall be submitted to the CPM for review and approval no later than 24 hours following the notification of the CPM, or 48 hours following the completion of data recordation/recovery, whichever is more appropriate for the subject cultural material.

D. GEOLOGY AND PALEONTOLOGY

This section reviews the project's potential impacts on significant geological and paleontological resources. It also evaluates whether project-related activities could result in exposure to geological hazards, whether the facility can be designed and constructed to avoid any such hazards, and whether geologic or mineralogic resources are present. The analysis also examines whether fossilized remains or trace remnants of prehistoric plants or animals are present.

There are two types of impacts considered in this section. First are geologic hazards, which could affect proper functioning of the proposed facility and include faulting, seismicity, liquefaction, dynamic compaction, hydrocompaction, subsidence, expansive soils and landslides. Second are impacts the proposed facility could have on existing geologic, mineralogic, and paleontologic resources.

SUMMARY AND DISCUSSION OF THE EVIDENCE

The CGS site is located in California's Central Valley. The northern one-third of the valley is known as the Sacramento Valley, while the southern two-thirds are known as the San Joaquin Valley. The proposed site is in the northern Sacramento Valley, in an unincorporated area of northern Colusa County, approximately 14 miles north of the City of Williams and five miles west of Interstate 5.

1. Geologic Hazards

a. Faulting and Seismicity

The project site is within Seismic Zone 3. (Ex. 200, p. 5.2-5.) No known faults cross the proposed CGS site or proposed linear facility improvements. The closest known active fault is the Coast Ranges–Sierran Block Boundary Zone, located approximately five miles west of the site. The potential of surface rupture

on a fault at the energy facility footprint is considered to be very low, since no faults are known to have ruptured the ground surface of the proposed energy facility location. (*id*.)

b. Liquefaction

Liquefaction is a nearly complete loss of soil shear strength that can occur during a seismic event. Analysis of soil borings shows that the potential for liquefaction and associated lateral spreading of site soils is negligible. (Ex. 22, p. 8.15-14.)

c. Dynamic Compaction

Dynamic compaction of soils results when relatively unconsolidated granular materials experience vibration associated with seismic events. The vibration causes a decrease in soil volume, as the soil grains tend to rearrange into a more dense state (an increase in soil density). The decrease in volume can result in settlement of overlying structural improvements. Since the site is underlain by clay and silt soils, the potential for dynamic compaction is negligible. (Ex. 200, p. 5.2-6.)

d. Hydrocompaction

Partially saturated soils can possess bonds that are a result of chemical precipitates that accumulate under semi-arid conditions. Such soluble compound bonds provide the soils with cohesion and rigidity; however, these bonds can be destroyed upon prolonged exposure to water. Destruction of the bonds can lead to movement of overlying structural improvements. Based on the nature and density of the existing native soils, hydrocompaction is not considered significant at the proposed CGS site. (Ex. 200, p. 5.2-6.)

e. Subsidence

Ground subsidence is typically caused when ground water is drawn down by irrigation activities, resulting in consolidation/settlement of the underlying soils. Since ground water is generally present at a significant depth (45+ feet) and

since CGS will obtain surface water from the Glenn-Colusa Irrigation District via the existing Tehama-Colusa Canal and a new water pipeline to the site, significant draw down of the water table due to CGS operations is not anticipated. As a result, the potential for ground subsidence is considered low. (Ex. 22, p. 8.15-14.)

f. Expansive Soils

Soil expansion occurs when the addition of moisture from irrigation, capillary tension, water line breaks, and so forth causes an increase in the overall volume of the soil. This increase in volume can cause movement of overlying structural improvements. The surficial clay soils present at the site exhibit a high potential to expand with an increase in moisture content. (Ex. 22, p. 8.15-15.) As a result, mitigation of clay soils will be necessary. Mitigation will include over-excavation of these soils below medium to lightweight structures, and possibly the use of deep foundations for heavy structures. (Ex. 200, p. 5.2-6.)

g. Landslides

The CGS site area is considered to exhibit low landslide and debris-flow potential. (Ex. 22, p. 8.15-14.)

h. Tsunamis and Seiches

Tsunamis and seiches are earthquake-induced waves which inundate low-lying areas adjacent to large bodies of water. The proposed site is situated approximately 160 to 190 feet above mean sea level and approximately 35 miles northeast of Clear Lake, which is the closest major body of water with potential to experience a seiche. As a result, the potential for tsunamis and seiches to affect the site is considered negligible. (Ex. 200. p. 5.2-7.)

2. Geologic, Mineralogic, and Paleontologic Impacts

Based on review of applicable geologic maps for this area this information and the information contained in the AFC (Ex. 22, p. 8.15-15), there are no known geologic or mineralogic resources located at or immediately adjacent to the proposed CGS site.

Paleontological resources (fossils) are the remains or traces of prehistoric animals and plants. Fossils are important scientific and educational resources because of their use in: 1) documenting the presence and evolutionary history of particular groups of now extinct organisms; 2) reconstructing the environments in which these organisms lived; and 3) determining the relative ages of the strata in which they occur. Fossils are also important in determining the geologic events that resulted in the deposition of the sediments that entombed them and their subsequent deformation.

The Applicant's consultant conducted a paleontologic resources field survey and a sensitivity analysis for the proposed CGS and the proposed linear facility improvements to support the CGS. No significant fossil fragments were identified; however, geologic units have been assigned a "moderate to high" sensitivity rating with respect to potentially containing paleontological resources. (Ex. 23, p. 8.16-5.) We therefore find that the proposed CGS site has the potential to contain significant paleontologic resources. As a result, we impose Conditions of Certification designed to mitigate any construction-related paleontological resource impacts to a less than significant level.

3. Operation Impacts and Mitigation

Operation of the proposed plant facilities should not have any significant impacts on geologic, mineralogic, or paleontologic resources. (Ex. 200, p. 5.2-8.)

4. Cumulative Impacts and Mitigation

With the exception of strong ground shaking and potential soil expansion, the CGS site lies in an area that generally exhibits low geologic hazards and no known viable geologic or mineralogic resources. Strong ground shaking and potentially expansive soils must be mitigated through foundation design as required by the CBC, Conditions of Certification **GEO-1**, and **GEN-1**, **GEN-5**, and **CIVIL-1** in the **Facility Design** section. The potential impacts to paleontological resources due to construction activities will be mitigated as required by Conditions of Certification **PAL-1** to **PAL-7.**

Based on this analysis we find that the potential for significant adverse cumulative impacts to the project from geologic hazards can be mitigated to less than significant and that the potential for significant adverse cumulative impacts to potential geologic, mineralogic, and paleontologic resources from the proposed project is very low.

The Applicant has proposed monitoring and mitigation measures to be followed during the construction of the power plant and associated linears. Staff agrees with the Applicant that the facility can be designed and constructed to minimize the effect of geologic hazards at the site and that impacts to vertebrate fossils encountered during construction of the power plant and associated linears can be effectively mitigated.

The proposed Conditions of Certification are to allow the CPM and the Applicant to adopt a compliance monitoring scheme that will ensure compliance with LORS applicable to geologic hazards and to geologic, mineralogic, and paleontologic resources.

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FINDINGS AND CONCLUSIONS

Based on the evidence, we make the following findings:

1. The proposed project site is located in an area where expansive soils exist, and where ground shaking associated with seismic activity is known to occur.

2. No other significant geologic hazards are known to exist at the proposed project site.

3. The project will be designed to withstand earthquake shaking and expansive soil movement in accordance with the applicable requirements established in the California Building Code.

4. There are no known significant geologic or mineralogic resources in the project area.

5. Paleontologic resources may be discovered during construction-related ground disturbance.

6. The Conditions of Certification ensure that activities associated with construction and operation of the project will cause no significant impacts to paleontologic resources.

We therefore conclude that the project will not cause any significant direct, indirect, or cumulative impacts to geological, mineralogic, or paleontological resources.

CONDITIONS OF CERTIFICATION

GEO-1 The Soils Engineering Report required by the 2001 CBC Appendix, Chapter 33, Section 3309.5 Soils Engineering Report, should specifically include recommendations regarding the criteria for and depth of over-excavation to remove potentially expansive soils for various improvement types on this project, including major foundations, light foundations, slabs on grade, and paved areas. The minimum quality for backfill soils/structural fill should be defined. Alternatively, the minimum foundation depth may be defined for various major structures.

Verification: The project owner shall include in the application for a grading permit a copy of the Soils Engineering Report, which describes the criteria for

and depth of over-excavation and replacement of potentially expansive soils for review and comment by the Chief Building Official (CBO). A copy of the Soils Engineering Report, application for grading permit, and any comments by the CBO are to be provided to the CPM at least 30 days prior to grading.

PAL-1 The project owner shall provide the CPM with the resume and qualifications of his Paleontological Resource Specialist (PRS) for review and approval. If the approved PRS is replaced prior to completion of project mitigation and submittal of the Paleontological Resources Report, the project owner shall obtain CPM approval of the replacement PRS. The project owner shall submit to the CPM to keep on file resumes of the qualified Paleontological Resource Monitors (PRMs). If a PRM is replaced, the resume of the replacement PRM shall also be provided to the CPM.

The PRS resume shall include the names and phone numbers of references. The resume shall also demonstrate to the satisfaction of the CPM the appropriate education and experience to accomplish the required paleontological resource tasks.

As determined by the CPM, the PRS shall meet the minimum qualifications for a vertebrate paleontologist as described in the Society of Vertebrate Paleontology (SVP) guidelines of 1995. The experience of the PRS shall include the following:

1. institutional affiliations, appropriate credentials, and college degree;

2. ability to recognize and collect fossils in the field;

3. local geological and biostratigraphic expertise;

4. proficiency in identifying vertebrate and invertebrate fossils; and

5. at least three years of paleontological resource mitigation and field experience in California and at least one year of experience leading paleontological resource mitigation and field activities.

The project owner shall ensure that the PRS obtains qualified paleontological resource monitors to monitor as he or she deems necessary on the project. Paleontologic resource monitors shall have the equivalent of the following qualifications:

1. BS or BA degree in geology or paleontology and one year of experience monitoring in California; or
2. AS or AA in geology, paleontology, or biology and four years' experience monitoring in California; or

3. enrollment in upper division classes pursuing a degree in the fields of geology or paleontology and two years of monitoring experience in California.

Verification:

1. At least 60 days prior to the start of ground disturbance, the project owner shall submit a resume and statement of availability of his designated PRS for on-site work.

2. At least 20 days prior to ground disturbance, the PRS or project owner shall provide a letter with resumes naming anticipated monitors for the project and stating that the identified monitors meet the minimum qualifications for paleontological resource monitoring required by the condition. If additional monitors are obtained during the project, the PRS shall provide additional letters and resumes to the CPM. The letter shall be provided to the CPM no later than one week prior to the monitor beginning on-site duties.

3. Prior to the termination or release of a PRS, the project owner shall submit the resume of the proposed new PRS to the CPM for review and approval.

PAL-2 The project owner shall provide to the PRS and the CPM, for approval, maps and drawings showing the footprint of the power plant, construction laydown areas, and all related facilities. Maps shall identify all areas of the project where ground disturbance to greater than five feet depth is anticipated. If the PRS requests enlargements or strip maps for linear facility routes, the project owner shall provide copies to the PRS and CPM. The site grading plan and the plan and profile drawings for the utility lines would be acceptable for this purpose. The plan drawings should show the location, depth, and extent of all ground disturbances and can be at a scale of 1 inch = 40 feet to 1 inch = 100 feet range. If the footprint of the power plant or linear facility changes, the project owner shall provide maps and drawings reflecting these changes to the PRS and CPM.

If construction of the project will proceed in phases, maps and drawings may be submitted prior to the start of each phase. A letter identifying the proposed schedule of each project phase shall be provided to the PRS and CPM. Prior to work commencing on affected phases, the project owner shall notify the PRS and CPM of any construction phase scheduling changes.

At a minimum, the project owner shall ensure that the PRS or PRM consults weekly with the project superintendent or construction field manager to confirm area(s) to be worked during the next week, until ground disturbance is completed.

Verification:

1. At least 30 days prior to the start of ground disturbance, the project owner shall provide the maps and drawings to the PRS and CPM.

2. If there are changes to the footprint of the project, revised maps and drawings shall be provided to the PRS and CPM at least 15 days prior to the start of ground disturbance.

3. If there are changes to the scheduling of the construction phases, the project owner shall submit a letter to the CPM within five days of identifying the changes.

PAL-3 The project owner shall ensure that the PRS prepares, and the project owner submits to the CPM for review and approval, a Paleontological Resources Monitoring and Mitigation Plan (PRMMP) to identify general and specific measures to minimize potential impacts to significant paleontological resources. Approval of the PRMMP by the CPM shall occur prior to any ground disturbance. The PRMMP shall function as the formal guide for monitoring, collecting, and sampling activities and may be modified with CPM approval. This document shall be used as a basis for discussion in the event that on-site decisions or changes are proposed. Copies of the PRMMP shall reside with the PRS, each monitor, the project owner's on-site manager, and the CPM.

The PRMMP shall be developed in accordance with the guidelines of the Society of Vertebrate Paleontology (SVP, 1995) and shall include, but not be limited to, the following:

1. Assurance that the performance and sequence of project-related tasks, such as any literature searches, pre-construction surveys, worker environmental training, fieldwork, flagging or staking, construction monitoring, mapping and data recovery, fossil preparation and collection, identification and inventory, preparation of final reports, and transmittal of materials for curation will be performed according to the PRMMP procedures;

2. Identification of the person(s) expected to assist with each of the tasks identified within the PRMMP and the Conditions of Certification;

3. A thorough discussion of the anticipated geologic units expected to be encountered, the location and depth of the units relative to the project when known, and the known sensitivity of those units based on the occurrence of fossils either in that unit or in correlative units;

4. An explanation of why, how, and how much sampling is expected to take place and in what units. Include descriptions of different sampling procedures that shall be used for fine-grained and coarse-grained units;

5. A discussion of the locations where the monitoring of project construction activities is deemed necessary and a proposed plan for the monitoring and sampling;
6. A discussion of the procedures to be followed in the event of a significant fossil discovery: halting construction, resuming construction, and how notifications will be performed;
7. A discussion of equipment and supplies necessary for collection of fossil materials and any specialized equipment needed to prepare, remove, load, transport, and analyze large-sized fossils or extensive fossil deposits;
8. Procedures for inventory, preparation, and delivery for curation into a retrievable storage collection in a public repository or museum, which meets the Society of Vertebrate Paleontology standards and requirements for the curation of paleontological resources;
9. Identification of the institution that has agreed to receive any data and fossil materials collected, requirements or specifications for materials delivered for curation and how they will be met, and the name and phone number of the contact person at the institution; and
10. A copy of the paleontological Conditions of Certification.

Verification: At least 30 days prior to ground disturbance, the project owner shall provide a copy of the PRMMP to the CPM. The PRMMP shall include an affidavit of authorship by the PRS and acceptance of the PRMMP by the project owner evidenced by a signature.

PAL-4 Prior to ground disturbance and for the duration of construction, the project owner and the PRS shall prepare and conduct weekly CPM-approved training for all recently employed project managers, construction supervisors, and workers who are involved with or operate ground disturbing equipment or tools. Workers shall not excavate in sensitive units prior to receiving CPM-approved worker training. Worker training shall consist of an initial in-person PRS training during the project kick-off for those mentioned above. Following initial training, a CPM-approved video or in-person training may be used for new employees. The training program may be combined with other training programs prepared for cultural and biological resources, hazardous materials, or any other areas of interest or concern. No ground disturbance shall occur prior to CPM approval of the Worker Environmental Awareness Program (WEAP), unless specifically approved by the CPM.

The WEAP shall address the potential to encounter paleontological resources in the field, the sensitivity and importance of these

resources, and the legal obligations to preserve and protect such resources.

The training shall include:

1. A discussion of applicable laws and penalties under the law;

2. Good quality photographs or physical examples of vertebrate fossils for project sites containing units of high paleontologic sensitivity;

3. Information that the PRS or PRM has the authority to halt or redirect construction in the event of a discovery or unanticipated impact to a paleontological resource;

4. Instruction that employees are to halt or redirect work in the vicinity of a find and to contact their supervisor and the PRS or PRM;

5. An informational brochure that identifies reporting procedures in the event of a discovery;

6. A WEAP Certification of Completion form signed by each worker indicating that he or she has received the training; and

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

Verification:

1. At least 30 days prior to ground disturbance, the project owner shall submit the proposed WEAP including the brochure with the set of reporting procedures the workers are to follow.

2. At least 30 days prior to ground disturbance, the project owner shall submit the script and final video to the CPM for approval if the project owner is planning on using a video for interim training.

3. If the owner requests an alternate paleontological trainer, the resume and qualifications of the trainer shall be submitted to the CPM for review and approval prior to installation of an alternate trainer. Alternate trainers shall not conduct training prior to CPM authorization.

4. In the Monthly Compliance Report (MCR), the project owner shall provide copies of the WEAP Certification of Completion forms with the names of those trained and the trainer or type of training (in-person or video) offered that month. The MCR shall also include a running total of all persons who have completed the training to date.

PAL-5 The project owner shall ensure that the PRS and PRM(s) monitor consistent with the PRMMP all construction-related grading, excavation, trenching, and augering in areas where potentially fossil-bearing materials have been identified, both at the site and along any constructed linear facilities associated with the project. In the event that the PRS determines full-time monitoring is not necessary in locations that were identified as potentially fossil-bearing in the PRMMP, the project owner shall notify and seek the concurrence of the CPM.

The project owner shall ensure that the PRS and PRM(s) have the authority to halt or redirect construction if paleontological resources are encountered. The project owner shall ensure that there is no interference with monitoring activities unless directed by the PRS. Monitoring activities shall be conducted as follows:

1. Any change of monitoring different from the accepted schedule presented in the PRMMP shall be proposed in a letter or email from the PRS and the project owner to the CPM prior to the change in monitoring and included in the Monthly Compliance Report. The letter or email shall include the justification for the change in monitoring and be submitted to the CPM for review and approval.

2. The project owner shall ensure that the PRM(s) keeps a daily log of monitoring of paleontological resource activities. The PRS may informally discuss paleontological resource monitoring and mitigation activities with the CPM at any time.

3. The project owner shall ensure that the PRS immediately notifies the CPM within 24 hours of the occurrence of any incidents of non-compliance with any paleontological resources Conditions of Certification. The PRS shall recommend corrective action to resolve the issues or achieve compliance with the Conditions of Certification.

4. For any significant paleontological resources encountered, either the project owner or the PRS shall notify the CPM within 24 hours or Monday morning in the case of a weekend when construction has been halted due to a paleontological find.

The project owner shall ensure that the PRS prepares a summary of the monitoring and other paleontological activities that will be placed in the Monthly Compliance Reports (MCR). The summary will include the name(s) of PRS or PRM(s) active during the month; general descriptions of training; and monitored construction activities and general locations of excavations, grading, and so forth. A section of the report shall include the geologic units or subunits encountered; descriptions of sampling within each unit; and a list of identified fossils.

A final section of the report will address any issues or concerns about the project relating to paleontologic monitoring, including any incidents of non-compliance and any changes to the monitoring plan that have been approved by the CPM. If no monitoring took place during the month, the report shall include an explanation in the summary as to why monitoring was not conducted.

Verification: The project owner shall ensure that the PRS submits the summary of monitoring and paleontological activities in the MCR. When feasible, the CPM shall be notified 10 days in advance of any proposed changes in monitoring different from the plan identified in the PRMMP. If there is any unforeseen change in monitoring, the notice shall be given as soon as possible prior to implementation of the change.

PAL-6 The project owner, through the designated PRS, shall ensure that all components of the PRMMP are adequately performed, including collection of fossil materials, preparation of fossil materials for analysis, analysis of fossils, identification and inventory of fossils, the preparation of fossils for curation, and the delivery for curation of all significant paleontological resource materials encountered and collected during the project construction.

Verification: The project owner shall maintain in his compliance file copies of signed contracts or agreements with the designated PRS and other qualified research specialists. The project owner shall maintain these files for a period of three years after completion and approval of the CPM-approved Paleontological Resource Report (see **PAL-7**). The project owner shall be responsible to pay any curation fees charged by the museum for fossils collected and curated as a result of paleontological mitigation. A copy of the letter of transmittal submitting the fossils to the curating institution shall be provided to the CPM.

PAL-7 The project owner shall ensure preparation of a Paleontological Resources Report (PRR) by the designated PRS. The PRR shall be prepared following completion of the ground disturbing activities. The PRR shall include an analysis of the collected fossil materials and related information and submitted to the CPM for review and approval.

The report shall include, but is not limited to, a description and inventory of recovered fossil materials; a map showing the location of paleontological resources encountered; determinations of sensitivity and significance; and a statement by the PRS that project impacts to paleontological resources have been mitigated below the level of significance.

Verification: Within 90 days after completion of ground disturbing activities, including landscaping, the project owner shall submit the Paleontological Resources Report under confidential cover to the CPM.

Certification of Completion
Worker Environmental Awareness Program
Colusa Generating Station (06-AFC-9)

This is to certify these individuals have completed a mandatory California Energy Commission-approved Worker Environmental Awareness Program (WEAP). The WEAP includes pertinent information on cultural, paleontological and biological resources for all personnel (that is, construction supervisors, crews, and plant operators) working on site or at related facilities. By signing below, the participant indicates that he/she understands and shall abide by the guidelines set forth in the program materials. Include this completed form in the Monthly Compliance Report.

No.	Employee Name	Title/Company	Signature
1.			
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24.			
25.			

Cultural Trainer: _____ Signature: _____ Date: ____/____/___

PaleoTrainer: _____ Signature: _____ Date: ____/____/___

Biological Trainer: _____ Signature: _____ Date: ____/____/___

E. WASTE MANAGEMENT

The CGS will generate hazardous and non-hazardous wastes during its construction and operation. The record contains an evaluation of the proposed waste management plans and the mitigation measures intended to reduce the risks and environmental impacts associated with handling, storing, and disposing of these wastes. This evaluation includes a review of proposed solid and hazardous waste management methods to ascertain whether they meet applicable standards for waste reduction and recycling. It also includes a review of whether these wastes would significantly impact available treatment and disposal sites.

SUMMARY AND DISCUSSION OF THE EVIDENCE

The project owner will prepare Waste Management Plans for both the construction and the operation of the CGS. Each plan will describe the waste stream management methods planned. Condition of Certification **WASTE-5** requires that these plans be submitted to the CPM and applicable local agencies prior to site preparation and plant operation, respectively.

1. Existing Contamination

The proposed CGS power plant and switchyard will use approximately 31 acres of the 100-acre site. (Ex. 200, p. 4.13-3.) The project site is located in an agricultural area on the Holthouse Ranch property near Maxwell in Colusa County, California. The property consists of uncultivated agricultural land that is used for grazing. The Phase I ESA of the proposed project, dated May 24, 2006, did not identify any Recognized Environmental Conditions (REC) on the Colusa site, thereby eliminating the need for a Phase II ESA. A REC is the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a

material threat of a release into the ground, ground water or surface water of the property. (Ex. 200, p. 4.13-4.)

2. Construction Impacts and Mitigation

Site preparation and construction of the proposed generating plant and associated facilities would last approximately 24 months and would generate both nonhazardous and hazardous wastes in solid and liquid forms. (Ex. 200, pp. 4.13-4 – 4.13-5.) Before construction can begin, the project owner would be required to develop and implement a Construction Waste Management Plan per proposed Condition of Certification **Waste-5**.

Fifty tons of metal debris from welding/cutting activities, packing materials, electrical wiring, and empty nonhazardous chemical containers would be generated during construction. Nonhazardous solid wastes generated during construction would also include up to 4,160 cubic yards of wood, paper, cardboard, glass, plastic, insulation, concrete waste lumber, packing material, insulation, and empty containers. All nonhazardous wastes would be recycled to the extent possible and non-recyclable wastes would be collected by a licensed hauler and disposed of in a solid waste disposal facility, per Title 14, California Code of Regulations, Section 17200 et seq. (Ex. 200, p. 4.13-5.)

Nonhazardous liquid wastes would be generated during construction and are discussed in the **Soil and Water Resources** section of this document. Storm water runoff would be managed in accordance with a Drainage, Erosion, and Sediment Control Plan that would be prepared for the project and approved prior to construction. Other wastewaters would be sampled to determine their disposal.

Since excavation activities and trenching during construction of the proposed project may encounter potentially contaminated soils, specific handling, disposal, and other precautions may be necessary. We find that proposed Conditions of

Certification **Waste-1** and **Waste-2** would be adequate to address any soil contamination contingency that may be encountered during construction of the project and would ensure compliance with Title 22, California Code of Regulations, Section 66262.10.

Hazardous solid wastes that may be generated during construction include hazardous material containers, spent batteries, and oil absorbents. Amounts of these wastes would be minor and if handled in the same manner as that described for the project site, would present an insignificant risk to workers and the public.

It is anticipated that significant quantities of hazardous liquid waste would be generated during construction. The construction contractor would be considered the generator of hazardous wastes at this site during the construction period; therefore, prior to construction, the project owner would be required to obtain a unique hazardous waste generator identification number from DTSC in accordance with DTSC regulatory authority, pursuant to proposed Condition of Certification **Waste-3**. Wastes would be accumulated at satellite locations and then transported daily to the construction contractor's 90-day hazardous waste storage area located in the construction laydown area pursuant to Title 22, California Code of Regulations, Section 66262.34 et seq. The wastes thus accumulated would be properly manifested, transported, and disposed of at a permitted hazardous waste management facility by licensed hazardous waste collection and disposal companies. The disposal methods described in Exhibit 20, Table 8.13-1 show that all wastes would be disposed in accordance with all applicable LORS. Should any construction waste management-related enforcement action be taken or initiated by a regulatory agency, the project owner would be required by proposed Condition of Certification **Waste-4** to notify the Compliance Project Manager (CPM).

3. Operation Impacts and Mitigation

The proposed CGS would generate both nonhazardous and hazardous wastes in solid and liquid forms under normal operating conditions. Before operations can begin, the project owner would be required to develop and implement an Operations Waste Management Plan pursuant to proposed Condition of Certification **Waste-5**.

Nonhazardous solid wastes that may be generated during operation include maintenance wastes and office wastes. Non-recyclable wastes would be regularly transported off site to a solid waste disposal facility. (Ex. 20, Table 8.13-4.)

Certain nonhazardous liquid wastes that would be generated during facility operation are discussed in the **Soil and Water Resources** section of this document. Storm water runoff would be managed in accordance with a Drainage, Erosion, and Sediment Control Plan. General facility drainage will consist of area washdown, sample drains, equipment leakage, and drainage from facility equipment areas and would be discharged to the wastewater collection system.

Area drains will be located close to mechanical equipment where it is determined that oil could mix with rainwater or other water sources. The water collected by these drains will go to the oil-water separator, combined with the plant process wastewater and then discharged into the storm drain system. Water is then conveyed to the storm water detention basin. (Ex. 200, p. 4.13-7.)

The Applicant would be the generator of 57 tons per year of hazardous wastes at this site during operations; thus, the project owner's unique hazardous waste generator identification number obtained during construction would still be required for generation of hazardous waste, pursuant to proposed Condition of Certification **Waste-3**. Hazardous wastes that may be generated during routine project operation include waste lubricating oil, lubrication oil filters from the

combustion turbines, spent Selective Catalytic Reduction catalyst, oily rags, laboratory analysis waste, oil sorbents, and chemical feed area drainage. Table 8.13-4 of Exhibit 20 provides a list of wastes, the amounts expected to be generated, and their disposal methods.

The potential for accidental hazardous material release to the environment is extremely small (see **Hazardous Materials** section). The existing LORS ensure that the environment is protected. Hazardous waste would be temporarily stored on site, pursuant to the California Fire Code and Title 22, California Code of Regulations, Section 66262.10 et seq., and disposed of by licensed hazardous waste collection and disposal companies in accordance with all applicable regulations. Should any operations waste management-related enforcement action be taken or initiated by a regulatory agency, the project owner would be required by proposed Condition of Certification **Waste-4** to notify the CPM.

4. Impact on Existing Waste Disposal Facilities

Suitable nonhazardous waste disposal sites having adequate remaining capacity, and their tentative closure dates, are identified in Exhibit 20, Table, 8.13-2. The total amount of nonhazardous waste generated from project construction and operation will constitute less than one percent of available landfill capacity. (Ex. 20, Table 8.13-1.) The nonhazardous solid wastes generated during operation of the CGS would be recycled if possible or disposed of in a Class III landfill. We find that disposal of the solid wastes generated by CGS can occur without significantly impacting the capacity or remaining life of any of these facilities.

The three Class I landfills in California are the Safety Kleen Buttonwillow Landfill in Kern County, the Safety Kleen Landfill in Imperial County, and the Chemical Waste Management Kettleman Hills Landfill in Kings County. (Ex. 20, § 8.13.2.2.) The Kettleman Hills facility also accepts Class II and Class III wastes. In total, there is in excess of 16 million cubic yards of remaining hazardous waste disposal capacity at these landfills, with up to 16 years of remaining operating

lifetimes. In addition, the Kettleman Hills facility is in the process of permitting an additional 15 million cubic yards of disposal capacity, and the Buttonwillow facility is not expected to reach its capacity until 2030 at current disposal rates. (Ex. 20, Table 8.13-2.)

Most of the hazardous waste generated by the CGS would be generated during facility construction and startup in the forms of flushing and cleaning liquids. The Selective Catalytic Reduction (SCR) catalysts would require regeneration every three to five years resulting in the generation of a total of 120,000 pounds of waste material that could require disposal in a Class I facility if recycling or regeneration proves not to be feasible. All hazardous wastes generated during both construction and operation would be transported off site to a permitted treatment, storage, or disposal (TSD) facility for appropriate disposition, preferably recycling. The volume of hazardous waste from the CGS requiring off-site disposal would be far less than Staff's threshold of significance (10 percent of the existing combined capacity of the three Class I landfills) and would therefore not significantly impact the capacity or remaining life of any of these facilities.

5. Cumulative Impacts and Mitigation

We have considered the proposed project's incremental effect together with other closely related past, present, and reasonably foreseeable future projects whose impacts may compound or increase the incremental effect of the proposed project. As proposed, the quantities of nonhazardous and hazardous wastes generated during construction and operation of the CGS would add to the total quantities of waste generated in Colusa County and in the State of California. Recycling efforts would be prioritized wherever practical, and capacity is available in a variety of treatment and disposal facilities. Therefore, we conclude that the waste generated as a result of the construction and operation of the CGS would not result in significant cumulative waste management impacts.

FINDINGS AND CONCLUSIONS

Based on the evidence, we find and conclude as follows:

1. The project will generate hazardous and nonhazardous wastes during construction and operation.
2. Hazardous and nonhazardous wastes will be recycled to the extent practical.
3. Wastes which cannot be recycled will be disposed of in appropriate landfills.
4. Disposal of project wastes will not result in significant impacts to existing waste disposal facilities.
5. The Conditions of Certification set forth below and in the **AIR QUALITY** and **SOIL AND WATER RESOURCES** portions of this Decision, as well as waste management practices detailed in the evidentiary record, will reduce potential waste impacts to insignificant levels.
6. Implementation of the Conditions of Certification will ensure that the project complies with the applicable laws, ordinances, regulations, and standards identified in Exhibit 200.

We therefore conclude that the project's construction and operational wastes will be properly managed, and will not create significant direct, indirect, or cumulative impacts.

CONDITIONS OF CERTIFICATION

WASTE-1 The project owner shall provide the resume of a Registered Professional Engineer or Geologist, who shall be available for consultation during soil excavation and grading activities, to the Compliance Project Manager (CPM) for review and approval. The resume shall show experience in remedial investigation and feasibility studies.

The Registered Professional Engineer or Geologist shall be given full authority by the project owner to oversee any earth moving activities that have the potential to disturb contaminated soil.

Verification: At least 30 days prior to the start of site mobilization, the project owner shall submit the resume to the CPM for review and approval.

WASTE-2 If potentially contaminated soil is unearthed during excavation at either the proposed site or linear facilities as evidenced by discoloration, odor, detection by handheld instruments, or other signs, the Registered

Professional Engineer or Geologist shall inspect the site, determine the need for sampling to confirm the nature and extent of contamination, and file a written report to the project owner, representatives of Department of Toxic Substances Control, and CPM stating the recommended course of action and obtain approvals from the Department of Toxic Substances Control.

Depending on the nature and extent of contamination, the Registered Professional Engineer or Geologist shall have the authority to temporarily suspend construction activity at that location for the protection of workers or the public. If, in the opinion of the Registered Professional Engineer or Geologist, significant remediation may be required, the project owner shall contact representatives of the Department of Toxic Substances Control for guidance and possible oversight.

Verification: The project owner shall submit any final reports filed by the Registered Professional Engineer or Geologist to the CPM within five days of their receipt. The project owner shall notify the CPM within 24 hours of any orders issued to halt construction.

WASTE-3 The project owner shall obtain a hazardous waste generator identification number from the Department of Toxic Substances Control prior to generating any hazardous waste during construction and operations.

Verification: The project owner shall keep his copy of the identification number on file at the project site and notify the CPM via the relevant Monthly Compliance Report of its receipt.

WASTE-4 Upon becoming aware of any impending waste management-related enforcement action by any local, state, or federal authority, the project owner shall notify the CPM of any such action taken or proposed to be taken against the project itself or against any waste hauler or disposal facility or treatment operator with which the owner contracts.

Verification: The project owner shall notify the CPM in writing within 10 days of becoming aware of an impending enforcement action. The CPM shall notify the project owner of any changes that will be required in the manner in which project-related wastes are managed.

WASTE-5 The project owner shall prepare a Construction Waste Management Plan and an Operation Waste Management Plan for all wastes generated during construction and operation of the facility, respectively, and shall submit both plans to the CPM for review and approval. The plans shall contain, at a minimum, the following:

- a description of all waste streams, including projections of frequency, amounts generated and hazard classifications; and

- methods of managing each waste, including temporary on-site storage, treatment methods and companies contracted with for treatment services, waste testing methods to assure correct classification, methods of transportation, disposal requirements and sites, and recycling and waste minimization/reduction plans.

Verification: No less than 30 days prior to the start of site mobilization, the project owner shall submit the Construction Waste Management Plan to the CPM for approval.

The Operation Waste Management Plan shall be submitted to the CPM no less than 30 days prior to the start of project operation for approval. The project owner shall submit any required revisions within 20 days of notification by the CPM.

In the Annual Compliance Reports, the project owner shall document the actual waste management methods used during the year and provide a comparison of the actual methods used to those methods management proposed in the original Operation Waste Management Plan.

VII. LOCAL IMPACT ASSESSMENT

The effect of a power plant project on the local area depends upon the nature of the community and the extent of the associated impacts. Technical topics discussed in this portion of the Decision consider issues of local concern including **LAND USE, NOISE AND VIBRATION, SOCIOECONOMICS, TRAFFIC AND TRANSPORTATION, and VISUAL RESOURCES.**

A. LAND USE

The land use analysis focuses on two main issues: (1) whether the project is consistent with local land use plans, ordinances, and policies; and (2) whether the project is compatible with existing and planned uses.

SUMMARY AND DISCUSSION OF THE EVIDENCE

On September 18, 2007, the Colusa County Board of Supervisors approved a tentative parcel map to create a 100-acre parcel of the 4,800 acre Holthouse Ranch which would serve as the project site. The 100-acre parcel is to be leased by the Applicant. The proposed project would be constructed on a 31-acre portion of that parcel. The majority of the ranch is leased for cattle grazing. Approximately 80 acres at the northern end of the ranch is used to grow rice, and 500 acres at the southern end is used for farming row crops. There are approximately a dozen homes located within a three-mile radius of the site. The closest home is about 1.7 miles southeast of the site. (Ex. 11, p. 8.4-2.)

To the east of the site is the PG&E Delevan Compressor Station. PG&E's 230-kV transmission lines traverse the eastern edge of the natural gas compressor station property. The Glenn-Colusa Canal is approximately 3,000 feet to the east. The Tehama-Colusa Canal is approximately 2,700 feet west of the site. The 500-kV California-Oregon Transmission Project transmission lines are one mile to the west (see **LAND USE Figure 1—**aerial view of the project site and vicinity.)

LAND USE - FIGURE 1

Colusa Generating Station - Aerial View of Project Site and Vicinity

CALIFORNIA ENERGY COMMISSION

SOURCE: Exhibit 200

1. Colusa County General Plan and Zoning

The Colusa County Board of Supervisors adopted a General Plan amendment and a zoning amendment on the southern 50 acres of the newly created 100-acre parcel to permit the proposed project. The Board also approved a use permit allowing project structures to exceed the height limitation of the zoning. In addition, the Board of Supervisors approved a use permit to allow 29 project structures to exceed the 100-foot height limit for integral appurtenances necessary for the operation of a permitted use.

The proposed project includes 26 transmission line towers that range between 100-125 feet, two heat recovery steam generator stacks that are 175 feet tall, and an air cooled condenser 144 feet tall. The county's use permit is subsumed in the Energy Commission's licensing process for the project because of the Commission's exclusive jurisdiction over power plant permitting 50-megawatts (MW) and larger. The Colusa County Board of Supervisors also provided staff with land use planning related conditions of approval for the project which we hereby adopt and incorporate into Condition of Certification **LAND-2**.

The proposed project would not physically divide an established community. The community of Maxwell, six miles from the site, is the closest established community.

The proposed project would not conflict with a habitat conservation plan or natural community conservation plan. No approved habitat conservation plan or natural community conservation plan affects the project site or neighboring properties.

2. Agricultural Resources

The proposed project site involves 100 acres of land shown on a map prepared by the California Department of Conservation, Farmland Mapping and Monitoring

Program as “Farmland of Statewide Importance.” We find, based on the evidence, that the proposed project’s conversion of 100 acres would have a less than significant impact.

The PG&E Delevan compressor station is located along the eastern boundary of the proposed project site. Other existing facilities close to the project site include PG&E’s 230-kV transmission lines which traverse the eastern edge of the compressor station property, a PG&E natural gas pipeline which parallels the site next to the PG&E transmission lines, and the 500-kV California-Oregon Transmission Project transmission lines are located approximately one mile west of the project site.

The proposed project would tie into existing transmission lines, interconnect with the existing natural gas pipeline, obtain water from the Glenn-Colusa Canal, and have vehicular access by use of an existing private road; all within an approximate 2,700-foot radius of the project site largely on uncultivated grazing land. Vegetation will be removed, primarily grass species, and soil will be manipulated. The gas and water pipelines to serve the project are to be installed underground allowing future agricultural use above them. Revegetation of disturbed areas is to occur. (Ex. 18, p. 8.11-9.) The proposed project’s offsite use of land would generate a less than significant impact.

A project may have a significant environmental impact related to land use if it would have an air quality, noise, public health, or water supply impact on surrounding properties. The evidence of the project’s impacts in those areas shows that it would create no significant unmitigated impacts. Therefore the project will not have a significant impact related to land use.

3. Cumulative Impacts

A cumulative impact is created as a result of the combination of the project under consideration together with other existing or reasonably foreseeable

projects causing related impacts. Cumulative impacts can result from individually minor but collectively significant impacts taking place over a period of time.

The evidence of record shows that there are no projects under construction, or reasonably foreseeable, within the vicinity of the proposed project site.

The proposed project is not expected to make a significant contribution to regional impacts related to new development and growth, the resultant increase demand for public services, and expansion of public infrastructure. Accordingly, we find that there are no significant cumulative impacts resulting from the construction and operation of the CGS.

The proposed project does not cause a significant land use or agricultural resources impact related to an environmental justice issue. See the **SOCIOECONOMICS** section of this document for further discussion.

FINDINGS AND CONCLUSIONS

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

1. The CGS is located in an agriculturally zoned area and is a compatible use within that area.
2. The project is consistent with Colusa County's existing land use designation, land use plans, and zoning.
3. The project would not disrupt or divide the physical arrangement of an established community.
4. The project would not preclude or unduly restrict existing or planned land uses.
5. The Conditions of Certification ensure that the project will comply with all applicable local land use and environmental mitigation requirements.

We therefore conclude that the CGS will not create significant direct, indirect, or cumulative impacts and will comply with applicable laws, ordinances, regulations, and standards.

CONDITIONS OF CERTIFICATION

LAND-1 The project owner shall design and construct the project in accordance to the standards found in the M Zone ("Industrial") of the Colusa County Code (Colusa County Code, section 4.12) which includes the following:

- No minimum lot size, width, depth, and yard area.
- The maximum height of any building shall not exceed 50 feet.
- Off-street parking and loading spaces shall be provided as stipulated.
- Any visible storage of materials, parts or equipment, other than company vehicles, is not permitted.
- The Colusa County Board of Supervisors approved a use permit to allow 29 project structures to exceed the 100-foot height limit for integral appurtenances necessary for the operation of a permitted use in the M Zone.

Verification: At least sixty (60) days prior to the start of construction, the project owner shall submit to the Compliance Project Manager (CPM) written documentation including evidence of review by the County of Colusa (d.b.a. Colusa County Department of Planning and Building Administration) that the project conforms with the M Zone of the Colusa County Code (Colusa County Code, section 4.12) and the use permit as granted by the Colusa County Board of Supervisors.

LAND-2 The project owner shall comply with the conditions of approval (listed below) adopted by Colusa County Board of Supervisors on September 18, 2007 (county of Colusa) for the General Plan amendment, zone amendment and parcel map conducted for the proposed Colusa Generating Station project, as permitted by the Warren-Alquist Act, ensuring the project's consistency and conformance with the state and local land use planning LORS. The conditions of approval include the following:

a) The project owner shall file a final parcel map that conforms to the configuration approved by the Colusa County Board of Supervisors. Major revisions to the tentative parcel map as determined by the Colusa County Surveyor shall not occur without prior formal approval by the Colusa County Planning Commission.

   The Applicant shall file the final parcel map ("Final Map") with the county of Colusa within two years from the date of the approval of the tentative map by the Colusa County Board of Supervisors, unless waived or extended by the county.

b) The amendment to the zone district classification from “Exclusive-Agriculture” to “Industrial” on the southern 50-acre portion of the subject property shall only take effect upon the following: 1) the approval of appropriate mitigation measures by the California Energy Commission to address project impacts to the Maxwell Fire Protection District; and, 2) the granting of a license by the California Energy Commission for the Colusa Generating Station project.

c) The project owner agrees as a condition of issuance and use of the county’s general plan amendment, zone amendment, and tentative parcel map to indemnify and defend the county of Colusa, at project owner’s sole cost and expense, in any claim, action or proceeding brought against the county of Colusa within 180-days after the date of issuance of the general plan amendment, zone amendment, and tentative parcel map because of, or resulting from, any preliminary approval or actual issuance, or, in the alternative, to relinquish such issuance and use. Project owner will reimburse the county of Colusa for any damages, court costs and attorney fees which the county of Colusa may be required by a court to pay as a result of such claim, action or proceeding. The county of Colusa shall promptly notify the project owner of any such claim, action, or proceeding and will cooperate in its defense. The county of Colusa may also, at its sole discretion, participate in the defense of any such claim, action, or proceeding but such participation shall not relieve project owner of its obligations under this condition.

The California Energy Commission Compliance Project Manager (CPM) for the project shall be notified of the filing of any claim, action of proceeding brought against the county of Colusa specific to the general plan amendment, zone amendment, and tentative parcel map approved for this project.

Verification: The project owner shall provide written documentation demonstrating the project’s compliance with the above identified items and date of completion to the CPM, or if the item is not completed provide the status of the item in the project’s Annual Compliance Report.

B. NOISE AND VIBRATION

The construction and operation of any power plant creates noise, or unwanted sound. The character and loudness of this sound, the time of day or night it is produced, and the proximity of the facility to sensitive receptors combine to determine whether a project's noise will cause significant impacts to the environment. Below we evaluate the Colusa Generating Station's potential for significant impacts, the effectiveness of measures proposed to reduce those impacts, and determine whether noise produced by project-related activities will be consistent with applicable noise control laws and ordinances.

SUMMARY AND DISCUSSION OF THE EVIDENCE

1. Setting

The proposed power plant will be built on a 31-acre site located in northern Colusa County, approximately one mile south of Glenn County. The site and surrounding lands are designated for general agricultural use and are used for cattle grazing, and growing irrigated crops. The predominant noise sources in the area are agricultural activities and the PG&E natural gas compressor station on the eastern edge of the project site.

The nearest sensitive noise receptors are two rural residences approximately 1.7 miles east-southeast of the project site; another rural residence approximately 2.3 miles north of the site; and three residences approximately two miles north-northeast of the site. (Ex. 200, p. 4.6-5.)

Establishing a Baseline Through Ambient Noise Monitoring

Because community noise fluctuates over time, a single measure called the Equivalent Sound Level (Leq) is often used to describe the time-varying character of community noise. The Leq is the sound level during a measured

time interval. To describe the time-varying character of environmental noise, the statistical noise descriptors L10, L50, and L90 are commonly used. They are the noise levels equaled or exceeded during 10, 50, and 90 percent of a stated time, respectively. Sound levels associated with L10 typically describe transient or short-term events, whereas levels associated with L90 describe the steady-state (or most prevalent) noise conditions. (Ex. 200, pp. 4.6-23 – 4.6-24.)

In order to establish a baseline for comparison of predicted project noise to existing ambient noise, the Applicant has provided the results of an ambient noise survey. This survey was performed on March 13 and 14, 2001; although some time has passed since the survey, staff believes that it continues to reflect the noise levels in the project's vicinity, as little development has occurred since 2001.[8] The noise survey monitored existing noise levels at the following locations, shown on **NOISE AND VIBRATION - Figure 1**:

1. Measuring Location ML1: Near two farm dwellings approximately 1.7 miles east- southeast of the project site. This location was monitored continuously from 6:00 p.m. on March 13, 2001, through 7:00 p.m. on March 14, 2001. Primary noise sources were vehicular traffic and operation of farm equipment.

2. Measuring Location ML2: A single home on ranch property approximately 2.3 miles north of the project site. This location was monitored continuously from 11:00 p.m. on March 13, 2001, through midnight on March 14, 2001. Primary noise sources were vehicular traffic and operation of farm equipment.

3. Measuring Location ML3: The southeastern corner of the project site. This location was monitored for two one-hour periods, in daytime and nighttime, from 4:00 p.m. to 5:00 p.m. and from 10:35 p.m. to 11:35 p.m. on March 13, 2001. The primary noise source was the PG&E natural gas compressor station.

4. Measuring Location ML4: The northwestern corner of the project site. This location was monitored for two one-hour periods, in daytime and nighttime, from 4:40 p.m. to 5:40 p.m. and from 10:50 p.m. to 11:50 p.m. on March 13, 2001. The primary noise source was the PG&E natural gas compressor station.

[8] Staff did learn of a later monitoring conducted by the Applicant in April, 2007. That data suggests that background levels have increased slightly in the intervening period. Using the 2001 data is therefore more conservative—protective of the environment—and will tend to overstate impacts, benefiting the public and nearby residents. (Ex. 200, p. 4.6-16.)

Not monitored were the three residences at RC1, approximately two miles north-northeast of the site. (Ex. 200, pp. 4.6-5 – 4.6-6.)

Noise Table 1 summarizes the Applicant's 2001 ambient noise measurements at each measurement site.

NOISE Table 1
Summary of Measured Ambient Noise Levels

Measurement Locations	Measured Noise Levels, dBA					
	L_{eq}		L_{50}		L_{90}[1]	L_{dn}
	Daytime	Nighttime	Daytime	Nighttime	Nighttime	
ML1 – Farm dwellings to ESE of site	51.2[2]	35.7[3]	42.5[2]	36.4[3]	30.7	54.3
ML2 – Ranch dwelling to N of site	45.0[2]	37.2[3]	43.4[2]	36.8[3]	32.2	51.5
ML3 – SE corner of project site[4]	64.0	67.3	63.9	67.2	66.2	—[5]
ML4 – NW corner of project site[4]	47.5	46.9	47.2	46.8	44.3	—[5]

[1] Staff calculations of average of four quietest consecutive hours of the nighttime
[2] Staff calculations of average of 15 daytime hours
[3] Staff calculations of average of nine nighttime hours
[4] One-hour samples
[5] L_{dn} not available because monitoring did not encompass a 24-hour period
Source: Exhibit 200, Noise Table 2.

Having established a baseline noise level for the four receptors, we now consider the noise the project is expected to add to the baseline, both during its construction and during its operation.

2. Construction

Construction noise is a temporary phenomenon. Construction of the CGS is expected to last for 24 months, typical of other combined-cycle power plants in terms of schedule, equipment used, and other types of activities. Construction of an industrial facility such as a power plant is typically noisier than permissible under most noise ordinances. In order to allow the construction of new facilities, construction noise during certain hours of the day is commonly exempt from local noise control ordinances.

The Applicant has predicted power plant construction noise based on generally accepted values. Aggregate construction noise can be expected to reach levels

of 85 to 90 dBA L_{eq} at a distance of 50 feet from the source. Extrapolating this to the nearest receptors—the residences at ML1 (nearly 9,000 feet away)—yields noise levels of 40 to 45 dBA. At the more distant residence at ML2 (approximately 12,000 feet distant), construction noise can be expected to attenuate to levels of 37 to 42 dBA. Daytime noise levels ML1 and ML2 (see **NOISE Table 2**, below) would increase by one and two dBA, respectively. Noise levels at the residences at RC1 are expected to be at or below those at ML2. Such increases are barely noticeable and are clearly insignificant. Nightime noise levels, however, would increase by approximately 10 and 6 dBA at ML1 and ML2, respectively. Such increases are clearly audible, and at night, when people are sleeping, would typically be considered annoying. (Ex. 200, pp. 4.6-7 — 4.6-8.)

NOISE Table 2: Predicted Power Plant Construction Noise Levels

Receptor	Highest Construction Noise Level[1] (dBA L_{eq})	Measured Existing Ambient[2] (dBA L_{eq})	Cumulative (dBA L_{eq})	**Change (dBA)**
ML1 – Farm dwelling to SE of site	45	51 daytime	52 daytime	**+1 daytime**
		36 nighttime	46 nighttime	**+10 nighttime**
ML2 – Ranch dwelling to N of site	42	45 daytime	47 daytime	**+2 daytime**
		37 nighttime	**43 nighttime**	**+6 nighttime**

The Applicant has not committed to limiting noisy construction work to daytime hours. In order to avoid annoyance, we adopt staff-proposed Condition of Certification **NOISE-6**, below, which would restrict noisy construction to the hours between 6:00 a.m. and 7:00 p.m.

Should actual construction noise annoy nearby workers or residents, Conditions of Certification **NOISE-1** and **NOISE-2**, establish a Notification Process and a Noise Complaint Process that requires the Applicant to resolve any problems caused by construction noise.

Though not described by the Applicant as part of its construction plans, if undertaken, pile driving could cause significant increases in noise levels at ML1 and ML2 of 9 dBA and 11 dBA, respectively. Condition of Certification **NOISE-6**, limiting construction to daytime hours, will sufficiently mitigate any such impact. (Ex. 200, p. 4.6-9.)

The project includes replacement of the Teresa Creek Bridge, approximately two miles east of the project site on McDermott Road between Delevan Road and Dirks Road, and installation of a temporary "jumper" bridge over or adjacent to the Glenn-Colusa Canal Bridge, approximately one mile east of the site on Dirks Road. The replacement and temporary bridges are necessary to allow truck deliveries of heavy construction equipment and project components.[9]

The applicant predicts that construction noise from the bridge construction activities will reach typical levels of 90 dBA at 50 feet.[10] The nearest residences to the Teresa Creek Bridge, at ML1, lie approximately 3,500 feet (two-thirds mile) distant. These same residences are the sensitive receptors nearest the Glenn-Colusa Canal Bridge; they lie approximately 4,700 feet (nine-tenths mile) away. Expected noise levels from this bridge replacement work is shown below in **NOISE Table 3**:

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[9] The Applicant originally proposed to reconstruct both bridges; the use of the "jumper" bridge in lieu of replacing the Glenn-Colusa Canal Bridge was proposed just before the Evidentiary Hearing. (Ex. 109.)

[10] These predictions are for the replacement of both bridges. No equivalent estimates were provided for the "jumper" bridge. It is projected that it will take one day to place and one day to remove the jumper bridge and we expect that the noise generated by those activities will be less, and of a shorter duration, than those projected for the bridge replacement. We direct the parties to provide additional evidence at the PMPD Comment Hearing to confirm or correct our expectation.

NOISE Table 3: Predicted Bridge Replacement Noise Levels at ML1

Noise Source	Highest Construction Noise Level[1] (dBA L_{eq})	Existing Ambient at ML1[2] (dBA L_{eq})	Cumulative (dBA L_{eq})	**Change (dBA)**
Teresa Creek Bridge Replacement	53	51 daytime	55 daytime	**+4 daytime**
		36 nighttime	53 nighttime	**+17 nighttime**
Glenn-Colusa Canal Bridge Replacement	51	51 daytime	54 daytime	**+3 daytime**
		36 nighttime	**51 nighttime**	**+15 nighttime**

Bridge replacement work during the daytime would result in increases in ambient noise levels of only three to four dBA at ML1, a noticeable but not annoying impact. Were this work conducted at night, the noise level increases of 15 to 17 dBA would likely prove extremely annoying. We adopt Condition of Certification NOISE-6 to preclude noisy work at night. (Ex. 200, pp. 4.6-8 — 4.6-9.)

3. Linear Facilities

New off-site linear facilities include a 1,500-foot-long natural gas pipeline interconnecting with the PG&E gas compressor station to the east of the project site, a 2,700-foot-long water line connection to the Tehama-Colusa Canal west of the site, and an 1,800-foot-long connection to the existing PG&E 230-kV transmission line east of the site.

The linears are all adjacent to the project site, so their construction noise impacts will be similar to those of the power plant itself. Limiting noisy construction to daytime hours should provide adequate mitigation of impacts. (Ex. 200, p. 4.6-9.) To ensure compliance with this restriction, we adopt Condition of Certification **NOISE-6.**

4. Vibration

The only construction operation likely to produce vibration that could be perceived off-site would be pile driving. Vibration attenuates rapidly; it is likely that no vibration would be perceptible at any appreciable distance from the project site. Staff therefore believes there would be no significant impacts from construction vibration. (Ex. 200, p. 4.6-11.)

5. Steam Blows

Typically, the loudest noise encountered during construction, inherent in building any project incorporating a steam turbine, is created by the steam blows which if unsilenced, can typically produce noise levels as high as 129 dBA at a distance of 50 feet; this would amount to roughly 84 dBA at ML1. With a silencer installed on the steam blow piping, noise levels are commonly attenuated to 89 dBA at 50 feet; this would yield approximately 44 dBA at ML1 and 41 dBA at ML2, barely noticeable compared to the daytime ambient noise levels.

A newer, quieter steam blow process, referred to as low pressure steam blow and marketed under names such as QuietBlow™ or Silentsteam™, has become popular. This method utilizes lower pressure steam over a continuous period of 36 hours or so. However, even noise from a low pressure continuous steam blow at ML1 would be 10 dBA greater than the nighttime ambient background level, and would likely be annoying. Low pressure steam blow noise would exceed the nighttime ambient background level at ML2 by seven dBA, likely causing some annoyance. To avoid those annoyances, we adopt Condition of Certification **NOISE-7**, which limits the noise of steam blows and further limits them to daytime hours.

6. Worker Effects

The Applicant acknowledges the need to protect construction workers from noise hazards and has recognized the applicable LORS that would protect construction workers. (Ex. 14 § 8.7.3.1; Tables 8.7-1, 8.7-2, 8.7-4, 8.7-5.) To ensure that construction workers are, in fact, adequately protected, we adopt Condition of Certification **NOISE-3**.

7. Operation Noise

The primary operational noise sources of the CGS include the gas turbine generators, gas turbine air inlets, heat recovery steam generators and their exhaust stacks, steam turbine, air cooled condenser fans, electrical transformers, and various pumps and fans.

The Applicant included the following noise mitigation measures in performing computer modeling of noise impacts from project:

- metal acoustical gas turbine enclosures;
- inlet air filter silencers;
- exhaust stack silencers;
- accessory compartment enclosures;
- vent stack silencers;
- vent stack acoustical lagging;
- acoustical barrier walls around exhaust diffusers and ducts; and
- acoustically absorptive ground plane under air cooled condenser.

Project operating noise at ML1 is predicted to be approximately 44 dBA L_{dn} and at ML2, approximately 46 dBA L_{dn}. Noise levels at the residences at RC1 are expected to be at or below those at ML2. These figures all comply with the respective LORS limits; see **NOISE Table 4**. The night-time limit at ML2 is 45 dB

Leq; this is equivalent to 51 dBA L_{dn}. The projected noise level of 46 dBA L_{dn} is significantly below the LORS limit.

NOISE Table 4: Plant Operating Noise LORS Compliance

Receptor	LORS	LORS Limit	**Projected Noise Level**
ML1	Colusa County General Plan Safety Element	55/65[1] dBA L_{dn}	**44 dBA L_{dn}**
	Colusa County Municipal Code	60 dBA L_{dn}, or 45 dBA L_{50} nighttime	
ML2	**Glenn County General Plan**	**45 dB L_{eq} nighttime[2]**	**46 dBA L_{dn}**

[1] 55 dBA is Normally Acceptable, 65 dBA is Conditionally Acceptable
[2] For a steady, unvarying noise source such as a power plant, 45 dB L_{eq} is equivalent to 51 dBA L_{dn}
(Ex. 200, pp. 4.6-11 — 4.6-12.)

a. Tonal and Intermittent Noises

One possible source of annoyance would be strong tonal noises. Tonal noises are individual sounds (such as pure tones) that, while not above permissible levels, stand out in sound quality. The Applicant plans to address overall noise in design, and to take appropriate measures, as necessary, to eliminate tonal noises as possible sources of annoyance. (Ex. 200, pp. 4.6-13 — 4.6-14.) To ensure that tonal noises do not cause annoyance, we adopt Condition of Certification **NOISE-4**.

b. Linear Facilities

All water and gas piping will lie underground, and will be silent during operation. Noise effects from the electrical interconnection line typically do not extend beyond the right-of-way easement of the line, and will thus be inaudible to any receptors. (Ex. 200, p. 4.6-14.)

c. Vibration

Vibration from an operating power plant can be either groundborne or airborne. Gas turbine generator facilities in operation have not resulted in groundborne or

airborne vibration impacts. (Ex. 200, p. 4.6-14.) We find that vibration from the CGS will be undetectable by any likely receptor.

d. Environmental Impacts

Significant impacts, as defined in CEQA, can be detected by comparing predicted power plant noise levels to the ambient nighttime background noise levels at the nearest sensitive residential receptors (ML1 and ML2). We assume the power plant will be operated around the clock.

For the CGS, the predicted change in background levels for both ML1 and ML2 is 7 dBA as shown in **NOISE Table 5**:

NOISE Table 5
Power Plant Noise Impacts at Sensitive Receptors

Receptor	Power Plant Noise Level, dBA L_{90}[1]	Ambient Background Level, dBA L_{90}[2]	Cumulative Noise Level, dBA	**Change from Ambient Background Level**
ML1	36.5	30.7	37.5	**+7**
ML2	**38.5**	**32.2**	**39.5**	**+7**

When projected plant noise is added to ambient values (as calculated by Staff), the cumulative levels are seven dBA above the ambient values at ML1 and ML2 (see **NOISE Table 8**). These increases are within the range that we consider a considers a potentially significant adverse impact, subject to further examination of the specific circumstances of the power plant and receptors.

An increase in the noise level at a residence of seven dBA during the quietest hours of the nighttime might be expected to constitute an annoyance during the mild seasons of the year, when people commonly sleep with windows open. When the weather is less mild (cold in winter, or hot enough in summer to cause people to run their air conditioners all night long), such an increase would likely not be annoying and might be unnoticeable. Because the number of residences

potentially affected is small (two at ML1 and one at ML2), Staff has not suggested further mitigation to quiet the power plant, as such mitigation is extremely costly. Rather, Staff commonly proposes a Condition of Certification requiring the project owner to offer noise mitigation measures at the affected residences, should the residents request it. Such mitigation can include upgrading the dwelling with double-pane windows and solid core exterior doors, installing exterior wall insulation, installing air conditioning if it is not already in place, or erecting a sound wall near the residence. We adopt those requirements as Condition of Certification **NOISE-8**. With that mitigation, the potential noise impacts are insignificant. (Ex. 200, pp. 4.6-12 — 4.6-13.)

e. Worker Effects

The Applicant has acknowledged the need to protect plant operating and maintenance workers from noise hazards, and has committed to comply with applicable LORS. (Ex. 14, § 8.7.3.2; Table 8.7.1.) Signs would be posted in areas of the plant with noise levels exceeding 85 dBA (the level that OSHA recognizes as a threat to workers' hearing), and hearing protection would be required. (Ex. 200, p. 4.6-14.) To ensure that plant operation and maintenance workers are, in fact, adequately protected, we adopt Condition of Certification **NOISE-5**.

7. Cumulative Impacts and Mitigation

Cumulative impacts are two or more individual impacts that, when considered together, are considerable or that compound or increase other environmental impacts. The CEQA Guidelines require that we consider the severity of potential cumulative impacts and the likelihood of their occurrence.

The parties identified only one project in the region that could combine with the CGS to create cumulative impacts: a potential development of an 18-unit subdivision near Maxwell, approximately five miles southeast of the project site.

Noise does not travel far enough to cause cumulative impacts from two projects so widely separated. Therefore no cumulative noise impacts would result from the construction or operation of the CGS. (Ex. 200, pp. 4.6-14 — 4.6-15.)

8. Public Comment

Public comments were submitted to Staff by Mr. Allen Etchepare of Emerald Farms, by Jack and Donna Barrett, and by William and Dora Dirks. Their comments are essentially the same, that the power plant's noise will render their properties unusable.

As we discuss above, however, the noise level increases at the nearest sensitive receptors will not be significant environmental impacts after application of required mitigation measures. The neighboring properties will not be made unusable by the construction or operation of the CGS. (Ex. 200, pp. 4.6-15 — 4.6-16.)

FINDINGS AND CONCLUSIONS

Based on the evidence, we find as follows:

1. Noise associated with construction activities at the project will be temporary in nature, limited to daytime hours and mitigated to the extent feasible; therefore it will not result in a significant impact to the surrounding community.
2. Implementation of the Applicant's proposed mitigation in the form of good design practice and inclusion of appropriate project equipment, and implementation of the Conditions of Certification, will ensure that noise levels will not cause significant impacts.
4. The project owner will implement measures to protect workers from injury due to excessive noise levels.
5. The CGS will not create ground or airborne vibrations which cause significant off-site impacts.

The Commission concludes that implementation of the following Conditions of Certification will ensure that the CGS will comply with the applicable laws, ordinances, regulations, and standards on noise and vibration and that the project will not cause significant direct, indirect or cumulative noise impacts.

CONDITIONS OF CERTIFICATION

NOISE-1 At least 15 days prior to the start of ground disturbance, the project owner shall notify all residents within two and one-half miles of the site and one-half mile of the linear facilities, by mail or other effective means, of the commencement of project construction. At the same time, the project owner shall establish a telephone number for use by the public to report any undesirable noise conditions associated with the construction and operation of the project and include that telephone number in the above notice. If the telephone is not staffed 24 hours per day, the project owner shall include an automatic answering feature, with date and time stamp recording, to answer calls when the phone is unattended. This telephone number shall be posted at the project site during construction in a manner visible to passersby. This telephone number shall be maintained until the project has been operational for at least one year.

Verification: Prior to ground disturbance, the project owner shall transmit to the Compliance Project Manager (CPM) a statement, signed by the project owner's project manager, stating that the above notification has been performed and describing the method of that notification, verifying that the telephone number has been established and posted at the site, and giving that telephone number.

NOISE COMPLAINT PROCESS

NOISE-2 Throughout the construction and operation of the CGS, the project owner shall document, investigate, evaluate, and attempt to resolve all project-related noise complaints. The project owner or authorized agent shall:

Use the Noise Complaint Resolution Form (below), or a functionally equivalent procedure acceptable to the CPM, to document and respond to each noise complaint;

- Attempt to contact the person(s) making the noise complaint within 24 hours;
- Conduct an investigation to determine the source of noise related to the complaint;

- Take all feasible measures to reduce the noise at its source if the noise is project related; and
- Submit a report documenting the complaint and the actions taken. The report shall include: a complaint summary, including final results of noise reduction efforts, and if obtainable, a signed statement by the complainant stating that the noise problem is resolved to the complainant's satisfaction.

Verification: Within five days of receiving a noise complaint, the project owner shall file a copy of the Noise Complaint Resolution Form 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 three-day period, the project owner shall submit an updated Noise Complaint Resolution Form when the mitigation is implemented.

NOISE-3 The project owner shall submit to the CPM for review and approval a noise control program and a statement, signed by the project owner's project manager, verifying that the noise control program will be implemented throughout construction of the project. The noise control program shall be used to reduce employee exposure to high noise levels during construction and also to comply with applicable OSHA and Cal-OSHA standards.

Verification: At least 30 days prior to the start of ground disturbance, the project owner shall submit to the CPM the noise control program and the project owner's project manager's signed statement. The project owner shall make the program available to Cal-OSHA upon request.

NOISE RESTRICTIONS

NOISE-4 The project design and implementation shall include appropriate noise mitigation measures adequate to ensure that operation of the project will not cause noise levels due to plant operation alone to exceed an average of 38 dBA L_{eq} measured at monitoring location ML1 and an average of 40 dBA L_{eq} at monitoring location ML2. No new pure-tone components may be caused by the project. No single piece of equipment shall be allowed to stand out as a source of noise that draws legitimate complaints.

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

affected residential locations to determine the presence of pure tones or other dominant sources of plant noise.

A. When the project first achieves a sustained output of 80 percent or greater of rated capacity, the project owner shall conduct a community noise survey at monitoring locations ML1 and ML2 or at closer locations acceptable to the CPM. This survey shall be performed during power plant operation and shall also include measurement of one-third octave band sound pressure levels to determine whether new pure-tone noise components have been caused by the project.

B. If the results from the noise survey indicate that the power plant average noise level (L_{eq}) at any affected receptor site exceeds the above value, mitigation measures shall be implemented to reduce noise to a level of compliance with this limit.

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

Verification: The survey shall take place within 30 days of the project's first achieving a sustained output of 80 percent or greater of rated capacity. Within 15 days after completing the survey, the project owner shall submit a summary report of the survey to the CPM. Included in the survey report will be a description of any additional mitigation measures necessary to achieve compliance with the above-listed noise limit and a schedule, subject to CPM approval, for implementing these measures. When these measures are in place, the project owner shall repeat the noise survey.

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

NOISE-5 Following the project's first achieving a sustained output of 80 percent or greater of rated capacity, the project owner shall conduct an occupational noise survey to identify the noise hazardous areas in the facility.

The survey shall be conducted by a qualified person in accordance with the provisions of Title 8, California Code of Regulations Sections 5095–5099 and Title 29, Code of Federal Regulations Section 1910.95. The survey results shall be used to determine the magnitude of employee noise exposure.

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

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

CONSTRUCTION TIME RESTRICTIONS

NOISE-6 Heavy equipment operation and noisy construction work relating to any project features shall be restricted to the times of day delineated below:

Any Day	6:00 a.m. to 7:00 p.m.

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

Verification: Prior to ground disturbance, the project owner shall transmit to the CPM a statement acknowledging that the above restrictions will be observed throughout the construction of the project.

STEAM BLOW RESTRICTIONS

NOISE-7 The project owner shall equip steam blow piping with a temporary silencer that quiets the noise of steam blows to no greater than 89 dBA measured at a distance of 50 feet. The project owner shall conduct steam blows only during the hours of 6:00 a.m. to 7:00 p.m.

Verification: At least fifteen (15) days prior to the first steam blow, the project owner shall submit to the CPM drawings or other information describing the temporary steam blow silencer and the noise levels expected and a description of the steam blow schedule.

NOISE-8 In the event legitimate noise complaints under Condition of Certification **NOISE-2** are made by the owners or occupants of any of the existing residences located at ML1, ML2, or RC1 during operation of the CGS, the project owner shall offer to pay for the following noise attenuating upgrades to the residences:

- exterior sound barriers;

- replacement of single-pane windows with dual-pane windows;
- replacement of hollow-core exterior doors with solid-core doors and weather stripping;
- air conditioning (if not already present); and/or
- additional sound insulation in exterior walls.

The owner of each residence may select any or all of the above upgrades that the residence owner decides—in his or her sole discretion, but after consulting with the project owner—are appropriate. The residence owner and the project owner shall select a mutually acceptable contractor to perform the upgrades. The project owner shall pay the cost of the upgrades.

A "legitimate complaint" refers to a noise caused by the CGS project, as opposed to another source, as verified by the CPM. A legitimate complaint constitutes either: a violation by the project of any noise condition of certification, which is documented by another individual or entity affected by such noise; or a minimum of three complaints over a 24-hour period that are confirmed by the CPM, the project owner, or any local or state agency that would, but for the exclusive jurisdiction of the Energy Commission, otherwise have the responsibility for investigating noise complaints or enforcing noise mitigation.

Verification: Upgrades shall, unless impossible due to circumstances beyond the project owner's control, be installed within six months of the receipt of the complaint. In the first annual compliance report after the receipt of a complaint, the project owner shall include documentation certifying that: 1) the noise-attenuating upgrades were installed on the specified residence at the project owner's expense; 2) the noise attenuating upgrades were already a feature of the residence; 3) installation was offered but refused by the owner; or 4) residential use by the complainant was ceased. In the event noise-attenuating upgrades are not complete at the time the annual compliance report is issued, the report shall include a schedule for the completion of the upgrades and the documentation listed above shall be included in the next annual compliance report.

EXHIBIT 1 - NOISE COMPLAINT RESOLUTION FORM

Colusa Generating Station Project
(06-AFC-9)

NOISE COMPLAINT LOG NUMBER _____

Complainant's name and address:

Phone number: _____

Date complaint received: _____
Time complaint received: _____

Nature of noise complaint:

Definition of problem after investigation by plant personnel:

Date complainant first contacted: _____

Initial noise levels at 3 feet from noise source _____ dBA Date: _____
Initial noise levels at complainant's property: _____ dBA Date: _____

Final noise levels at 3 feet from noise source: _____ dBA Date: _____
Final noise levels at complainant's property: _____ dBA Date: _____

Description of corrective measures taken:

Complainant's signature: _____ Date: _____

Approximate installed cost of corrective measures: $ _____
Date installation completed: _____
Date first letter sent to complainant: _____ (copy attached)
Date final letter sent to complainant: _____ (copy attached)

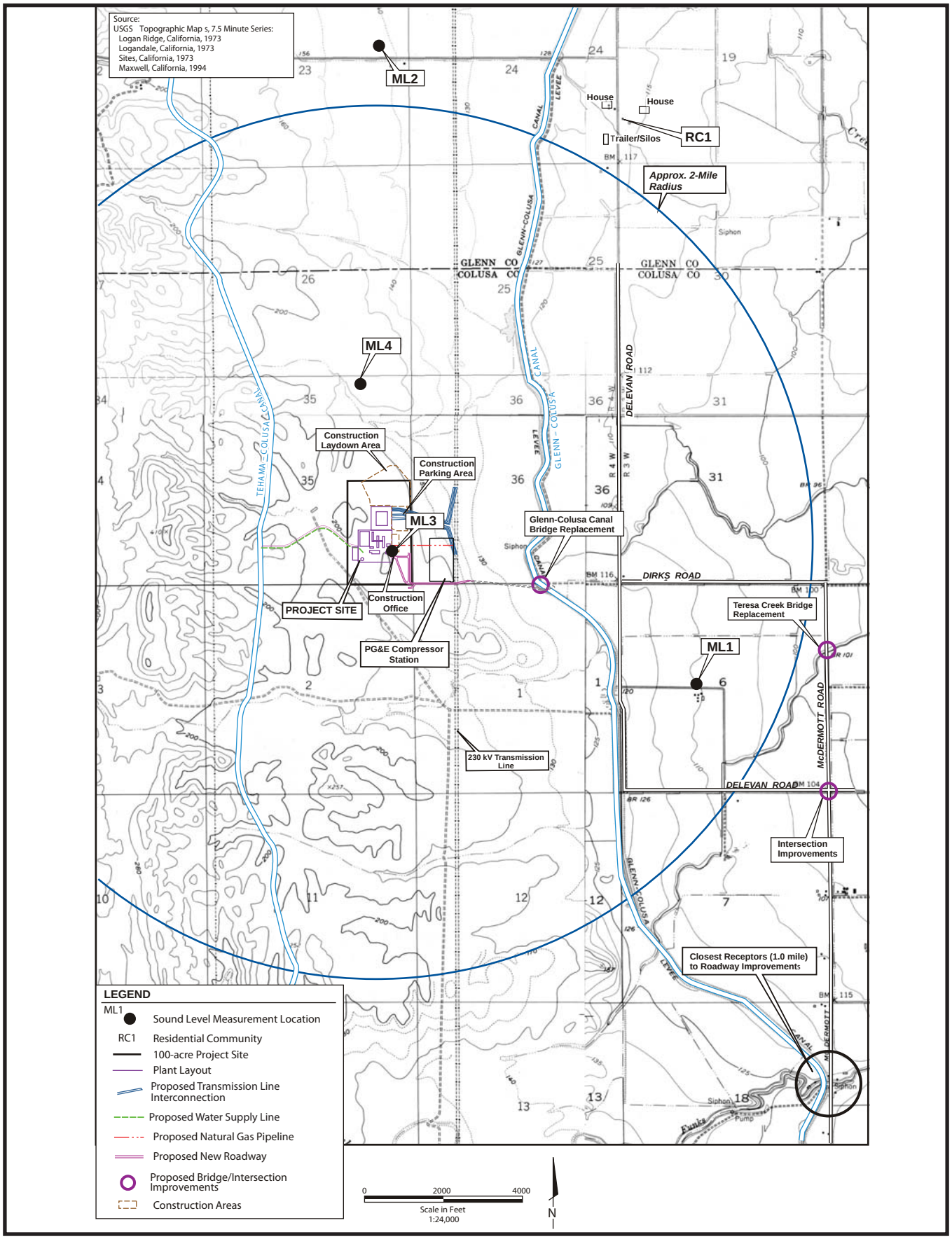
This information is certified to be correct:

Plant Manager's Signature: _____

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

NOISE AND VIBRATION - FIGURE 1

Colusa Generating Station - Sound Level Measurement Locations



CALIFORNIA ENERGY COMMISSION

SOURCE: Exhibit 200

C. SOCIOECONOMICS

The section analyzes the potential impact to the social and economic structure within the project vicinity and region resulting from the construction and operation of the CGS. This analysis considers project-related impacts to population, housing, public services (fire protection, emergency response services, law enforcement, schools, and medical services) and utilities, county tax revenue, and economic benefits from the project. Additionally, this section analyzes the cumulative impacts on the availability of labor within the area. The criteria to be used in determining whether project-related socioeconomic impacts would be significant are set forth in CEQA Guidelines, Appendix G.

SUMMARY AND DISCUSSION OF THE EVIDENCE

1. Demographics, Finances, and Services

The affected area for socioeconomics is the Colusa-Glenn County area, the Yuba Metropolitan Statistical Area (YMSA), and the Sacramento Consolidated Metropolitan Statistical Area (SCMSA). (Ex. 200, p. 4.8-2.)

The project site is located approximately 1.5 miles south of the Colusa–Glenn County border, in Colusa County. Colusa County is bordered on the south by Yolo County, on the west by Lake County, on the north by Glenn County, and on the east by Butte and Sutter Counties. Two small farming settlements surround the project site: Delevan, four miles east of the project site and Sites, located five miles southwest of the project site. (Ex. 15, p. 8.8-2.) The closest retail services are in the town of Maxwell, located about six miles southeast of the site and the incorporated City of Williams, located about 14 miles southeast of the site at the intersection of Interstate 5 and State Route 20. (*id*.) The City of Colusa, the County Seat of Colusa County, is about 18 miles from the project site. The City of Chico in Butte County is about 44 miles from the project site and the City of

Sacramento in Sacramento County is about 72 miles from the project site. (Ex. 200, p. 4.8-2.)

Land within three miles of the site is used for farming rice, wheat, row crops, or for grazing. Colusa County's economy is based primarily on agricultural activities. Colusa County is a leading rice-producing county as well as a leader in advanced rice growing technological development. In 2006, 136,400 acres were devoted to rice cultivation. (Ex. 15, p. 8.8-1.)

In 1997, the President's Council on Environmental Quality issued Environmental Justice Guidance that defines minority as individuals who are members of the following population groups: American Indian or Alaskan Native, Asian or Pacific Islander; Black not of Hispanic origin; or Hispanic. Low-income populations are identified with the annual statistical poverty thresholds from the Bureau of the Census's Current Population Reports, Series P-60 on Income and Poverty (OMB 1978).

Review of Census 2000 information by census block for minority populations within a one-mile and six-mile radius of the site shows that the minority populations are 31.25 percent and 14.51 percent, respectively. The minority population within the one and six mile radius is below the fifty percent level of significance.

The CGS construction period is twenty-four months with an estimated start time of Spring of 2008 and an online date of Spring 2010. As shown in Table 8.8-9 of Exhibit 15, during the peak period of construction (months 13 through 16), an average of 646 construction workers would be onsite. The Applicant has committed to give preference to local hiring. Nonetheless, it is anticipated that some 60 percent of the workforce will commute from the SCMSA and the San Francisco Bay Area.

Construction and operation of the proposed project would result in very little indirect and induced economic impacts within the Colusa–Glenn area, the YMSA,

and the SCMSA. Direct and induced employment effects of annual operation that would occur within Colusa–Glenn would be an additional eight to eleven permanent jobs. In the YMSA and SCMSA, indirect and induced employment impacts in addition to those that would occur in Colusa–Glenn would be an additional 65 permanent jobs, for a total of 73-76 permanent jobs. (Ex. 15, pp. 8.8-10 – 8.8-12.)

The CGS has a projected construction cost of $450 to 500 million. According to the BOE, the project would result in the equivalent of a property valuation in the range of $157 to $200 million. Using the property tax rate of one percent, the estimated property tax revenue that would accrue to Colusa County annually from such a plant would be about $1.575 million to $2.0 million. (Ex. 200, p. 4.8-8.)

This property tax revenue would be distributed among local jurisdictions within Colusa County based on the County Auditor's formula. Senate Bill 1317, signed into law on September 30, 2006, makes changes to how property taxes for new power plants constructed after January 1, 2007, will be allocated to local jurisdictions within a county. The total amount of assessed values allocated to any particular county would not be affected, but more of the revenue will be directed to the area where the actual construction occurs. The share of revenue that would ordinarily flow to other cities within the county (in this case, the City of Colusa and the City of Williams) would be directed to the jurisdiction in which the construction actually occurs (in this case Colusa County, since the Maxwell area is unincorporated). The share of revenues that would flow to other special service districts within the County, such as fire districts or school districts, would not change. (Ex. 15, p. 8.8-16.)

The record shows that the expected increases in employment, sales tax and local expenditures for both construction and operation would be beneficial to the area. Since the workforce will likely commute to the project, neither the construction nor the operation workers will place an undue stress upon available

housing. Existing educational, police and medical services will not be adversely impacted. There will be an impact on the Maxwell Fire Protection District, currently an all-volunteer operation, which would be the first responder to fire-related emergencies at the CGS. These impacts, and mitigation measures therefor, are discussed more fully in this Decision under the topics **WORKER SAFETY and FIRE PROTECTION,** and **HAZARDOUS MATERIALS**.

The project site is located within the boundaries of the Maxwell Unified School District (MUSD). The schools closest to the site are located in the community of Maxwell, about six miles southeast of the project site. For the most part, enrollment within these districts has declined. (see Ex. 15, Table 8.8-7.)

During construction, sixty percent of the labor force would commute daily from the Colusa-Glenn area, the YMSA, the SCMSA, or the San Francisco Bay Area, while the other 40 percent would commute weekly. Due to the relatively short construction time, we do not expect that any significant number of construction workers will move and/or bring their families to the area during the construction period. Therefore, Staff does not expect a significant adverse impact to the area's schools due to construction of the proposed project.

A total of 31 workers are needed to operate the CGS. Although the Applicant is committed to giving local preference when hiring, because of the specialized skills required for plant operation, the Applicant expects to hire most of the 31 skilled full-time employees from outside the study area. (Ex. 15, p. 8.8-12.) We expect that most of the operation workforce will relocate within 40 miles of the CGS site with half of the employees likely locating in Chico. Should all 31 operation workers relocate to the Colusa-Glenn area and the City of Chico, an average family size of 2.5 persons per household would result in the addition of about 26 school children to the school districts within these areas. Given the number of possible schools within the Colusa-Glenn and Chico school districts, Staff does not expect a significant adverse impact to the area's schools.

Education Code section 17620 states that school districts are authorized to levy a fee, charge, dedication, or other requirement for the purpose of funding the construction or reconstruction of school facilities. School facilities are defined as "any school-related consideration relating to a school district's ability to accommodate enrollment." California Government Code Sections 65996-65997 state that except for a fee, charge, dedication, or other requirement authorized under Section 17620 of the Education Code, state and local public agencies may not impose fees, charges, or other financial requirements to offset the cost for school facilities. The MUSD charges owners of new commercial industrial development $0.36 per square foot for covered and enclosed space. Based on an estimated 15,340 square feet of covered and enclosed space for the CGS, the MUSD would charge the Applicant a one-time school impact fee of approximately $5,522.

The Colusa County Sheriff's Department provides public safety and law enforcement services to the unincorporated areas of the County, including the project site. The headquarters are located at 929 Bridge Street in the City of Colusa, about 23 miles southeast of the site. Twenty-nine patrol officers cover an area of more than 1,000 square miles. Other law enforcement agencies within Colusa County include the District Ranger for the Mendocino National Forest, and the Fish and Game Warden for the National Wildlife Refuges. The California Highway Patrol (CHP) operates on state roads in the county and maintains an office and vehicle yard in Williams, with 21 uniformed officers. The CHP provides traffic enforcement and accident investigations throughout the County. (Ex. 200, p. 4.8-10.)

Because of the onsite security during construction and operation and other safety procedures described in the **WORKER SAFETY** and **HEALTH** section of the AFC and because the operation of power plants requires little in the way of law enforcement, we conclude that the existing law enforcement resources would be adequate to provide services to the CGS during construction and operation.

The emergency services station closest to the project site is the Maxwell Fire Protection District's (MFPD) rural station, located at 231 West Oak in Maxwell, about 7.5 miles southwest of the site. The station is one of nine rural fire districts and two municipal fire departments that serve Colusa County. The MFPD rural station is responsible for structural and wildfire protection and medical emergencies within its boundaries. Other stations close to the site include the Princeton Rural Station, approximately 10 miles to the east, the rural fire districts of Williams and Colusa, approximately 10 miles to the south, and the municipal districts of Williams and Colusa, approximately 10 miles to the southeast, respectively. All stations within Colusa County have mutual aid agreements with each other. (Ex. 200, p. 4.8-11.) Evidence in the record shows that the CGS may have an impact upon the ability of the MFPD to maintain current service levels. This issue, and mitigation designed to reduce any impact to levels of insignificance, is addressed in the **WORKER SAFETY and FIRE PROTECTION,** and **HAZARDOUS MATERIALS** sections of this decision.

Ambulance and emergency medical services (including helicopter service) are provided to Colusa County by Enloe Ambulance, a private contractor. The closest Enloe ambulance crew is located in Williams; another crew is located in Colusa. Enloe helicopter service would originate in Chico. (*id*.)

Glenn General Hospital is the closest to the site, located at 1133 West Sycamore Street in Willows, approximately 17 miles from the site. Valley West Care Center and Colusa Community Hospital are located 19 and 24 miles from the site, in Williams and Colusa, respectively. (*id*.)

Because of the onsite security during construction and operation and other safety procedures described in the **WORKER SAFETY** and **HEALTH** section of the AFC, we conclude that the emergency medical services resources would be adequate to meet the needs of the CGS during construction and operation.

The City of Colusa Parks Division is responsible for operating nine of the city's parks. Eight of these parks feature picnic tables, barbeque units, restrooms, and playground areas; one park has two softball fields. Larger parks within the region include the Colusa-Sacramento River State Recreation Area and the Lake Oroville State Recreation Park. Both parks feature camping, picnicking, boating, swimming, and fishing. (Ex. 200, p. 4.8-11.)

We conclude that there are a number and variety of parks within the regional project area and does not expect the construction or operation workforces to have a significant adverse impact on parks and recreation.

2. Environmental Justice

Government Code section 65040.12 (c) defines "environmental justice" to mean "fair treatment of people of all races, cultures, and incomes with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies." In 1997, the President's Council on Environmental Quality issued Environmental Justice Guidance that defines minority as individuals who are members of the following population groups: American Indian or Alaskan Native, Asian or Pacific Islander; Black not of Hispanic origin; or Hispanic. Low-income populations are identified with the annual statistical poverty thresholds from the Bureau of the Census's Current Population Reports, Series P-60 on Income and Poverty (OMB 1978).

The steps recommended by these guidance documents to assure that environmental justice concerns are addressed include: (1) outreach and involvement; (2) a demographic screening to determine the existence of a minority or low-income population; and (3) if warranted, a detailed examination of the distribution of impacts on segments of the population.

The purpose of an environmental justice screening analysis is to determine whether a below poverty level and/or minority population exists within the

potentially affected area of the proposed site. A demographic screening was conducted in accordance with the "Final Guidance for Incorporating Environmental Justice Concerns in EPA's NEPA Compliance Analysis" (Guidance Document) (EPA 1998). People of color populations, as defined by this Guidance Document, are identified where either the minority population of the affected area is greater than 50 percent of the affected area's general population; or the minority population percentage of the area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis.

A review of the Census 2000 information shows the minority population by census block (the smallest geographic unit for which the Census Bureau collects and tabulates data) shows that the minority populations are 31.25 percent and 14.51 percent, respectively. The minority population within the one and six mile radius is below the fifty percent level of significance. Census 2000 by census block group (a combination of census blocks and subdivision of a census tract) information shows that the below poverty population is 23.5 percent within the six-mile radius and 23.5 percent within the one-mile radius, again, below the fifty percent level of significance. Therefore, the proposed CGS would not create a significant adverse socioeconomic impact to minority or below-poverty-line populations. (Ex. 200, p. 4.8-3.)

3. Cumulative Impacts

A project may result in a significant adverse cumulative impact where its effects are cumulatively considerable. "Cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects. (Cal. Code Regs., tit. 14, § 15130.)

Cumulative impacts may occur when more than one project has an overlapping construction schedule that creates a demand for workers that cannot be met by local labor, resulting in an influx of non-local workers and their dependents.

The Colusa County Planning Department has given tentative approval for the construction of an 18-unit subdivision near Maxwell. However, construction has been delayed due to water issues. In addition to the tentatively approved residential development, an ethanol plant is proposed near I-5 south of Maxwell and north of Williams. The County expects to conclude its environmental analysis of the project by this fall. According to Steve Hackney, Planning Director for Colusa County, most of the proposed development has been in the south part of the County. (Ex. 200, p. 4.8-12.)

While increased demand for lodging services could occur in the area during construction of any future development projects, a sufficient number of rooms exist within commuting distance to accommodate both the proposed project and the 18-unit subdivision, were it to be constructed during the CGS construction period (Spring 2008 through Spring 2010). In addition, there would be a sufficient number of skilled construction workers to accommodate the CGS and any potential development project because the affected trades draw from a large labor force in the YMSA, SCMSA and San Francisco Bay Area. (Ex. 200, p. 4.8-12.)

FINDINGS AND CONCLUSIONS

Based on the evidence, we find and conclude as follows:

1. The CGS will draw primarily upon the local and regional labor pool for the construction and the operation workforce.

2. The project will not cause an influx of a significant number of construction or operation workers into the local area.

3. The proposed project is not likely to have a significant adverse effect upon local employment, housing, schools, medical resources, or police protection.

4. The proposed project may have an impact upon fire protection services; this potential impact is addressed in the **WORKER SAFETY and FIRE PROTECTION,** and **HAZARDOUS MATERIALS** sections of this decision.

5. Construction and operation of the project will not result in any significant direct, indirect, or cumulative socioeconomic impacts.

6. All environmental impacts from the CGS will be mitigated to below a level of significance.

7. The CGS will not cause or contribute to disproportionate impacts upon minority or low income groups.

CONDITIONS OF CERTIFICATION

SOCIO-1 The project owner and its contractors and subcontractors shall procure materials and supplies within Colusa and Glenn Counties unless the materials or supplies are not available at competitive pricing.

Verification: At least 60 days prior to the start of construction, the project owner shall submit to the Energy Commission Compliance Project Manager (CPM) copies of vendor solicitations and guidelines stating procurement requirements and procedures. In addition, the project owner shall notify the CPM in each Monthly Compliance Report of the reasons for any planned procurement of materials outside Glenn and Colusa Counties that will occur during the next two months.

SOCIO-2 The project owner shall pay the one-time statutory school facility development fee to the Maxwell Unified School District as required by Education Code Section 17620.

Verification: At least 30 days prior to the start of project construction, the project owner shall provide to the CPM proof of payment of the statutory development fee.

D. TRAFFIC AND TRANSPORTATION

This section addresses the extent to which the proposed project will affect the local area's transportation network. The evidence includes an analysis of: (1) the roads and routings that are proposed to be used for construction and operation; (2) potential traffic-related problems associated with the use of those routes; (3) the anticipated encroachment upon public rights-of-way during the construction of the proposed project and associated facilities; (4) the frequency of trips and probable routes associated with the delivery of hazardous materials; and (5) the possible effect of project operations on local airport flight traffic.

SUMMARY AND DISCUSSION OF THE EVIDENCE

1. Location

The proposed CGS project site is in a rural agricultural area of Colusa County approximately 4 miles west of Interstate 5 (I-5), which runs north and south through the Central Valley. The project site is approximately 14 miles north of the city of Williams, and 6 miles north of the town of Maxwell.

2. Access Roads

Access to the CGS site would be via the following roads:

Delevan Road - In the vicinity of the project, this is a two-lane county-maintained unpaved roadway with two lanes and no shoulders. Delevan Road runs east-west from Four Mile Road on the east to the Glenn-Colusa Canal on the west. Heading west, it turns north at the Glenn-Colusa Canal Road and ends at the Colusa-Glenn County line.

McDermott Road - In the vicinity of the project this is a two-lane county-maintained unpaved roadway with two lanes and no shoulders. McDermott Road parallels I-5 running from Maxwell Road past the Colusa-Glenn County line to Road 68 in Glenn County.

Dirks Road - In the vicinity of the project this is a two-lane county-maintained unpaved roadway with two lanes and no shoulders. Dirks Road runs east-west and connects McDermott Road with Delevan Road. The portion of Dirks Road maintained by the County ends at Delevan Road and a paved private road continues to the project site. (Ex. 17, p.8.10-1-2.)

a. Airports

The Glenn County Airport is located approximately 8 miles north of the proposed project site on I-5. The Colusa County Airport is approximately 20 miles south via I-5 and State Highway 20. Sacramento International Airport is 65 miles south via I-5. (Ex. 200, p. 4.10-5.)

b. Railroads

Heavy equipment items would be brought in by rail to an unloading depot located in Williams which has suitable tracks and sufficient space around the track for unloading of equipment. The equipment would then be transported to the site by a contracted heavy equipment hauler. Union Pacific Railroad owns the rail line but it is operated by the California Northern Railroad. (Ex. 200, p. 4.10-5.)

c. Traffic Congestion

Level of service (LOS) is a description of a driver's experience at an intersection or roadway based on the level of congestion (delay). LOS can range from "A," representing free-flow conditions with little or no delay to "F," representing saturated conditions with substantial delay. **TRAFFIC AND TRANSPORTATION Table 1** provides the classification, along with the current daily and peak hour traffic volumes, for the local and regional roadways in the vicinity of the project site.

TRAFFIC AND TRANSPORTATION Table 1
Existing Traffic Volumes in Proximity to the CGS

Name	Classification	Daily Traffic Volume	Peak Hour Traffic Volume	Current LOS
Local Roadways[a]				
Delevan Road	County Road	369	37[b]	A
McDermott Road	County Road	178	18[b]	A
Dirks Road	County Road	N/A	N/A	A
Regional Roadways[c]				
Interstate 5 (North of Delevan Road)	Freeway	26,250	2,750	B
Interstate 5 (South of Delevan Road)	Freeway	26,250	2,800	B

Notes:[a] Source: Colusa Public Works Department, 2000. Daily Bidirectional and Peak Hour traffic volumes are projected based on the growth factor applied.
[b] Assumes that 10 percent of the daily volumes would occur in the peak hour.
[c] Source: Caltrans, 2003. Daily Bidirectional and Peak Hour traffic volumes are projected based on the growth factor applied.
N/A – not available

(Ex. 200, p. 4.10-4.)

DIRECT/INDIRECT IMPACTS ON TRAFFIC

1. Construction

Construction of the proposed facility, including linears, would take approximately 22 to 24 months. The number of construction workers will peak during the 14th month of construction at 669. Construction workers are expected to generate 199 round trips on average and 446 round trips during the peak construction period. These total daily vehicle trip volumes are based on the Applicant's assumptions that part of the workforce will carpool and average vehicle occupancy will be 1.5 persons per vehicle. (Ex.17, p. 8.10-5.)

The distribution of construction workers is estimated as follows: 5 percent from Glenn County/Colusa County, 45 percent form the Greater Sacramento area,

and 50 percent from the East Bay. Therefore, 95 percent of the construction workers would be heading north on I-5, and 5 percent heading south on I-5 to access the project site. This increase would not result in any decrease in LOS and, therefore, the impact is expected to be less than significant.

The construction workforce would increase traffic volumes on local roadways to a greater extent than volumes on state roadways. The work schedule has been estimated on the basis of a single shift, 8 hours/per day and 40 hours/per week. However, occasional use of a second shift may be necessary to make up schedule deficiencies or to complete critical construction activities. During the startup and testing phase of the project, some activities may continue 24 hours per day, 7 days per week. This increase would be temporary and heaviest during the “active” portion of the construction schedule but would not decrease the current LOS on local roads to an unacceptable level.

Other construction-related trips, such as deliveries, will generate about 16 daily one-way trips. The evidence indicates that this is an insignificant addition to the normal traffic. (Ex. 17, p. 8.10-5.)

2. Operation

Plant operations will require approximately 31 permanent workers. If each worker travels via single-occupant vehicle, which is the worst-case scenario, these workers would generate approximately 62 one-way trips during operations. Plant operations would also generate approximately 3 delivery truck trips per day.

TRAFFIC AND TRANSPORTATION Table 2 summarizes our findings concerning the project’s construction and operation impacts on local traffic.

TRAFFIC AND TRANSPORTATION Table 2
Roadway Level of Service

Existing, During Construction, and During Operations

	Existing LOS	Existing LOS Plus Peak Project Construction Traffic	Existing LOS Plus Operation Traffic
Delevan Road	A	B	A
McDermott Road	A	B	A
Dirks Road[1]	A	B	A
I-5 South of Delevan Road	B	B	B

Notes:
[1] Assumes the LOS of Dirks Road is similar to that of Delevan and McDermott roads because no traffic data was available, but traffic is believed to be less than that of Delevan or McDermott roads.
LOS= Level of Service

(Ex. 17, Table 8.10-7.)

The addition of construction/operation traffic to the area roadways only represents a small increase in traffic and does not significantly reduce the LOS. However, there is the possibility that traffic congestion could substantially increase (on short term basis) during bridge reconstruction. Therefore, we adopt proposed condition of certification **TRANS-2** requiring mitigation in the form of a construction traffic control plan and implementation program that provides for safety measures during construction of the bridge replacement and temporary road/bridge detour. With such mitigation we find that traffic impacts during the construction and operation phases would be less than significant.

3. Traffic Hazards

The existing Teresa Creek Bridge on McDermott Road, the Glenn-Colusa Canal Bridge on Dirks Road, and the turning radius at the Delevan Road/McDermott Road intersection, are not adequate to accommodate large, heavily-loaded construction trucks. The Applicant plans to replace the Teresa Creek Bridge with

a bridge adequate to handle the anticipated loads, to use a temporary "jumper" bridge to handle the loads over the Glenn-Colusa Canal Bridge, and to provide additional gravel on the northeast and southeast corners of the Delevan Road/McDermott Road intersection. We are imposing Condition of Certification **TRANS-3** requiring the owner to repair any damage to roads from construction traffic.

During reconstruction of the Teresa Creek Bridge, a temporary 14-foot wide bridge and detour road would be installed immediately downstream of the existing bridge, allowing traffic to pass through the area. The Applicant will secure necessary approvals from the adjacent property owner for the temporary bridge and road realignment.

The Applicant has proposed an alternative option if the installation of the temporary bridge across Teresa Creek is infeasible due to problems in securing necessary easements. This would entail detouring and rerouting traffic on either I-5 or State Highway 99 West to the Road 68 exit north of the Delevan Road exit, west on Road 68, and south on McDermott Road. An LOS analysis was completed to assess roadway operational performance if the alternative option was chosen. The analysis indicated that the proposed detour route would not cause LOS deterioration on any of the studied road segments.

The existing bridge over the Glenn-Colusa Canal was originally rated for 40 tons; its current rating is 20 tons. Loads well in excess of ten times that rating will cross the canal at this location during construction. The Applicant intends to use a temporary "jumper" bridge, supplied by Bigge Construction, to handle these loads. This temporary bridge would be placed over the existing bridge, sufficiently elevated above the roadway so as to avoid transferring load to it. According to the vendor, the jumper bridge is capable of carrying loads up to 1000 tons. The heaviest load anticipated by the Applicant is 270 tons. Since the jumper bridge will be atop the existing bridge, it will make use of existing approaches, minimizing the need for alterations to the existing roads. (Ex. 109.)

The Applicant has also stated its intent to design site access/egress to accommodate construction trucks on the private access road to the project site and to comply with all weight and load limitations on state and local roadways. In addition, the Applicant will use the *Caltrans Standard Plans* that provide guidelines for traffic control and lane closures for construction work. Therefore, we find that there is a less than significant impact.

4. Hazardous Materials Transport

Transportation of hazardous materials to and from the site will be conducted in accordance with all applicable LORS. The California Department of Motor Vehicles specifically licenses all drivers who carry hazardous materials. Drivers are required to check for weight limits and conduct periodic brake inspections. Commercial truck operators handling hazardous materials are required to take instruction in first aid and procedures on handling hazardous waste spills. Drivers transporting hazardous waste are required to carry a manifest which is available for review by the California Highway Patrol at inspection stations along major highways and interstates. Assuming compliance with existing federal and state standards, deliveries of hazardous materials such as aqueous ammonia and water treatment chemicals will not likely create significant impacts. (Ex. 17, p. 8.10-9.)

A licensed hazardous waste transporter would haul any hazardous waste from the project site to one of two Class 1 hazardous waste landfills in Kern County near the communities of Buttonwillow and Kettleman City. (Ex. 17, p. 8.10-9.) The handling and disposal of hazardous substances are also addressed in the **WASTE MANAGEMENT, WORKER SAFETY and FIRE PROTECTION** and **HAZARDOUS MATERIALS** sections of this proposed decision.

5. Impacts on Air Traffic Patterns

There are no major commercial aviation centers or rural landing strips in the vicinity of the CGS site. The closest local airport is the Glenn County Airport, approximately eight miles north of the proposed project site on I-5. The CGS would not conflict with the aircraft runway approach. Therefore, there will be no impact.

6. Cumulative Impacts and Mitigation

No cumulative impacts on traffic or transportation are expected from construction or operation of the CGS. Any project impacts associated with the reconstruction of the Teresa Creek Bridge and rerouting of McDermott Road during the reconstruction work will be temporary and mitigated through implementation of a project traffic control plan. Given this mitigation, there will be no cumulative impact to area traffic and transportation.

FINDINGS AND CONCLUSIONS

Based on the evidence, we find and conclude as follows:

1. The project as proposed would comply with all applicable LORS related to Traffic and Transportation.
2. Because of the distance from the nearest airports the project would not impact aviation safety.
3. Condition of Certification **TRANS-3** requires a mitigation plan to repair Delevan Road, McDermott Road, Dirks Road, Wadleigh Road, and Sutton Road if damaged by project construction-related traffic.
4. There would be no significant direct or cumulative traffic and transportation impacts and therefore no environmental justice issues.

We therefore conclude that construction and operation of the project, as mitigated herein, will not result in any significant, direct, indirect, or cumulative impacts to the local or regional traffic and transportation system, nor will the project cause significant degradation in the LOS on area roads.

CONDITIONS OF CERTIFICATION

TRANS-1 The project owner shall secure all necessary encroachment permits and easements to complete the Teresa Creek Bridge and Glenn-Colusa Canal Bridge replacements. The bridge replacements shall be designed and built to local/state/federal design standards. The two bridges shall be completed prior to heavy haul transport.

Verification: The project owner shall provide to the Colusa County Public Works staff and to the Chief Building Official (CBO) for review and approval, design plans for the Teresa Creek and Glenn-Colusa Canal bridge replacements. Prior to heavy haul transport, the project owner shall notify the Compliance Project Manager (CPM) that the bridges are complete and shall submit proof of final inspection by the appropriate entities.

TRANS-2 The project owner shall prepare and implement a construction traffic control plan to minimize traffic impacts during the reconstruction of the Teresa Creek Bridge and the Glenn-Colusa Canal Bridge, including:

- Signing, lighting, and traffic control device placement;
- Temporary travel lane closures;
- Maintaining access to adjacent residential and commercial properties; and
- Emergency access.

Verification: At least 30 days prior to bridge site mobilization, the project owner shall provide to the Colusa County Public Works staff for review and comment, and to the CPM for review and approval, a copy of their construction traffic control plan and transportation demand implementation program.

TRANS-3 Prior to site mobilization activities, the project owner shall prepare a mitigation plan for Delevan Road, McDermott Road, Dirks Road, Wadleigh Road, and Sutton Road should they be damaged by project construction. The intent of this plan is to ensure that roadways damaged by project construction will be repaired, reconstructed, and asphalt overlayed to original or as near original condition as possible. This plan shall include:

- Documentation of the pre-construction condition of the following roadway segments: Wadleigh Road, Sutton Road, Delevan Road from I-5 to Mc Dermott Road; McDermott Road north to Dirks Road; and Dirks Road west to the project site. Prior to the start of site mobilization, the project owner shall provide to the CPM photographs or videotape of these identified roadway segments.

- Documentation of any portions of Wadleigh Road, Sutton Road, Delevan Road, McDermott Road, and Dirks Road that may be inadequate to accommodate oversize or large construction vehicles, and identify necessary remediation measures to be implemented prior to beginning construction;

- Provide for appropriate bonding or other assurances to ensure that any damage to Wadleigh Road, Sutton Road, Delevan Road, McDermott Road, and Dirks Road due to construction activity will be remedied by the project owner; and

- Reconstruction of portions of Wadleigh Road, Sutton Road, Delevan Road, McDermott Road, and Dirks Road that are damaged by project construction due to oversize or overweight construction vehicles.

Verification: At least 90 days prior to the start of site mobilization, the project owner shall submit a mitigation plan focused on restoring Wadleigh Road, Sutton Road, Delevan Road, Mc Dermott Road, and Dirks Road to its pre-project condition to the Colusa County Public Works and Planning Department for review and comment, and to the CPM for review and approval.

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

TRANS-4 In the event the project owner elects to implement a temporary Jumper Bridge over the Glenn-Colusa Canal Bridge in lieu of rebuilding this bridge, the project owner shall submit to the CPM and CBO for review and approval, the following documents for the alternative Jumper Bridge:

- Civil and structural design drawings of the proposed bridge structure, grading plans, footing designs;
- Soils report, prepared in accordance with the 2007 California Building Code (CBC) documenting the allowable soil bearing and lateral capacity; and
- Related calculations and specifications signed and stamped by the responsible civil or structural engineer.

The jumper bridge shall be designed and installed in compliance with the Facility Design Conditions of Certification. Inspection of the bridge structures during installation shall be performed by the CBO in accordance with CBC requirements.

Verification: At least 90 days prior to heavy haul transport to the CGS project site, the project owner shall provide to the CBO and the CPM for review and approval, a copy of the final design plans. The project owner shall obtain the CBO's approval prior to use of the jumper bridge.

E. VISUAL RESOURCES

Visual resources are the features of the landscape that contribute to the visual character or quality of the environment. CEQA requires an examination of a project's visual impacts in order to determine whether the project has the potential to cause substantial degradation to the existing visual character of the site and its surroundings. (Cal. Code Regs., tit. 14 § 15382, Appendix G.)

In analyzing the visual resources and impacts, Commission staff first describes the project's visual setting in terms of existing visual character and quality. The project setting is delineated into landscape units of contiguous, broadly consistent visual character and quality.

Within each landscape unit, Key Observation Points (KOPs) are then identified to represent the most critical locations from which the project would be seen. These reflect, in particular, those key sensitive viewer groups most likely to be affected by the project. Assessments of project impact are determined from these KOPs. KOPs are rated for their level of Visual Sensitivity to impact.

Visual simulations of the project as seen from KOPs, along with field observations, are used to evaluate the projected levels of project contrast, dominance, and view blockage, leading to an overall impact rating from that KOP.

In addition, the project is evaluated for conformance with applicable LORS. Adopted expressions of local public policy pertaining to visual resources are also given great weight in determining levels of viewer concern.

As needed, Conditions of Certification are proposed to mitigate potentially significant impacts, and to ensure LORS conformance.

SUMMARY AND DISCUSSION OF THE EVIDENCE

The proposed CGS project would be built on a 31-acre portion of a 100-acre leased parcel of the 4800-acre Holthouse Ranch, an area of uncultivated rangeland in the Sacramento Valley in northern Colusa County. To the north, east, and south is a mosaic of irrigated farmland, orchards, and open space with a few single family residences and farm buildings. To the west is more uncultivated rangeland. The closest population center is the community of Maxwell, approximately 6 miles to the southeast.

The proposed CGS site is situated at the foot of the Coast Range foothills. The terrain is slightly rolling grassland. The Tehama-Colusa Canal runs north-south roughly 2,000 feet to the west and is not readily visible from viewpoints on the Valley floor. The project is located roughly 3,000 feet west of the Glenn-Colusa Canal, which also runs north-south and is occasionally visible from public viewpoints, but is also little noticed due to the surrounding flat terrain and low elevation of potential viewpoints.

The site is adjacent to an existing PG&E natural gas compressor station and four 230-kV transmission lines running north to south that comprise visually prominent features of industrial character in the immediate vicinity.

1. Landscape Unit 1 – Valley Agricultural Landscape

Views within this Landscape Unit are characterized by the broad horizontal lines of the valley floor, rolling foothills, and ridgelines of the Coast Range. Dominant colors vary seasonally from green grass-covered hills and brown agricultural fields during winter months, to brown grassy hills and green valley fields during warm seasons. (Ex. 200, p. 4.12-8.)

Outstanding landscape features include Snow Mountain and other tall peaks of the Mendocino National Forest and Snow Mountain Wilderness Area, located approximately 30 miles directly west of the site, which can be seen rising behind

the low rolling foreground foothills that descend near the site. In winter months, peaks of Snow Mountain, Goat Mountain, and St. John's Mountain are made more vivid by snow cover. (Ex. 200, p. 4.12-11.)

All identified sensitive viewpoints are within the Valley Agricultural Landscape Unit. **VISUAL RESOURCES Figure 1**, Existing Landscape Setting and Key Observation Points (KOPs), depicts landscape units in the project viewshed, and the location of KOPs. The AFC contains photographic depictions of the existing view from each KOP, and simulated depictions of the view from each KOP after construction is complete. (Ex. 18, Figures 8.11-2 – 8.11-11.)

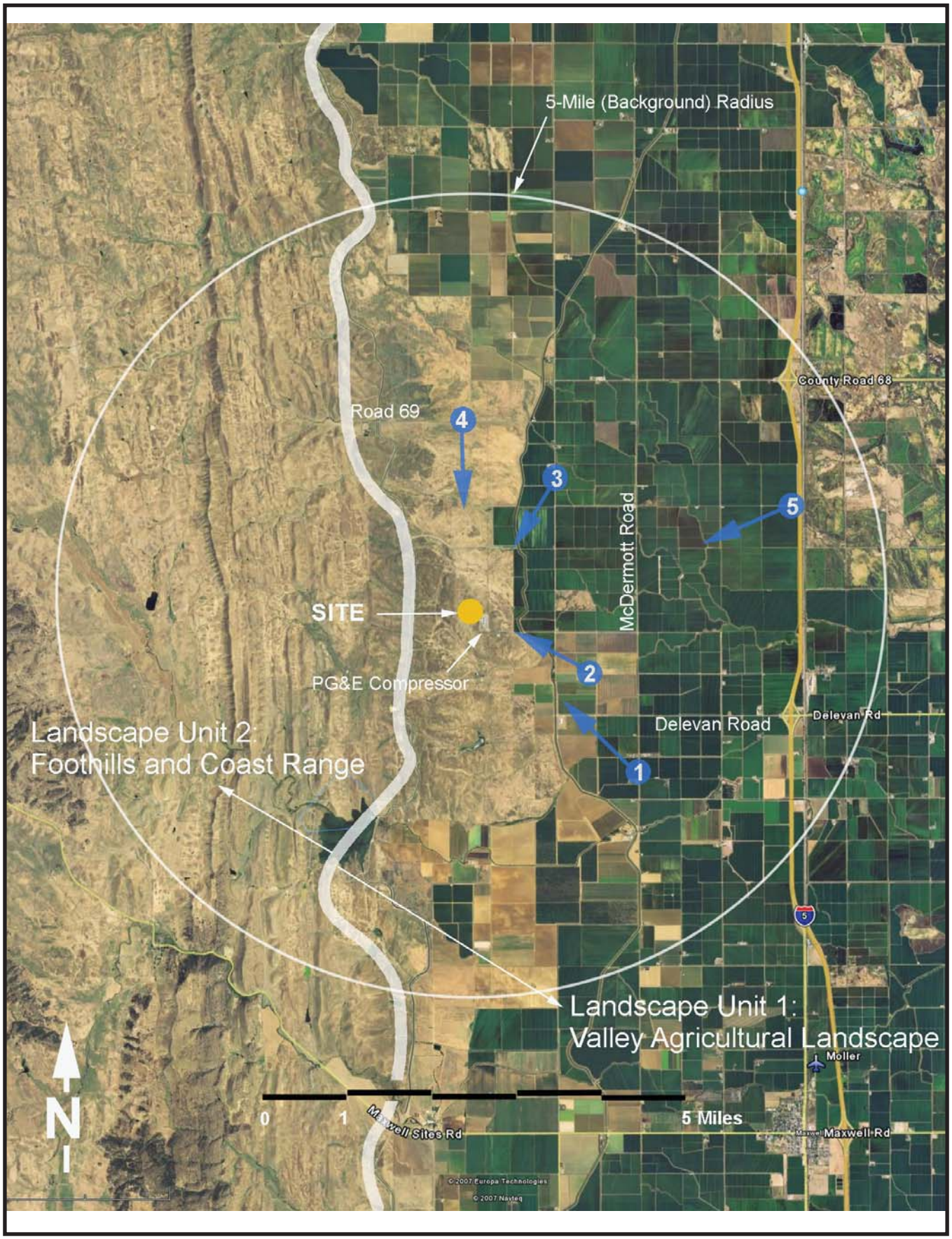
This landscape includes scattered farms and rural residences that represent the principal potentially sensitive visual receptors. Motorists on Interstate Highway 5, located on the valley floor roughly 4 miles to the east of the project site at its nearest point, also represent a principal sensitive viewer group. (Ex. 200, p.4.12-8.)

In general, this landscape type is of moderate scenic quality. It is largely intact (relatively undisturbed by prominent development), with moderately vivid features visible from outside the landscape unit itself, primarily Snow Mountain and adjoining tall mountain peaks to the west, and the Sutter Buttes in neighboring Sutter County to the southeast. Overall the landscape type is common throughout both the region and throughout the northern Central Valley. Within the viewshed there is an absence of features with unusual vividness, such as prominent water bodies, unique vistas, etc. that would constitute a distinctive, clearly high level of scenic quality. (*id*.)

KOPs 1 through 4, all located within Unit 1, are very similar to one another, representing views of rural residents, local motorists, and workers at foreground (up to 0.5 mile) and middle-ground (from 0.5 to 3-5 miles) distances to the project. KOP 5, also within landscape Unit 1, represents the view of motorists on Highway I-5 to the east. (*id*.)

VISUAL RESOURCES - FIGURE 1

Colusa Generating Station - Existing Landscape Setting and Key Observation Points



CALIFORNIA ENERGY COMMISSION

SOURCE: Exhibit 200

2. Landscape Unit 2 – Foothills and Coast Range

This portion of the viewshed consists primarily of undeveloped, low elevation grassy slopes of the Coast Range foothills, at the point where they descend onto the Sacramento Valley floor in the vicinity of the proposed project site. Farther west, taller forested hills and peaks of the Snow Mountain Wilderness Area located within the Mendocino National Forest (MNF) may be seen rising above the foreground foothill ridgeline.

No KOPs were identified within this portion of the project viewshed due to the absence of any recreational facilities, residences, or other potentially sensitive receptors from which the project might be visible. (Ex. 200, p. 4.12-11.)

3. Visual Project Description

Exhibit 3, figs. 3.4-2 and 3.4-3 depict architectural elevations of the proposed power plant. The proposed units would have a top-of-HRSG elevation of approximately 87.5 feet, and a top-of-stack elevation of 175 feet. The proposed air-cooled condenser unit would be 144 feet tall with a footprint of approximately 220 feet by 365 feet. Other visually prominent features would include a single-story control room/administration building, water storage tanks, and a roughly 600-foot by 550-foot (8.2 acres) switchyard. Exhaust stacks would be 19 feet in diameter. (Ex. 200, pp. 4.12-12.)

Eight double circuit 230 kV transmission lines, four to the north and four to the south, would connect the proposed switchyard on the northern portion of the project site to the four existing PG&E transmission lines, located approximately 1,800 feet east of the site. Approximately 12 new double-circuit, steel lattice transmission towers of approximately 100- to 125-foot height would be constructed between the project switchyard and the existing power lines. Each of the eight lines would be roughly 1,800 feet in length. The towers would be similar in type and scale to the existing PG&E towers in the adjoining transmission corridor. (Ex. 200, pp. 4.12-13.)

4. Visual Impact Assessment

To assess visual impact under CEQA, it is necessary to determine whether the project would:

- have a substantial adverse effect on a scenic vista; substantially damage scenic resources including, but not limited to trees, water features, rock outcroppings, and historic buildings within a state scenic highway;

- substantially degrade the existing visual character or quality of the site and its surroundings; or

- create a new source of substantial light or glare which would adversely affect day or night time views in the area.

(Ex. 18, p. 8.11-5.)

The project would be visible in the general foreground of scenic views of Snow Mountain and other tall peaks of the Coast Range, from viewpoints generally within the quadrant to the east of the site. This quadrant encompasses most of the potential project receptors within the middle-ground distance zone of 5 miles. KOP 2 is most representative of this condition among the key viewpoints identified for analysis.

Project structures, including power plant, substation, and new transmission towers, would not directly block or intrude into views of the scenic tall peaks in these views. The structures would, however, compete to a degree with those mountains for viewers' attention within the same general field of view. These existing views toward the mountains are already compromised to some degree by the existing natural gas compressor facilities adjacent to the proposed power plant. This impact would be potentially significant without mitigation. With the mitigation measures we adopt herein, however, this level of visual intrusion into scenic views would be reduced to a less than significant level. (Ex. 200, pp. 4.12-13.)

KOP 5, located at I-5 approximately 4-1/2 miles east of the project site, is representative of background views in the sector east of the project site within

which views toward scenic tall peaks might be affected. This location has been identified as a County scenic gateway in the Colusa County General Plan. (Ex. 200, p. 4.12-14.) At these distances, project structures would be visually very subordinate and represent a weak, and therefore less than significant, overall level of visual change.

The project would thus not have substantial adverse effects on scenic vistas, with the mitigation measures described below.

The proposed project would be air-cooled; the wet-cooling towers that are typically responsible for the largest and most frequent visible plumes from power plant projects would not be a part of this project. Visible plumes from the project's exhaust stacks could still occur, though at much lower magnitudes and frequencies than from wet-cooling systems. Predicted seasonal project vapor plumes could occasionally intrude on views of Snow Mountain and other peaks of the Coast Range from certain similar I-5 viewpoints directly east of the site. However, the frequency of visible plumes of any size would be low, falling below the threshold of significance. (Ex. 200, pp. 4.12-15 – 4.12-16.)

The project structures would introduce features with vertical and rectilinear form and line, and characteristically industrial textures that contrast to a moderate degree with their backdrop of broad horizontal ridgelines, rolling foothills, and largely unspoiled natural land-cover. In addition to the strong form contrast of the large, taller facility features, notably the air-cooling unit and HRSG stacks, other lower ancillary facility structures and features would create a visually cluttered industrial image contributing further to form, texture and color contrast. Contrast with the adjacent existing compressor station would be weak due to the similarity of form, line and texture of the two facilities. Non-reflective tan and/or green painting of the air-cooling unit would reduce potential overall contrast substantially. From KOP 1 the project would be seen behind the existing PG&E compressor station, which already exhibits vertical and rectilinear form and line

contrast with the natural terrain, and strong color contrast that draws the observer's eye. (Ex. 200, pp. 4.12-16 – 4.12-22.)

Project operation impacts from all identified KOPs, both individually and cumulatively, would be less than significant with color mitigation, lighting mitigation and perimeter landscape screening. With these measures, the impacts from project operation would not substantially degrade the existing visual character or quality of the site and its surroundings, as perceived by sensitive receptors in the project viewshed, in either the short or long term.

Reduction of color contrast of all project structures would be an important factor in reducing overall project contrast and dominance. We thus adopt Condition of Certification **VIS-1**, requiring painting of all project structures to ensure the lowest feasible color contrast.

In addition, screening of the facility's visual clutter with perimeter landscape plantings would further reduce project texture, color and form contrast. We thus adopt Condition of Certification **VIS-3**, perimeter landscape screening.

Adverse light impacts could potentially occur from bright facility night lighting, particularly as seen from nearby residences within a middle-ground distance zone, as well as from daytime reflections from shiny metal surfaces of industrial equipment. Bright industrial lighting could result in a highly dominant, strongly contrasting element in the nighttime landscape with incompatible character within the existing rural setting. Under worst-case conditions lighting left on throughout the night, significant adverse impacts could be anticipated on those residents nearest the project site. We thus adopt Condition of Certification **VIS-2**, requiring plant and parking area lighting to be of minimum brightness consistent with safety, to be shielded and directed to eliminate all direct off-site illumination and all upward illumination, and to be kept off when not needed. With these measures, the night-time level of anticipated visual change would be weak, resulting in less-than-significant impacts to residents.

Condition of Certification **VIS-1** also requires that major facility components be painted in non-reflective paint, eliminating potential sources of day-time reflective solar glare that could otherwise come from shiny metal surfaces.

We conclude that potential adverse impacts of proposed facility structures would be less than significant from all key observation points, but only with the implementation of the Conditions of Certification adopted herein.

5. Indirect Impacts

No anticipated indirect visual impacts were identified.

6. Cumulative Impacts

The CGS would combine with the adjacent, existing PG&E compressor station and nearby existing transmission towers to increase the industrial visual character of the existing setting. Though the combined effect of the two facilities is somewhat greater than either taken alone, their cumulative impact would not, in this case, rise above the level of insignificance.

The only reasonably foreseeable future cumulative project identified in the project viewshed is a planned 18-unit residential subdivision near Maxwell, roughly 5 miles from the project site. (Ex. 11, p. 8.4-4.) At this background distance, the projects would have negligible visual effects on one another, and the potential interaction of the two projects within one viewshed would be relatively minor. Thus, no adverse cumulative visual impacts from the project are anticipated.

The minority population in the project study area falls below a threshold of 50 percent, so there are no environmental justice issues for this case.

FINDINGS AND CONCLUSIONS

Based on the evidence, we find and conclude as follows:

1. The introduction of proposed CGS structures and associated linear facilities would generate a less than significant visual impact with implementation of the Conditions of Certification adopted herein.

2. The introduction of the proposed CGS and associated linear facilities would generate a less than significant new source of light or glare to night-time or daytime views with implementation of the Conditions of Certification adopted herein.

3. Due primarily to the proposed use of air-cooling rather than wet-cooling, publicly visible water vapor plumes generated by the CGS would cause a less than significant visual impact.

4. With mitigation, the construction and operation of the CGS would not cause any significant visual impacts to adjacent land uses, or contribute considerably to a cumulative visual impact.

We therefore conclude that, with implementation of the following Conditions of Certification, the project will not cause any significant direct, indirect, or cumulative impacts to visual resources.

CONDITIONS OF CERTIFICATION

Surface Treatment of Project Structures and Buildings

VIS-1 The project owner shall treat the surfaces of all project structures and buildings visible to the public such that a) their colors minimize visual intrusion and contrast by blending with the landscape; b) their colors and finishes do not create excessive glare; and c) their colors and finishes are consistent with local policies and ordinances. The transmission line conductors shall be non-specular and non-reflective, and the insulators shall be non-reflective and non-refractive.

The project owner shall submit for CPM review and approval, a specific surface treatment plan that will satisfy these requirements. The treatment plan shall include:

1. description of the overall rationale for the proposed surface treatment, including the selection of the proposed color(s) and finishes;

   a) A list of each major project structure, building, tank, pipe, and wall; the transmission line towers and/or poles; and fencing, specifying the color(s) and finish proposed for each. Colors must be identified by vendor, name, and number; or according to a universal designation system;

   b) One set of color brochures or color chips showing each proposed color and finish;

   c) One set of 11" x 17" color photo simulations at life size scale, of the treatment proposed for use on project structures, including structures treated during manufacture, from Key Observation Points 2 and 5 (locations shown on Visual Resources Figure 1 of the Staff Assessment);

   d) A specific schedule for completion of the treatment; and

   e) A procedure to ensure proper treatment maintenance for the life of the project.

   The project owner shall not specify to the vendors the treatment of any buildings or structures treated during manufacture, or perform the final treatment on any buildings or structures treated in the field, until the project owner receives notification of approval of the treatment plan by the CPM. Subsequent modifications to the treatment plan are prohibited without CPM approval.

Verification: At least 90 days prior to specifying to the vendor the colors and finishes of the first structures or buildings that are surface treated during manufacture, the project owner shall submit the proposed treatment plan to the CPM for review and approval and simultaneously to the Colusa County Department of Planning and Building Administration for review and comment.

If the CPM determines that the plan requires revision, the project owner shall provide to the CPM a plan with the specified revision(s) for review and approval by the CPM before any treatment is applied. Any modifications to the treatment plan must be submitted to the CPM for review and approval.

Within ninety (90) days after the start of commercial operation, the project owner shall notify the CPM that surface treatment of all listed structures and buildings has been completed and is ready for inspection; and shall submit one set of electronic color photographs from Key Observation Point 2 and Key Observation Point 5 at the least.

The project owner shall provide a status report regarding surface treatment maintenance in the Annual Compliance Report. The report shall specify a): the condition of the surfaces of all structures and buildings at the end of the reporting

year; b) major maintenance activities that occurred during the reporting year; and c) the schedule of major maintenance activities for the next year.

Permanent Exterior Lighting

VIS-2 To the extent feasible, consistent with safety and security considerations, the project owner shall design and install all permanent exterior lighting such that a) light fixtures do not cause obtrusive spill light beyond the project site; b) lighting does not cause excessive reflected glare; c) direct lighting does not illuminate the nighttime sky; d) illumination of the project and its immediate vicinity is minimized, and e) the plan complies with local policies and ordinances.

The project owner shall submit to the CPM for review and approval and simultaneously to the Colusa County Department of Planning and Building Administration for review and comment a lighting mitigation plan that includes the following:

a) Lighting shall incorporate commercially available fixture hoods/shielding, with light directed downward or toward the area to be illuminated;

b) Light fixtures shall not cause obtrusive spill light beyond the project boundary;

c) All lighting shall be of minimum necessary brightness consistent with operational safety and security; and

d) Lights in high illumination areas not occupied on a continuous basis (such as maintenance platforms) shall have (in addition to hoods) switches, timer switches, or motion detectors so that the lights operate only when the area is occupied.

Verification: At least 90 days prior to ordering any permanent exterior lighting, the project owner shall contact the CPM to discuss the documentation required in the lighting mitigation plan.

At least 60 days prior to ordering any permanent exterior lighting, the project owner shall submit to the CPM for review and approval and simultaneously to the Colusa County Department of Planning and Building Administration for review and comment a lighting mitigation plan. The project owner shall provide the county's comments to the CPM at least 10 days prior to the date lighting materials are ordered.

If the CPM determines that the plan requires revision, the project owner shall provide to the CPM a revised plan for review and approval by the CPM.

The project owner shall not order any exterior lighting until receiving CPM approval of the lighting mitigation plan.

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

Within 48 hours of receiving a lighting complaint, the project owner shall provide the CPM with a complaint resolution form report as specified in the Compliance General Conditions including a proposal to resolve the complaint, and a schedule for implementation. The project owner shall notify the CPM within 48 hours after completing implementation of the proposal. A copy of the complaint resolution form report shall be submitted to the CPM within 30 days.

Perimeter Landscape Screening

VIS-3 The project owner shall provide landscaping that reduces the visibility of the power plant structures and complies with local policies and ordinances. Trees and other vegetation consisting of informal groupings of fast-growing evergreens shall be strategically placed along the southern, eastern, and northern facility boundaries as appropriate, of sufficient density and height to screen the power plant structures to the greatest feasible extent within the shortest feasible time.

The project owner shall submit to the CPM for review and approval and simultaneously to Colusa County for review and comment a landscaping plan whose proper implementation will satisfy these requirements. The plan shall include:

a) A detailed landscape, grading, and irrigation plan, at a reasonable scale. The plan shall demonstrate how the requirements stated above shall be met. The plan shall provide a detailed installation schedule demonstrating installation of as much of the landscaping as early in the construction process as is feasible in coordination with project construction.

b) A list (prepared by a qualified professional arborist familiar with local growing conditions) of proposed species, specifying installation sizes, growth rates, expected time to maturity, expected size at five years and at maturity, spacing, number, availability, and a discussion of the suitability of the plants for the site conditions and mitigation objectives, with the objective of providing the widest possible range of species from which to choose;

c) Maintenance procedures, including any needed irrigation and a plan for routine annual or semi-annual debris removal for the life of the project;

d) A procedure for monitoring for and replacement of unsuccessful plantings for the life of the project; and

e) One set of 11”x17” color photo-simulations of the proposed landscaping at five years and twenty years after planting, as viewed from Key Observation Points 2 and 5 (locations shown on Visual Resources Figure 1 of the Staff Assessment).

The plan shall not be implemented until the project owner receives final approval from the CPM.

Verification: The landscaping plan shall be submitted to the CPM for review and approval and simultaneously to the Colusa County Department of Planning and Building Administration for review and comment at least 90 days prior to installation.

If the CPM determines that the plan requires revision, the project owner shall provide to the CPM and simultaneously to Colusa County a revised plan for review and approval by the CPM.

The planting must occur during the first optimal planting season and be completed by the start of commercial operation. The project owner shall simultaneously notify the CPM and the Colusa County Department of Planning and Building Administration within seven days after completing installation of the landscaping, that the landscaping is ready for inspection.

The project owner shall report landscape maintenance activities, including replacement of dead or dying vegetation, for the previous year of operation in each Annual Compliance Report.

Appendix A: *Exhibit List*

Appendix B: *Proof of Service List*

APPENDICES

BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION OF THE STATE OF CALIFORNIA

APPLICATION FOR CERTIFICATION FOR THE *COLUSA GENERATING STATION PROJECT*	**Docket No. 06-AFC-9**

EXHIBIT LIST

APPLICANT'S EXHIBITS

EXHIBIT 1	Application for Certification, Section 1.0 Introduction, Project Description, for the Colusa Generating Station, dated November 6, 2006, and docketed November 6, 2006. Sponsored by Applicant, and received into evidence on January 23, 2008.
EXHIBIT 2	Application for Certification, Section 2.0 - Demand Conformance, Project Description, for the Colusa Generating Station, dated November 6, 2006, and docketed November 6, 2006. Sponsored by Applicant, and received into evidence on January 23, 2008.
EXHIBIT 3	Application for Certification, Section 3.0 - Facility Description and Location, Project Description, for the Colusa Generating Station, dated November 6, 2006, and docketed November 6, 2006. Sponsored by Applicant, and received into evidence on January 23, 2008.
EXHIBIT 4	Application for Certification, Section 4.0 - Facility Closure, Project Description, for the Colusa Generating Station, dated November 6, 2006, and docketed November 6, 2006. Sponsored by Applicant, and received into evidence on January 23, 2008.
EXHIBIT 5	Application for Certification, Section 5.0 - Transmission Facilities, Project Description, for the Colusa Generating Station, dated November 6, 2006, and docketed November 6, 2006. Sponsored by Applicant, and received into evidence on January 23, 2008.

EXHIBIT 6	Application for Certification, Section 6.0 - Natural Gas Supply. Project Description, for the Colusa Generating Station, dated November 6, 2006, and docketed November 6, 2006. Sponsored by Applicant, and received into evidence on January 23, 2008.
EXHIBIT 7	Application for Certification, Section 7.0 - Water Supply, Project Description, for the Colusa Generating Station, dated November 6, 2006, and docketed November 6, 2006. Sponsored by Applicant, and received into evidence on January 23, 2008.
EXHIBIT 8	Application for Certification, Section 8.1 - Air Quality, for the Colusa Generating Station, dated November 6, 2006, and docketed November 6, 2006. Sponsored by Applicant, and received into evidence on January 23, 2008.
EXHIBIT 9	Application for Certification, Section 8.2 - Biological Resources, for the Colusa Generating Station, dated November 6, 2006, and docketed November 6, 2006. Sponsored by Applicant, and received into evidence on January 23, 2008.
EXHIBIT 10	Application for Certification, Section 8.3 - Cultural Resources, for the Colusa Generating Station, dated November 6, 2006, and docketed November 6, 2006. Sponsored by Applicant, and received into evidence on January 23, 2008.
EXHIBIT 11	Application for Certification, Section 8.4 - Land Use, for the Colusa Generating Station, dated November 6, 2006, and docketed November 6, 2006. Sponsored by Applicant, and received into evidence on January 23, 2008.
EXHIBIT 12	Application for Certification, Section 8.5 – Noise, for the Colusa Generating Station, dated November 6, 2006, and docketed November 6, 2006. Sponsored by Applicant, and received into evidence on January 23, 2008.
EXHIBIT 13	Application for Certification, Section 8.6 - Public Health, for the Colusa Generating Station, dated November 6, 2006, and docketed November 6, 2006. Sponsored by Applicant, and received into evidence on January 23, 2008.

EXHIBIT 14	Application for Certification, Section 8.7 - Worker Safety & Health, for the Colusa Generating Station, dated November 6, 2006, and docketed November 6, 2006. Sponsored by Applicant, and received into evidence on January 23, 2008.
EXHIBIT 15	Application for Certification, Section 8.8 – Socioeconomics, for the Colusa Generating Station, dated November 6, 2006, and docketed November 6, 2006. Sponsored by Applicant, and received into evidence on January 23, 2008.
EXHIBIT 16	Application for Certification, Section 8.9 - Agricultural Resources, Soil & Water Resources, for the Colusa Generating Station, dated November 6, 2006, and docketed November 6, 2006. Sponsored by Applicant, and received into evidence on January 23, 2008.
EXHIBIT 17	Application for Certification, Section 8.10 - Traffic and Transportation, for the Colusa Generating Station, dated November 6, 2006, and docketed November 6, 2006. Sponsored by Applicant, and received into evidence on January 23, 2008.
EXHIBIT 18	Application for Certification, Section 8.11 - Visual Resources, for the Colusa Generating Station, dated November 6, 2006, and docketed November 6, 2006. Sponsored by Applicant, and received into evidence on January 23, 2008.
EXHIBIT 19	Application for Certification, Section 8.12 - Hazardous Materials Handling, for the Colusa Generating Station, dated November 6, 2006, and docketed November 6, 2006. Sponsored by Applicant, and received into evidence on January 23, 2008.
EXHIBIT 20	Application for Certification, Section 8.13 - Waste Management, for the Colusa Generating Station, dated November 6, 2006, and docketed November 6, 2006. Sponsored by Applicant, and received into evidence on January 23, 2008.
EXHIBIT 21	Application for Certification, Section 8.14 - Water Resources, for the Colusa Generating Station, dated November 6, 2006, and docketed November 6, 2006. Sponsored by Applicant, and received into evidence on January 23, 2008.

EXHIBIT 22	Application for Certification, Section 8.15 - Geologic Hazards and Resources, for the Colusa Generating Station, dated November 6, 2006, and docketed November 6, 2006. Sponsored by Applicant, and received into evidence on January 23, 2008.
EXHIBIT 23	Application for Certification, Section 8.16 - Paleontological Resources for the Colusa Generating Station, dated November 6, 2006, and docketed November 6, 2006. Sponsored by Applicant, and received into evidence on January 23, 2008.
EXHIBIT 24	Application for Certification, Section 9.0 - Alternatives for the Colusa Generating Station, dated November 6, 2006, and docketed November 6, 2006. Sponsored by Applicant, and received into evidence on January 23, 2008.
EXHIBIT 25	Application for Certification, Section 10.0 - List of Contributors for the Colusa Generating Station, dated November 6, 2006, and docketed November 6, 2006. Sponsored by Applicant, and received into evidence on January 23, 2008.
EXHIBIT 26	Application for Certification, Appendix A - Civil Engineering Design Criteria, Facility Design for the Colusa Generating Station, dated November 6, 2006, and docketed November 6, 2006. Sponsored by Applicant, and received into evidence on January 23, 2008.
EXHIBIT 27	Application for Certification, Appendix B - Structural Engineering Design Criteria, Facility Design for the Colusa Generating Station, dated November 6, 2006, and docketed November 6, 2006. Sponsored by Applicant, and received into evidence on January 23, 2008.
EXHIBIT 28	Application for Certification, Appendix C - Mechanical Engineering Design Criteria, Facility Design for the Colusa Generating Station, dated November 6, 2006, and docketed November 6, 2006. Sponsored by Applicant, and received into evidence on January 23, 2008.

EXHIBIT 29	Application for Certification, Appendix D - Control Systems Engineering Design Criteria, Facility Design for the Colusa Generating Station, dated November 6, 2006, and docketed November 6, 2006. Sponsored by Applicant, and received into evidence on January 23, 2008.
EXHIBIT 30	Application for Certification, Appendix E - Electrical Engineering Design Criteria, Facility Design for the Colusa Generating Station, dated November 6, 2006, and docketed November 6, 2006. Sponsored by Applicant, and received into evidence on January 23, 2008.
EXHIBIT 31	Application for Certification, Appendix F - Systems Impact Study, Facilities Study Report, LGIA, Facility Design for the Colusa Generating Station, dated November 6, 2006, and docketed November 6, 2006. Sponsored by Applicant, and received into evidence on January 23, 2008.
EXHIBIT 32	Application for Certification, Appendix G - Air Quality Data and Modeling Protocol for the Colusa Generating Station, dated November 6, 2006, and docketed November 6, 2006. Sponsored by Applicant, and received into evidence on January 23, 2008.
EXHIBIT 33	Application for Certification, Appendix H - Biological Resources Forms for the Colusa Generating Station, dated November 6, 2006, and docketed November 6, 2006. Sponsored by Applicant, and received into evidence on January 23, 2008.
EXHIBIT 34	Application for Certification, Appendix I - Cultural Resources Consultation for the Colusa Generating Station, dated November 6, 2006, and docketed November 6, 2006. Sponsored by Applicant, and received into evidence on January 23, 2008.
EXHIBIT 35	Application for Certification, Section 1.0 Introduction, Project Description for the Colusa Generating Station, dated November 6, 2006, and docketed November 6, 2006. Sponsored by Applicant, and received into evidence on January 23, 2008.

EXHIBIT 36	Application for Certification, Appendix K - Land Use Appendix J - Historic Architecture Report for the Colusa Generating Station, dated November 6, 2006, and docketed November 6, 2006. Sponsored by Applicant, and received into evidence on January 23, 2008.
EXHIBIT 37	Application for Certification, Appendix L - Public Health Data for the Colusa Generating Station, dated November 6, 2006, and docketed November 6, 2006. Sponsored by Applicant, and received into evidence on January 23, 2008.
EXHIBIT 38	Application for Certification, Appendix M - Roadway Analyses, Traffic & Transportation for the Colusa Generating Station, dated November 6, 2006, and docketed November 6, 2006. Sponsored by Applicant, and received into evidence on January 23, 2008.
EXHIBIT 39	Application for Certification, Appendix N - Phase I Environmental Site Assessment, Soil & Water Resources for the Colusa Generating Station, dated November 6, 2006, and docketed November 6, 2006. Sponsored by Applicant, and received into evidence on January 23, 2008.
EXHIBIT 40	Application for Certification, Appendix O - Groundwater Investigation, Soil & Water Resources for the Colusa Generating Station, dated November 6, 2006, and docketed November 6, 2006. Sponsored by Applicant, and received into evidence on January 23, 2008.
EXHIBIT 41	Application for Certification, Appendix P - Percolation Tests, Soil & Water Resources for the Colusa Generating Station, dated November 6, 2006, and docketed November 6, 2006. Sponsored by Applicant, and received into evidence on January 23, 2008.
EXHIBIT 42	Application for Certification, Appendix Q - Geologic Hazard Study; Geotechnical Information for the Colusa Generating Station, dated November 6, 2006, and docketed November 6, 2006. Sponsored by Applicant, and received into evidence on January 23, 2008.

EXHIBIT 43	Application for Certification, Appendix R – Paleontological Resources Technical Report for the Colusa Generating Station, dated November 6, 2006, and docketed November 6, 2006. Sponsored by Applicant, and received into evidence on January 23, 2008.
EXHIBIT 43a	Supplement in response to the CEC Data adequacy review for the Colusa Generating Station, dated December 11, 2006. Sponsored by Applicant, and received into evidence on January 23, 2008.
EXHIBIT 44	Application for Confidential Designation and Files -Emissions Offset Strategy Option Agreements, Air Quality for the Colusa Generating Station, dated December 20, 2006. Sponsored by Applicant, and received into evidence on January 23, 2008.
EXHIBIT 45	Application for confidential designation for Appendix R for Colusa AFC, Paleontology for the Colusa Generating Station, dated November 18, 2006. Sponsored by Applicant, and received into evidence on January 23, 2008.
EXHIBIT 46	Submittal of Application for Prevention of Significant Deterioration (PSD) Review and Biological Assessment - Biological Assessment for the Colusa Generating Station, dated December 21, 2006. Sponsored by Applicant, and received into evidence on January 23, 2008.
EXHIBIT 47	Submittal of Application for Prevention of Significant Deterioration (PSD) Review and Biological Assessment - Prevention of Significant Deterioration, Air Quality for the Colusa Generating Station, dated December 21, 2006. Sponsored by Applicant, and received into evidence on January 23, 2008.
EXHIBIT 48	Intentionally omitted
EXHIBIT 49	Intentionally omitted

EXHIBIT 50	Draft jurisdictional delineation, transmittal / cover page docketed, Biological Resources for the Colusa Generating Station, dated February 1, 2007. Sponsored by Applicant, and received into evidence on January 23, 2008.
EXHIBIT 51	Data Responses to data requests, 1-116 for the Colusa Generating Station, dated February 12, 2007. Sponsored by Applicant, and received into evidence on January 23, 2008.
EXHIBIT 52	Intentionally omitted
EXHIBIT 53	Intentionally omitted
EXHIBIT 54	Intentionally omitted
EXHIBIT 55	Responses to Questions from 2-21-07 Workshop & Responses to Emerald Farms 2-21-07 Petition to Intervene for the Colusa Generating Station, dated March 23, 2007. Sponsored by Applicant, and received into evidence on January 23, 2008.
EXHIBIT 56	Draft Jurisdictional Delineation, April 2007 and Draft US Army Corps of Engineers Permit Application, April 2007, Biological Resources for the Colusa Generating Station, dated April 5, 2007. Sponsored by Applicant, and received into evidence on January 23, 2008.
EXHIBIT 57	URS Revised Tables to Data Response #36 Dated 2/12/07, Air Quality for the Colusa Generating Station, dated April 24, 2007. Sponsored by Applicant, and received into evidence on January 23, 2008.
EXHIBIT 58	Colusa Generating Station Fire Service Impact Study, Hazardous Materials and Worker Safety for the Colusa Generating Station, dated May 30, 2007. Sponsored by Applicant, and received into evidence on January 23, 2008.
EXHIBIT 59	Resolution 2007-10, Butte County Air Quality Management District (E-POS attached) Air Quality for the Colusa Generating Station, dated May 30, 2007. Sponsored by Applicant, and received into evidence on January 23, 2008.

EXHIBIT 60	Letter from URS to U.S. Army Corps of Engineering re: Colusa Project Jurisdictional Delineation Report Revised Table and Figures, Biological Resources Sponsored by Applicant, dated May 31, 2007,and received into evidence on January 23, 2008.
EXHIBIT 61	Application for Confidentiality Designation - Option Agreement for Purchase & Sale Emission Reduction Credits, Air Quality, dated June 6, 2007. Sponsored by Applicant, and received into evidence on January 23, 2008.
EXHIBIT 62	Intentionally omitted
EXHIBIT 63	Intentionally omitted
EXHIBIT 64	E&L CGS Confidential - Response to Data Requests 117-125 regarding Figures, Transmission System Engineering dated June 15, 2007. Sponsored by Applicant, and received into evidence on January 23, 2008.
EXHIBIT 65	Intentionally omitted
EXHIBIT 66	Intentionally omitted
EXHIBIT 67	Intentionally omitted
EXHIBIT 68	Comments on the Preliminary Staff Assessment & Proposed Modifications to Glenn-Colusa Canal Bridge Design, dated August 17, 2007. Sponsored by Applicant, and received into evidence on January 23, 2008.
EXHIBIT 69	Intentionally omitted
EXHIBIT 70	Intentionally omitted
EXHIBIT 71	SPK-200600897 Update to 404 Permit Application for the Colusa Generating Station, dated August 28, 2007. Sponsored by Applicant, and received into evidence on January 23, 2008.

EXHIBIT 72	Supplement to the Biological Assessment Application for Certification, for the Colusa Generating Station, dated August 24, 2007. Sponsored by Applicant, and received into evidence on January 23, 2008.
EXHIBIT 73	Responses to Data Requests 126 through 129 - AFC for Colusa dated September 14, 2007. Sponsored by Applicant, and received into evidence on January 23, 2008.
EXHIBIT 74	Applicant's Supplemental Information on Water Agreement and MFPD dated September 19, 2007. Sponsored by Applicant, and received into evidence on January 23, 2008.
EXHIBIT 75	Responses to Data Request 130-136 dated November 6, 2006, and docketed October 12, 2007. Sponsored by Applicant, and received into evidence on January 23, 2008.
EXHIBIT 76	Streambed Alteration Agreement Application for Colusa Generating Station, Biological Resources, dated October 12, 2007. Sponsored by Applicant, and received into evidence on January 23, 2008.
EXHIBIT 77	Intentionally omitted
EXHIBIT 78	Revised Biological Assessment, Biological Resources, dated October 19, 20076. Sponsored by Applicant, and received into evidence on January 23, 2008.
EXHIBIT 79	Water Quality Certification Application dated December 7, 2007. Sponsored by Applicant, and received into evidence on January 23, 2008.
EXHIBIT 80	Applicant's comments on the Final Staff Assessment, dated December 14, 2007. Sponsored by Applicant, and received into evidence on January 23, 2008.

EXHIBIT 81	Supplemental Information for the 1600 Lake and Streambed Alteration Agreement, Biological Resources, dated December 19, 2007. Sponsored by Applicant, and received into evidence on January 23, 2008.
EXHIBIT 82	Declaration of Mark Strehlow, URS, Air Quality and Public Health, dated January 9, 2008. Sponsored by Applicant, and received into evidence on January 23, 2008.
EXHIBIT 83	Declaration of Steve Leach, URS, Biological Resources, dated January 9, 2008. Sponsored by Applicant, and received into evidence on January 23, 2008.
EXHIBIT 84	Declaration of Mark Hale, URS, Cultural Resources, dated January 9, 2008. Sponsored by Applicant, and received into evidence on January 23, 2008.
EXHIBIT 85	Declaration of Alison Drury, URS, Land Use, dated January 9, 2008. Sponsored by Applicant, and received into evidence on January 23, 2008.
EXHIBIT 86	Declaration of Ron Reeves, URS, Noise and Vibration, dated January 9, 2008. Sponsored by Applicant, and received into evidence on January 23, 2008.
EXHIBIT 87	Declaration of Dave Larsen, Navigant, Transmission Line Safety & Nuisance and Transmission Line Engineering, dated January 9, 2008. Sponsored by Applicant, and received into evidence on January 23, 2008.
EXHIBIT 88	Declaration of Erik Skov, URS, Waste Management, dated January 9, 2008. Sponsored by Applicant, and received into evidence on January 23, 2008.
EXHIBIT 89	Declaration of Ray Rice, URS, Geology and Paleontology, dated January 9, 2008. Sponsored by Applicant, and received into evidence on January 23, 2008.

EXHIBIT 90	Declaration of Bruce Ritter, Bechtel Power Corporation, Facility Design, Efficiency, Reliability, Transmission System Engineering, dated January 9, 2008. Sponsored by Applicant, and received into evidence on January 23, 2008.
EXHIBIT 91	Intentionally omitted
EXHIBIT 92	Declaration of Rand Herbert, JRP Historical Consulting, Cultural Resources, dated January 9, 2008. Sponsored by Applicant, and received into evidence on January 23, 2008.
EXHIBIT 93	Declaration of John Lague, URS, Hazardous Materials, dated January 9, 2008. Sponsored by Applicant, and received into evidence on January 23, 2008.
EXHIBIT 94	Declaration of Mara Feeney, Mara Feeney & Associates, Socioeconomics, dated January 9, 2008. Sponsored by Applicant, and received into evidence on January 23, 2008.
EXHIBIT 95	Declaration of Tammy Dorje, URS, Socioeconomics, dated January 9, 2008. Sponsored by Applicant, and received into evidence on January 23, 2008.
EXHIBIT 96	Declaration of Anne Connell, URS, Soil & Water Resources, dated January 9, 2008. Sponsored by Applicant, and received into evidence on January 23, 2008.
EXHIBIT 97	Declaration of Ray Rice, URS, Soil & Water Resources, dated January 9, 2008. Sponsored by Applicant, and received into evidence on January 23, 2008.
EXHIBIT 98	Declaration of N. Amin, URS, Traffic & Transportation, dated January 9, 2008. Sponsored by Applicant, and received into evidence on January 23, 2008.
EXHIBIT 99	Intentionally omitted

EXHIBIT 100	Declaration of Lisa Griggs, URS, Worker Safety, dated January 9, 2008. Sponsored by Applicant, and received into evidence on January 23, 2008.
EXHIBIT 101	Declaration of David Lawler, Lawler and Associates, Paleontology, dated January 9, 2008. Sponsored by Applicant, and received into evidence on January 23, 2008.
EXHIBIT 102	Declaration of Andrew Welch, E&L Westcoast. LLC, dated January 9, 2008. Sponsored by Applicant, and received into evidence on January 23, 2008.
EXHIBIT 103	Glenn-Colusa Irrigation District Resolution No. 07-11, Soil & Water Resources, dated January 4, 2008. Sponsored by Applicant, and received into evidence on January 23, 2008.
EXHIBIT 104	Agreement for the Transfer, Conveyance and Delivery of Water regarding the Colusa project, Soil & Water Resources, dated January 4, 2008. Sponsored by Applicant, and received into evidence on January 23, 2008.
EXHIBIT 105	County of Colusa Land Use Approvals, dated November 6, 2006, and docketed November 6, 2006. Sponsored by Applicant, and received into evidence on January 23, 2008.
EXHIBIT 106	Declaration of Giorgio Molinario, URS, Soil & Water Resources, dated January 4, 2008. Sponsored by Applicant, and received into evidence on January 23, 2008.
EXHIBIT 107	Declaration of Kathy Rushmore, URS, Land Use, dated January 9, 2008. Sponsored by Applicant, and received into evidence on January 23, 2008.
EXHIBIT 108	Declaration of Richard Stuhan, URS, Visual Resources, dated January 9, 2008. Sponsored by Applicant, and received into evidence on January 23, 2008.

EXHIBIT 109	Temporary Jumper Bridge, Project Description, dated January 18, 2008. Sponsored by Applicant, and received into evidence on January 23, 2008.
EXHIBIT 110	Declaration of Dale Shileikis, URS, Alternatives, Project Description, dated January 23, 2008. Sponsored by Applicant, and received into evidence on January 23, 2008.
EXHIBITS 110 -199	Reserved

STAFF EXHIBITS

EXHIBIT 200	Final Staff Assessment, dated November 30, 2007. Sponsored by Staff, and received into evidence on January 23, 2008.
EXHIBIT 201	The Final Determination of Compliance, dated June 11, 2007. Sponsored by Staff, and received into evidence on January 23, 2008.
EXHIBIT 202	Supplementary testimony of Brian Payne, P.E. concerning the plausibility of the temporary bridge alternative, and proposed conditions TEMP-1 through TEMP-4 for that alternative, sponsored by Staff and received into evidence on January 23, 2008.
EXHIBIT 203	Declaration of Alvin J. Greenberg, Ph.D., dated January 18, 2008, sponsored by Staff and received into evidence on January 23, 2008.
EXHIBIT 204	Declaration of Rick Tyler, dated January 22, 2008, concerning revised proposed conditions of certification WORKER SAFETY-6 and HAZ-7, sponsored by Staff and received into evidence on January 23, 2008.

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BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION OF THE STATE OF CALIFORNIA

APPLICATION FOR CERTIFICATION FOR THE *COLUSA GENERATING STATION PROJECT*	**Docket No. 06-AFC-9** **PROOF OF SERVICE**

INSTRUCTIONS: All parties shall 1) send an original signed document plus 12 copies OR 2) mail one original signed copy AND e-mail the document to the web address below, AND 3) all parties shall also send a printed OR electronic copy of the documents that shall include a proof of service declaration to each of the individuals on the proof of service:

CALIFORNIA ENERGY COMMISSION
Attn: Docket No. 06-AFC-9
1516 Ninth Street, MS-4
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DECLARATION OF SERVICE

I, _____, declare that on _____deposited copies of the attached _____in the United States mail at Sacramento, California with first-class postage thereon fully prepaid and addressed to those identified on the Proof of Service list above.

OR

Transmission via electronic mail was consistent with the requirements of California Code of Regulations, title 20, sections 1209, 1209.5, and 1210. All electronic copies were sent to all those identified on the Proof of Service list above. **I declare under penalty of perjury that the foregoing is true and correct.**

_____
Name