PALMDALE HYBRID POWER PROJECT

Commission Decision

AUGUST 2011
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CALIFORNIA
ENERGY COMMISSION
Edmund G. Brown, Jr., Governor

DOCKET NUMBER 08-AFC-9

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DISCLAIMER

This report was prepared by the California Energy Commission Palmdale Project AFC Committee as part of the Palmdale Project, Docket No. 08-AFC-9. The views and recommendations contained in this document are not official policy of the Energy Commission until the report is adopted at an Energy Commission Business Meeting.

BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION OF THE STATE OF CALIFORNIA
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APPLICATION FOR CERTIFICATION **For the *PALMDALE HYBRID POWER PROJECT***	**DOCKET NO. 08-AFC-9** **ORDER NO. 11-0810-09**

COMMISSION ADOPTION ORDER

This Commission Order adopts the Commission Decision on the Palmdale Hybrid Power Project. It incorporates the Presiding Member's Proposed Decision (PMPD) in the above-captioned matter, the Committee Errata, and the Applicant's Request for Clarification. The Commission Decision is based upon the evidentiary record of these proceedings and considers the comments received at the August 10, 2011, 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 Palmdale Hybrid Power Project 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 a nine hundred forty-nine dollar ($949) 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, no feasible alternatives to the project, as described in the record, would reduce or eliminate any significant environmental impacts of the mitigated project.

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

8. The 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 Palmdale Hybrid Power Project 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 the date it is docketed.

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. This Decision licenses the project owner to commence construction on the project within five years of this Decision date. Subject to the provisions of California Code of Regulations, title 20, section 1720.3, this license expires by operation of law when the project's start-of-construction deadline passes with no construction.

8. The project owner shall provide the Executive Director a check in the amount of nine hundred and forty-nine dollars ($949) payable to the California Department of Fish and Game.

9. 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.

10. We order that the Application for Certification docket file for this proceeding be closed effective the date of this Decision, with the exception that the docket file shall remain open for 30 additional days solely to receive material related to a petition for reconsideration of the Decision.

CERTIFICATION

The undersigned Secretariat to the Commission does hereby certify that the foregoing is a full, true, and correct copy of an order duly and regularly adopted at a meeting of the California Energy Commission held on August 10, 2011.

AYE: Weisenmiller, Boyd, Douglas, Peterman
NAY: None
ABSENT: None
ABSTAIN: None

Dated: August 10, 2011, at Sacramento, California.

Harriet Kallemeyn
Secretariat
California Energy Commission

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I. INTRODUCTION

A. SUMMARY OF THE DECISION

This Decision contains the Commission's rationale in determining that the proposed Palmdale Hybrid Power Project (PHPP or Project) will, as mitigated, have no significant impacts on the environment and complies with all applicable laws, ordinances, regulations, and standards (LORS). This Decision 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 PHPP is designed, constructed, and operated in the manner necessary to protect public health and safety, promote the general welfare, and preserve environmental quality.

On August 4, 2008, the City of Palmdale (Applicant) submitted an Application for Certification (AFC) to construct and operate the Palmdale Hybrid Power Project, a hybrid natural gas-fired combined cycle and solar thermal generator, located northwest of the Los Angeles/Palmdale Regional Airport in the City of Palmdale, Los Angeles County.

The proposed site for the PHPP project is located approximately 60 miles north of downtown Los Angeles and in the northernmost portion of the City of Palmdale, located immediately north and west of the combined facilities of Los Angeles/Palmdale Regional Airport and Air Force Plant 42. The Air Force Plant 42 site is over 6,600 acres and supports facilities for the production, engineering, final assembly and flight testing of high performance aircraft.

The PHPP consists of a hybrid of natural gas-fired combined-cycle generating equipment integrated with solar thermal generating equipment to be developed on an approximately 333-acre site. The combined-cycle equipment utilizes two natural gas-fired combustion turbine generators (CTG), two heat recovery steam generators (HRSG), and one steam turbine generator (STG). The solar thermal equipment utilizes arrays of parabolic collectors to heat a high-temperature working fluid. The hot working fluid is used to boil water to generate steam. The combined-cycle equipment is integrated thermally with the solar equipment at the HRSG and both utilize the single STG. The project will have a nominal electrical

[1] The Reporter's Transcript of the evidentiary hearings is cited as "date of hearing RT page __: line." For example: 03/07/11 RT 77:12. The exhibits included in the evidentiary record are cited as "Ex. number." A list of all exhibits is contained in **Appendix B** of this Decision.

output of 570 MW and would provide base and peak load power services designed to meet electric generation demand and reliability requirements in the City of Palmdale and surrounding local areas, and to provide additional generating capacity for the region and state. (Exs. 2; 122; 47; 56; 87; 128; 23; 120; 94; 133; 146; 300; 301.)

The project will permanently occupy 250 acres for the solar field, 26 acres for the power block, and 51 acres for the access road, setbacks and drainage facilities. A temporary construction laydown area of 50-acres lies immediately to the west. The City of Lancaster borders immediately north of the project site along East Avenue M. (Ex. 300, p. 3-1.)

The solar thermal input will provide approximately 10 percent of the peak power generated by the project during the daily periods of highest energy demand. The City of Palmdale proposes to initiate construction after the city has secured a developer for the project and secured a power purchase agreement.

Construction is expected to take about 27 months, including startup testing. The construction workforce would average 367 workers per month and would peak during the 12th month with up to 767 workers on-site. The construction schedule would typically consist of a 12-hour workday (Monday through Friday), between the hours of 6:00 a.m. and 6:00 p.m. The City of Palmdale anticipates operational hours for the project would be 7 days per week, 24 hours a day, employing 36 full-time employees.

PHPP operation will require 36 full-time employees. Capital costs for the combined-cycle portion of the PHPP are estimated at $615 million to $715 million.

The Energy Commission has exclusive jurisdiction to license this project and is considering the proposal under a review process established by Public Resources Code section 25540.6.

B. SITE CERTIFICATION PROCESS

The PHPP and its related facilities are subject to Energy Commission licensing jurisdiction. (Pub. Res. Code, § 25500 et seq.). During licensing proceedings, the Commission acts as lead state agency under the California Environmental Quality Act (CEQA). (Pub. Res. 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. Res. Code, § 21080.5.) The process is designed to complete the review within a specified time period when the required information is submitted in a timely manner. A license issued by the Commission is in lieu of other state and local permits.

The Commission's certification process provides a thorough review and analysis of all aspects of a proposed power plant project. During this process, the Energy Commission conducts a comprehensive examination of a project's potential economic, public health and safety, reliability, engineering, and environmental impacts.

Specifically, the Commission's process allows for and encourages public participation so that members of the public may become involved either informally or on a formal level as intervenor parties who have the opportunity to present evidence and cross-examine witnesses. Public participation is encouraged at every stage of the process.

The process begins when an Applicant submits an AFC. Commission staff reviews the data submitted as part of the AFC and makes a recommendation to the Commission on whether the AFC contains adequate information to begin the certification process. After the Commission determines an AFC contains sufficient analytic information, it appoints a Committee of two Commissioners to conduct the formal licensing process. This process includes public conferences and evidentiary hearings, where the evidentiary record is developed and becomes the basis for the Presiding Member’s Proposed Decision (PMPD). The PMPD determines a project's environmental impact and conformity with applicable laws, ordinances, regulations, and standards and provides recommendations to the full Commission.

The initial portion of the certification process is weighted heavily toward assuring public awareness of the proposed Project and obtaining necessary technical information. During this time, the Commission staff sponsors public workshops at which intervenors, agency representatives, and members of the public meet with Staff and the Applicant to discuss, clarify, and negotiate pertinent issues.

Following this, the Committee conducts a Prehearing Conference to assess the adequacy of available information, identify issues, and determine the positions of the parties. Based on information presented at this event, the Committee issues a Hearing Order to schedule formal evidentiary hearings. At the evidentiary

hearings, all formal parties, including intervenors, may present sworn testimony, which is subject to cross-examination by other parties and questioning by the Committee. Members of the public may offer oral or written comments at these hearings. Evidence submitted at the hearings provides the basis for the Committee's analysis and recommendations to the full Commission.

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

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

C. PROCEDURAL HISTORY

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

On August 4, 2008, the Applicant submitted an AFC with the Energy Commission to construct and operate the Palmdale Hybrid Power Project, a hybrid natural gas-fired combined cycle and solar thermal generator in Los Angeles County.

The AFC was reviewed for data adequacy and on October 8, 2008, the Energy Commission accepted the AFC as complete, assigned a Committee of two Commissioners to conduct proceedings, thus starting the Energy Commission's formal review of the proposed project.

The formal parties included the Applicant, Energy Commission staff (Staff), and Intervenors Lisa T. Belenky and John Buse, for the Center for Biological Diversity, and Jane Williams for the Desert Citizens Against Pollution.

On November 3, 2008, the Committee issued its "Notice of Informational Hearing and Public Site Visit." The Notice was mailed to local agencies and 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 PHPP. The Public Adviser's Office also advertised the public hearing and site visit and distributed information to local officials and sensitive receptors surrounding the project site.[2]

On December 4, 2008, the Committee conducted a site visit to tour the proposed site and then convened a public Informational Hearing at the City Council Chambers in Palmdale, California. At that event, the Committee, the parties, interested governmental agencies, and other public participants discussed issues related to development of the project, described the Commission's review process, and explained opportunities for public participation.

On December 16, 2008, the Committee issued its initial Scheduling Order. The Committee Schedule was based on both the Applicant's and Staff's proposed schedules and related discussion at the Informational Hearing. The schedule contained a list of events that must occur in order to complete the certification process within twelve months. The Committee issued several revised schedules during the course of discovery.

The Energy Commission seeks comments from and works closely with other regulatory agencies that administer LORS applicable to the proposed project. These agencies may include as applicable the U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service, U.S. Army Corps of Engineers, U.S. Air Force, Lahontan Regional Water Quality Control Board, State Water Project, California Department of Fish and Game, California Department of Water Resources, the California Air Resources Board, City of Lancaster, County of Los Angeles, California Independent System Operator, and Antelope Valley Air Quality Management District

On February 4, 2009, Staff conducted a publicly noticed Data Response and Issue Resolution Staff workshop in the City of Palmdale, the purpose of which was to allow Staff, the Applicant, other parties, interested agencies, and the

[2] Sensitive receptors are people or institutions with people that are particularly susceptible to illness, such as the elderly, very young children, people already weakened by illness (e.g., asthmatics), and persons engaged in strenuous exercise.

public to clarify any of Staff's outstanding data requests and discuss the Applicant's expected responses. Participating stakeholders and agencies in the workshop included the Applicant, California Department of Water Resources, Southern California Edison, Los Angeles County Waterworks, and Los Angeles County Farm Bureau.

Energy Commission staff published the Preliminary Staff Assessment (PSA) Volume 1 on December 23, 2009, and Volume 2 was issued February 9, 2010. Staff conducted PSA workshops on February 11, 2010 and March 16, 2010 to discuss its conclusions, proposed mitigation, and proposed compliance-monitoring requirements. The Final Staff Assessment was published on January 14, 2011. The Committee Ordered Commission Staff to conduct a public workshop on February 3, 2011, the purpose of which was to respond to comments raised by the parties regarding Energy Commission staff's Final Staff Assessment and discuss the areas of disagreement that remained amongst the parties.

On January 31, 2011, the Committee issued its Second Revised Notice of Prehearing Conference and Evidentiary Hearings. The Prehearing Conference was held on February 14, 2011, and the Evidentiary Hearing was held on March 2, 2011, in Palmdale, California.

The Committee published the PMPD on June 16, 2011, and held a Committee Conference on July 14, 2011. The Full Commission adopted the PMPD and Errata as submitted at the July 27, 2011, business meeting.

D. COMMISSION OUTREACH

Several entities within the Energy Commission provide various notices concerning power plant siting cases. Staff provides notices of staff workshops and the release of the Staff Assessments. The Hearing Office notices Committee-led events such as the informational hearing and site visit, status conferences, the prehearing conference, and evidentiary hearings. The Public Adviser's Office provides additional outreach for critical events as well as provides information to interested persons that would like to become more actively involved in a power plant siting proceeding. Further, the Media Office provides notice of events to local and regional press through press releases. The public may also subscribe to the proceeding's e-mail List Server offered on the web page for each project which gives an immediate notification of documents posted to the project web page. Through the activities of these

entities, the Energy Commission has made every effort to ensure that interested persons are notified of activities in this proceeding.

E. PUBLIC COMMENT

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

II. PROJECT DESCRIPTION

The Palmdale Hybrid Power Plant project is being developed by the City of Palmdale, which submitted an Application for Certification (AFC) to construct and operate the Palmdale Hybrid Power Plant (PHPP or Project); a hybrid of natural gas-fired combined cycle generating equipment integrated with solar thermal generating equipment, in the City of Palmdale, Los Angeles County. The 570-MW nominal capacity PHPP would provide base and peak load power services designed to meet electric generation demand and reliability requirements in the City of Palmdale and surrounding local areas, and to provide additional generating capacity for the region and state. (Exs. 2; 122; 47; 56; 87; 128; 23; 120; 94; 133; 146; 300; 301; 3/2/11 RT 287:6 – 288:21.)

The proposed site for the PHPP is located approximately 60 miles north of downtown Los Angeles and in the northernmost portion of the City of Palmdale. The site address is 950 East Avenue M, located at the intersection of Sierra Highway and East Avenue M. The property is located immediately north and west of the combined facilities of Los Angeles/Palmdale Regional Airport and Air Force Plant 42. The Air Force Plant 42 site is over 6,600 acres and supports facilities for the production, engineering, final assembly and flight testing of high performance aircraft. The City of Lancaster borders immediately north of the project site along East Avenue M. (Ex. 300, p. 3-1.)

Construction of the proposed PHPP would require permanent use of a 333-acre site that is currently vacant and undeveloped, and is part of a 613.4-acre property owned by the City of Palmdale in an industrial area of the City which is currently zoned industrial. The power plant site would require 251 acres for the solar field, 26 acres for the power block, and 56 acres combined for the access road, setbacks and drainage facilities. Construction lay down would require a separate 50-acre temporary area located west of and adjacent to the proposed power plant site. The site is relatively flat with the main population base of the community of Palmdale approximately four miles south. The proposed site is comprised of multiple parcels owned by the City of Palmdale. (Ex. 300, p. 3-1.)

SUMMARY AND DISCUSSION OF THE EVIDENCE

1. Equipment and Linear Facilities

The PHPP is designed to use solar technology to generate a portion of the project's output and thereby support the State of California's goal of increasing

the percentage of renewable energy supplies. The PHPP is designed to use solar technology to generate a portion of the project's output and thereby support the State of California's goal of increasing the percentage of renewable energy supplies. Primary equipment for the generating facility would include two General Electric (GE) Frame 7FA natural gas-fired combustion turbine-generators (CTGs) rated at 154 MW each, two heat recovery steam generators (HRSGs), one steam turbine-generator (STG) rated at 267 MW, and 250 acres of parabolic solar-thermal collectors with associated heat transfer equipment. The 250-acre solar field would consist of parabolic solar-thermal collectors and associated heat transfer equipment arranged in rows. Spacing between the rows would allow for maintenance vehicles and periodic spray washing to remove dust and maintain efficiency of the solar collectors. The proposed PHPP will have a nominal electrical output of 570 MW. The project would also include one evaporative (wet) cooling tower for steam condensation and evaporative inlet air cooling for the CTGs, an operations building and auxiliary equipment. (Ex. 300, p. 3-2.)

The proposed generator tie-line would be owned, operated, and maintained by the City of Palmdale and would consist of a 35.6-mile long overhead generator tie-line with two segments. The proposed segment 1 would be 23.7 miles long and located within new and existing rights-of-way (ROW) as it extends from the on-site substation through the northeast corner of the site, along 10th St E and E Ave L. The line would then continue over industrial and agricultural areas, over open spaces, and along new and existing road rights-of-way, until it connects at the California Department of Water Resources (DWR) Pearblossom substation. The generator tie-line along segment 1 would be a single circuit 23-kV line supported on steel poles spaced approximately 750 feet apart, and between 100 feet and 135 feet in height. The majority of segment 1, approximately 18.2 miles, would be located within the City of Palmdale, while the remaining 5.5 miles would be within unincorporated Los Angeles County. (Ex. 300, pp. 3-2 - 3-3.)

Segment 2 is 11.9 miles long, proposed to be built along the existing Southern California Edison's (SCE) ROW, and would proceed from north of the Department of Water Resources Pearblossom Pumping Station southwest to the SCE's Vincent Substation. Segment 2 would be constructed for double-circuit transmission with conductors on both sides of the support poles. One set of conductors would be the new 230-kV interconnection between Pearblossom and Vincent substations, the other would be the replacement for the 230-kV line currently providing power to DWR's water pumping station via the Vincent Substation. The Segment 2 line would be designed, built, operated, and

maintained by SCE, as the line is located within an existing SCE ROW. The proposed segment 2 is located in unincorporated Los Angeles County within an existing SCE ROW. (Ex. 300, p. 3-3.)

In the alternative, the project owner may construct and alternate transmission route which gives the project owner the option of undergrounding a portion of the transmission line along Sierra Highway to avoid aviation concerns and to shorten the transmission line route. The underground portion of the transmission line would follow the project's underground gas pipeline for 6.75 miles and then proceed as an overhead line for 6.05 miles to the Vincent Substation for a total of approximately 12.8 miles. The transmission line routes are described in detail in the **Alternatives** section of this Decision. (Ex. 300, Appendix A, pp. A-2 – A-4.)

2. Natural Gas Supply

Natural gas would be delivered to the project through a new 20-inch, 8.7-mile underground gas line that will be designed and constructed by the Southern California Gas Company (SCGC). The proposed gasline will be constructed from the project site south along Sierra Highway, east along Lockheed Way, south along 10th Street E, to East Avenue S along existing streets and will share the same route as the proposed secondary-treated water line. (Ex. 300, p. 3-3.)

3. Water Supply

The PHPP proposes using secondary-treated water for construction and tertiary-treated water for plant operations. Los Angeles County Waterworks would supply this water under an agreement between the Palmdale and Lancaster water treatment plants. These plants are undergoing upgrades which are scheduled to be completed by early 2012. The tertiary-treated water will be delivered through a new 18-inch, 7.4-mile tertiary water supply pipeline. The underground waterline would follow the same route as the underground gas supply line and will be constructed along existing streets. Drinking water would also be supplied by the Waterworks by a 1.37-mile connection line along East Avenue M to an existing Waterworks potable water service pipeline. (Ex. 300, p. 3-3.)

4. Wastewater Discharge

Industrial process wastewater would be treated using a Zero Liquid Discharge (ZLD) system, separating water for reuse from solids in the form of brine that

would be converted into solids for landfill disposal. Cooling water from the project will be processed to solid waste and disposed at an appropriately permitted off-site disposal facility. Sanitary wastewater will be disposed by connecting to the Los Angeles County Sanitation District's sewer system. The project proposes a new 6-inch, 1.54-mile line along East Avenue M which will connect with an existing sewer line just north of the project. Approximately 5,400 gallons per day of wastewater will be disposed of through this sewer connection. (Ex. 300, pp. 3-3 - 3-4.)

5. Road Paving

The Applicant has proposed to pave segments of roads in the vicinity of the PHPP to reduce PM10 emissions that would off-set project emissions. The road segments considered for paving are listed in **Project Description Table 1,** below.

Project Description Table 1
Road Segments Considered for Paving (PM10 Reduction)

Street Segment	From	To	Jurisdic-tion	Street Type	Segment Length (Mi.)	ROW Req.	Segment Footprint (Acre)
Ave. B	90th Street W	30th Street W	L.A. County	County Road	Approx. 6.0	40 Ft.	29.1
Ave. S-2	96th Street E	106th Street E	L.A. County	County Road	Approx. 1.0	40 Ft.	4.85
110th Street E	Ave. L	Columbia Way /Avenue M	City of Palmdale	Secondary Arterial	Approx. 1.0	92 Ft.	11.15
40th Street W	Ave. N	Ave N-8	L.A. County	County Road	Approx. 0.5	40 Ft.	1.94
Ave. Q	90th Street E	110th Street E	City of Palmdale	Secondary Arterial	Approx. 2.0	92 Ft.	22.3
Ave. S-6	96th Street E	106th Street E	L.A. County	County Road	Approx. 1.0	40 Ft.	4.85
Ave. T-10	87th Street E	96th Street E	L.A. County	County Road	Approx. 1.0	40 Ft.	4.85
Ave. N-8	Bolz Ranch Road	30th Street W	City of Palmdale	Local Interior St.	Approx. 1.5	60 Ft.	10.91
Ave. G	90th Street E	120th Street E	L.A. County	County Road	Approx. 3.0	40 Ft.	9.70
Carson Mesa Road	El Sastre	Vincent View Road	L.A. County	County Road.	Approx. 1.85	40 Ft.	8.24

(Ex. 301, p. 30.)

6. Construction and Operation Schedule

If approved by the Energy Commission, the City of Palmdale proposes to initiate construction after the City has secured a developer for the project and secured a power purchase agreement. Construction is expected to take about 27 months, including startup testing. The construction workforce would average 367 workers per month and would peak during the 12th month with up to 767 workers on-site. The construction schedule would typically consist of a 12-hour workday (Monday through Friday), between the hours of 6:00 a.m. and 6:00 p.m. The City of Palmdale anticipates operational hours for the project would be 7 days per week, 24 hours a day, employing 36 full-time employees. (Ex. 300, p. 3-4.)

PUBLIC COMMENT

No public comment was offered regarding Project Description.

FINDINGS OF FACT

Based on the evidence, we find as follows:

1. The City of Palmdale will own and operate the project.

2. The PHPP involves the construction and operation of a nominal 570 MW a hybrid of natural gas-fired, combined-cycle electrical generating equipment with solar thermal generating equipment in the City of Palmdale, to be used as a baseload and peaking source of electricity generation.

3. The project includes associated transmission, gas supply, water supply lines and road paving.

4. The project and its objectives are adequately described by the relevant documents contained in the record.

CONCLUSION OF LAW

We therefore conclude that the PHPP 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.

III. 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 represent the basic objectives of the proposed project but would avoid or substantially lessen potentially significant environmental impacts. Public Resources Code section 25540.6(b) requires an Applicant for a power plant such as the Palmdale Hybrid Power Project (PHPP), which is otherwise exempt from the notice of intention process, to include information on the site selection criteria, alternative sites, and the reasons for choosing the proposed site. Section 1765 of the Commission's regulations further requires the parties to present evidence on alternative sites and facilities. Based on the totality of the record and as reflected in our findings for each of the technical topics, the mitigated PHPP will not result in any significant adverse effects on the environment. Nevertheless, this alternatives analysis is necessary to ensure compliance with CEQA Guidelines and Commission regulations. (Cal. Code Regs., tit. 14, §§ 15126.6 (c) and (e); *see also*, tit. 20, § 1765.)

The range of alternatives, including the "no project" alternative, is governed by the "rule of reason" and need not include those alternatives whose effects cannot be reasonably ascertained and whose implementation is remote and speculative. Rather, the analysis is necessarily limited to 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).)

Both the Applicant and Staff provided alternatives analyses describing the site selection process and project configuration in light of project objectives. Evidence on Alternatives was heard at the evidentiary hearing on March 2, 2011 and is contained in the following exhibits: 4; 56; 110; 112; 122; 128; 131; 46; 47; 120; 142; 300; (3/2/11 RT 348:3-6).

SUMMARY AND DISCUSSION OF THE EVIDENCE

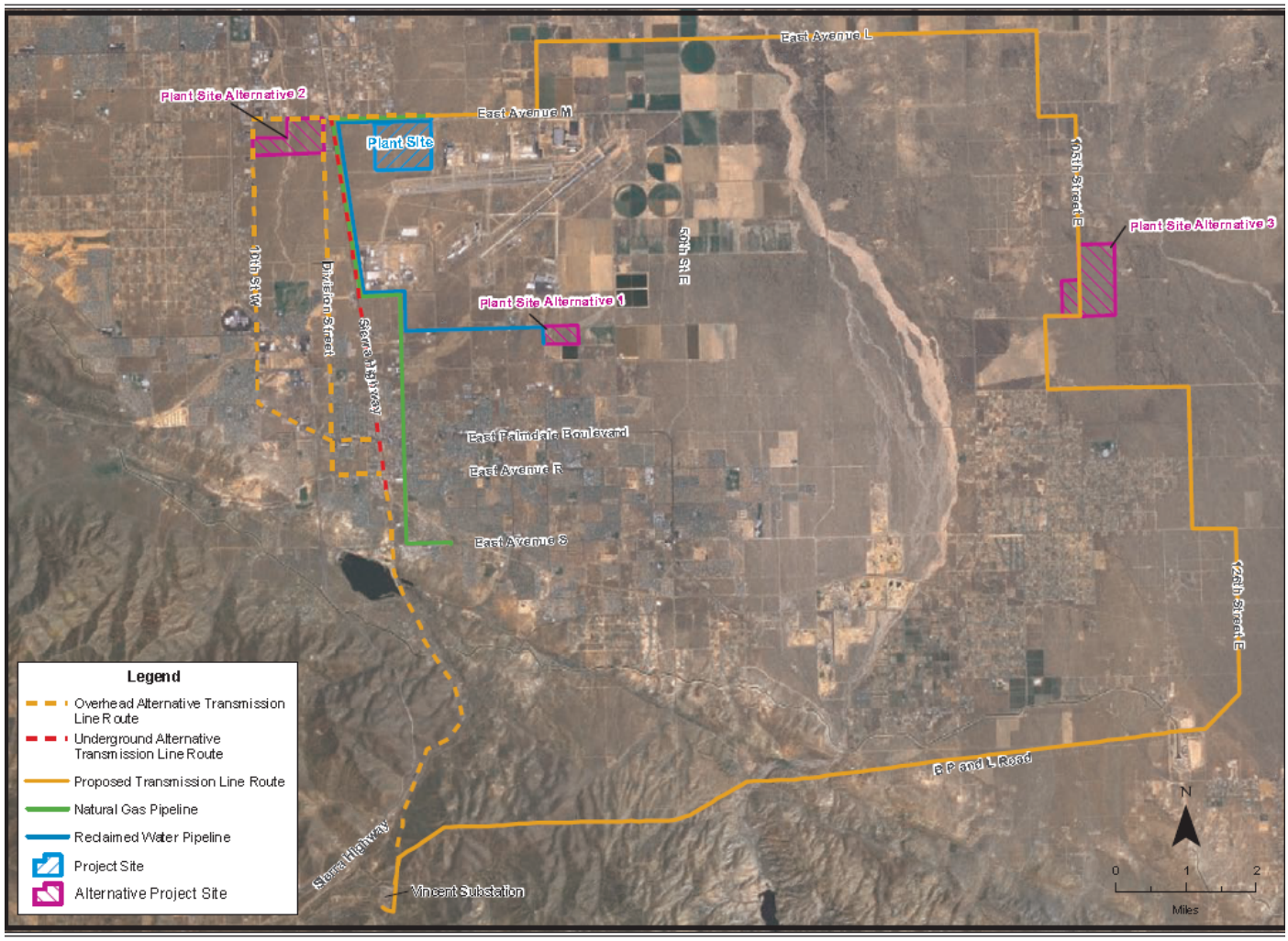
The proposed PHPP will have a nominal electrical output of 570 megawatts (MW). Primary equipment for the generating facility will include two natural gas-fired combustion turbine-generators (CTGs) rated at 172 MW each, two heat recovery steam generators (HRSGs), one steam turbine-generator (STG) rated at 292 MW, and 250 acres of parabolic solar-thermal collectors with associated

heat transfer equipment. The solar-thermal collectors will contribute up to 10 percent of the peak power generated by the facility. (Ex. 300, p. 6-9.)

The PHPP plant site is located south of East Avenue M1 (E. Avenue M) in the northernmost areas of the City of Palmdale. The 333-acre plant site is part of an approximately 600-acre City-owned property that is bound by Sierra Highway to the west, E. Avenue M to the north, and U.S. Air Force Plant 42 on the south and east. (Ex. 300, p. 6-9.) See **Alternatives Figure 1**, below.

ALTERNATIVES - FIGURE 1

Palmdale Hybrid Power Project - Alternative Sites and Transmission Line Routes



CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMETAL PROTECTION DIVISION, SEPTEMBER 2009

SOURCE: AFC, 2008

The Applicant had proposed a 35.6 mile long transmission line route and Staff identified an alternative route (Alternative Route 4) that is 12.8 miles in length. In the Prehearing Conference Statement, Staff and the Applicant jointly proposed that the Commission certify both routes and permit the project owner to elect which route to construct. Both transmission line routes were fully analyzed in the record and were not disputed by the parties. Therefore, we adopt this proposal.

The Applicant's proposed PHPP transmission line route would be approximately 35.6 miles long and would consist of two segments. Segment 1 would begin on the PHPP onsite switchyard and extend approximately 23.7 miles through new and existing right-of-ways (ROWs) to Southern California Edison's (SCE) existing Pearblossom Substation and would involve stringing conductors on new steel poles. Average pole spacing would be approximately 750 feet, pole heights would range from 100 feet to 135 feet. Segment 2 would be approximately 11.9 miles long and the conductors would be strung on new steel poles in the existing SCE ROW between Pearblossom and the Vincent Substation. The route would travel through and near a mixture of disturbed and undisturbed areas, which includes desert areas, agricultural properties, industrial and residential areas. (Ex. 4; Ex. 300, p. 6-10.) See **Alternatives Figure 1**.

Staff's proposed alternative transmission line route would follow the PHPP underground fuel gas supply line route for 6.75 miles and then would proceed approximately 6.05 miles as an overhead route, for a total route length of approximately 12.8 miles. The route would exit the PHPP as an underground line west along E. Avenue M-12 for approximately 0.75 miles until reaching Sierra Highway. At Sierra Highway the route would turn south within Sierra Highway. The underground alternative would run parallel to the natural gas and reclaimed water pipelines proposed for the PHPP within Sierra Highway for approximately 1.75 miles until reaching Lockheed Way. It could run on either the east or west side of Sierra Highway. At Lockheed Way, the line would turn east for approximately 0.5 miles until reaching 10th Street East, following the natural gas supply pipeline route. At 10th Street East, the line would turn south, still following the natural gas supply pipeline route. The line would head south along 10th Street East for approximately 3.5 miles until reaching East Avenue S. At approximately 0.25 miles past East Avenue R-4, the line would cross a railroad line which would likely require boring underneath. At East Avenue S, the line would separate from the natural gas supply pipeline, turning west for approximately 0.15 miles. It would transition to an overhead line at approximately East Avenue S and Sierra Highway. The line would cross to the east side of Sierra Highway and continue overhead on the east side of the

highway past Una Lake and follow Sierra Highway above ground for a total of approximately 3.6 miles. Approximately 300 feet north of the intersection of E. Barrel Springs Road, the line would cross to the west of Sierra Highway and proceed for approximately 0.45 miles between the railroad right-of-way and Sierra Highway until reaching the intersection of Sierra Highway and Pearblossom Highway. The transmission line route would cross the intersection and proceed to the southwest on the southeastern side of Sierra Highway for approximately 1.15 miles to the intersection of Sierra Highway and Highway 14 (Antelope Valley Freeway). The transmission line would then diverge from Sierra Highway and proceed overland to the southeast for approximately 0.8 miles to intersect with the Applicant's proposed transmission line route, crossing the railroad right-of-way and East Carson Mesa Road. At this point the alternative route would follow Applicant's proposed route south until reaching the Vincent Substation, approximately one mile. (Ex. 300, Appendix. A, pp. A-2 – A-4.) See **Alternatives Appendix A Figure 2.**

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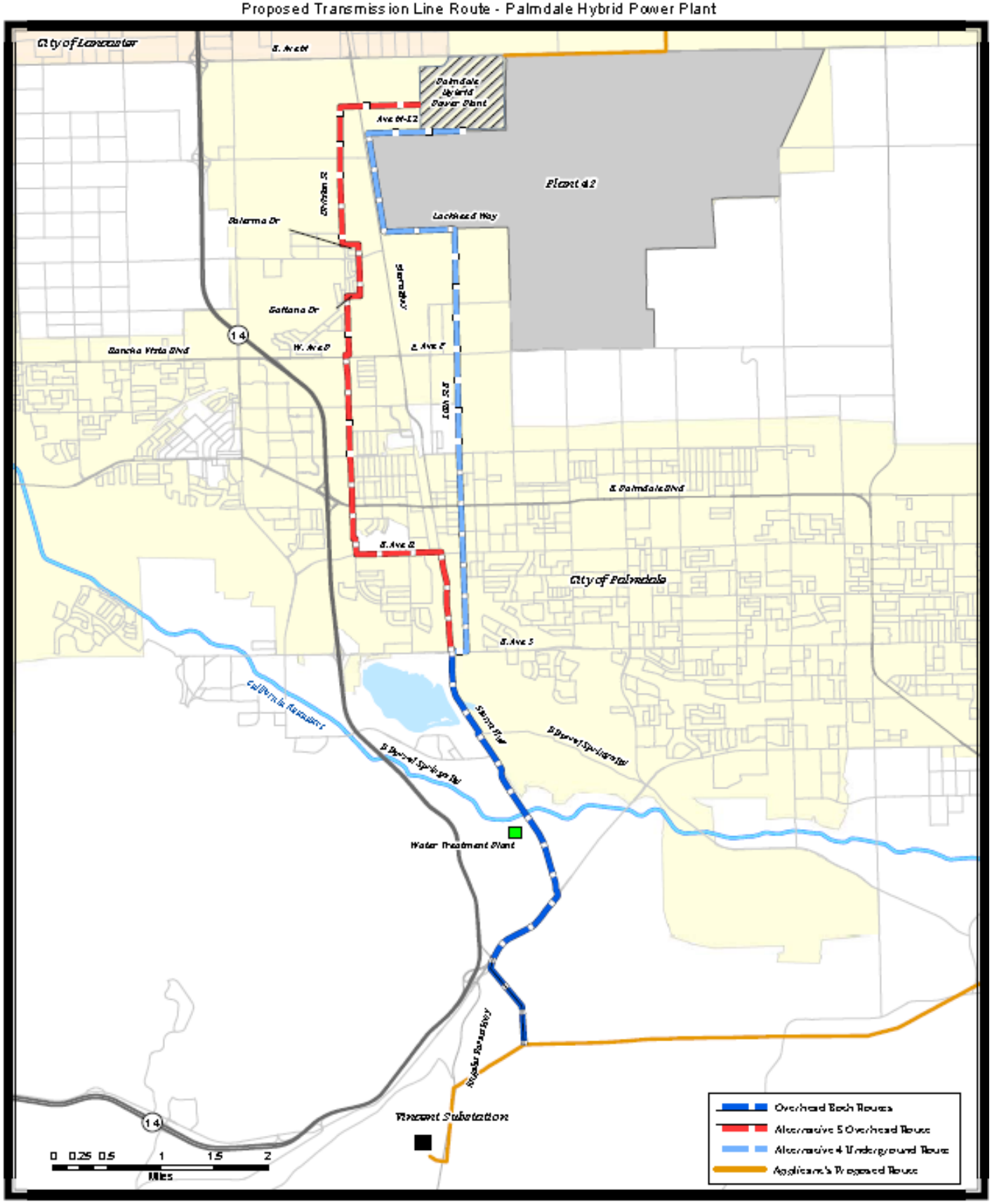
ALTERNATIVES APPENDIX A - FIGURE 2

Proposed Transmission Line Route - Palmdale Hybrid Power Plant



CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION

SOURCE: California Energy Commission

Recycled water for the proposed project's cooling tower makeup and other industrial uses will be supplied from the City of Palmdale Water Reclamation Plant located south of the plant site through a new 7.4-mile, 14-inch pipeline. Southern California (SoCal) Gas would construct an 8.7-mile, 20-inch fuel gas supply line to serve the project as well. The pipeline would originate at the SoCal Gas facility on E. Ave S and would terminate at the PHPP plant site. (Ex. 300, p. 6-10.) See **Alternatives Figure 1**.

The project alternatives analyses considered each of the following factors:

- The project's basic objectives;
- Any potential significant environmental impacts of the project;
- Alternative locations or sites and whether the environmental impacts of the alternatives are the same, better, or worse than the proposed project;
- Identify and evaluate alternative sites for the project to determine whether these sites could reduce or eliminate project impacts;
- Identify and evaluate alternative routes for the transmission line to determine whether these routes could reduce or eliminate project impacts;
- Identify and evaluate technology alternatives to the project that could mitigate project impacts; and
- Evaluate the "No Project" alternative to determine whether this alternative would be superior to the project as proposed. (Ex. 301, p. 6-8.)

1. Project Objectives

The evidentiary record establishes that the project's primary objectives would:

- Provide an efficient, reliable, and environmentally sound power generating facility to meet future electrical power needs of the rapidly growing City of Palmdale and surrounding area, as well as provide additional generating capacity for the region and California;
- Locate the facility within the boundaries of the City of Palmdale and under City ownership and control. The City can, thereby, increase its level of assurance that residential, commercial, and industrial power needs in the City can be met, while at the same time supplying power to the regional grid;
- Use solar technology to generate a portion of the facility's power output and thereby support the State of California's goal of increasing the percentage of renewable energy in the state's electricity mix;

- Integrate the solar component of the project and its combined-cycle component in a way that maximizes the synergies between the two technologies to increase project efficiency; and
- Site the facility in a location zoned and planned for industrial use in an industrial area and with ready access both to adequate supplies of non-potable water to meet the facility's process water needs and to a natural gas pipeline that can supply the Project without requiring significant modifications to the regional gas supply system. (Ex. 301, pp. 6-8 - 6-9.)

Based on the stated project objectives, the Applicant selected the PHPP site because it is:

- Within the City of Palmdale boundaries in an area with existing and planned industrial development and where the power plant is a compatible land use;
- Within the City of Palmdale in order to maximize benefits to the City as the project owner in terms of tax base, jobs; local purchases of materials, supplies, services and control of electrical generation;
- Sufficiently large (approximately 350 to 400 acres) and largely flat land, so that the site can accommodate a 250-acre solar array field capable of generating approximately 50 MW along with combined–cycle generating equipment, support facilities, and access road yielding an overall 570 MW generating facility;
- Within an area with a high level of insolation (amount of solar energy potentially available), allowing for a high renewable energy contribution per acre and thus reducing the amount of acreage needed and associated impacts;
- Largely undeveloped to minimize the need to relocate residents or disrupt other current land uses;
- In reasonable proximity to a natural gas supply pipeline with adequate capacity to supply the facility;
- In reasonable proximity to high voltage transmission lines that connect to the southern California grid;
- In reasonable proximity to a source (wastewater treatment plant) with available non-potable water of adequate quantity and quality that can be used to meet power plant cooling and process water needs; and
- In reasonable proximity to available reliable backup cooling source in case of outages in the primary cooling water supply system. (Ex. 301, p. 6-12.)

2. Environmental Impacts of the Project

As discussed throughout this Decision, the PHPP will not result in any significant adverse impacts and will comply with applicable laws, ordinances, regulations, and standards by implementing the measures proposed in the Application for Certification and the Conditions of Certification contained in this Decision.

3. Project Alternatives

Applicant and Staff evaluated three alternative sites located in Palmdale and determined there would be no appreciable advantages to using either site over the proposed PHPP site. Of the alternative sites, two of the alternative sites were found to be infeasible. The third alternative site, which would be east of Plant 42, was found to have greater environmental impacts to biological resources, the linears would be longer, and there would be increased visual impacts. (Ex. 301, pp. 6-12 - 6-13; 3/2/11 RT 330:25 – 331:5.)

Alternative Site 1 is located three miles southeast of the proposed site and south of U.S. Air Force Plant 42. The site would be adjacent to the Palmdale Water Reclamation Plant (PWRP) on E. Avenue P and 30th Street E., as is shown on **Alternatives Figure 1**. The record indicates that, after weighing the advantages and disadvantages of this site, Alternative Site 1 would be an inferior alternative due to its failure to meet project objectives given the small size of the site and its insufficient acreage to accommodate the 50 MW solar component. (Ex. 300, p. 6-13.)

Alternative Site 2 is located approximately one mile west of the proposed project site, to the south side of E. Avenue M (Columbia Way) between Division Street and 10th Street W. in the City of Palmdale, as is shown on **Alternatives Figure 1**. The evidence establishes that, after weighing the advantages and disadvantages of Alternative Site 2, it would be an inferior alternative because the site is composed of multiple, privately-owned parcels and the land acquisition process would likely prove problematical. Additionally, the site is bisected by a major intermittent streambed, which regularly fills with water during rainstorms, and could lead to increased erosion and problems for the solar troughs. Landform modifications and grading would be needed, and the associated engineering and environmental issues would potentially be greater at Alternative Site 2 than at the proposed site. (Ex. 300, p. 6-14.)

Alternative Site 3 is located approximately 9.5 miles east-southeast of the proposed site. It is bordered by E. Avenue P to the south, 110th Street E. to the east, E. Avenue O to the north, and roughly 105th Street E. to the west, as is shown on **Alternatives Figure 1**. The record indicates that, after weighing the advantages and disadvantages of this site, Alternative Site 3 would be an inferior alternative. The natural gas pipeline required for Alternative Site 3 would cross the Little Rock Wash Significant Ecological Area for approximately one mile. In addition, the site would be located near the Alpine Butte Significant Ecological Area. It would be difficult for the water pipeline to reach any site located east of Los Angeles World Airport (LAWA) without crossing the Little Rock Wash, potentially causing greater impacts to biological resources than would be created at the proposed site. If the pipeline were to stay in existing paved roadways, such as E. Palmdale Boulevard, then the route would become substantially longer. As such, this site would not avoid or substantially lessen the environmental effects of the proposed project without creating additional impacts to biological resources, visual resources and traffic due to its remote location and lack of existing infrastructure in the area. (Ex. 300, pp. 6-14 – 6-15.)

We find the record contains an acceptable analysis of a reasonable range of alternatives to the project site as proposed.

4. Alternative Transmission Line Route Alternatives

The Vincent 500/230-kV Substation was chosen as the interconnection of the PHPP with the regional transmission system. SCE identified the Vincent Substation, approximately 11 miles south of PHPP site, as the primary point of interconnection to the California Independent System Operator system, and this substation was the subject of the System Impact Study for the PHPP. (Ex. 300, p. 6-16.)

The most direct route from the PHPP to the Vincent Substation would follow Sierra Highway; however, an overhead line along this route would have conflicted with U.S. Air Force Plant 42's operation. As such, the most direct route was not considered for an overhead line. In a comment letter dated May 24, 2010, U.S. Air Force Plant 42 lists the distances of the proposed transmission line route and notes that each of the alternative routes along with the proposed route would be within U.S. Air Force Plant 42's military airport airspace and would require restricted pole heights. The Applicant considered three transmission line routes west of the project before concluding that the eastern

route that would avoid the restricted use areas would be most appropriate. This is the route that Applicant proposed in the PHPP AFC, as described above, (see **Alternatives Figure 1**). (Ex. 300, p. 6-16.)

The record contains Staff's analysis of five alternative routes to the Applicant's proposed transmission line route:

- Alternative Route 1: 10th Street W. Route
- Alternative Route 2: Division Street Route
- Alternative Route 3: Underground along Sierra Highway
- Alternative Route 4: Underground/Overhead along Sierra Highway (described in detail, above)
- Alternative Route 5: Underground along Sierra Highway

Alternative Routes 1 through 3 are analyzed in detail in the Final Staff Analysis (FSA) Alternatives section (Ex. 300) and Alternative Routes 4 and 5 are fully analyzed in Appendix A of the FSA. (Ex. 300, Appendix A.) As noted above, there was no dispute regarding transmission line routes and the Applicant and Staff agreed that the Commission certify both the Applicant's proposed transmission route and Staff's Alternative Transmission Route 4 (Underground/Overhead Along Sierra Highway), thereby giving the project owner the option to elect which route to construct. We find the record contains an acceptable analysis of a reasonable range of alternatives to the project transmission routes as proposed.

5. Generation Technology Alternatives

The record contains an analysis of various alternative generation technologies and evaluated which of these would meet the project's objectives. Technologies examined were those which do not burn fossil fuels: wind, biomass, geothermal, fuel cell, and hydropower. The analysis in evidence also considered construction of a natural gas-fired power plant without the solar component and nuclear power. (Ex. 300, pp. 6-24 – 6-28.)

a. Wind Generation

The analysis in evidence considered wind turbines as a viable alternative to large bulk power fossil power plants as well as small-scale distributed systems. Although air emissions would be significantly reduced or eliminated for wind

facilities, wind turbines can have significant visual effects and they also cause bird mortality (especially for raptors) resulting from collision with rotating blades. (Ex. 300, p. 6-25.)

Wind resources require large land areas in order to generate 570 MW of electricity. Depending on the size of the wind turbines and the wind conditions of the region, the evidence shows that wind energy generation requires between 5 and 17 acres per MW of energy created (between 2,850 to 9,690 acres for 570 MW). Comparatively, the proposed project would be contained within approximately 333 acres. Even if adequate land were available, the record indicates that wind generation technology is not a feasible alternative as the area immediately around Palmdale is not considered a productive resource area for development of commercial wind energy because it has a wind speed of less than 6.7 meters/second. Wind energy would also disturb significantly more acres of habitat for desert tortoise, and would not fully meet the objectives of the project to provide a reliable source of power generation for supplying electrical energy night and day. Based upon this uncontroverted evidence, we find wind energy generation is neither feasible nor environmentally preferable in this location.
(Ex. 300, p. 6-25.)

b. Biomass Generation

Biomass generation typically uses a feedstock consisting of waste vegetation such as wood chips (the preferred source) or agricultural waste. The feedstock is most commonly burned to generate steam in a boiler, and the steam is harnessed in a steam turbine-generator to produce electricity. Currently, nearly 19 percent of the state's renewable electricity derives from biomass and waste-to-energy sources. Most biomass plant capacities are in the 3 to 10 MW range and typically operate as baseload capacity. The average size of a sales generation biomass plant is 21 MW. Unlike other renewables, the locational flexibility of biomass facilities reduces the need for significant transmission and/or pipeline investments. (Ex. 300, p. 6-26.)

The emissions due to biomass fuel-fired power plant operation are generally unavoidable. Direct impacts of criteria pollutants could cause or contribute to a violation of the ambient air quality standards. Significant impacts can potentially occur for PM10 and ozone because emissions of particulate matter and precursors and ozone precursors would contribute to existing violations of the PM10 and ozone standards. Biomass/biogas facility emissions could also adversely affect visibility, air quality and vegetation. Toxic air contaminants from routine operation would also cause health risks that could locally adversely affect

sensitive receptors. In addition, biomass plants in California are typically sized to generate less than 50 MW, substantially less than the capacity of the proposed 570 MW PHPP. Numerous biomass units would be required to meet the project goal of generating 570 MW. Generally, small amounts of land are required for biomass power facilities; however, a biomass facility should be sited near a relatively large source of biomass in order to minimize the cost of bringing the biomass waste to the facility. While a small biomass facility may be feasible in the Palmdale region using the existing urban wood waste in the region, significant biomass waste would likely have to be transported over long distances from agricultural residues such as in the Central Valley of the state to reach the project goal of 570 MW. Lacking sufficient feedstock in the greater Palmdale area, we find that biomass is not a practical alternative. (Ex. 300, p. 6-26.)

c. Geothermal

Geothermal technologies use steam or high-temperature water obtained from naturally occurring geothermal reservoirs to drive steam turbine/generators. Geothermal power projects use less land than almost any other energy source; however, geothermal plants must be built near the resource since the steam cannot be piped long distances without significant heat loss. The evidence shows that there are no viable geothermal resources in the Palmdale area. Therefore, we find geothermal energy is not a practical alternative. (Ex. 300, p. 6-26 – 6.27.)

d. Hydropower

Hydropower facilities require large quantities of water diverted from streams and rivers that must be sustained during dry seasons by either the presence of adequate natural flows or by impounding water in a reservoir during wet seasons for use during dry seasons. The energy potential of using water to generate power is also a function of having sufficient topography to allow water to drop in elevation and pressurize before flowing through a turbine. The evidence establishes that neither the water resources nor the topographic conditions are present in the project region. (Ex. 300, p. 6-27.)

e. Fuel Cell

Various types of fuel cell technologies, such as those that use hydrogen and oxygen, are available, but have not been proven to work on a commercial scale, such as for 570 MW proposed by the PHPP. Using fuel cells as an alternative power generation technology was therefore eliminated as a project alternative.

f. Solar Energy

The evidence describes how power plants using all solar technology, whether solar-thermal or photovoltaic (PV), would require large areas of land for siting equipment. Solar power plants use between 4 acres per MW for the Linear Fresnel Technology to 10 acres per MW. The average land required for a solar power plant is 8 acres per MW. Approximately 2,280 to 5,700 acres of land would be required to create a source of power generation equivalent to the proposed project capacity of 570 MW. If a larger area could be acquired and dedicated for a solar project, one of its most significant benefits would include eliminating air emissions during project operations, although some air emissions occur during the maintenance of the power plants because of the cleaning of the mirrors. Among the negative effects is the greater loss of habitat for desert tortoise and other species of concern. Impacts to soil erosion may occur due to the large amount of grading required and it may be difficult to acquire sufficient land for the plant with appropriate conditions. (Ex. 300, p. 6-27.)

Rooftop PV installations by their nature would reduce the amount of new or disturbed land required. In fact, SCE plans to install 250 MW of solar panels on two square miles of commercial rooftop (in 150 installations) in the next five years. In December 2008, SCE dedicated its first rooftop solar installation, 33,700 solar panels on a 600,000 square-foot rooftop in Fontana. However, according to Staff, if the solar PV rooftop component is not located in the area of the proposed PHPP, then it would not maximize the synergies between the solar and natural gas technologies to increase project efficiency and reduce the need for duct burning. Although California's investor-owned utilities, such as SCE, have announced major small-scale solar projects throughout the state, the evidence shows that rooftop solar alone in the vicinity of the PHPP (e.g., Palmdale and Lancaster) would provide significantly less energy than the proposed PHPP and would not be a feasible alternative that would achieve the stated objectives of the project. (Ex. 300, p. 6-27.)

In addition, solar power plants alone do not produce reliable energy generation night and day. Energy production would either have to be supplemented by a storage facility to produce during the evening and night hours or would be available only throughout the daylight hours. Staff argues that due to the limited energy during night hours, Palmdale would not increase its level of assurance that residential, commercial, and industrial power needs in the City would be met, which is one of the PHPP project objectives. (Ex. 300, p. 6-28.)

CBD argues that Staff's alternatives analysis is deficient because it did not analyze the all solar alternative and the rooftop photovoltaic alternative in more detail and failed to consider an alternative consisting of 20-33 percent solar or 100 percent photovoltaic (PV) at the site. (CBD Opening Brief, p. 15-16.)

As noted above, the evidence establishes that an all solar option, either thermal or photovoltaic, would not obtain the project objectives of (1) ensuring that sufficient electricity was available to meet the power needs of residential, commercial, and industrial users within the City of Palmdale, (2) being located within Palmdale's boundaries and (3) would likely result in additional significant impacts. (Ex. 300, pp. 6-27 to 6-28.) An all solar facility would require up to 5,700 acres of land to generate the equivalent electricity of the proposed project. (Ex. 300, p. 6-27.) While such an alternative may reduce the already-mitigated impacts associate with air emissions, it would also likely result in a greater impact to biological resources. (Ex. 300, p. 6-27.) Additionally, it would not be able to meet the electricity needs for Palmdale in the evening hours. (Ex. 300, p. 6-28.) Staff's analysis also considered replacing the proposed solar thermal component with rooftop photovoltaic, but dismissed that option since it would not meet the objective of integrating the solar component to increase project efficiency. (Ex. 300, p. 6-28.) For these legitimate reasons, these alternative solar technologies were rejected. (3/2/11 RT 323:16 – 324:22.)

CEQA requires the discussion of "a range of reasonable alternatives to the project which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects." (Cal. Code Regs., tit. 14, §15126.6.) CEQA defines the term "feasible" as "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors." (Pub. Resources Code, § 21061.1.) "A local agency must make an initial determination as to which alternatives are feasible and which are not. [Citation.] If an alternative is identified as at least potentially feasible, an in-depth discussion is required. [Citation.] On the other hand, when the infeasibility of an alternative is readily apparent, it 'need not be extensively considered.' " (*Save Round Valley Alliance v. County of Inyo* (2007) 157 Cal.App.4th 1437, 1457.) When an agency finds alternatives are infeasible it must "describe the specific reasons for rejecting" them. (Cal.Code Regs., tit. 14, § 15091, subd. (c).)

Where a project will not result in any unmitigated significant, adverse impacts, the level of detail required in the alternatives analysis is presumably less. (*Laurel Hills Homeowners Assn. V. City Council* (1978) 83 Cal.App.3d 515, 521 [if the

feasible mitigation measures substantially lessen or avoid generally the significant adverse environmental effects of a project, the project may be approved without resort to an evaluation of the feasibility of various project alternatives contained in the environmental impact report…[CEQA] does not mandate the choice of the environmentally best feasible project if through the imposition of feasible mitigation measures alone the appropriate public agency has reduced environmental damage from a project to an acceptable level]; *Stevens v. City of Glendale* (1981) 125 Cal. App.3d 986 [the requirements of Public Resources Code sections 21002 and 21002.1 are alternative rather than conjunctive requirements.] The evidence has established that with the proposed Conditions of Certification, the PHPP will not result in any significant, adverse environmental impacts. Nevertheless, the record contains a detailed evaluation of three alternative locations to the project site, and five alternative routes for the proposed transmission line. (Ex. 300, pp. 6-12 and 6-16.) There is also a discussion and analysis of the feasibility of eight generation technology alternatives, including solar-thermal and photovoltaic. (Ex. 300, pp. 6-27 to 6-28.) In total, Staff's alternatives analysis consists of over 250 pages. (Ex. 300, pp. 6-1 to A-230.)

CEQA simply requires an analysis of a reasonable range of alternatives. It does not require a discussion of every conceivable permutation of technology combinations that could possibly make up a power plant. (See *Mira Mar Mobile Community v. City of Oceanside* (2004) 119 Cal. App. 4th 477, 491 [EIR need not consider in detail every conceivable variation of alternatives stated].) Considering that the PHPP will not result in any unmitigated significant, adverse impacts, we find the analysis in evidence is sufficient to provide the public and decision-makers enough information upon which to base an informed decision. We are persuaded that an all-solar alternative or an increased ratio of solar at the PHPP, or a rooftop solar alternative would not be feasible alternatives that would achieve the stated objectives of the project.

g. Natural Gas-Fired Combined-Cycle Component Only

This generation alternative would consist of only the natural gas combined-cycle component of the PHPP, and it would not include construction of the 250-acre solar thermal array field. Although land disturbance would be reduced, the solar thermal input is proposed to provide approximately 10 percent of the peak power generated by the PHPP during the daily periods of highest energy demand, and so this additional output would not be available. At full load solar operation, the

heat from the solar field is proposed to replace the equivalent of approximately 50 MW of duct firing, thereby improving PHPP's overall heat rate and reducing air emissions. (Ex. 300, p. 6-28.)

A stated project objective is to integrate the solar component of the project and its combined-cycle component in a way that maximizes the synergies between the two technologies to increase project efficiency. In addition, the solar steam addition would reduce the need for duct burning to meet peak power demands and would support the State of California's goal of increasing the percentage of renewable energy in the state's electricity mix. The evidence indicates that without the solar thermal component of the project, two of the five project objectives would not be met, air emissions would be greater, and PHPP would not contribute towards providing development of renewable energy for the state and region as a whole. Therefore, this alternative is not feasible. (Ex. 300, p. 6-28.)

h. Nuclear

California law currently prohibits the construction of any new nuclear power plants in California until the California Energy Commission finds that there exists a demonstrated and federally-approved technology for the permanent disposal of spent fuel from these facilities. Therefore, this alternative is not feasible. (Ex. 300, p. 6-28.)

6. No Project Alternative

CEQA requires an evaluation of the "no project" alternative "… to allow decisionmakers 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 installed; and (b) that the events or actions reasonably expected to occur in the foreseeable future would occur if the project were not approved. (14 Cal. Code Regs., § 15126.6(e)(2).)

The CEQA Guidelines provide in pertinent part:

> (2) The "no project" analysis shall discuss the existing conditions at the time the notice of preparation is published, or if no notice of preparation is published, at the time environmental analysis is

> commenced, ***as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services***.

(Cal. Code Regs., tit 14, § 15126.6, subd. (e)(2), **emphasis added**.)

As further explained by the Guidelines, if disapproval of the project under consideration would result in predictable actions by others, such as the proposal of some other project, this "no project" consequence should be discussed. In certain instances, the no project alternative means "no build" wherein the existing environmental setting is maintained. However, where, as here, failure to proceed with the project will not result in preservation of existing environmental conditions, the analysis should identify the practical result of the project's non-approval and not create and analyze a set of artificial assumptions that would be required to preserve the existing physical environment." (Cal. Code Regs., tit 14, § 15126.6, subd. (e)(3)(B).)

Staff testified that in the absence of the PHPP, other power plants, both renewable, nonrenewable, and hybrid would have to be constructed to serve the demand for electricity. It is also likely that other existing older gas-fired power plants would continue to operate for a longer duration. (Ex. 301, p. 6-29; 3/2/11 RT 339:15 - 20.)

CBD argues that, "neither Staff nor the Applicant has provided any specific economic analysis demonstrating that any of the alternatives, including the No Action alternative, would cause any economic impairment to the Applicant. Indeed, the Applicant does not even have a PPA or other contract to sell the power from the proposed plant, nor has it made any other showing regarding the economics of a solar-only project on this site, an all PV alternative, or even the No Action alternative". (CBD, Opening Brief, pp. 16-17.) However, as Staff points out in their brief, "Staff did not reject any of these alternatives on the ground of economic infeasibility, as implied by CBD." (Staff's Reply Brief, p. 11.) CBD did not cite any rule or law requiring a showing of an economic analysis of the "no project" alternative. As we explained above, where a project will not result in any unmitigated significant impacts, the level of detail required in the alternatives analysis is presumably less. (*Laurel Hills Homeowners Assn. V. City Council* (1978) 83 Cal.App.3d 515, 521.)

The “no project” alternative was considered by Staff and found to be inferior to the proposed project because it would delay development of electrical resources required in the region, impact statewide electricity supplies, and otherwise not meet project objectives. (Ex. 300, pp. 6-6 to 6-7; 3/2/11 RT 331:15-21.)

We recognize that project “need” is not directly relevant to the “no project” alternative analysis. Instead, as discussed above, the analysis considers what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services (*see* our response to comments from the City of Lancaster, below). We note that Staff has woven project benefits into its analysis. However, their insertion of this additional, tangential information into the analysis does not alter the intended purpose and scope of our “no project” evaluation. (Ex. 300, p. 6-29; 3/2/11 RT 335:11- 336:16.) We are persuaded by the Applicant’s and Staff’s evidence, that the “no project” alternative is not environmentally superior to the PHPP given the foreseeable alternative uses of the site. (Ex. 301, p. 6-18.)

7. Purpose and Need

In its Prehearing Conference Statement, CBD argued under the heading “Purpose and Need” that the FSA failed to explain why the project is needed, if at all, and in particular why a new gas-fired plant of over 500 MW is needed in light of the recent approval of over 4,000 MW of solar energy by the commission in the Mojave desert region. (CBD, Prehearing Conference Statement, p. 7).

At the evidentiary hearing, Applicant’s expert witness testified that the purpose of the project was “to provide power into the electrical grid of California.” (3/2/11 RT 316:21-22.) Staff’s expert testified that they do not analyze need. (3/2/11 RT 326:1-17.) Staff’s expert also explained that simply because power plants have been certified by the Energy Commission does not mean that they will necessarily be constructed. Historically, many of the projects that the Energy Commission has certified have not been constructed due to permitting or financing. Also, there have been several lawsuits against many of the solar projects that affect the viability of up to 3,000 megawatts of desert solar projects. Therefore, CBD cannot assume that certification guarantees that a power plant will ever be built. (3/2/11 RT 328:17-25.)

Senate Bill No. 110, which became Chapter 581, Statutes of 1999 repealed Public Resources Code sections 25523(f) and 25524(a) and amended other

provisions relating to the assessment of need for new resources. SB 110 removed the requirement that, to certify a proposed facility, the Commission must make a specific finding that the proposed facility is in conformance with the adopted integrated assessment of need. Regarding need-determination, SB 110 states: "Before the California electricity industry was restructured, the regulated cost recovery framework for power plants justified requiring the Commission to determine the need for new generation, and site only power plants for which need was established." Now that power plant owners are at risk to recover their investments, it is no longer appropriate to make this determination. (Pub. Res. Code, § 25009, added by Stats. 1999, ch. 581, § 1.)

We are not convinced that the repeal of Public Resources Code sections 25523(f) and 25524(a) prohibited the admission of evidence on need in all contexts. Thus, while the Energy Commission no longer considers the need for the project to meet the public policy of confirming cost-recovery, evidence on need could be used to support various other findings required by Public Resources Code section 25523 and consistent with Title 20 California Code of Regulations section 1742. However, since no such offer of proof was made in this record, the issue of need is moot.

8. Public Comment

Jason Caudle from the City of Lancaster expressed similar concerns to those contained in the letter submitted by **Mark V. Bozigian**, the City Manager for the City of Lancaster, on May 2, 2011 requesting suspension of proceedings in the PHPP due to changes of the PSD rules relative to PM2.5 (see the **Air Quality** section of this Decision). Mr. Caudle asked, "What is now the cost associated with [PHPP]? What doesn't get built? Does the transmission capacity in this valley get utilized by the ground energy, and therefore Edwards Air Force Base's 500 megawatt solar plant doesn't get built? Does our distributed generation program that we're working on, distributed generation from the solar standpoint throughout the community, not get built as a result of it? Does additional manufacturing not get built as a result of this selling of this credit or selling of this increment? What manufacturing facility can't come here because the threshold of significance has reached beyond the air quality standards?" (3/2/11 RT 183:11 –23.)

As we explained above, the PHPP would support intermittent renewable energy, not to supplant it. The record shows that the PHPP serves a necessary function in the state's energy portfolio which is explained in more detail above, and in the

Air Quality and **Greenhouse Gases** sections of this Decision. However, Mr. Caudle and Mr. Bozigian prove the case for the "no project" analysis above, because, in the absence of the PHPP, the site and surrounding environment will quite foreseeably be put to other industrial uses with attendant environmental impacts. However, the record contains no evidence of what those industrial uses might be outside of those identified in the cumulative analyses submitted by Staff and Applicant. We appreciate that the concern of Mr. Caudle and Mr. Bozigian is with the preclusion of potential new industry in the area due to PHPP's perceived appropriation of a large portion of the district's capacity to bear additional PM2.5 emissions. Nevertheless, the cumulative analysis of the **Air Quality** section of this Decision conservatively modeled emissions for new and reasonably foreseeable sources of emissions in the project area and clearly identified what those sources might be. (Tit. 14, Cal. Code of Regs. § 15144.) We do not (nor does CEQA require us to) speculate beyond that. (Tit. 14, Cal. Code of Regs., § 15145.)

FINDINGS OF FACT

Based upon the totality of evidence, including evidence presented on each subject area described in other portions of this Decision, we find and conclude as follows:

1. The record contains an acceptable analysis of a reasonable range of alternatives to the project as proposed.
2. The evidentiary record contains an adequate review of alternative project sites, linears, fuels, technologies, and the "no project" alternative
3. The proposed use of a recycled supply water is consistent with state water policy SWRCB Resolution 75-58, and the Energy Commission's 2003 *IEPR* water policy.
4. Alternative fuels and technologies are not capable of meeting project objectives.
5. No site alternative is capable of meeting the stated project objectives.
6. The "no project" alternative would not avoid or substantially lessen potentially significant environmental impacts.
7. The "no project" alternative is not environmentally superior to the PHPP.
8. If all Conditions of Certification contained in this Decision are implemented, construction and operation of the PHPP will not create any significant direct, indirect, or cumulative adverse environmental impacts.

CONCLUSION OF LAW

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.

IV. COMPLIANCE AND CLOSURE

Public Resources Code section 25532 requires the Commission to establish a post-certification monitoring system. The purpose of this requirement is to assure that certified facilities are constructed and operated in compliance with applicable laws, ordinances, regulations, standards (LORS), as well as the specific Conditions of Certification adopted as part of this Decision. (Exs. 3, 300.)

SUMMARY OF THE EVIDENCE

The record contains a full explanation of the purposes and intent of the Compliance Plan (Plan). The Plan is the administrative mechanism used to ensure that the Palmdale Hybrid Power Project is constructed and operated according to the Conditions of Certification. It essentially describes the respective duties and expectations of the Project Owner and the Staff Compliance Project Manager (CPM) in implementing the design, construction, and operation criteria set forth in this Decision.

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

The Compliance Plan is composed of two broad elements. The first element establishes the "General Conditions," 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;
- set forth procedures for settling disputes and making post-certification changes;
- set forth the requirements for periodic compliance reports and other administrative procedures necessary to verify the compliance status of all Commission imposed Conditions; and
- set forth requirements for facility closure.

The second general element of the Plan contains the specific "Conditions of Certification." These are found following the summary and discussion of each individual topic area in this Decision. The individual Conditions contain the measures required to mitigate potentially adverse Project impacts associated with construction, operation, and closure to levels of insignificance. 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 implemented in conjunction with any additional requirements contained in the individual Conditions of Certification.

FINDINGS OF FACT

The record establishes:

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

2. We adopt the following Compliance Plan as part of this Decision.

CONCLUSIONS OF LAW

1. The compliance and monitoring provisions incorporated as a part of this Decision satisfy the requirements of Public Resources Code section 25532.

2. The Compliance Plan and the specific Conditions of Certification contained in this Decision assure that the Palmdale Hybrid Power Project will be designed, constructed, operated, and closed in conformity with applicable law.

GENERAL CONDITIONS

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 a passenger vehicle, pickup truck and light vehicles is allowable during site mobilization.

CONSTRUCTION

On-site work to install permanent equipment or structures for any facility.

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.

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.

Notwithstanding the definitions of ground disturbance, grading, boring and trenching above, 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, when the power plant has reached reliable steady-state production of electricity at the rated capacity. 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 Compliance Project Manager (CPM) shall oversee the compliance monitoring and is 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 compliance files are maintained and accessible.

The CPM is the contact person for the Energy Commission and will consult with appropriate responsible agencies and staff 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 is to assemble both the Energy Commission’s and 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. This is to confirm that all applicable conditions of certification 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 will maintain the following documents and information as a public record, in either the Compliance file or Dockets file, for the life of the project (or other period as required):

- All documents demonstrating compliance with any legal requirements relating to the construction and operation of the facility;
- All monthly and annual compliance reports filed by the project owner;
- All complaints of noncompliance filed with the Energy Commission; and
- All petitions for project or condition 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 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 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.**

COMPLIANCE CONDITIONS OF CERTIFICATION

Unrestricted Access (COMPLIANCE-1)

The CPM, responsible Energy Commission staff, and delegated 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)

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

Verification of compliance with the conditions of certification can be accomplished by the following:

1. Monthly and/or annual compliance reports, filed by the project owner or authorized agent, reporting on work done and providing pertinent documentation, as required by the specific conditions of certification;

2. 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 appropriate condition(s) of certification by condition number(s), and 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:

Chris Davis, Compliance Project Manager
(08-AFC-9C)
California Energy Commission
1516 Ninth Street (MS-2000)
Sacramento, CA 95814

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

If the project owner desires Energy Commission staff action by a specific date, that request shall be made in the submittal cover letter and shall include a detailed explanation of the effects on the project if that 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 staff 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 Form** found at the end of this section of the Decision.

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;

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 or as acceptable by the CPM.

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.

Confidential Information (COMPLIANCE-8)

Any information that the project owner deems confidential shall be submitted to the Energy Commission's Executive Director 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 compliance fee, which is adjusted annually. Current compliance fee information is available on the Energy Commission's website http://www.energy.ca.gov/siting/filing_fees.html. You may also contact the CPM for the current fee information. 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 the project setting for this project does not appear, at this time, to present any special or unusual closure problems, it is impossible to foresee what the situation will be in 30 years or more when the project ceases operation. Therefore, provisions must be made that provide the flexibility to deal with the specific situation and project setting that exist at the time of closure. Laws, Ordinances, Regulations and Standards (LORS) pertaining to facility closure are identified in the sections dealing with each technical area. Facility closure will be consistent with LORS in effect at the time of closure.

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

CLOSURE DEFINITIONS

Planned Closure

A planned closure occurs 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 unplanned closure where the project owner fails to implement the contingency plan, and the project is essentially abandoned.

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 will 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, shall 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 shall 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, Staff Approved Project Modifications 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 **staff approved project modifications** 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). Upon request, the CPM will provide you with a sample petition to use as a template.

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). Upon request, the CPM will provide you with a sample petition to use as a template.

Staff Approved Project Modification

Modifications that do not result in deletions or changes to conditions of certification, that are compliant with laws, ordinances, regulations and standards and will not have significant environmental impacts may be authorized by the CPM as a staff approved project modification 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 Petition to Amend that includes staff's intention to approve the proposed project 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.

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 staff, 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 staff. The CPM will evaluate the request and the information to determine if further investigation is necessary. If the CPM finds that further investigation is necessary, the project owner will be asked to promptly investigate the matter. Within seven working days of the CPM's request, the project owner shall 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 staff is not satisfied with the project owner's report, investigation of the event, or corrective measures proposed or undertaken, either party may submit a written request to the CPM for a meeting with the project owner. Such request shall be made within 14 days of the project owner's filing of its written report. Upon receipt of such a request, the CPM shall:

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

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

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

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.

CONDITION NUMBER	SUBJECT	DESCRIPTION
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 Executive Director with a request for confidentiality.
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:

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

V. ENGINEERING ASSESSMENT

The engineering assessment conducted for the Palmdale Hybrid Power Plant (PHPP) project 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). Evidence on Facility Design was undisputed. (Exs. 25; 120; 300.)

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. (Exs. 25; 120.) In considering the adequacy of the design plans, 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 description includes the identification of special design features that are necessary to deal with unique site conditions which could impact public health and safety, the environment, or the operational reliability of the project.

The PHPP, a 570-MW hybrid power plant combining natural gas-fired combined cycle power generation with parabolic trough solar thermal power generation, would be built on a 333-acre site in the City of Palmdale in Los Angeles County. The site lies in seismically active zone. (Ex. 300, 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 that could be difficult to reverse or correct may proceed without the CBO's approval. Engineering and Compliance staff will assign a third-party engineering consultant to act as CBO for this project. When an entity has been assigned CBO duties, Energy Commission staff

will complete a memorandum of understanding (MOU) with that entity to outline both its roles and responsibilities and those of its subcontractors and delegates. (Ex. 300, p. 5.1-4.)

PHPP shall be designed and constructed to the 2007 California Building Standards Code (CBSC), also known as Title 24, California Code of Regulations, which encompasses the California Building Code (CBC), California Building Standards Administrative Code, California Electrical Code, California Mechanical Code, California Plumbing Code, California Energy Code, California Fire Code, California Code for Building Conservation, California Reference Standards Code, and other applicable codes and standards in effect when the design and construction of the project actually begin. If the initial designs are submitted to the chief building official (CBO) for review and approval after the update to the 2007 CBSC takes effect, the 2007 CBSC provisions shall be replaced with the updated provisions.

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. 300, p. 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 an seismically active zone. (Ex. 300, p. 5.1-2.) Certain structures in a power plant may be required, under the CBC, to undergo dynamic lateral force (structural) analysis; others may be designed using the simpler static analysis procedure. In order to ensure that structures are analyzed

according to their appropriate lateral force procedure, we adopt Condition of Certification **STRUC-1** which, in part, requires the project owner to submit its proposed procedures to the CBO for review and approval prior to the start of construction.

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

The evidence also addresses facility closure. (Ex. 300, p. 5.1-5.) To ensure that decommissioning of the facility will conform to 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.

1. Public Comment

No public comment was offered regarding Facility Design.

FINDINGS OF FACT

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.

CONCLUSION OF LAW

We therefore conclude that with the implementation of the Conditions of Certification listed below and elsewhere in this Decision, the PHPP project 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 2007 California Building Standards Code (CBSC), also known as Title 24, California Code of Regulations, which encompasses the California Building Code (CBC), California 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 laws, ordinances, regulations and standards (LORS) in effect at the time initial design plans are submitted to the chief building official (CBO) for review and approval (the CBSC in effect is the edition that has been adopted by the California Building Standards Commission and published at least 180 days previously). The project owner shall ensure that all the provisions of the above applicable codes are enforced during the construction, addition, alteration, moving, demolition, repair, or maintenance of the completed facility (2007 CBC, Appendix Chapter 1, § 101.2, Scope). All transmission facilities (lines, switchyards, switching stations, and substations) are covered in the conditions of certification in the **Transmission System Engineering** section of this Decision.

In the event that the initial engineering designs are submitted to the CBO when the successor to the 2007 CBSC is in effect, the 2007 CBSC provisions 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 clearly specify that all work performed and materials supplied comply with the codes listed above.

Verification: Within 30 days following 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 (2007 CBC, Appendix Chapter 1, § 110, 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 requires CBO approval for compliance with the above codes. The CPM will then determine if the CBO needs to approve the work.

GEN-2 Before submitting the initial engineering designs for CBO review, the project owner shall furnish the CPM and the CBO with a schedule of facility design submittals, master drawing, and master specifications lists. 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 upon request.

Verification: At least 60 days (or within a project owner- and CBO-approved alternative time frame) prior to the start of rough grading, the project owner shall submit to the CBO and to the CPM the schedule, the master drawing, and master specifications lists of documents to be submitted to the CBO for review and approval. These documents shall be the pertinent design documents for the major structures and equipment listed in **FACILITY DESIGN Table 2,** below. Major structures and equipment shall be added to or deleted from the table only with CPM approval. The project owner shall provide schedule updates in the monthly compliance report.

FACILITY DESIGN Table 2
Major Structures and Equipment List

Equipment/System	Quantity (Plant)
Reclaim and Fire Water Storage Tank Foundation and Connections	1
Brine Storage Tank Foundation and Connections	1
Process Surge Tank Foundation and Connections	1
Demineralized Water Tank Foundation and Connections	1
RO Water Tank Foundation and Connections	1
Combustion Turbine Wash Drain Tank Foundation and Connections	1
ACW Heat Exchangers Foundation and Connections	2
Cooling Tower Foundations and Connections	1
Cooling Tower Blowdown Filter Press and Shelter Foundation and Connections	1
Pretreatment Filter Press and Shelter Foundation and Connections	1
Crystallizer Vapor Body Foundation and Connections	1
Sludge Thickener Foundation and Connections	1
Solids Contact Clarifier Foundation and Connections	1
Fire Pump Module Foundation and Connections	1
Admin/Control Building Warehouse Foundation and Connections	1
Water Treatment Building Foundation and Connections	1
Auxiliary Cooling Water Pump Foundation and Connections	2
Circulating Water Pump Foundation and Connections	2
Gland Steam Regulating Skid Foundation and Connections	1
STG MCC XFMR & Module Foundation and Connections	1
Cycle Chemical Feed Module Foundation and Connections	1
Auxiliary Electric Module Foundation and Connections	1
Ammonia Storage Foundation and Connections	1
HRSG Structure, Foundation and Connections	2
HRSG Blowdown Sump Foundation and Connections	1
HRSG Blowdown Tank Foundation and Connections	2
CEMS Foundation and Connections	2
Combustion Turbine Generator Foundation and Connections	2
Gas Fired Oil Heater Foundation and Connections	2
Fuel Gas Filter/separator Foundation and Connections	2
Fuel Gas Heater Foundation and Connections	2
Auxiliary Transformer Foundation and Connections	2
Oil/water Separator Foundation and Connections	1
Emergency Shutdown Generator Foundation and Connections	1
Switchgear Module Foundation and Connections	2
Switchyard Module Foundation and Connections	1
Diesel Tank Foundation and Connections	1

Equipment/System	Quantity (Plant)
Condenser Exhausters Foundation and Connections	1
Steam Turbine Lube Oil Skid Foundation and Connections	1
Steam Turbine Drains Tank Foundation and Connections	1
ACW Pumps Foundation and Connections	2
Condensate Pumps Foundation and Connections	3
EHC Unit Foundation and Connections	1
Steam Turbine Generator Foundation and Connections	1
Thyristor Foundation and Connections	1
Valve House Foundation and Connections	1
Cooling Tower MCC and XFMRS Foundation and Connections	1
Solar Field and Components Foundation and Connections	1 Lot
Solar Array Heat Exchangers Foundation and Connections	1 Lot
HTF Oil Heater Foundation and Connections	1 Lot
HTF Surge Tanks Foundation and Connections	1 Lot

GEN-3 The project owner shall make payments to the CBO for design review, plan checks, and construction inspections, based upon a reasonable fee schedule to be negotiated between the project owner and the CBO, in accordance with the 2007 CBC. These fees may be based on the value of the facilities reviewed; may be based on hourly rates; or may be otherwise agreed upon by the project owner and the CBO.

Verification: A copy of the contract between the project owner and the CBO shall be submitted to the CPM. 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 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 the resident engineer in charge of the project (2007 California Administrative Code, § 4-209, Designation of Responsibilities). All transmission facilities (lines, switchyards, switching stations, and substations) are addressed in the conditions of certification in the **Transmission System Engineering** section of this Decision.

The resident engineer 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 that each part is clearly defined as a distinct unit. Separate assignments of general responsibility may be made for each designated part.

The resident engineer shall:

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

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

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

4. Be responsible for providing project inspectors and testing agencies with complete and up-to-date sets 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 when they do not conform to approved plans and specifications.

The resident engineer shall have the authority to halt construction and to require changes or remedial work if the work does not meet requirements.

If the resident engineer 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 within a project owner- and CBO-approved alternative time frame) 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 resident engineer and any other delegated engineers assigned to the project. The project owner shall notify the CPM of the CBO's approvals of the resident engineer and other delegated engineer(s) within five days of the approval.

If the resident engineer or the delegated engineer(s) is subsequently reassigned or replaced, the project owner has five days 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 civil engineer; a soils, geotechnical, or civil engineer experienced and knowledgeable in the practice of soils engineering; and 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: 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; a mechanical engineer; and 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 the conditions of certification in the **Transmission System Engineering** section of this Decision.

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 (for example, 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 (2007 CBC, Appendix Chapter 1, § 104, Duties and Powers 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, geotechnical, or soils reports 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 the design of), 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; and 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 resident engineer during the construction phase of the project and recommend changes in the design of the civil works facilities and changes to 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, geotechnical or soils reports containing field exploration reports, laboratory tests, and engineering analysis detailing the nature and extent of the soils that could be susceptible to liquefaction, rapid settlement, or collapse when saturated under load (2007 CBC, Appendix J, § J104.3, Soils Report; Chapter 18, § 1802.2, Foundation and Soils Investigations);

3. Be present, as required, during site grading and earthwork to provide consultation and monitor compliance with requirements set forth in the 2007 CBC, Appendix J, section J105, Inspections, and the 2007 California Administrative Code, section 4-211, Observation and Inspection of Construction (depending on the site conditions, this may be the responsibility of either the soils engineer, the engineering geologist, or both); and

4. Recommend field changes to the civil engineer and resident engineer.

This engineer shall be authorized to halt earthwork and to require changes if site conditions are unsafe or do not conform to the predicted conditions used as the basis for design of earthwork or foundations (2007 CBC, Appendix Chapter 1, § 114, Stop Orders).

C. The engineering geologist shall:

1. Review all the engineering geology reports and prepare a 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 2007 California Administrative Code, section 4-211, Observation and Inspection of Construction (depending on the site conditions, this may be the responsibility of either the soils engineer, the 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 resident engineer during design and construction of the project;

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

4. Evaluate and recommend necessary changes in design; and

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

E. The mechanical engineer shall be responsible for, and sign and stamp a statement with, each mechanical submittal to the CBO, stating that the proposed final design plans, specifications, and calculations conform to 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 within a project owner- and CBO-approved alternative time frame) 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 within a project owner- and CBO-approved alternative time frame) 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 2007 CBC, Chapter 17, Section 1704, Special Inspections; Chapter 17A, Section 1704A, Special Inspections; and Appendix Chapter 1, Section 109, Inspections. All transmission facilities (lines, switchyards, switching stations, and substations) are handled in conditions of certification in the **Transmission System Engineering** section of this Decision.

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 resident engineer. All discrepancies shall be brought to the immediate attention of the resident engineer for correction, then, if uncorrected, to the CBO and the CPM for corrective action (2007 CBC, Chapter 17, § 1704.1.2, Report Requirements); and

4. Submit a final signed report to the resident engineer, 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, specifications, and other provisions of the applicable edition of the CBC.

Verification: At least 15 days (or within a project owner- and CBO-approved alternative time frame) 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 required corrective actions (2007 CBC, Appendix Chapter 1, § 109.6, Approval Required; Chapter 17, § 1704.1.2, Report Requirements). 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, 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 an alternative site approved by the CPM during the operating life of the project (2007 CBC, Appendix Chapter 1, § 106.3.1, Approval of Construction Documents). 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 the final approved engineering plans, specifications, and calculations described above, the project owner shall submit to the CPM a letter stating both that the above documents have been stored and the storage location of those 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" files (Adobe .pdf 6.0), with restricted (password-protected) printing privileges, on archive quality compact discs.

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

1. Design of the proposed drainage structures and the grading plan;
2. An erosion and sedimentation control plan;
3. Related calculations and specifications, signed and stamped by the responsible civil engineer; and
4. Soils, geotechnical, or foundation investigation reports required by the 2007 CBC, Appendix J, section J104.3, Soils Report, and Chapter 18, section 1802.2, Foundation and Soils Investigation.

Verification: At least 15 days (or within a project owner- and CBO-approved alternative time frame) 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 (2007 CBC, Appendix Chapter 1, § 114, Stop Work Orders).

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

CIVIL-3 The project owner shall perform inspections in accordance with the 2007 CBC, Appendix Chapter 1, section 109, Inspections, and Chapter 17, section 1704, Special Inspections. 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 (2007 CBC, Chapter 17, § 1704.1.2, Report Requirements). The project owner shall prepare a written report, with copies to the CBO and the CPM, detailing all discrepancies, non-compliance items, and the proposed corrective action.

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

CIVIL-4 After completion of finished grading and erosion and sedimentation control and drainage work, the project owner shall obtain the CBO's approval of the final grading plans (including final changes) for the erosion and sedimentation control work. The civil engineer shall state that the work within his/her area of responsibility was done in accordance with the final approved plans (2007 CBC, Chapter 17, § 1703.2, Written Approval).

Verification: Within 30 days (or within a project owner- and CBO-approved alternative time frame) 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, along 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 begin until the CBO has approved the lateral force procedures to be employed in designing that structure or component.

The project owner shall:

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

2. Obtain approval from the CBO for the final design plans, specifications, calculations, soils reports, and applicable quality control procedures. If there are conflicting requirements, the more stringent shall govern (for example, 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 (2007 CBC, Appendix Chapter 1, § 109.6, 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 (2007 California Administrative Code, § 4-210, Plans, Specifications, Computations and Other Data);

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 (2007 CBC, Appendix Chapter 1, § 106.3.4, Design Professional in Responsible Charge); and

5. Submit to the CBO the responsible design engineer's signed statement that the final design plans conform to applicable LORS (2007 CBC, Appendix Chapter 1, § 106.3.4, Design Professional in Responsible Charge).

Verification: At least 60 days (or within a project owner- and CBO-approved alternative time frame) 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 comply with the requirements set forth in applicable engineering LORS.

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

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

2. Concrete pour sign-off sheets;

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

4. Field weld inspection reports (including type of weld, location of weld, inspection of non-destructive testing 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 2007 CBC, Chapter 17, section 1704, Special Inspections, and section 1709.1, Structural Observations.

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 (2007 CBC, Chapter 17, § 1704.1.2, Report Requirements). 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 necessary to obtain the CBO's approval.

STRUC-3 The project owner shall submit to the CBO design changes to the final plans required by the 2007 CBC, 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 (2007 CBC, Appendix Chapter 1, § 106.1, Submittal Documents; § 106.4, Amended Construction Documents; 2007 California Administrative Code, § 4-215, Changes in Approved Drawings and Specifications).

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 the 2007 CBC, Chapter 3, Table 307.1(2), shall, at a minimum, be designed to comply with the requirements of that chapter.

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

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

MECH-1 The project owner shall submit, for CBO design review and approval, the proposed final design, specifications and calculations for each plant major piping and plumbing system listed in **FACILITY DESIGN Table 2**, Condition of Certification **GEN-2**, above. 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 that construction (2007 CBC, Appendix Chapter 1, § 106.1, Submittal Documents; § 109.5, Inspection Requests; § 109.6, Approval Required; 2007 California Plumbing Code, § 301.1.1, Approvals).

The responsible mechanical engineer shall stamp and sign all plans, drawings, and calculations for the major piping and plumbing systems, subject to CBO design review and approval, and submit a signed statement to the CBO when the proposed piping and plumbing systems have been designed, fabricated, and installed in accordance with all of the applicable laws, ordinances, regulations, and industry standards (2007 CBC, Appendix Chapter 1, § 106.3.4, Design Professional in Responsible Charge), which may include, but are not limited to:

- American National Standards Institute (ANSI) B31.1 (Power Piping Code);
- ANSI/NFPA Z223.1 (Fuel Gas Piping Code);
- ANSI B31.3 (Chemical Plant and Petroleum Refinery Piping Code);
- ANSI B31.8 (Gas Transmission and Distribution Piping Code);
- NACE R.P. 0169-83;
- NACE R.P. 0187-87;
- 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);
- Los Angeles County codes; and
- City Palmdale codes.

The CBO may deputize inspectors to carry out the functions of the code enforcement agency (2007 CBC, Appendix Chapter 1, § 103.3, Deputies).

Verification: At least 30 days (or within a project owner- and CBO-approved alternative time frame) prior to the start of any increment of major piping or plumbing construction listed in **Facility Design Table 2**, Condition of Certification **GEN-2,** above, the project owner shall submit to the CBO for design review and

approval the final plans, specifications, and calculations, including a copy of the signed and stamped statement from the responsible mechanical engineer certifying compliance with applicable LORS, and shall send the CPM a copy of the transmittal letter in the next monthly compliance report.

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

MECH-2 For all pressure vessels installed in the plant, the project owner shall submit to the CBO and California Occupational Safety and Health Administration (Cal/OSHA), prior to operation, the code certification papers and other documents required by 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 that installation (2007 CBC, Appendix Chapter 1, § 109.5, 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 within a project owner- and CBO-approved alternative time frame) prior to the start of on-site fabrication or installation of any pressure vessel, the project owner shall submit to the CBO for design review and approval, the above-listed documents, including a copy of the signed and stamped engineer's certification, with a copy of the transmittal letter to the CPM.

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

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

The project owner shall design and install all HVAC and refrigeration systems within buildings and related structures in accordance with the CBC and other applicable codes. Upon completion of any increment of construction, the project owner shall request the CBO's inspection and approval of that 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 (2007 CBC, Appendix Chapter 1, § 109.3.7, Energy Efficiency Inspections; § 106.3.4, Design Professionals in Responsible Charge).

Verification: At least 30 days (or within a project owner- and CBO-approved alternative time frame) 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 110 Volts or higher (see a representative list, below) the project owner shall submit, for CBO design review and approval, the proposed final design, specifications, and calculations. 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. All transmission facilities (lines, switchyards, switching stations, and substations) are handled in conditions of certification in the **Transmission System Engineering** section of this Decision.

A. Final plant design plans shall include:

1. one-line diagram for the 13.8-kV, 4.16-kV and 480 V systems;

2. system grounding drawings;

3. lightning protection system; and

4. hazard area classification plan.

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;

7. lighting energy calculations; and

8. 110 volt system design calculations and submittals showing feeder sizing, transformer and panel load confirmation, fixture schedules and layout plans.

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

1. Receipt or delay of major electrical equipment;

2. Testing or energization of major electrical equipment; and

3. A signed statement by the registered electrical engineer certifying that the proposed final design plans and specifications conform to requirements set forth in the Energy Commission decision.

Verification: At least 30 days (or project owner- and CBO-approved alternative time frame) 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. The evidence was undisputed. (Ex. 300.)

SUMMARY AND DISCUSSION OF THE EVIDENCE

Pursuant to CEQA, Staff analyzed whether the PHPP 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. 300, p. 5.3-1.)

Under normal conditions (nominal site conditions), PHPP will burn natural gas at a nominal rate of approximately 2,975 million British thermal units (MMBtu) per hour, LHV, during base load operation. The estimated fuel consumption under normal conditions with full load duct firing and the solar system turned off is approximately 3,768 MMBtu per hour, LHV. This is a substantial rate of energy consumption that could potentially impact energy supplies. Under expected project conditions, electricity will be generated at a full load efficiency of approximately 59 percent LHV. This efficiency level compares very favorably with the average fuel efficiency of a typical base load combined cycle power plant. (Ex. 300, 5.3-3.)

Natural gas will be delivered to PHPP via a new 8.7-mile-long gas line that will be designed and constructed by the Southern California Gas Company (SCGC). The evidence established that the SCGC system is capable of delivering the natural gas that PHPP will require to operate and that this natural gas supply is a reliable source of natural gas for this project. The evidence establishes that it is unlikely that the project will create a substantial natural gas demand increase. (Ex. 300, p. 5.3-3.)

PHPP will be a combined cycle power plant. Electricity will be generated by two gas turbines and a reheat steam turbine operating on heat energy recovered from the gas turbines' exhaust. By recovering this heat, which would otherwise be lost up the exhaust stacks, the efficiency of any combined cycle power plant is increased considerably from that of either gas turbines or a steam turbine

operating alone. This configuration is well suited to the large, steady loads met by a base load plant that generates energy efficiently over long periods of time. (Ex. 300, pp. 5.3-3 to 5.3-4.)

The applicant proposes to install evaporative inlet air coolers, heat recovery steam generators (HRSG) duct burners (re-heaters), three-pressure HRSGs, a reheat steam turbine unit, a solar thermal field, and a circulating cooling water system. The two-train combustion turbine/HRSG configuration is also highly efficient during unit turndown since one gas turbine can be shut down, leaving the other fully loaded. This allows the efficient operation of one gas turbine instead of the operation of two gas turbines operating at a less efficient 50 percent of load. (Ex. 300, p. 5.3-4.)

PHPP also includes HRSG duct burners, which will partially replace heat to the steam turbine cycle during high ambient temperatures when gas turbine capacity drops (resulting in less heat available to the steam turbine cycle), and partially add power. Duct firing provides a number of additional operational benefits including load following and balancing and optimization of the steam cycle operation. (Ex. 300, p. 5.3-4.)

This project also utilizes parabolic solar thermal collector technology. In this technology, solar collectors track the sun and absorb its thermal energy. This heat is then transferred to a heat transfer fluid circulating through a boiler, where the heat is used to generate high-pressure steam for the steam turbine. This system could replace the equivalent of approximately 50 MW of duct firing. The solar technology would enhance the project's overall efficiency by reducing the consumption of natural gas. (Ex. 300, p. 5.3-4.)

The PHPP's design will incorporate the GE's rapid start technology, which will allow the combustion turbine to reach base load more quickly while reducing fuel consumption. This technology combines the fast start capability of the simple cycle gas turbine technology and the efficiency of the combined cycle technology. This technology is designed to start quickly, and while in startup phase, to operate at an efficiency rating comparable to a typical simple cycle plant. Within minutes, the steam turbine generator would begin producing power, aided by the small natural gas-fired auxiliary boiler. The PHPP would then operate at a typical combined cycle efficiency rating. (Ex. 300, p. 5.3-4.)

Under expected project conditions, electricity will be generated at a full load efficiency of approximately 59 percent LHV, with the solar system turned on, 52.7 percent LHV with the solar system off. (Ex. 300, p. 5.3-6.) Use of the solar system substantially increases system efficiency with no additional gas consumption.

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. 300, pp. 5.3-4 to 5.3-5.)

The only nearby power plant that could, in conjunction with PHPP, create cumulative energy consumption impacts, is the High Desert Power Project. The natural gas supply system, however, has enough capacity to supply both projects. No other projects that could contribute to cumulative energy impacts have been identified. (Ex. 300, p. 5.3-7.)

The construction and operation of the project will not create indirect impacts (in the form of additional fuel consumption), that would not have otherwise occurred without this project. Older, less efficient power plants consume more natural gas than new, more efficient plants such as PHPP and are likely to be displaced by it. (Ex. 300, p. 5.3-7.)

1. Public Comment

No public comment was offered on power plant efficiency.

FINDINGS OF FACT

Based on the uncontroverted evidence, we make the following findings:

1. The PHPP will generate 590 MW of electricity at an overall project fuel efficiency of 59 percent lower heating value (LHV).

2. The PHPP's configuration of a combined cycle power plant in parallel, with a short start-up time and fast ramping capability, is well suited to providing large steady loads met by a base load plant that generates energy efficiently over long periods of time.

3. Use of the two GE Frame 7FA combustion gas turbine generators is appropriate for the PHPP.

4. The project will not require the development of new fuel supply resources.

5. The project will consume natural gas in as efficient a manner as practicable.

6. The record contains a comparative analysis of alternative fuel sources and generation technologies, none of which is superior to the proposed project at meeting project objectives in an efficient manner.

7. The PHPP will help meet local electricity generation resource adequacy requirements for the City of Palmdale and surrounding areas.

CONCLUSION OF LAW

The PHPP will not create adverse effects upon energy supplies or resources, require additional sources of energy supply, or consume energy in a wasteful or inefficient manner. No Federal, State, or local laws, ordinances, regulations, or standards apply to the efficiency of this project. No Conditions of Certification are required for this topic area.

C. POWER PLANT RELIABILITY

We must determine whether the project will be designed, sited, and operated to ensure safe and reliable operation. [Pub. Res. 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. The evidence is undisputed. (Ex. 300.)

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, that is, 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.

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 Decision contains appropriate Conditions of Certification. (Ex. 300, 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 allows the facility to continue to operate at reduced output in the event that a non-redundant component in one train fails. 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. 300, pp. 5.4-3 - 5.4-4.)

Reasonable long-term availability of fuel and water is also necessary to ensure project reliability. Natural gas will be delivered to PHPP via a new 8.7-mile gas line that will be designed and constructed by the Southern California Gas Company (SCGC). SCGC's natural gas system represents a resource of considerable capacity and offers access to adequate supplies of gas from the Southwest, the Rocky Mountains, and Canada. This natural gas system therefore offers adequate supply and pipeline capacity to meet project needs. (Ex. 300, p. 5.4-4.)

The PHPP will use recycled water from the City of Palmdale Water Reclamation Plant via a new 4,700-foot-long, 16-inch-diameter pipeline for cooling tower makeup and other industrial uses. There is a signed agreement between the Applicant and the County of Los Angeles to provide the necessary quantities of water. This source of water supply represents a reliable source for the project. (Ex. 300, p. 5.4-4.)

The site is located within a seismically active area. The PHPP 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. 300, p. 5.4-4 - 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 is largely flat, with elevations ranging from approximately 2,493 to 2,535 feet above mean sea level. The site is not within a 100-year flood plain or a 500-year flood plain. Mass grading of the site will occur at the beginning of the project construction phase. The solar field area, approximately 250 acres, will be graded to slope gently toward the northeast at a rate of 0.5 percent. The power block area, approximately 20 acres, will be on elevated fill area to avoid flooding during any major rainfall event. No special concerns with power plant functional reliability due to flooding have been identified. For further discussion, see the **Soil and Water Resources**, and **Geology and Paleontology** sections of this Decision. (Ex. 300, p. 5.4-5.)

The evidence assumes the project will have an annual availability factor of 90 to 95 percent. (Ex. 300, p. 5.4-1.) Industry statistics for power plant availability, which are compiled by the North American Electric Reliability Council (NERC), show an equivalent availability factor of 89 percent for combined cycle units of all sizes. 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 result in an adequately reliable plant. (Ex. 300, p. 5.4-5.)

1. Public Comment

No public comment was received regarding power plant reliability.

FINDINGS OF FACT

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

CONCLUSION OF LAW

We therefore conclude that the Palmdale Hybrid Power Plant 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** section 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. Res. Code, § 25107.) The Commission assesses the engineering and planning design of new transmission facilities associated with a proposed project to ensure compliance with applicable law. The record indicates that the Applicant in this case accurately identified all necessary interconnection facilities.

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.

Commission Staff's analysis evaluates the project transmission lines and equipment, both from the power plant up to the point of interconnection with the existing transmission network as well as upgrades beyond the interconnection that are attributable to the project. Staff relies upon the responsible interconnecting authority for analysis of impacts on the transmission grid, as well as for the identification and approval of new or modified facilities required downstream from the proposed interconnection for mitigation purposes. The evidence on transmission system engineering was undisputed (Ex. 28; 39; 44, 46; 47; 56; 71; 76; 96; 97; 103; 122; 131; 300.)

SUMMARY AND DISCUSSION OF THE EVIDENCE

1. Project Description

The Applicant has proposed to interconnect the 570 MW PHPP to the Southern California Edison (SCE) Vincent Substation with a proposed commercial operation date of summer 2013. The PHPP would be a natural gas-fired combined-cycle power generating facility located in the City of Palmdale, California. The project would consist of two-combustion turbine generators (CTG) each rated at 195.5 MVA with a power factor of 0.85 and one steam turbine generator (STG) rated at 355 MVA with a power factor of 0.85. Each CTG is expected to generate at 154 MW and the STG is expected to generate at 169 MW under average ambient conditions. With the duct burners in-service, the steam turbine generator would generate at its peak at 267 MW. At full load solar

operation, solar field can generate heat to replace equivalent of approximately 50 MW of duct firing. The total output of the PHPP would be approximately 570 MW (Ex. 300, p. 5.5-4.)

The two combustion turbine generators and the steam turbine generator each would interconnect to the low side of its dedicated 18/230 kV oil-filled, generator step-up transformer through an 8,000-Amp gas insulated circuit breaker and a disconnect switch. The step-up transformers for the combustion turbine generating units would be rated at 18/230 kV and 118/157/196 megavolt ampere (MVA), while the transformer for the steam turbine generating unit would be rated at 18/230 kV and 180/240/300 MVA. The high side of each generator step-up transformer would be connected to the project switchyard through a 1,200-ampere disconnect switch and overhead conductors (Ex. 300, pp. 5.5-4 - 5.5-5.)

The project owner may choose between two alternative transmission line routes: Applicant's proposed transmission line route and Staff's Alternative Route 4. Both routes are fully described in the **Alternatives** section of this Decision.

The PHPP switchyard would be in a breaker and one-half configuration. It would consist of six 2,000-ampere 230 kV circuit breakers. The switchyard would be connected to the SCE Vincent Substation via a new, 35.6 mile long, 230 kV generation tie-line. This single, bundled 1590 ACSR generator tie-line conductor would be constructed in two segments, (segment 1 and segment 2). The proposed 23.7 miles, segment 1, of the generator tie-line, being located in new and existing rights-of-way, would proceed north and east, then south, between the PHPP site to the north of the California Department of Water Resources (CDWR) Pearblossom Pumping Station. The 230 kV single circuit generator tie-line would be supported by new double circuit steel poles. The remaining 11.9 miles, segment 2, of the proposed 230 kV generator tie-line would proceed from north of the Pearblossom Pumping Station southwest to the Vincent Substation. In addition to the proposed 230 kV generator tie-line, approximately 11.9 miles of the existing SCE Vincent-Pearblossom 230 kV line will be reconductored and relocated to the new PHPP double circuit poles. (Ex. 300, p. 5.5-5.)

Before connecting to the Vincent Substation, the PHPP 230 kV generator tie-line and the Vincent–Pearblossom 230 kV line, supported by the new PHPP double circuit poles, would cross under two 500 kV lines owned by SCE and two 500 kV lines owned by the Los Angeles Department of Water and Power (LADWP). The PHPP generation would be distributed to the SCE grid through the Vincent Substation. The existing Vincent–Pearblossom 230 kV transmission line

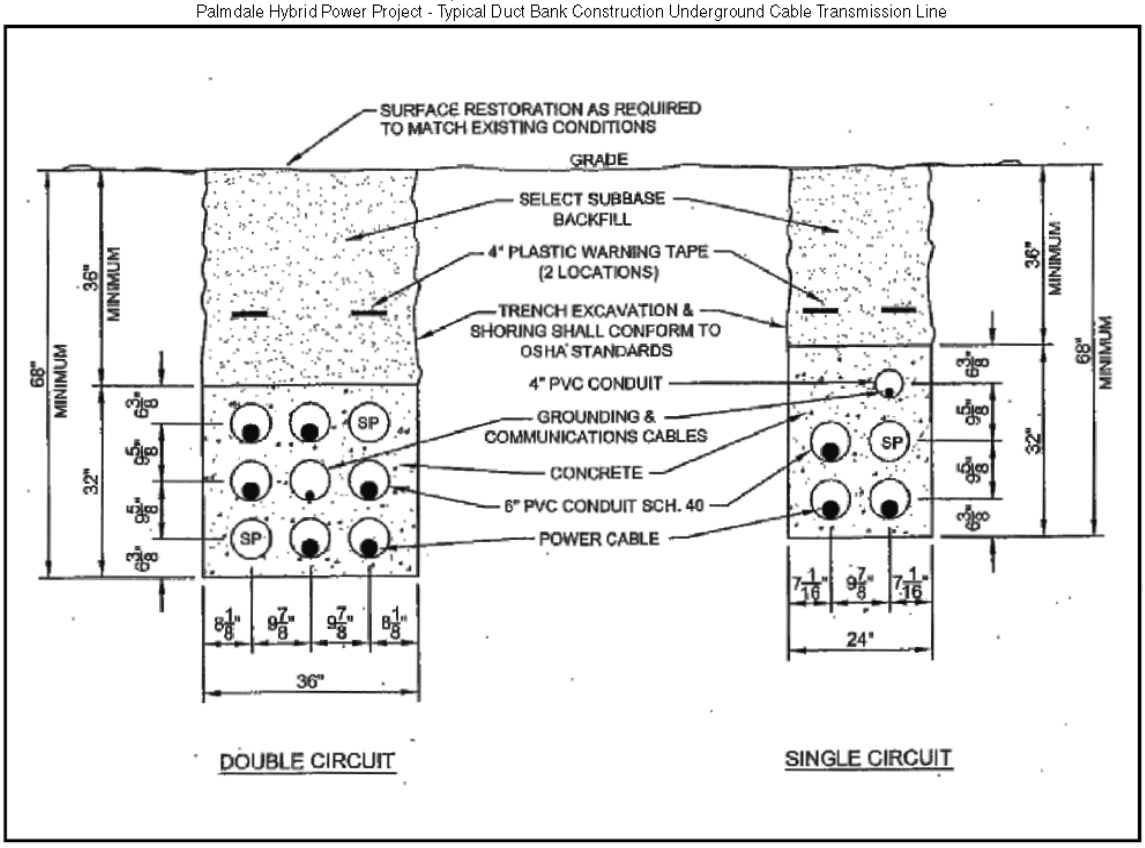
transmits power to CDWR Pearblossom water pumping plant from the Vincent Substation. This existing 230 kV line, except for the last half-mile before connecting to the Pearblossom Pumping Station, would be reconductored from 1033 MCM ACSR single-conductor to 1590 ACSR bundled conductors, and would be relocated from the existing H-frame supporting structures to the proposed PHPP double circuit steel poles. The existing H-frame structures would be removed. The Vincent-Pearblossom 230 kV line is the sole source of power for the CDWR's Pearblossom Pumping Station and any outage of the line must be carefully coordinated with CDWR. Condition of Certification **TSE-5** requires the submittal of a letter from the CDWR indicating that the outages have been coordinated with CDWR and are acceptable. (Ex. 300, p. 5.5-5.)

Alternative Route 4 (Partial Underground Transmission Line) 230 kV transmission line route is described in detail in the **Alternatives** section of this Decision. The PHPP 230 kV switchyard would be interconnected to the Vincent Substation by the proposed Alternative Route 4 230 kV Gen Tie line which would be comprised of a partial 6.75-mile long underground cable line that transitions to a 6.05-mile long overhead line. The underground cable line from the PHPP switchyard would run along Ave M 12, Sierra Highway, Lockheed Way, 10th Street East and East Avenue South and would transition to overhead line at the crossing of East Ave South and Sierra Highway. The cable line would encounter at least two railroad crossings and possibly a third, should the route cross to the west side of Sierra Highway. The overhead portion of the line would go primarily along Sierra Highway and after crossing the Pearblossom Highway would proceed southeast up to the intersection with Highway14 and then diverge overland to meet the Applicant's proposed route to the Vincent substation. The overhead line would encounter two railroad crossings and cross under two LADWP and two SCE 500 kV lattice tower lines. (Ex. 300, Appendix A, p. A-235.)

In order to carry 570 MW generation output from the PHPP, the underground cable line portion could be built as a single circuit line with 2000/2500 millimeter square Cross-Linked Polyethylene (XLPE) 230 kV copper cable along with communication and grounding cables within PVC conduits encased in concrete. The cable line would require about a 20-30 foot ROW. The trench would be about 3 feet wide and 6 feet high. The cable line PVC conduits would be laid 3 feet (minimum) to 6 feet below the surface. A minimum cable depth of 40 inches is required under the railroad tracks. A typical Duct Bank Underground Cable Line construction is shown in **TSE - Figure 1.** (Ex. 300, Appendix A, pp. A-235 – A-236.)

PROJECT DESCRIPTION - FIGURE 1

Palmdale Hybrid Power Project - Typical Duct Bank Construction Underground Cable Transmission Line



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TRANSMISSION SYSTEM ENGINEERING

The 230 kV overhead line portion would be built by using, at a minimum, bundled 954 kcmil ACSR conductors on 75-foot to 90-foot high steel tubular poles in general. Where the line would cross under 500 kV lines, 70-foot high steel single tubular poles or preferably H-frame 70-foot high double steel poles with shorter spans could be used to avert any interference with the 500 kV lines. The overhead line would require a minimum 50-foot wide ROW and must maintain a minimum of 30 feet of ground clearance, a minimum of 34 feet of clearance above railroad tracks and a minimum of 8 feet of clearance from any 500 kV line or other supply conductors. (Ex. 300, Appendix A, p. A-236.)

The proposed generator tie-line route has not been approved by SCE. A detailed ROW Study, required by SCE to evaluate the feasibility of using the existing Vincent-Pearblossom corridor, is needed. The ROW Study will evaluate the ground and line clearances for the proposed 230 kV double circuit line which

would cross under existing 500 kV lines owned by SCE and the LADWP. The ROW study is required to assess the viability of using the existing right-of-way. Condition of Certification **TSE-5** requires the submittal of the ROW Study and the executed LGIA at least 30 days prior to the start of construction of transmission facilities. (Ex. 300, p. 5.5-6.)

2. Study Results

The Tehachapi Queue Cluster Window System Impact Study (SIS) (Ex. 28) was performed by SCE to identify transmission system impacts caused by all the projects in Tehachapi Wind Resource Area (TWRA) queue cluster window, including the PHPP, on SCE's transmission system. The SIS included a Power Flow study, Transient Stability study, Post-Transient Voltages Stability study, and Short Circuit study. The SIS modeled projects in the TWRA queue cluster window, totaling 4,229 MW, including the proposed 570 MW PHPP. The base cases included all transmission upgrade projects, including the Antelope Transmission Project (ATP) and the Tehachapi Renewable Transmission Project (TRTP), in SCE area, major path flow limits of the Southern California import transmission limit, East-Of-River and West-Of-River limits. Generation included planned generating facilities ahead of the TWRA queue cluster window and all regulatory must-take generation units in SCE area. Power Flow studies were conducted both with and without projects in the TWRA queue cluster and the portions of the TRTP project needed to integrate all the projects in the TWRA queue cluster window, including the proposed PHPP connection to the SCE grid, at the Vincent Substation. The Power Flow modeled 2014 heavy summer conditions and a sensitivity case modeled localized light load conditions. Detailed study assumptions are described in the SIS. (Ex. 300, p. 5.5-7.)

The Power Flow study assessed the project's impact on the thermal loading of the transmission lines and equipment. The Transient Stability study and the Post-Transient Voltages Stability study were conducted using the 2014 heavy summer base cases to determine whether all the projects in TWRA queue cluster window, including the PHPP, the ATP, and the TRTP would create instability in the system following certain selected outages. The Short Circuit study was conducted with all the transmission upgrades and generation projects ahead of the TWRA, and generation projects in the TWRA queue cluster window. The Short Circuit study is to determine if its interconnection could overstress the existing substation facilities. (Ex. 300, p. 5.5-7.)

a. Power Flow Study Results

The initial base case study modeled the transmission system, excluded generation projects in the TWRA queue cluster and the TRTP transmission upgrade project, but included the ATP transmission upgrade project segment 1 (new 500 kV line between the Antelope and the Pardee Substations), and segment 2 (new 500 kV line between the Antelope and the Vincent Substations). The initial power flow study identified no pre-project transmission line overloads in either the 2014 heavy summer or the 2014 local area light load cases. With the addition of the generation projects in the TWRA queue cluster, including the PHPP and a portion of the TRTP transmission upgrade project, transmission line overloads appear in both study cases under normal conditions. The Antelope-Mesa 230 kV line is loaded to 137 percent and 152 percent of its normal rating, and the Vincent-Mesa 230 kV line is loaded to 104 percent and 107 percent of its normal rating, for the 2014 heavy summer and 2014 local area light load cases, respectively. (Ex. 300, pp. 5.5-7 - 5.5-8.)

A revised base case was used to model the transmission system with all required transmission upgrades, including the ATP and TRTP in service. Power Flow Study identified no normal transmission line overloads that are triggered by the TWRA. The TWRA, including the PHPP, can be integrated to the SCE system.

The SIS identified transmission line overloads under N-1and N-2 contingency conditions for both the 2014 heavy summer and 2014 local area light load cases.

- The N-1 overloads can be mitigated by operating procedures, installing new Special Protection Systems (SPS), wave trap replacements, and by modifying existing SPS.
- The N-2 overloads can be mitigated with modification of the existing SPS, installation of new SPS, and by tripping portions of the TWRA generation.

Since this SIS is a cluster study which analyzed a large scale of transmission system and the necessary system upgrades required for integration of a total of 4,229 MW new generation, including the proposed 570 MW PHPP, no specific downstream impacts due to any specific generation project were identified. The SIS as a whole analyzes impacts to the SCE system and proposed mitigation measures which are required for resolving the problems. Thus, no downstream facilities are required for the reliable interconnect the PHPP (Ex. 300, p. 5.5-8.)

b. Dynamic Stability Study Results

Dynamic Stability studies (Transient Stability and Post-Transient Voltage Stability Studies) for projects in the TWRA queue cluster window, including the PHPP were conducted using 2014 heavy summer base cases to determine if the projects would create any adverse impact on the stable operation of the transmission grid in the event of selected N-1 and N-2 outages. The results indicate with both of the ATP and TRTP transmission projects in service, the PHPP will not cause adverse impacts on the stable operation of the transmission system following these selected disturbances, as shown in the SIS for integration of the project (Ex. 300, pp. 5.5-8 to 5.5-9.)

c. Short Circuit Study Results

Short circuit studies were conducted to determine the degree to which the addition of all of the projects in the TWRA queue cluster window, including the PHPP, and all necessary transmission upgrades including ATP and TRTP, increases fault duties at SCE's substations, adjacent utility substations, and other 230 kV and 500 kV busses within the study area. The three phase short circuit duty study shows that the addition of all the generation projects in the TWRA queue cluster, and the addition of ATP and TRTP transmission upgrade projects would increase short circuit duties by 0.1 kA or more at four 500 kV and thirty nine 230 substation breakers. The single-line-to-ground short circuit duty study shows that three 500 kV and twenty-seven 230 kV substation breakers would increase short circuit duties by 0.1 kA or more. The California Independent System Operator (California ISO) Interconnection Facilities Study (FS) will determine the specific details of breaker replacement. (Ex. 28, Appendix F; Ex. 300, p. 5.5-9.)

With implementation of the above mitigation measures, the project interconnection would comply with NERC/WECC planning standards and California ISO reliability criteria. (Ex. 200, pp. 5.5-7 - 5.5-9.)

d. Alternative Route 4 Impacts and Mitigation

During construction, applicable construction standards, safety and reliability Laws, Ordinances, Regulations and Standards (LORS) must be met. The underground transmission line would be built by following the Rules for Construction of Underground Electric Supply and Communication Systems of the CPUC General Order No. 128 (G.O. 128). The overhead transmission line construction would follow the CPUC G.O. 95 Rules. In addition, construction must meet Title 8 CCR construction Safety Code, SCE construction standards (if applicable) and National Electric Safety Code. Additionally, to maintain system reliability, the California ISO and LADWP (in case LADWP 500 kV line(s) is involved) must be advised by the applicant's authorized contractor (such as SCE or any other) per the California ISO and LADWP scheduling protocols of scheduled circuit outages prior to occurrence (For the applicant's proposed Gen Tie line, coordination with CDWR for power interruption would also be necessary). Such outages are scheduled about 30 days prior to occurrence and are verified prior to actual outage. In the event system reliability requires restoring such circuits, a "no work" order is given and where practicable, circuits are restored. (Ex. 300, Appendix A, pp. A-236 – A-237.)

To mitigate potential safety and reliability impacts, the applicable LORS and California ISO/LADWP scheduling protocols would be used and the Applicant's authorized contractor would assure conformance with the above safety and reliability requirements in coordination with the California ISO/LADWP. There would no additional downstream impacts on the SCE system for interconnecting the PHPP with the Vincent substation through any of these Gen Tie lines compared to proposed transmission line and hence no additional mitigation would be required. The PHPP being a new efficient plant would meet increasing local load and SCE system demand in a cost-effective way. (Ex. 300, Appendix A, p. A-237.)

3. Public Comment

There was no public comment on transmission systems engineering.

FINDINGS OF FACT

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

1. The addition of the PHPP will require expansion and upgrade of the Vincent Substation.

2. The SIS concluded that all of the generation projects in the Tehachapi Wind Resource Area, including the PHPP, can be integrated to the SCE system.

3. The addition of the PHPP will not cause any overloads under normal conditions.

4. Overloads under single and double contingency conditions will be mitigated by modifying existing SPS, installing new SPS, by operating procedures, and by reducing generation.

5. Condition of Certification **TSE-5** requires the submittal of the SCE ROW Study and the executed LGIA at least 30 days prior to the start of construction of transmission facilities.

6. The proposed interconnection for the PHPP includes reconductoring 11.9 miles of the existing SCE Vincent–Pearblossom 230 kV line and relocating this line to the new PHPP double circuit poles.

7. Condition of Certification **TSE-5** requires the submittal of a letter from the CDWR indicating that any outages have been coordinated with CDWR and are acceptable.

8. The PHPP will have no adverse impacts on the stable operation of the transmission system.

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

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

CONCLUSION OF LAW

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 PHPP 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 CPM and to the CBO a schedule of transmission facility design submittals, a Master Drawing List, a Master Specifications List, and a Major Equipment and Structure List. The schedule shall contain a description and list of proposed submittal packages for design, calculations, and specifications for major structures and equipment. To facilitate audits by Energy Commission staff, the project owner shall provide designated packages to the CPM when requested.

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

Table 1: Major Equipment List
Breakers
Step-up transformer
Switchyard
Busses
Surge arrestors
Disconnects
Take-off facilities
Electrical control building
Switchyard control building
Transmission pole/tower
Grounding system

TSE-2 Before the start of construction, the project owner shall assign to the project an electrical engineer and at least one of each of the following:

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 and 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 either a civil engineer or a 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, or 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 as required by 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 require changes; if site conditions are unsafe or do not conform with the predicted conditions used as the basis for design of earth work 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: Prior to the start of rough grading, the project owner shall submit to the CBO for review and approval, the names, qualifications, and registration numbers of all the responsible engineers assigned to the project. The project owner shall notify the CPM of the CBO's approvals of the engineers within five days of the approval.

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

TSE-3 If any discrepancy in design and/or construction is discovered in any engineering work that has undergone CBO design review and approval, the project owner shall document the discrepancy and recommend corrective action (2001 California Building Code, Chapter 1, § 108.4, approval required; Chapter 17, § 1701.3, *Duties and Responsibilities of the Special Inspector;* Appendix Chapter 33, § 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 refer to 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 the disapproval, along with the revised corrective action required to obtain the CBO's approval.

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

a) receipt or delay of major electrical equipment;

b) testing or energization of major electrical equipment; and

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

Verification: Prior to the start of each increment of construction, the project owner shall submit to the CBO for review and approval the final design plans, specifications and calculations for equipment and systems of the power plant switchyard, and outlet line and termination, including a copy of the signed and stamped statement from the responsible electrical engineer verifying compliance with all 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, and 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. Once approved, the project owner shall inform the CPM and CBO of any anticipated changes to the design, and shall submit a detailed description of the proposed change and complete engineering, environmental, and economic rationale for the change to the CPM and CBO for review and approval.

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.

1. Breakers and busses in the power plant switchyard and other switchyards, where applicable, shall be sized to comply with a short-circuit analysis.

2. 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.

3. The project conductors shall be sized to accommodate the full output of the project.

4. Termination facilities shall comply with applicable PG&E interconnection standards.

5. The project owner shall provide to the CPM:

   a. The Special Protection System (SPS) sequencing and timing if applicable,

   b. A letter stating that the mitigation measures or projects selected by the transmission owners for each reliability criteria violation, for which the project is responsible, are acceptable,

c. The final SCE Right-of-Way Study;

d. A copy of the Federal Energy Regulatory Commission executed LGIA signed by the California ISO, SCE and the project owner; and

e. A letter from the DWR indicating that DWR has been consulted with has coordinated the planned outages associated with the replacement and reconductoring of the Pearblossom-Vincent 230 kV line to have no adverse impact to DWR's operations, and determined the outages to be acceptable.

Verification: Prior to the start of construction or start of modification of transmission facilities, the project owner shall submit to the CBO for approval:

a) Design drawings, specifications, and calculations conforming with 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*, CA ISO standards, National Electric Code (NEC) and related industry standards, for the poles/towers, foundations, anchor bolts, conductors, grounding systems, and major switchyard equipment;

b) For each element of the transmission facilities identified above, the submittal package to the CBO shall contain the design criteria, a discussion of the calculation method(s), a sample calculation based on "worst case conditions"[1] 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 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;

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

d) The Special Protection System (SPS) sequencing and timing if applicable shall be provided concurrently to the CPM;

e) A letter stating that the mitigation measures or projects selected by the transmission owners for each reliability criteria violation, for which the project is responsible, are acceptable;

f) The final SCE Right-of-Way Study;

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

g) A copy of the Federal Energy Regulatory Commission executed LGIA signed by the California ISO, SCE and the project owner; and

h) A signed letter from the CDWR indicating that the planned outages associated with the replacement and reconductoring of the Pearblossom to Vincent 230 kV line are acceptable.

Prior to the start of construction of or modification of transmission facilities, the project owner shall inform the CBO and the CPM of any anticipated changes to the design that are different from the design previously submitted and approved and shall submit a detailed description of the proposed change and complete engineering, environmental, and economic rationale for the change to the CPM and CBO for review and approval.

TSE-6 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:

1. 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

2. 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.

Verification: 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 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-7 The project owner shall be responsible for the inspection of the transmission facilities during and after project construction, and any subsequent CPM and CBO approved changes thereto, to ensure conformance with CPUC GO-95 or NESC, Title 8, CCR, Articles 35, 36 and 37 of the, "*High Voltage Electric Safety Orders*", applicable interconnection standards, NEC and related industry standards. In case of non-conformance, the project owner shall inform the CPM and CBO in writing, within 10 days of discovering such non-conformance and describe the corrective actions to be taken.

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

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

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

E. TRANSMISSION LINE SAFETY AND NUISANCE

The project's transmission lines must be constructed and operated in a manner that protects the environment and public health and safety, and complies with applicable law. This section summarizes the 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. The evidence is undisputed. (Exs. 18; 131; 300.)

SUMMARY AND DISCUSSION OF THE EVIDENCE

The project owner may choose between two alternative transmission line routes: Applicant's proposed transmission line route and Staff's Alternative Route 4. Both routes are fully described in the **Alternatives** section of this Decision.

Applicant's proposed transmission line will be constructed in two phases. The phase I segment will be a an overhead 230-kV line of approximately 23.7 miles to be erected by the Applicant in new and existing rights-of-way between the project site and Southern California Edison's (SCE) Pearblossom Substation to the southeast. Phase II will be a system reliability upgrade by SCE that will increase the system's transmission and expand the existing Vincent Substation to the southeast. This will involve construction of a new 11.9-mile double-circuit 230-kV line within the right-of-way of existing lines connecting the Pearblossom and Vincent Substations. (Ex. 300, p. 4.11-3.)

As more fully described in the **Alternatives** section of this Decision, the total length of Alternative Route 4 would be 12.8 miles. The first segment of Alternative Route 4 would be located underground for a total of 6.75 miles and would follow the same route proposed by the Applicant for its underground gas and water lines for PHPP. The second segment of Route 4 would be constructed as an overhead line for 6.05 miles. (Ex. 300, Appendix A, p. A-188.)

The project site is in an undeveloped desert land with the surrounding area zoned for commercial and industrial uses. The nearest residential area is located approximately one mile to the north but there are a few scattered residences in the surrounding area the nearest of which is approximately 1,500 feet to the northwest. The route of the proposed 36.5-mile project line

will run through or near undisturbed desert land, agricultural land, and industrial and residential areas. (Ex. 300, p. 4.11-4.)

The specific transmission components are:

- Segment 1 which will be a new 230-kV overhead transmission line extending approximately 23.7 miles from the on-site project switchyard to SCE's Pearblossom Substation;

- Segment 2 extending approximately 11.9 miles westward from the Pearblossom Substation to the Vincent Substation;

- The project's on-site 230-kV switchyard from which the conductors will originate; and

- Project-related upgrades within the Pearblossom and Vincent Substations.

The PHPP will be owned and operated by the City of Palmdale with the related Phase I transmission facilities constructed, owned and operated by the Applicant while the Phase II line will be constructed and owned by SCE. Since the two lines will be located within the SCE service area, they both will be operated, and maintained according to SCE's guidelines for line safety and field management which conform to applicable laws, ordinances, regulations and standards (LORS). (Ex. 300, p. 4.11-4.)

1. Aviation Safety

Any potential hazard to area aircraft would arise from the potential for collision in the navigable airspace. While the PHPP site is located adjacent to the Plant 42/Palmdale Regional Airport facility, the height of the proposed support towers will, at a maximum of 135 feet, be much lower than the 200 feet regarded by the Federal Aviation Administration (FAA) as triggering concerns about aviation safety. The proposed line structures therefore do not pose an obstruction-related aviation hazard to area aircraft. (Ex. 300, p. 4.11- 5.)

2. Interference: Radio-Frequency Communication and Audible Noise

Transmission line-related radio-frequency interference is one of the indirect effects of line operation and is produced by the physical interactions of line electric fields. Such interference is due to the radio noise produced by the action of the electric fields on the surface of the energized conductor. The process

involved is known as *corona discharge*, but is referred to as *spark gap electric discharge* when it occurs within gaps between the conductor and insulators or metal fittings. When generated, such noise manifests itself as perceivable interference with radio or television signal reception or interference with other forms of radio communication. Since the level of interference depends on factors such as line voltage, distance from the line to the receiving device, orientation of the antenna, signal level, line configuration and weather conditions, maximum interference levels are not specified as design criteria for modern transmission lines. The 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 project lines will be built and maintained in keeping with standard SCE practices that minimize surface irregularities and discontinuities. Moreover, the potential for such corona-related interference is usually of concern for lines of 345 kV and above, and not for 230-kV lines such as the proposed lines. The line's proposed low-corona designs are used for all SCE lines of similar voltage rating to reduce surface-field strengths and the related potential for corona effects. Given the line's low-corona design, corona-related radio-frequency interference or related complaints are not expected. However, Condition of Certification **TLSN-2** ensures mitigation as required by the FCC in the unlikely event of complaints. (Ex. 300, pp. 4.11-5 - 4.11-6.)

3. 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 SCE lines will be implemented for the project lines. Compliance with the clearance-related aspects of California Public Utilities Commission (CPUC) General Order 95 (GO-95) will be an important part of this mitigation approach. Condition of Certification **TLSN-4** ensures compliance with important aspects of the fire prevention measures. (Ex. 300, p. 4.11-6.)

4. 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. The Applicant's stated

intention to implement the GO-95-related measures against direct contact with the energized line will serve to minimize the risk of hazardous shocks. Compliance with CPUC GO-95, as required by Condition of Certification **TLSN-1**, will satisfactorily mitigate any hazard. (Ex. 300, p. 4.11-7.)

5. 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-5** ensures implementation of standard industry grounding practices so impacts will be insignificant. (Ex. 300, p. 4.11-7.)

6. 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. The available evidence has not established that such fields pose a significant health hazard to exposed humans, or the 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; and

- 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. 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.

Given the project line's low-field design, (as Segment 1 and Segment 2), any long-term residential field exposures will be at levels associated with SCE lines of similar voltage and current-carrying capacity. It is this similarity with existing lines that constitutes compliance with present CPUC's policy on line field management.

Based on the evidence, the lack of change in magnetic field strength in spite of the added PHPP power reflects the interactive effects of fields from all contributing lines. Since these field intensities will depend on the effectiveness of the applied field-reducing measures, they should mostly remain the same within any specific route connecting PHPP and the Pearblossom Substation in a way that avoids the existing aviation-related facilities. While these maximum field intensities are similar to those of similar SCE lines (as required under current CPUC regulations), they are much less than the 200 mG currently specified by the few states with regulatory limits. The requirements in Condition of Certification **TLSN-3** for field strength measurements are intended to assess the assumed reduction efficiency. (Ex. 300, pp. 4.11-7 - 4.11-10.)

Staff's Alternate Route 4 would require conductor undergrounding for specified segments together with overhead placement. The overhead segments would be constructed according to the LORS identified below for the applicant's proposal while the underground section would be constructed and operated according to the requirements of CPUC's GO-128 dealing with underground lines. (Ex. 300, Appendix A, p. A-188.)

Electric fields are unable to penetrate the soil and other materials meaning that the electric field impacts would not be encountered in the area around the underground segments. Since magnetic fields can penetrate most materials, the line's magnetic fields would be encountered in all the areas around the route. It is

exposure to this magnetic field component that has been of specific health concern in recent years. The potential magnitude of any related health risks is likely small. Since line conductors are placed closer together underground than when located overhead, the enhanced cancellation effects of magnetic fields from the individual conductors would result in magnetic fields of comparatively lower strengths than with their overhead counterparts. Furthermore, such underground line-generated fields diminish more rapidly from the line than with the overhead counterpart. Because the underground line is located closer to the individual at ground level than the overhead line, exposure to the individual directly above the line would be greater. Since the fields from the underground line diminish more rapidly with distance, the total area of potential impacts would be less than with the overhead counterpart. (Ex. 300, Appendix A, pp. A-188 - A-189.)

With implementation of Condition of Certification **TLSN-1** that would reduce the risk associated with transmission line safety and nuisance to a less than significant level, we find that there will be no significant impact from construction or operation of the alternative transmission lines.

7. Public Comment

No public comment was offered regarding transmission line safety and nuisance.

FINDINGS OF FACT

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

1. The proposed lines and related facilities do not pose an aviation hazard according to current FAA criteria.

2. The long-term, mostly residential magnetic exposure from the proposed line will be insignificant as a health concern.

3. On-site worker or public exposure will be short term and at levels expected for lines of similar design and current-carrying capacity which has not been established as posing a significant human health hazard.

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

5. 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.

CONCLUSION OF LAW

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 transmission line according to the requirements of California Public Utility Commission's GO-95, GO-52, GO-128, GO-131-D, Title 8, and Group 2. High Voltage Electrical Safety Orders, sections 2700 through 2974 of the California Code of Regulations, and Southern California Edison's EMF reduction guidelines.

Verification: At least 30 days before starting the transmission line or related structures and facilities, the project owner shall submit to the Compliance Project Manager (CPM) a letter signed by a California registered electrical engineer affirming that the lines will be constructed according to the requirements stated in the condition.

TLSN-2 The project owner shall ensure that every reasonable effort will be made to identify and correct, on a case-specific basis, any complaints of interference with radio or television signals from operation of the chosen line option or associated switchyard.

Verification: At least thirty days before starting operation of either line option, the project owner shall submit to the CPM a letter signed by a California registered electrical engineer affirming the project owner's intention to comply with this requirement.

TLSN-3 The project owner shall use a qualified individual to measure the strengths of the electric and magnetic fields from the line at the points of maximum intensity along the route for which the applicant provided specific estimates. The measurements shall be made before and after energization according to the American National Standard Institute/Institute of Electrical and Electronic Engineers (ANSI/IEEE) standard procedures. These measurements shall be completed no later than 6 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.

TLSN-4 The project owner shall ensure that the rights-of-way of those portions of the transmission line that are under the project owner's control of the proposed transmission line are kept free of combustible material, as required under the provisions of section 4292 of the Public Resources Code and section 1250 of Title 14 of the California Code of Regulations.

Verification: During the first 5 years of plant operation, the project owner shall provide a summary of inspection results and any fire prevention activities carried out along the right-of-way and provide such summaries in the Annual Compliance Report.

TLSN-5 The project owner shall ensure that all permanent metallic objects within the right-of-way of the project-related lines are grounded according to industry standards regardless of ownership.

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.

VI. PUBLIC HEALTH AND SAFETY

A. GREENHOUSE GAS (GHG) EMISSIONS

1. Introduction and Summary

The generation of electricity using fossil fuels, such as the natural gas that the Palmdale Project will consume, produces both "criteria pollutants" and greenhouse gas (GHG) emissions. Criteria pollutants are emissions that are known to adversely affect public health and for which regulatory agencies have established legal "criteria" which limit both the amount of the pollutants that may be emitted as well as the concentrations of the pollutants in the air. The project's criteria pollutant emissions and its compliance with applicable air quality laws are discussed in the **Air Quality** section of this Decision. This section assesses the GHG emissions that are likely to result from the construction and the operation of the project.

The GHG's consist of carbon dioxide (CO_2), nitrous oxide (N_2O), methane (CH_4), sulfur hexafluoride (SF_6), hydrofluorocarbons (HFC), and perflurocarbons (PFC). CO_2 emissions are far and away the most common of these emissions; as a result, even though the other GHGs have a greater impact on climate change on a per-unit basis, GHG emissions are often expressed in terms of "metric tons of CO_2-equivalent" ($MTCO_2e$) for simplicity. (Ex. 300, p. 4.1-85.)

There is general scientific consensus that climate change is occurring and that man-made emissions of GHG, if not sufficiently curtailed, are likely to contribute further to continued increases in global temperatures. (Ex. 300, p. 4.1-86.) Adding GHG to the atmosphere increases the insulating power of the air and thereby traps more heat at and near the earth's surface. The California Legislature has declared that "[g]lobal warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California." (Health & Saf. Code, § 38500.) *(Id.)*

In this part of the Decision, we determine that:

- The Palmdale Project's construction-produced GHG emissions will be insignificant;

- From a physical standpoint, the GHG emissions from a power plant's operation should be assessed not by treating the plant as a standalone facility operating in a vacuum, but rather in the context of the operation of the entire electricity system of which the plant is an integrated part;

- From a policy and regulatory standpoint, the GHG emissions from a power plant's operation should be assessed in the context of the state's GHG laws and policies, such as AB 32; and

- The Palmdale Project's operation will be consistent with the state's GHG policies and will help achieve the state's GHG goals, by (1) causing a decrease in overall electricity system GHG emissions; and (2) fostering the addition of renewable generation into the system, which will further reduce system GHG emissions.

As a result we find that the Palmdale Project's GHG emissions will comply with all applicable LORS (identified below in **Greenhouse Gas Table 1**) and will not result in any significant environmental impacts. We also find that the project is consistent with California's ambitious GHG goals and policies.

2. Policy and Regulatory Framework

As the Legislature stated 35 years ago, "it is the responsibility of state government to ensure that a reliable supply of electrical energy is maintained at a level consistent with the need for such energy for protection of public health and safety, for promotion of the general welfare, and for environmental quality protection." (Pub. Res. Code § 25001.) Today, as a result of legislation, the most recent aspect of "environmental quality protection" is the reduction of GHG emissions. Several laws and statements of policy are applicable as shown by **Greenhouse Gas Table 1** below.

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Greenhouse Gas Table 1
Laws, Ordinances, Regulations, and Standards (LORS)

Applicable Law	Description
Federal	
40 Code of Federal Regulations (CFR) Parts 51, 52, 70 and 71	This rule "tailors" GHG emissions to PSD and Title V permitting applicability criteria.
40 CFR Part 98	This rule requires mandatory reporting of GHG emissions for facilities that emit more than 25,000 metric tons of CO_2 equivalent emissions per year.
State	
California Global Warming Solutions Act of 2006, AB 32 (Stats. 2006; Chapter 488; Health and Safety Code sections 38500 et seq.)	This act requires the California Air Resource Board (ARB) to enact standards that will reduce GHG emission to 1990 levels. Electricity production facilities will be regulated by the ARB.
California Code of Regulations, tit. 17, Subchapter 10, Article 2, sections 95100 et. seq.	These ARB regulations implement mandatory GHG emissions reporting as part of the California Global Warming Solutions Act of 2006 (Stats. 2006; Chapter 488; Health and Saf. Code §§ 38500 et seq.)
Title 20, California Code of Regulations, section 2900 et seq.; CPUC Decision D0701039 in proceeding R0604009	The regulations prohibit utilities from entering into long-term contracts with any base load facility that does not meet a greenhouse gas emission standard of 0.5 metric tonnes carbon dioxide per megawatt-hour (0.5 $MTCO_2$/MWh) or 1,100 pounds carbon dioxide per megawatt-hour (1,100 lbs CO_2/MWh)

Source: (Ex. 300, p. 4.1-86.)

a. AB 32

The organizing framework for California's GHG policy is set forth in the California Global Warming Solutions Act of 2006. [Assembly Bill 32, codified in Health & Saf. Code, § 38560 et seq. (hereinafter AB 32).] AB 32 requires the California Air Resources Board ("CARB") to adopt regulations that will reduce statewide GHG emissions, by the year 2020, to the level of statewide GHG emissions that existed in 1990. Gubernatorial Executive Order S-3-05 (June 1, 2005) requires a further reduction, to a level 80 percent below the 1990 GHG emissions, by the year 2050. (Ex. 300, pp. 4.1-86 - 87.)

The Energy Commission recognizes that meeting the AB 32 goals is vital to the state's economic and environmental health. ARB staff is developing regulatory

language to implement its plan and holds ongoing public workshops on key elements of the recommended GHG reduction measures, including market mechanisms. The scoping plan adopted by ARB relies heavily on cost-effective energy efficiency and demand response, renewable energy, and other priority resources in the loading order (discussed below) to achieve significant reductions of emissions in the electricity sector by 2020. Even more dramatic reductions in electricity sector emissions would likely be required to meet California's 2050 greenhouse gas reduction goal. Facilities under our jurisdiction, such as the Palmdale Project, must be consistent with these policies. (Ex. 300, p. 4.1-87.)

In addition to AB 32, there are several other important components of the GHG policy and regulatory structure.

b. Renewable Portfolio Standard

California statutory law requires the state's utilities to provide at least 20 percent of their electricity supplies from renewable sources by the year 2020. (Pub. Util. Code, § 399.11 et seq.) Recent gubernatorial Executive Orders increase the requirement to 33 percent and require CARB to adopt regulations to achieve the goal. [Governor's Exec. Orders Nos. S-21-09 (Sept. 15, 2009), S-14-08 (Nov. 17, 2008).] (Ex. 300, p. 4.1-87.)

c. Emissions Performance Standard

Senate Bill (SB) 1368 of 2006, and regulations adopted by the Energy Commission and the Public Utilities Commission pursuant to the bill, prohibit utilities from entering into long-term commitments with any facilities having a capacity factor greater than or equal to a 60 percent that exceed an Emission Performance Standard (EPS) of 0.500 metric tonnes of CO_2 per megawatt-hour. This is the equivalent of 1,100 pounds CO_2/MWh. (Ex. 214, pp. 2.1-97-2.1-98, Pub. Util. Code, § 8340 et seq.; Cal. Code Regs., tit. 20, § 2900 et seq.; CPUC D0701039.) Currently, the EPS is the only LORS that limits power plant emissions. (Ex. 300. p. 4.1-88.)

d. Loading Order

In 2003 the Energy Commission and the CPUC agreed on a "loading order" for meeting electricity needs: the first resources that should be added are energy efficiency and demand response (at the maximum level that is feasible and cost-effective); followed by renewables and distributed generation, and combined heat and power (also known as cogeneration); and finally efficient fossil sources and

infrastructure development.[1] CARB's AB 32 Scoping Plan reflects these policy preferences. (California Air Resources Board, Climate Change Scoping Plan, December 2008.)

e. CEQA Guidelines on GHG Emissions

The California Natural Resources Agency recently amended its Guidelines for Implementation of the California Environmental Quality Act ("CEQA Guidelines") to address greenhouse gas emissions. The Guidelines direct lead agencies "to make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate the amount of greenhouse gas emissions resulting from a project," and permit agencies to "use a model or methodology to quantify greenhouse gases . . . and/or . . . rely on qualitative analysis or performance-based standards." [14 Cal. Code Regs. §15064.4(a)].

The Guidelines set forth three factors for a lead agency to consider, among others, in assessing the significance of impact from GHG emissions and the environment: "(1) The extent to which the project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting; (2) Whether the project emissions exceed a threshold of significance that the lead agency applies to the project; [and] (3) The extent to which the project complies with regulations or requirements adopted to implement a statewide regional or local plan for the reduction or mitigation of greenhouse gas emissions." (*Id.)*

While the Guidelines do not specify any threshold of significance for GHGs, they continue to encourage agencies to adopt quantitative thresholds of significance for pollutants through a formal rulemaking process, and the amendments to expressly allow agencies to "consider thresholds previously adopted or recommended by other public agencies or recommended by experts, provided the decision of the lead agency to adopt such a threshold is supported by substantial evidence." (14 Cal. Code Regs., §15064.7.)

f. Energy Commission Precedent

Implementation of the State and Energy Commission policies discussed above should result in increasing availability and flexibility of renewable generation. Power plants that burn natural gas, such as Palmdale, currently play a vital role

[1] California Energy Commission 2008, *2008 Integrated Energy Policy Report Update*, (IEPR) (CEC-100-2008-008-CMF.)

in advancing the State's climate and energy goals by displacing less-efficient generation resources and facilitating the integration of renewables into the system. However, as the Energy Commission observed in its December, 2009 decision on the Avenal Energy Project (08-AFC-01), the ability of gas-fired generation to contribute to the State's climate and energy goals is limited. The availability of renewable generation will increase as new projects are licensed and built and the technology develops. Efficiency and conservation measures have already had a substantial impact on California's energy consumption, and new measures continue to be implemented. We therefore expect that the proportion of gas generation in the state's generation mix will gradually diminish. Accordingly, we must evaluate the consistency of each proposed gas-fired power plant with these policies in order to ensure that we license only those plants which will help to reduce GHG.

In Avenal, the Energy Commission used a three-part test to aid in its analysis of a proposed gas-fired plant's ability to advance the goals and policies described above. Gas-fired plants must:

1. Not increase the overall system heat rate for natural gas plants;

2. Not interfere with generation from existing renewable facilities nor with the integration of new renewable generation; and

3. Reduce system-wide GHG emissions and support the goals and policies of AB 32.[2]

While Avenal was decided before the Natural Resources Agency amended its Guidelines to specifically address GHG Emissions, we find the above factors to be consistent with the CEQA Guidelines, particularly the guidance set forth in Title 20, California Code of Regulations section15064.4(b)(1) & (3).

We now turn to a discussion of whether, and how well, the project would comply with the above-stated policies.

3. Construction Emissions Impacts

Power plant construction involves vehicles and other equipment that emit GHG. The Palmdale Project's construction emissions are projected at 20,616 metric tons of CO_2-equivalent GHG during the 27-month construction period. (Ex. 300,

[2] *Final Commission Decision on the Avenal Energy Application for Certification,* p. 101; [http://www.energy.ca.gov/sitingcases/avenal/documents/index.html]).

p. 4.1-90.) By way of comparison, as discussed in the next section, the project's on-site GHG emissions from operations are estimated to be 1,852,123 metric tons annually, about 90 times the construction emissions.

As noted above, the CEQA Guidelines do not specify any threshold of significance for the emission of GHGs during project construction. In Avenal, we observed that draft guidance from CARB staff recommends a "best practices" performance standard for construction emissions of industrial projects, because construction emissions tend to be much smaller than operational emissions. [*See* CARB, Preliminary Draft Staff Proposal, *Recommended Approaches for Setting Interim Significance Thresholds for Greenhouse Gases under the California Environmental Quality Act* (Oct. 24, 2008), p. 9 [**www.opr.ca.gov/ceqa/pdfs/ Prelim_Draft_Staff_Proposal_10-24-08.pdf]**.

Last year, the Bay Area Air Quality Management District (BAAQMD) adopted Air Quality Guidelines which treat GHG emissions from construction in a manner similar to the CARB's Preliminary Draft Staff Proposal. The Guidelines do not specify a threshold of significance for construction-related GHG emissions, but encourage lead agencies "to incorporate best management practices to reduce GHG emissions during construction, as applicable. Best management practices may include, but are not limited to: using alternative fueled (e.g., biodiesel, electric) construction vehicles/equipment of at least 15 percent of the fleet; using local building materials of at least 10 percent; and recycling or reusing at least 50 percent of construction waste or demolition materials." (*See* BAAQMD, California Environmental Quality Act Air Quality Guidelines, p. 81 approved June 2, 2010 [**www.baaqmd.gov/~/media/Files/Planning%20and%20Research/ CEQA/BAAQMD%20CEQA%20Guidelines_December%202010.ashx]**).

The South Coast Air Quality Management District (SCAQMD) approved a different approach to significance of GHG impacts at its December 5, 2008 Board Meeting. Rather than set a threshold for operational emissions, construction emissions are amortized over the life of a project and considered in combination with operational emissions. [See Proposal to Adopt Interim CEQA GHG Significance Threshold for Stationary Sources, **[www.aqmd.gov/hb/w008/December/081231a.htm]**.[3] Applying the SCAQMD

[3] SCQAMD has adopted a somewhat complicated tiered approach to determining the threshold of significance for GHG emission from operations (including amortized construction emissions). Essentially, annual emissions greater than 10,000 $MTCO_2e$ per year are deemed potentially significant, though projects found to be consistent with a GHG emissions reduction plan are exempt from a numerical threshold. [See Proposal to Adopt Interim CEQA GHG Significance

approach to PHPP, GHG emissions from construction of PHPP, amortized annually over the life of a project, would be approximately 650 $MTCO_2e$ per year, a fraction of a percent of estimated annual emissions from operation.

Nevertheless, we support the application of a performance standard as recommended by CARB, adopted by BAAQMD, and applied in Avenal, which will minimize GHG construction emissions. We find this approach to be consistent with the CEQA Guidelines which permit reliance on performance-based standards. [14 Cal. Code Regs., § 15064.4(a)(2).]

We understand that "best practices" include the implementation of all feasible methods to control construction-related GHG emissions. In order to limit vehicle emissions of both criteria pollutants and GHG during construction, the project owner will use: (1) operational measures, such as limiting vehicle idling time and shutting down equipment when not in use; (2) regular preventive maintenance to manufacturer specifications; (3) low-emitting diesel engines meeting federal emissions standards for construction equipment, whenever available; and (4) equipment that meets the latest criteria emissions standards. These are the current "best practices" for limiting emissions from construction equipment; no party suggested otherwise. (Ex. 301, pp. 4.1-23 – 24; Condition of Certification **AQ-SC5,** 4.1-56.)

We find that the measures described above to directly and indirectly limit the emission of GHGs during the construction of the Palmdale Project are in accordance with current best practices. We also note that the GHG emissions anticipated from construction are minimal compared with anticipated operational emissions. GHG emissions will be intermittent and mitigated during that time due to the implementation of the best practices. We therefore find that the GHG emissions from short-term construction activities will not result in a significant adverse impact.

4. Operations Emissions Impacts

a. Palmdale Project Emissions

The PHPP consists of a hybrid of natural gas-fired combined-cycle generating equipment integrated with solar thermal generating equipment. The combined-cycle equipment utilizes two natural gas-fired combustion turbine generators

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Threshold for Stationary Sources **[www.aqmd.gov/hb/w008/December/081231a.htm**. GHG emissions from potential operation of the MEP facility are discussed in the next section.

(CTG), two heat recovery steam generators (HRSG), and one steam turbine generator (STG). The solar thermal equipment utilizes arrays of parabolic collectors to use solar energy to heat a heat transfer working fluid. The heated working fluid is used to boil water to generate steam. The combined cycle equipment is integrated thermally with the solar equipment at the HRSG and both utilize the single STG that is part of the project. The solar thermal input will provide approximately 10 percent of the peak power generated by the facility during the time of day when electrical demand is highest. (Ex. 300, p. 4.1-83.)

The project would provide operate as a combined-cycle power plant up to 90-95 percent capacity annually. The two General Electric 7FA gas turbines are fired with natural gas. The project would increase the thermal efficiency of the two General Electric 7FA gas turbines because the new steam turbine generator (STG) would use thermal energy from the combustion turbine generators (CTGs) exhaust. This power plant configuration would be capable of achieving startups of less than two (2) hours under all conditions. (Ex. 300, p. 4.1-90.)

The proposed project would increase the available energy and capacity to the electricity system. (Ex. 300, p. 4.1-91.)

The primary sources of GHG emissions would be the natural gas fired combustion turbines. There would also be a small amount of GHG emissions from sulfur hexafluoride (SF_6) leaking from new electrical equipment. The employee and delivery traffic GHG emissions from off-site activities are negligible in comparison with the gas turbine GHG emissions. (Ex. 300, p. 4.1-91.)

Greenhouse Gas Table 2 shows what the proposed project, as permitted, is estimated to emit in greenhouse gases on an annual basis. All emissions are converted to CO_2-equivalent and totaled. Electricity generation GHG emissions are generally dominated by CO_2 emissions from the carbon-based fuels; other sources of GHG are typically small and also are more likely to be easily controlled or reused/recycled, but are nevertheless documented here as some of the compounds have very high relative global warming potentials. A small amount of new SF_6 containing equipment would be required for this project, and the leakage of SF_6 and its CO_2 equivalent emissions have been estimated.

Greenhouse Gas Table 2
PHPP, Estimated Potential Greenhouse Gas (GHG) Emissions

Emissions Source	**Operational GHG Emissions (MTCO2E/yr)** [a]
Turbine 1	923,643
Turbine 2	923,643
Auxiliary Boiler	2,661
HTF Heater	2,129
Emergency Generator	25
Emergency Fire Pump	4
Sulfur Hexafluoride (SF6) Leakage	9
Vehicles (includes mirror washing)	10
Total Project GHG Emissions (MTCO2E/yr)	**1,852,123**
Estimated Annual Energy Output (MWh/yr) [b]	4,993,200
Estimated Annualized GHG Performance (MTCO2/MWh)	**0.370**
Estimated Annualized GHG Performance (MTCO2E/MWh)	**0.371**

Ex. 300, p. 4.1-91

Notes:
a. One metric tonne (MT) equals 1.1 short tons or 2,204.6 pounds or 1,000 kilograms.
b. Annualized basis uses the project owner's assumed maximum operating basis.

The proposed project would be permitted, on an annual basis, to emit approximately 1,852,123 metric tonnes of CO_2-equivalent per year if operated at its maximum permitted level. However, if the use or efficiency of the solar array is less than expected, then the project's annual average efficiency would slightly decrease, which would cause the actual GHG emissions to increase slightly per MWh, but not to greater than the Greenhouse Gas Emission Performance Standard of 0.500 MTCO2/MWh. At 0.37 MTCO2/MWh, it would be well within the limits of SB 1368 and the Greenhouse Gas Emission Performance Standard of 0.500 MTCO2/MWh for base load generation. (Ex. 300, p. 4.1-91.)

b. Determining Significance: the Necessity of a System Approach

The process of electricity generation, production, and consumption is unique compared to other industrial projects. As a result, assessing the GHG impacts of power plants requires an approach that is different from the approach taken to analyze any other type of project, whether the analysis is scientific or legal.

In general, when an agency conducts a CEQA analysis of a project such as a proposed factory, shopping mall, or residential subdivision, it does not need to analyze how the operation of the proposed project will affect the larger system or group of factories, malls, or houses in a large multistate region. Rather, such

projects are generally analyzed and evaluated on a stand-alone basis. The analysis and evaluation for power plants is, by necessity, different.

California's electricity system – which is actually a system serving the entire western region of the U.S., Canada, and Mexico – is large and complex. Hundreds of power plants, thousands of miles of transmission and distribution lines, and millions of points of electricity demand operate in an interconnected, integrated, and simultaneous fashion. Because the system is integrated, and because electricity is produced and consumed instantaneously, and will be unless and until large-scale electricity storage technologies are available, any change in demand and, most important for this analysis, any change in output from any generation source, is likely to affect the output from all generators. (Committee CEQA Guidance (*Committee Guidance on Fulfilling California Environmental Quality Act Responsibilities for Greenhouse Gas Impacts in Power Plant Siting Applications,* CEC-700-2009-004.)[4]

Not only is the electricity system integrated physically, but also operates as such. The California Independent System Operator (CAISO) is responsible for operating the system so that it provides power reliably and at the lowest cost. Thus the CAISO dispatches generating facilities generally in order of cheapest to operate (i.e., typically the most efficient) to most expensive (i.e., typically the least efficient). (Committee CEQA Guidance, p. 20.) Because operating cost is correlated with heat rate (the amount of fuel that it takes to generate a unit of electricity), and, in turn, heat rate is directly correlated with emissions (including GHG emissions), *when one power plant runs, it usually will take the place of another facility with higher emissions that otherwise would have operated* (emphasis added). (Committee CEQA Guidance, *2007 IEPR*.)

In sum, the unique way power plants operate in an integrated system means that we must assess their operational GHG emissions on a system-wide basis rather than on a stand-alone basis.
We now turn to the specifics of the project's operation.

c. Palmdale's Effects on the Electricity System

(1) Providing Capacity and Ancillary Services

Power plants serve a variety of functions. Most obviously, they provide energy to keep lights shining and machinery working (typically referred to as "load"). But in

[4] The report was issued in March 2009 and is found on the Commission website at: **http://www.energy.ca.gov/2009publications/CEC-700-2009-004/CEC-700-2009-004.PDF**

order to keep the system functioning properly, they must also meet local needs for capacity and for the “ancillary services” of regulation, spinning reserve, non-spinning reserve, voltage support, and black start capability. (Ex. 300, p. 4.1- 88.)

As more renewable generation is introduced into the system, gas-fired power plants such as Palmdale will be necessary to provide intermittent generation support, grid operations support, extreme load and system emergencies support, and general energy support, as well as meet local capacity requirements. At this time, gas-fired plants are better able to provide such services than are most renewables because they can be called upon when they are needed (dispatchable). (Ex. 301, pp. 4.1-93 - 94.)

(2) Displacement of More-Costly, Less-Efficient, and Higher-Emitting Power Plants

The Palmdale Project will have a heat rate of 6,285 Btu/kWh in combined-cycle mode with maximum solar input and a net heat rate of 6,970 Btu/kWh when the solar facilities are not in operation (Ex. 300, p. 4.1-93). The heat rate, energy output and GHG emissions of other local generation resources in the Los Angeles Basin and Big Creek/Ventura Local Capacity Requirements Area are listed in **Greenhouse Gas Tables 3 and 4**. Compared to most other new and existing units in those areas, PHPP would be more efficient, and emit fewer GHG emissions per MWh of generation. Generating units with the best (lowest) heat rate or lowest GHG performance factor generally operate more than other units with higher heat rates, as shown by the relative amount of energy (GWh) produced in 2008 from the local units. However, dispatch order can change, or deviate from economic or efficiency dispatch, in any one year or due to other concerns such as permit limits, contractual obligations, local reliability needs or emergencies. (Ex. 300, pp. 4.1-93 - 96.)

Greenhouse Gas Table 3
Los Angeles Basin Local Capacity Requirements Area, Local Generation
Heat Rates and 2008 Energy Outputs

Plant Name	Heat Rate (Btu/kWh)[a]	2008 Energy Output (GWh)	GHG Performance (MTCO2/MWh)
Watson Cogeneration Co	8,512	3,017	0.452
Corona Cogen	9,430	274	0.500
Civic Center	9,447	467	0.501
San Gabriel	9,859	155	0.523
THUMS	10,123	379	0.537
ARCO Products Co	10,140	477	0.538
Harbor Cogeneration Co	10,649	44	0.565
Alamitos	10,782	2,533	0.572
Huntington Beach (AES)	10,927	1,536	0.580
El Segundo Power	11,044	508	0.586
Carson Cogeneration Co	11,513	540	0.611
Redondo Beach LLC (AES)	11,726	317	0.622
Total Energy Facilities	12,281	137	0.652
Torrance Refinery	12,370	161	0.656
Long Beach Generation LLC	15,323	27	0.813
UCLA Energy Systems Facility	15,418	206	0.818
BP West Coast Wilmington Calciner	16,953	201	0.900
Proposed Palmdale Hybrid Power Project (PHPP)	6,970	4,993 [c]	0.370

Ex. 300, p. 4.1-94

Notes:
a. Based on the Higher Heating Value or HHV of the fuel.
b. Peaker facilities
c. Based on continuous operation at peak capacity.

Greenhouse Gas Table 4
Big Creek/Ventura LSA, Generation Heat Rates and 2008 Energy Outputs

Plant Name	Heat Rate (Btu/kWh)[a]	2008 Energy Output (GWh)	GHG Performance (MTCO2/MWh)
La Paloma Generating	7,172	6,185	0.392
Pastoria Energy Facility L.L.C.	7,025	4,905	0.384
Sunrise Power	7,266	3,605	0.397
Elk Hills Power, LLC	7,048	3,552	0.374
Sycamore Cogeneration Co	12,398	2,096	0.677
Midway-Sunset Cogeneration	11,805	1,941	0.645
Kern River Cogeneration Co	13,934	1,258	0.761
Ormond Beach Generating Station	10,656	783	0.582
Mandalay Generating Station	10,082	597	0.551
McKittrick Cogeneration Plant	7,732	592	0.422
Mt Poso Cogeneration (coal/pet. coke)	9,934	410	0.930
South Belridge Cogen Facility	11,452	409	0.625
McKittrick Cogeneration	9,037	378	0.494
KRCD Malaga Peaking Plant [b]	9,957	151	0.528
Henrietta Peaker [b]	10,351	48	0.549
CalPeak Power – Panoche	10,376	7	0.550
Wellhead Power Gates, LLC [b]	12,305	5	0.652
Wellhead Power Panoche, LLC [b]	13,716	3	0.727
MMC Mid-Sun, LLC [b]	12,738	1.4	0.675
Fresno Cogen Partners, LP PKR [b]	16,898	0.8	0.896
Proposed Palmdale Hybrid Power Project (PHPP)	6,970	4,993 [c]	0.370

Ex. 300, pp. 4.1-94 – 95

Notes:
a. Based on the Higher Heating Value or HHV of the fuel.
b. Peaker facilities.
c. Based on continuous operation at peak capacity.

New, dispatchable resources like PHPP would also be required to provide generation capacity (that is, the ability to meet fluctuating, intermittent electricity loads and integrate fluctuating intermittent resources) in the likely event that facilities utilizing once-through cooling (OTC) are retired. The State Water Resources Control Board (SWRCB) has proposed significant changes to OTC units, which would likely require retrofit, retirement, or significant curtailment of dozens of generating units. In 2008, these units collectively produced about 58,000 GWh. While those OTC facilities owned and operated by utilities and

recently-built combined cycles may well install dry or wet cooling towers, it is unlikely that the aging, merchant plants will do so. Most of these units operate at low capacity factors, suggesting a limited ability to compete in the current electricity market. Although the timing would be uncertain, new resources would out-compete aging plants and would displace the energy provided by OTC facilities and likely accelerate the retirements. (Ex. 300, p. 4.1-97.)

Any additional costs associated with complying with the SWRCB regulation would be amortized over a limited revenue stream today and into the foreseeable future. Their energy and much of their dispatchable, load-following capability will have to be replaced. These units constitute over 15,000 MW of merchant capacity and 17,800 GWh of merchant energy. Of this, much but not all of the capacity and energy are in local reliability areas, requiring a large share of replacement capacity – absent transmission upgrades – to locations in the same local reliability area. (Ex. 300, p. 4.1-97.)

New generation resources that can either provide local support or energy will emit significantly less GHGs than the OTC fleet. Existing aging and OTC natural gas generation averages 0.6 to 0.7 MTCO2/MWh, which is less efficient and higher GHG emitting than a new natural gas-fired combined-cycle/hybrid solar project like PHPP. When a project can provide energy and capacity, given its location, it can provide a significant net reduction in GHG emissions from the California electricity sector. A project located in a coastal load pocket, like the Los Angeles Local Reliability Area, would more likely provide local reliability support as well as facilitate the retirement of aging and/or OTC power plants to a degree that the PHPP project could not. Therefore, while PHPP would further the displacement of less efficient power plants in many cases, its location, away from a coastal load pocket, does not allow us to find that it would result in the displacement of existing coastal OTC units.

(3) Fostering Renewables Integration

Most new renewable generation in California will be wind and solar generated power. But the wind and the sun are not continuous, on-demand resources. As a result, in order to rely on such intermittent sources of renewable-generated power, utilities must have available other, nonrenewable generating resources or significant storage that can fill the gap when renewable generation decreases. Indeed, because of this need for backup generation, or if and when utility-scale storage becomes feasible and cost-effective, nonrenewable generation must increase in order for the state to meet California's RPS and GHG goals. (Ex. 300, p. 4.1-93.)

PHPP would provide flexible, dispatchable and fast ramping[5] power that would not obstruct penetration of renewable energy. In general, combustion turbines can ramp up quickly, but the ramp rate of a large-scale combined cycle facility can be limited by the steam turbine to about 15 MW per minute. The PHPP would also realize 10 percent of its output from renewable solar power during peak demand periods.

The amount of dispatchable fossil fuel generation used as regulation resources, fast ramping resources, or load following or supplemental energy dispatches will have to be significantly increased due to the planned intermittent resources needed to meet the 20 percent RPS (CAISO 2007, p.113); the 33 percent RPS will require even more dispatchable generation to integrate the renewables. However, this does not suggest the existing and new fossil fuel capacity will operate more in terms of total generation, but rather that it will need to operate more in a supplementary rather than base load role. **Greenhouse Gas Table 5** shows how the build-out of either the 20 percent or the 33 percent Renewable Portfolio Standards will affect generation from new and existing non-renewable resources. Should California reach its goal of meeting 33 percent of its retail demand in 2020 with renewable energy, non-renewable, most likely fossil-fueled, energy needs will fall by more than 36,000 GWh/year. In other words, all growth will need to come from renewable resources to achieve the 33 percent RPS, and some existing and new fossil units will generate less energy than they currently do, given the expected growth rate in retail sales.

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[5] The CAISO categorizes *fast-ramping* as a generator capable of going from lowest power to highest in under 20 minutes, or greater than 10 MW per minute.

Greenhouse Gas Table 5
Estimated Changes in Non-Renewable Energy Potentially Needed to Meet California Loads, 2008-2020

California Electricity Supply	**Annual GWh**	
Statewide Retail Sales, 2008, estimated [a]	264,794	
Statewide Retail Sales, 2020, forecast [a]	289,697	
Growth in Retail Sales, 2008-20	24,903	
Growth in Net Energy for Load [b]	29,840	
California Renewable Electricity	**GWh @ 20% RPS**	**GWh @ 33% RPS**
Renewable Energy Requirements, 2020 [c]	57,939	95,600
Current Renewable Energy, 2008	29,174	
Change in Renewable Energy-2008 to 2020 [c]	28,765	66,426
Resulting Change in Non-Renewable Energy	176	-36,586

Ex. 300, p. 4.1-95

Notes:
a. 2009 IEPR Demand Forecast, Form 1.1c. Excludes pumping loads for entities that do not have an RPS..
b. 2009 IEPR Demand Forecast, Form 1.5a.
c. RPS requirements are a percentage of retail sales.

PHPP would be capable of annually providing 4,993 GWh of natural gas-fired and solar generation energy to replace resources that are or will likely be precluded from serving California loads. State policies, including GHG goals, are discouraging or prohibiting new contracts and new investments in high GHG-emitting generation, such as coal-fired generation, that relies on water for once-through cooling, and aging power plants (CEC 2007). Some of the existing plants that are likely to require significant capital investments to continue operation in light of these policies may be unlikely to undertake the investments and will retire or be replaced.

The project would likely lead to a net reduction in GHG emissions across the electricity system providing energy and capacity to California. The project would result in a cumulative overall reduction in GHG emissions from the state's power plants, would not worsen current conditions, and would thus not result in impacts that are cumulatively significant. Moreover, it would be consistent with AB 32 goals. We therefore find that GHG emissions from operation activities will not have a significant environmental impact.

Intervenor CBD argues that Staff's greenhouse gas emissions (GHG) analysis is deficient because there are too many unknown factors regarding the project's ability to obtain a contract, operate efficiently, and access the grid without impairing access by other renewable energy sources. CBD also asserts that the analysis is deficient because it has not included a complete lifecycle analysis that would include manufacture and transportation of project components. CBD finally claims that the analysis failed to include a discussion of measures to avoid or minimize the project's GHG emissions. (CBD Opening Brief pp. 12-13.)

CBD's first argument falls short because regardless of whether or not the PHPP operates pursuant to contract or simply is available to the grid when needed; the loading order will cause renewables to operate first, followed by the newest and most efficient gas-fired plants, which will displace generation from older, less efficient gas-fired plants. CBD's argument that the PHPP would "impair" access by other renewable energy sources is based on speculation and there is no evidence in the record to support the claim. (Ex. 300, pp. 4.1-53 and 4.1-91.)

CBD also argues that Staff's analysis fails because it does not include a lifecycle analysis. Nowhere does CEQA require such a "cradle to grave" analysis of greenhouse gas emissions, nor is there any evidence that such an analysis is possible or would result in useful information beyond mere speculation. Staff's analysis takes into consideration information on the likely operation of the project, combined with an understanding of how the project would likely operate within California's electricity grid and reaches conclusions based on these reasonable assumptions. (Tit. 14, Cal. Code of Regs. § 15144.) This is what CEQA and the courts require; not an analysis based on speculative assumptions. (Tit. 14, Cal. Code of Regs. § 15145.)

Finally, CBD is simply incorrect when it asserts that Staff failed to include a discussion of measures to avoid or minimize the project's GHG emissions. We have required implementation of best practices, such as limiting engine idling and using equipment meeting the latest emission standards, in conditions set forth in the **Air Quality** section of this Decision. Implementation of those conditions will ensure that PHPP's GHG emissions during construction are as low as possible. Similarly, implementation of the **Air Quality** conditions of certification applicable to operations emissions will ensure that GHG emissions are minimized to the extent practicable and result in no significant impact. (Ex. 300, pp. 4.1-92 and 102)

5. The Role of New Power Plants that Operate Wholly or in Part on Fossil Fuels

At present, the California electricity system needs new, efficient gas-fired generation to displace and replace less efficient generation, and to help integrate additional intermittent renewable generation. But as new projects are built to meet those needs, the system will change; moreover, the specific location, type, operation, and timing of each plant will be different. As a result, each plant will have somewhat different impacts. Furthermore, future implementation of efficiency and demand response measures, and new technologies such as storage, smart grid, and distributed generation, may also significantly change the physical needs and operation of the electrical system. It is therefore reasonable to assume that at some point in the future there will be a decrease in the need for additional gas-fired generation. Therefore, we cannot and should not continue adding gas-fired plants, or as in this case, projects with a gas-fired component, *ad infinitum.* Rather, we will analyze each such project in light of the goals and policies discussed above.

In this case, the evidence establishes that the Palmdale Project will not increase the system heat rate as it has the lowest heat rate of any of the generators in the Los Angeles basin and Big Creek/Ventura local capacity areas. It will support, rather than interfere with, existing and new renewable generation. Finally, it will reduce system-wide GHG emissions and otherwise support the goals of AB 32. We find the proposed project is consistent with state energy policy, and will help the state achieve its renewable energy goals.

FINDINGS OF FACT

1. The GHG emissions from Palmdale Project construction are likely to be 20,616 $MTCO_2$ equivalent ("$MTCO_2E$") during the 18-month construction period.

2. There is no numerical threshold of significance under CEQA for construction-related GHG emissions.

3. The three-part test used in Avenal (08-AFC-01) is consistent with the CEQA Guidelines, particularly the guidance set forth in California Code of Regulations, section 15064.4(b)(1) & (3).

4. Construction-related GHG emissions will be less than significant if they are controlled with best practices.

5. The project will use best practices to control its construction-related GHG emissions.

6. State government has a responsibility to ensure a reliable electricity supply, consistent with environmental, economic, and health and safety goals.

7. California utilities are obligated to meet whatever demand exists from any and all customers.

8. The maximum annual CO_2 emissions from the Palmdale Project's operation will be 1,852,123 $MTCO_2E$, which constitutes an emissions performance factor of 0.37 $MTCO_2E$ / MWh.

9. Under SB 1368 and implementing regulations, California's electric utilities may not enter into long-term commitments with base load power plants with CO_2 emissions that exceed the Emissions Performance Standard ("EPS") of 0.500 $MTCO_2$/MWh.

10. The EPS in SB 1368 is the only LORS that limits power plant emissions.

11. The California Renewable Portfolio Standard (RPS) requires the state's electric utilities obtain at least 33 percent of the power supplies from renewable sources, by the year 2020.

12. California's power supply loading order requires California utilities to obtain their power first from the implementation of all feasible and cost-effective energy efficiency and demand response, then from renewables and distribution generation, and finally from efficient fossil-fired generation and infrastructure improvement.

13. Even as more renewable generation is added to the California electricity system, gas-fired power plants such as the Palmdale Project will be necessary to meet local capacity requirements and to provide intermittent generation support, grid operations support, extreme load and system emergencies support, and general energy support.

14. There is no evidence in the record indicating that construction or operation of the Palmdale Project will be inconsistent with the loading order.

15. The Palmdale Project will have a heat rate of 6970 Btu/kWhr.

16. The Palmdale Project will displace generation from less efficient (i.e., higher-heat-rate and therefore higher-GHG-emitting) power plants in the Los Angeles basin and Big Creek/Ventura local capacity areas.

17. The Palmdale Project's operation will reduce overall GHG emissions from the electricity system.

18. Intermittent solar and wind generation will account for most of the installation of renewables in the next few decades.

19. Intermittent generation needs dispatchable generation, such as the Palmdale Project, in order to be integrated effectively into the electricity system.

20. The Palmdale Project's operation will foster the addition of renewable generation into the electricity system, which will further reduce system GHG emissions.

21. The addition of some amount of efficient, dispatchable, natural-gas-fired generation will be necessary to integrate renewables into California's electricity system and meet the state's RPS and GHG goals, but the amount is not without limit.

22. The Palmdale Project will displace higher ghg emitting generation, but will not result in the displacement of OTC units due to its inland location.

CONCLUSIONS OF LAW

1. The Palmdale Project's construction-related GHG emissions will not cause a significant environmental impact.

2 The Palmdale Project's operational GHG emissions will not cause a significant environmental impact.

3. The Palmdale Project's operation will help California utilities meet their RPS obligations.

4. Palmdale Project operation will be consistent with California's loading order.

5. Palmdale Project operation will foster the achievement of the GHG goals of AB 32 and Executive Order S-3-05.

6. The GHG emissions of any power plant must be assessed within the system on a case-by-case basis.

7. The Palmdale Project will not increase the overall system heat rate for natural gas plants.

8. The Palmdale Project will not interfere with generation from existing renewables or with the integration of new renewable generation.

9. The Palmdale Project will reduce system-wide GHG emissions.

10. Any new natural-gas-fired power plant that we certify must:

    a) not increase the overall system heat rate for natural gas plants;
    b) not interfere with generation from existing renewables or with the integration of new renewable generation; and
    c) have the ability to reduce system-wide GHG emissions.

B. 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 mitigation measures will likely reduce potential impacts to insignificant levels. (Exs. 16; 35; 46; 51; 52; 55; 72; 76; 110; 113; 128; 143; 144; 145; 29; 56; 69; 84; 101; 109; 115; 130; 35; 106; 126; 105; 107; 122; 141; 300; 302; 307; 400 401; 402; 403; 500; 503; 504.)

SUMMARY AND DISCUSSION OF THE EVIDENCE

The Federal Clean Air Act and the California Clean Air Act both require the establishment of standards for ambient concentrations of air pollutants, called ambient air quality standards (AAQS). The state AAQS, established by the California Air Resources Board (CARB), are typically lower (more protective) than the federal AAQS which are established by the U.S. EPA. The state and federal air quality standards are listed in **Air Quality, Table 1** below. (Ex. 300, pp. 4.1-7 – 4.1-8.)

In general, an area is designated as "attainment" if the concentration of a particular air contaminant does not exceed the standard. Likewise, an area is designated as non-attainment for an air contaminant if that contaminant standard is violated. Where not enough ambient data are available to support designation as either attainment or non-attainment, the area can be designated as unclassified. An area could be attainment for one air contaminant while non-attainment for another, or attainment for the federal standard and non-attainment for the state standard for the same air contaminant. (Ex. 300, p. 4.1-8.)

Air Quality Table 1
Ambient Air Quality Standards

Ambient Air Quality Standards						
Pollutant	**Averaging Time**	**California Standards[1]**		**Federal Standards[2]**		
		Concentration[3]	**Method[4]**	**Primary[3.5]**	**Secondary[3.6]**	**Method[7]**
Ozone (O_3)	1 Hour	0.09 ppm (180 µg/m^3)	Ultraviolet Photometry	—	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 µg/m^3)		0.075 ppm (147 µg/m^3)		
Respirable Particulate Matter (PM10)	24 Hour	50 µg/m^3	Gravimetric or Beta Attenuation	150 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m^3		—		
Fine Particulate Matter (PM2.5)	24 Hour	No Separate State Standard		35 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m^3	Gravimetric or Beta Attenuation	15.0 µg/m^3		
Carbon Monoxide (CO)	8 Hour	9.0 ppm (10 mg/m^3)	Non-Dispersive Infrared Photometry (NDIR)	9.0 ppm (10 mg/m^3)	None	Non-Dispersive Infrared Photometry (NDIR)
	1 Hour	20 ppm (23 mg/m^3)		35 ppm (40 mg/m^3)		
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m^3)		—	—	—
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	0.030 ppm (57 µg/m^3)	Gas Phase Chemiluminescence	53 ppb (100 µg/m^3) (see footnote 8)	Same as Primary Standard	Gas Phase Chemilumin-escence
	1 Hour	0.18 ppm (339 µg/m^3)		100 ppb (188 µg/m^3) (see footnote 8)	None	
Sulfar Dioxide (SO_2)	24 Hour	0.04 ppm (105 µg/m^3)	Ultraviolet Fluorescence	—	—	Ultraviolet Flourescence; Spectrophoto-metry (Pararosaniline Method)[9]
	3 Hour	—		—	0.5 ppm (1300 µg/m^3) (see footnote 9)	
	1 Hour	0.25 ppm (655 µg/m^3)		75 ppb (196 µg/m^3) (see footnote 9)	—	
Lead[10]	30 Day Average	1.5 µg/m^3	Atomic Absorption	—	—	—
	Calendar Quarter	—		1.5 µg/m^3	Same As Primary Standard	Higher Volume Sampler and Atomic Absorption
	Rolling 3-Month Average[11]	—		0.15 µg/m^3		
Visibility Reducing Particles	8 Hours	Extinction coefficient of 0.23 per kilometer – Visibility of ten miles or more (0.07 – 30 miles or more for Lake Tahoe) due to particles when relative humidity is less than 70		**No Federal Standard**		

		percent. Method: Beta Attenuation and Transmittance through Filter Tape.		
Sulfates	24 Hour	25 µg/m^3	Ion Chromatography	
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m^3)	Ultraviolet Fluorescence	
Vinyl Chloride[10]	24 Hour	0.01 ppm (26 µg/m^3)	Gas Chromatography	

Source: Ex. 300, pp. 4.1-9- 4.1-10.

The PHPP is located in the Mojave Desert Air Basin (MDAB) and is under the jurisdiction of the Antelope Valley Air Quality Management District (AVAQMD or District). This area is designated as non-attainment for both the state ozone (1-hour and 8 hour) and the federal ozone and the state 24-hour and annual PM10 standards. It is classified as attainment or unclassified for the state's CO, NO_2, SO_2, PM2.5, SO_4 and Lead (Pb) standards and attainment or unclassified for the federal PM2.5, CO, NO_2 and SO_2 standards. **Air Quality Table 2** summarizes the area's attainment status for various applicable state and federal standards. (Ex. 300, p. 4.1-8.)

Air Quality Table 2
Project Area Attainment Status

Pollutant	Averaging Time	California Status	Federal Status
Ozone (O3)	8 Hour	*Non-attainment*	Moderate Non-attainment
	1 Hour	*Extreme Non-attainment*	N/A
Carbon Monoxide (CO)	8 Hour	*Attainment*	Unclassified/Attainment
Nitrogen Dioxide (NO_2)	Annual	*Attainment*	*Attainment*
	1 Hour	*Attainment*	*Attainment* [a]
Sulfur Dioxide (SO2)	Annual	*N/A*	Unclassified
	24 Hour	*Attainment*	Unclassified
	1 Hour	*Attainment*	N/A
PM10	Annual	*Non-attainment*	N/A
	24 Hour	*Non-attainment*	Unclassified
PM2.5	Annual	*Unclassified/Attainment*	Unclassified/Attainment
	24 Hour	*N/A*	Attainment

Notes:
[a]Nitrogen dioxide attainment status for the federal 1-hour NO_2 standard is scheduled to be determined by January 2012.
N/A= no standard applies or not applicable
Source: Ex. 300, p. 4.1-10.

The proposed PHPP consists of a hybrid facility comprised of a natural gas-fired combined-cycle generating equipment integrated with solar thermal generating equipment to be developed on an approximately 333-acre site in the northern portions of the City. The combined-cycle equipment utilizes two natural gas-fired combustion turbine generators (CTG), two heat recovery steam generators (HRSG), and one steam turbine generator (STG). The solar thermal equipment utilizes arrays of parabolic collectors to heat a high-temperature working fluid that is used to boil water to generate steam. The combined-cycle equipment is integrated thermally with the solar equipment at the HRSG and both utilize the single STG that is part of the project. (Ex. 300, p. 4.1-15.)

The project will have a nominal electrical output of 570 MW. The solar thermal input will provide approximately 10 percent of the peak power generated by the project during the daily periods of highest energy demand. The project will be fueled with natural gas delivered via a new natural gas pipeline. The Southern California Gas Company (SCG) will design and construct the approximately 8.7-mile pipeline in existing street rights-of-way (ROW) within the City of Palmdale. (Ex. 300, p. 4.1-15.)

We note that the record contains a complete description of the climate and meteorology of the relevant local and regional area of the PHPP, including a description of the weather patterns, winds, temperature, precipitation; and a thorough analysis of the existing ambient air quality which includes analysis of ambient levels of ozone, nitrogen dioxide, carbon monoxide, particulate matter, fine particulate matter, nitrates and sulfates; all of which is further summarized in several tables. (Ex. 300, pp. 4.1-6 – 4.1-15.) This evidence outweighs the claim of Intervenor, Center for Biological Diversity's (CBD) that the "description of the environmental setting is flawed." (CBD, Opening Brief, p. 4.) We find the description of the baseline ambient air conditions in the record is quite adequate.

1. Construction Impacts

The construction of the PHPP will last approximately 27 months, and generally consists of two major activities; site preparation, and construction and installation of major equipment and structures. In addition to fugitive dust emissions resulting from the site preparation, emissions from construction equipment exhausts, such as vehicles and internal combustion engines, are also expected during the project construction phase. Also, a small amount of hydrocarbon emissions may occur as a result of the temporary storage of petroleum fuel at the site. (Ex. 300, p. 4.1-22.)

Using estimated peak hourly, daily and annual construction equipment exhaust emissions, the city of Palmdale performed a modeling analysis. The results are presented in **Air Quality Table 3**. The modeling analysis included both the fugitive dust and vehicle exhaust emissions, which include PM10, NO_x, and CO. (Ex. 300, p. 4.1-22.)

Air Quality Table 3
Maximum Project Construction Impacts

Pollutant	Averaging Period	Concentrations (µg/m^3)					Percent of Limiting Standard
		AERMOD Result	Ambient Background[2]	Total[3]	CAAQS	NAAQS	
NO_2[1]	1-hr	296.5	---	296.5	339	--	87%
	Annual	7.9	28.2	36.1	57	100	63%
CO	1-hr	3,349.8	4,010.0	7,030.0	23,000	40,000	31%
	8-hr	548.4	1,978.0	2,526.0	10,000	10,000	25%
PM10	24-hr	37.0	181.0	218.0	50	150	**436%**
	Annual	3.6	30.2	33.8	20	--	**169%**
PM2.5	24-hr	6.6	16.3	22.9	--	35	65%
	Annual	1.0	8.9	9.9	12	15	83%
SO_2	1-hr	2.5	28.8	31.3	665	--	5%
	3-hr	1.0	23.6	24.6	--	1,300	2%
	24-hr	0.2	13.1	13.3	105	365	13%
	Annual	0.01	2.6	2.6	--	80	33%

1 Modeled NO_2 concentrations as determined with the OLM.
2 From AFC Table 5.2-29; data were collected at the Lancaster Division Street monitor for all pollutants except SO2 which was collected at the Victorville monitoring station. These values correspond to the highest monitored values from 2005 – 2007, except for PM2.5, which is the 98th percentile value over three years.
3 Modeled concentration plus ambient background.
4 Result reflects 10-hour day from March through October and 8-hour day from November 5 through February 15. 5. Provided for reference only. Total impact includes modeled impact plus time-matched ambient background.
Source: Ex. 300, p. 4.1-22.

Emissions associated with Alternative Route 4, Partial Underground Transmission Line, are presented in **Air Quality Table 3.1-1**. Emissions are presented for a peak daily scenario and total tons emitted during transmission line construction. Conditions of Certification **AQ-SC-1** through **AQ-SC-6** will reduce potential air quality impacts associated with transmission line construction to a less than significant level for both alternatives.

Air Quality Table 3.1-1
Alternative Route 4
Estimated Maximum Transmission Line Construction Emissions

Activity	NOx	VOC	SOx	CO	PM10	PM2.5
Peak Daily Emissions (lb/day)						
Alternative – Partial Underground	475.3	63.8	0.5	351.5	393.8	96.0
Total Emissions (tons)						
Alternative – Partial Underground	38.4	8.0	0.1	47.9	31.7	8.3

Additionally, while the Applicant plans to offset PM10 emissions by paving existing dirt roads, the record suggests that construction activities associated with the road paving itself will generate PM10 emissions. Intervenor CBD submitted expert testimony that claimed that the Final Staff Analysis (Ex. 300) "fail[ed] to account for emissions associated with the paving of existing unpaved roads and with the periodic maintenance" of such roads and that "construction- and worker-related fugitive and PM2.5 emissions should have been estimated and evaluated." (Ex. 402, p. 4.) However, the record indicates that the Applicant and Staff did analyze the potential of the road paving to result in air impacts and concluded that, with implementation of mitigation measures to address potential emissions from construction equipment used to construct the roads, the impact would be reduced to less than significant. (3/2/11 RT 55:20 – 59:16; 116:4-14.)

Specifically, the record shows that the Applicant quantified the emissions from road paving construction using a model which showed that the road paving emissions would be roughly equivalent to typical pipeline construction emissions. (*Id*.) As for potential emissions resulting from maintaining the roads, the dirt roads already require periodic maintenance so that any maintenance required for the paved roads will likely result in similar, if not fewer, such emissions. (3/2/11 RT 116:4-14.)

At the Evidentiary Hearing, CBD's expert witness, Mr. Tholen, testified that he did not conduct any independent analysis to quantify the emissions associated with the road paving activity. He further testified that the road model used by the Applicant was the appropriate approach for analyzing emissions associated with road paving. Finally, Mr. Tholen agreed that the conditions of certification, below, adequately mitigated the project's construction related emissions. (3/2/11 RT 107:8 - 25.)

To mitigate the impacts due to construction we will impose conditions of certification which will reduce the level of impacts to a less than significant level.

Condition of Certification **AQ-SC6** will limit construction activities to the period one hour after sunrise to one hour before sunset of every day during the construction of the PHPP. The record indicates that very high NO_2 impacts only occur during the hours close to sunrise and sunset when the atmosphere is stable and winds are light. Further, when sunlight is present (outside of the hours close to sunrise and sunset), NO_2 impacts are reduced to levels below the applicable standards. With implementation of Condition of Certification **AQ-SC6**, the project construction emissions will not cause a new violation of the NO_2 air quality standard, and the project NO_2 construction impact will be less than significant. (Ex. 300, p. 4.1-23.)

In addition to the proposed construction NOx mitigation, the following measures will mitigate the project's PM10/PM2.5 construction emission impacts:

A. All unpaved roads and disturbed areas in the Project and linear construction sites shall be watered as frequently as necessary to comply with the dust mitigation objectives of **AQ-SC4**.

B. Vehicle speeds will be limited to 10 miles per hour within the construction site.

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

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

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

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

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

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

I. All paved roads within the construction site shall be swept at least twice daily on days when construction activity occurs to prevent the accumulation of dirt and debris.

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

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

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

M. Wind erosion control techniques (such as windbreaks, water, chemical dust suppressants, and/or vegetation) shall be used on all construction areas that may be disturbed. Any windbreaks installed to comply with this condition shall remain in place until the soil is stabilized or permanently covered with vegetation. (Ex. 300, pp. 4.1-23 – 4.1-24.)

These mitigation measures are contained in Conditions of Certification **AQ-SC1** through **AQ-SC6**. Condition of Certification **AQ-SC5** requires the use of low emission diesel engines and, if appropriate, soot filters on diesel-fueled construction equipment during construction. Implementation of these specific mitigation measures during construction of the facility and during the road paving as identified in the Conditions of Certification, below, will reduce the short-term construction impacts of PM10 to a level of less than significant.

2. Initial Commissioning Impacts on Air Quality

Initial commissioning refers to a period of approximately 60 days prior to commencement of commercial operation when the combustion turbines undergo initial test firing. During this commissioning phase, the project may operate at a low-load for a period of time for fine-tuning. In addition, the HRSGs, steam piping, condensers, and other equipment handling steam and condensate would be cleaned of dirt, oil, mill scale, and debris. This cleaning is usually accomplished with steam blows. The District typically requires that each activity of the commissioning period be planned so that all NO_x and CO emissions and the time of commissioning are minimized to lessen the impacts from the turbines and duct burners. Based on the evidence of record, we find that there will be no new impacts from NO_x and CO emissions during the commissioning period. All criteria air contaminant emissions during the commissioning period will be counted toward the annual emission limits; thus, there is an incentive for the Applicant to limit the commissioning period to the shortest time possible. (Ex. 300, pp. 4.1-16 - 4.1-17.)

Maximum emissions associated with commissioning activities are shown in **Air Quality Table 4**. NO_2 impacts were found to be below the CAAQS prior to adding

in the ambient background. When background was added to the maximum modeled 1-hour NO_2 concentration under simultaneous commissioning of both turbines, the impacts were shown to exceed the standard. However, this analysis was conservative and assumes that the combustion turbines would both be undergoing commissioning activities at the same time, at peak emissions levels and at the time of day when background level is at its peak. However, Condition of Certification **AQ-SC20** prevents the simultaneous commissioning of the two combustion turbines at emission levels that would cause a violation of the 1-hour NO_2 standard. (Ex. 300, p. 4.1-25.) Therefore, we find that impacts to air quality during initial commissioning will fall below the level of significance.

Air Quality Table 4
Maximum Modeled Concentrations for Commissioning

Pollutant	Averaging Period	Concentrations (µg/m^3)					Percent of Limiting Standard
		AERMOD Result	Ambient Background	Total	CAAQS	NAAQS	
NO_2	1-hour (2 turbines)	331.67	139.2	470.9	339	--	139%
	1-hour (1 turbine)	199.00	139.2	338.2	339	--	99.8%
CO	1-hour	856.01	3,680.0	4,010.0	23,000	40,000	20%
	8-hour	650.42	1,978.0	2,628.0	10,000	10,000	26%

Source: Ex. 300, p. 4.1-25.

3. Operational Impacts

The Applicant has provided a modeling analysis using the EPA-approved AERMOD model to estimate the impacts of the project's NO_x, PM10, CO, and SO_x emissions resulting from project operation. (Ex. 300, p. 4.1-25.)

Air Quality Table 5 shows that the project does not cause any new violations of PM 2.5, NO_2, CO or SO_2 air quality standards even with worst-case ambient concentrations recorded. The project, however, would contribute to existing violations of the state 24-hour and annual PM10 air quality standards, and the state 1-hour and the federal 8-hour ozone standards. Therefore, we adopt Conditions of Certification requiring mitigation in the form of emission reduction credits for particulate matter and its precursors, and ozone and its precursors, as part of this Decision. (Ex. 300, p. 4.1-25.)

Air Quality Table 5
Maximum Modeled Concentrations for PHPP Normal Operations

Pollutant	Averaging Period	Concentrations ($\mu g/m^3$)					Percent of Limiting Standard
		AERMOD Result	Ambient Background	Total	CAAQS	NAAQS	
NO_2[1]	1-hour State	203.1	---	203.1	339	--	60%
	1-hr Federal	175.3	---	175.3	---	188	93%
	Annual	1.0	28.2	29.2	57	100	51%
CO	1-hour	367	3,680.0	4,047.0	23,000	40,000	18%
	8-hour	20.4	1,978.0	1,998.4	10,000	10,000	20%
PM10	24-hour	18	181.0	199.0	50	150	**398%**
	Annual	1.8	30.2	32.0	20	--	**160%**
PM2.5	24-hour	11.6	16.3	27.9	--	35	80%
	Annual	1.2	8.9	10.1	12	15	84%
SO_2	1-hour	1.6	28.8	30.4	665	--	5%
	3-hour	1.3	23.6	24.9	--	1,300	2%
	24-hour	0.9	13.1	14.0	105	365	13%
	Annual	0.1	2.6	2.7	--	80	3%

1 Modeled NO_2 concentrations as determined with the OLM. Maximum AERMOD concentration given is modeled impact plus time-matched ambient background.
2 Background data were collected at the Lancaster Division Street monitor for all pollutants except SO_2 which was collected at the Victorville monitoring station. These values correspond to the highest monitored values from 2004 – 2008, except for PM2.5, which is the 98th percentile value over three years.
Source: Ex. 300, p. 4.1-26.

a. Operational Impacts Mitigation

Ozone precursor emissions offsets are generally of limited availability and given the lack of readily available emission offsets in the district, several measures will be required in order to minimize potential project-related emissions and impacts. Specifically, Condition of Certification **AQ-SC7** will minimize operational emissions associated with solar facility maintenance by requiring dedicated vehicles that meet California on-road emission standards. Condition of Certification **AQ-SC8** will minimize emissions fugitive dust emissions below significance by requiring a fugitive dust control plan that includes soil stabilization. (Ex. 300, p. 4.1-26.)

The hybrid nature of the project is based on 250 acres of parabolic sun-tracking mirrors focused on and heating a heat transfer fluid (HTF). The heated fluid circulates through a dedicated steam boiler that provides supplemental steam to each HRSG high-pressure steam drum. The HTF system has the potential to leak, especially at pipe system connections, and thus emit VOCs (less than 0.2 tons per year), which would contribute to ozone formation and exacerbate

existing non-attainment conditions. Therefore, Conditions of Certification **AQ-SC9** through **AQ-SC16** minimize VOC emissions associated with the HTF system below significance by requiring a monitored vapor control system at points where the system can vent to the atmosphere, as well as leak-free expansion tanks, all subject to regular inspection. (Ex. 300, p. 4.1-27.)

The Applicant is proposing to mitigate the project's contribution to ambient ozone, by providing NO_X and VOC emission reduction credits (ERCs) (for ozone precursors), obtained from sources in the upwind neighboring San Joaquin Valley Air Pollution Control District (SJVAPCD), and paving roads in the Palmdale area for PM10/PM2.5 and its precursors. (Ex. 300, p. 4.1-27.)

i. Ozone precursors (NO_x and VOC)

Due to the unavailability of ozone precursor ERCs in the MDAB, the city proposes to secure ozone precursor ERCs from the SJVAQMD. This type of emission offsetting is referred to as inter-basin emission trading. Both Districts' regulations and state and federal laws allow such an approach. There are meteorological circumstances where ozone and ozone precursor (NO_x and VOC) emissions from the SJVAQMD result in significant contributions to ozone violations in the AVAQMD. Therefore, the use of ERCs from the SJVAQMD to mitigate the facility NOx and VOC emissions contribution to existing violations of ozone air quality standards complies with LORS, if approved by both air agencies. (Ex. 300, p. 4.1-27.)

The use of ERCs from the SJVAPCD is a reasonable approach and has been utilized in the past. Pollutant transport from the San Joaquin Valley and the impact on Antelope Valley air quality has been well established and is addressed in the AVAQMD's Air Quality Attainment Plan. Under AVAQMD Rule 1305 and as required by the AVAQMD's FDOC (Ex. 302), the Applicant will be required to obtain NO_X and VOC ERCs at a ratio of 1.3:1 for those sources in the San Joaquin Valley [Rule 1305(C)(1)]. Based on the evidence, NO_x ERCs are located up to 116 miles upwind of the project site and VOC ERCs are located up to 285 miles upwind of the project site. However, given the distance of most of these ERCs, the level of benefit that these ERCs would provide in offsetting PHPP emissions is reduced, so that higher offset ratios would be needed to demonstrate a net air quality benefit for compliance with CEQA. Therefore, Condition of Certification **AQ-SC-18** requires an offset ratio of 1.5:1 for all ERCs located more than 15 miles from the MDAB. (Ex. 300, p. 4.1-30.)

The project will be subject to review by the US EPA for purposes of determining compliance with the federal PSD program and it is expected that US EPA will review all aspects of PHPP, including offsets. Based on the large distance between the project site and ERC sources, the need for offset ratios that are based on these distances and the lack of information on offset ratios needed for adequate abatement, the evidence shows that the proposed VOC and NOx ERCs are not adequate to fully offset PHPP emissions, result in a net air quality benefit or meet the requirements of AVAQMD Rule 1305. Therefore, Condition of Certification **AQ-SC18** will ensure timely purchase of the NOx and VOC emission reduction credits that will adequately and fully offset PHPP emissions of ozone precursors by requiring the project owner to purchase prior to start of construction of the project, offsets for the project emissions of 115 and 40 tons per year of NOx and VOC at a ratio of 1.3 to one for ERC's within the MDAB or areas in the SJVAB that are within 15 miles of the AVAQMD western boundary (149.5 and 52 tons per year for NOx and VOC, respectively). If ERCs are obtained from locations greater than 15 miles from the western portion of the AVAQMD, an offset ratio of 1.5 to one shall be utilized for those offsets. (Ex. 300, p. 4.1-32.) We find that, with the implementation of Condition of Certification **AQ-SC18,** the PHPP will completely offset its contribution to ambient ozone.

ii. PM10 and Precursor

The Applicant proposes to pave some local roadways to generate emission reduction credits to mitigate the project's PM10 and PM10 precursor (SO_x) emission impacts. The pool of candidate roads to be paved is described in detail in the **Traffic and Transportation** section of this Decision. We also adopt Condition of Certification **AQ-SC8**, to prohibit non-maintenance vehicles from traveling on any unpaved portion of roadways within the facility and to limit vehicle speed to no more than ten (10) miles per hour on the unpaved portion of roadways within the facility.

CBD objected that the FSA failed to provide sufficient information or analysis to justify the use of interpollutant trading as an alternative mitigation measure to road paving. (CBD Opening Brief, p. 4.) Staff recommended removing the provision in Condition of Certification **AQ-SC19** allowing the use of interpollutant trading. Accordingly, we have stricken language referring to interpollutant trading from Condition of Certification **AQ-SC19.**

CBD also challenged the adequacy of road paving to act as a valid ERC for PM10 claiming that road paving will actually lead to an increase in the fraction of

the PM that is PM 2.5. (CBD Opening Brief, p. 9.) Staff determined that road paving is a valid method for offsetting PM10 emissions. (3/2/11 RT 115:9-12.) Condition of Certification **AQ-SC19** requires bankable emission reduction credits that are based on *actual* daily average traffic count, daily vehicle miles travelled, and road dust silt content, thereby ensuring the accuracy of the PM10 reductions. (Exs. 300, p. 4.1-62; 306, p. 10.) The FDOC also expressly supports the validity of using road-paving to offset PM10 emissions. (Ex. 302, p. 14.)

CBD's expert witness, Mr. Tholen argued that the PM10 reductions obtained by road paving are insufficient to mitigate for PM2.5. (Ex. 402, pp. 2-3.) However, the road paving is proposed to mitigate for the project's PM10 emissions, not its PM2.5 emissions. (Ex. 300, p. 4.1-32.) The question Mr. Tholen's testimony appears to present is whether a side effect of the mitigation is an increase in PM2.5 emissions and, if so, whether this potential increase has been analyzed and, if necessary, mitigated. Mr. Tholen argues that road paving may result in an increase in PM2.5 in two ways: 1) during construction and periodic maintenance of the roads (from construction and maintenance vehicles, from fugitive dust emitted during site preparation, and from asphalt fumes); and 2) from a possible increase in traffic. (Ex. 402, pp. 3-4.) We have discussed the construction impacts from road paving, above, and found that the mitigation will result in no significant impacts. At the Evidentiary Hearing, however, Mr. Tholen admitted that his testimony was based on a general understanding of the difference between dirt and paved roads in Northern California and that he had not reviewed the specific roads proposed to be paved for the PHPP. (3/2/11 RT 108:1 -110:2.)

In contrast, Staff analyzed the potential impacts from paving the specific roads proposed by the Applicant and concluded that, with implementation of mitigation measures to address potential emissions from construction equipment used to construct the roads, the impact would be reduced to less than significant. (3/2/11 RT 55:20 – 59:16; 116:4-14.) With regard to any potential for an increase in PM2.5 emissions resulting from increased traffic, the areas surrounding the road segments proposed are predominantly already fully developed residential roads. Paving them will not induce growth into the area or significantly increase the amount of traffic utilizing these roads. (3/2/11 RT 115:16-25; 240:1-244:15;

247:2-248:21; 268:22-269:19.) Most of the roads consist of small segments abutting residential property, so paving them will not change their use or encourage use by traffic not currently using them. (*Id*.) The evidence supports our finding that paving local roadways to generate emission reduction credits will

mitigate the project's PM10 and PM10 precursor (SO_x) emission impacts below significance. We do not find that road paving will increase PM2.5.

iii. PM2.5 and Precursor

Since PM2.5 is an attainment pollutant for both the State and Federal standards, the evidence indicates that PM2.5 offsets are not required for PHPP under AVAQMD Rule 1303. The AVAQMD did not require offsets for PM2.5 in the FDOC. The evidence indicated that the road paving would also be used to partially offset the PM2.5 emissions, but only to the extent that there would be reductions in this size category from the miles of roads needed to offset PM10. (Ex. 300, p. 4.1-32.) No additional roads were proposed to provide a total offset of PM2.5 emissions. PHPP PM2.5 emissions and PM2.5 precursor emissions of SOx will not cause a violation of the federal 24-hour PM2.5 or the state annual PM2.5 air quality standard. (Ex. 300, p. 4-1-35.)

CBD argued in its brief that Staff failed to consider the environmental impacts of PHPP's PM2.5 emissions. (CBD Opening Brief, p. 6.) As Staff explained in their reply brief, Staff concluded that the environmental impact of PHPP's PM2.5 emissions are less than significant because PHPP will not cause an exceedance of ambient air quality standards for PM2.5 emissions, which are health-based standards set at levels to protect the health of all members of the public. (Staff Reply Brief, p. 3; Ex. 300, p. 4.1-21 & 4.1-35.) There is no evidence in the record showing that, contrary to Staff's conclusions, PHPP's PM2.5 emissions might cause a significant impact to air quality or public health. Therefore, we find PHPP's PM2.5 emissions will not result in a significant impact.

CBD asserts that the FSA did not properly consider the Project's consistency with the federal Prevention of Significant Deterioration (PSD) program because it failed to analyze the PHPP's conformance with the new PM2.5 increment regulations released by U.S. Environmental Protection Agency (EPA) on October 20, 2010. (CBD Opening Brief, p. 6.) We are mindful of the new PSD rules, yet the Commission's regulations require us to analyze all *applicable* LORS. (Cal. Code Regs., tit. 20 § 1744.) As stated in the notice adopting the new PSD regulations for PM2.5, the rule becomes applicable on October 20, 2011, and thus will not apply to PHPP. (75 Fed. Reg. 64865.) We find PHPP's PM2.5 emissions will comply with all applicable LORS.

4. Cumulative Impacts and Mitigation

"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. (Ex. 300, p. 4.1-35.)

The Applicant, in consultation with the AVAQMD, has conducted a search of current and probable construction and operation of facilities within six miles radius of the project, and indicated that Plant 42 projects at the Lockheed Martin Aeronautics and Northrop Grumman facilities could potentially be included in the cumulative impact analysis. (Ex. 300, p. 4.1-36.)

a. Ozone

The District is currently classified as not in attainment (or "nonattainment") of the state 1-hour and the federal 8-hour ozone air quality standards. In 2004, the District adopted its *2004 Ozone Attainment Plan (OAP),* which was submitted to the California Air Resources Board (CARB) for consideration and forwarded to the U.S.EPA for incorporation into the State Implementation Plan (SIP). The OAP states that "(t)he AVAQMD is downwind of the Los Angeles basin, and to a lesser extent, is downwind of the San Joaquin Valley. Prevailing winds transport ozone and ozone precursors from both regions into and through the MDAB during the summer ozone season. These transport couplings have been officially recognized by CARB. Local AVAQMD emissions contribute to exceedances of both the NAAQS and CAAQS for ozone, but the MDAB would be in attainment of both standards without the influence of this transported air pollution from upwind regions." Therefore, the PHPP, fully mitigated, along with the emissions from expansion of the Lockheed Martin Aeronautics and Northrop Grumman facilities will not cause violations of the ozone standards. (Ex. 300, p. 4.1-36.)

b. Particulate Matter

The District is currently classified as nonattainment for the state 24-hour and Annual Average PM10 air quality standards. California has adopted far more stringent standards for PM10 than the EPA. Currently, virtually all air districts in the state (the lone exception being Lake County) are designated nonattainment of the state PM10 standard. There is no legal requirement for air districts to provide plans to attain the state PM10 standard, so air districts have not developed such plans. (Ex. 300, pp. 4.1-36 - 4.1-37.)

In 1997, the federal government adopted PM2.5 standards, as did the state in 2003. The EPA has determined that the area is unclassified or attainment for both the annual and the 24-hour federal PM2.5 standard. In addition, the ARB classified the area as unclassified/attainment for the annual state PM2.5 air quality standard (there is no state 24-hour standard). (Ex. 300, p. 4.1-37.)

It is unlikely that the project emissions, fully mitigated, combined with emissions from the Lockheed Martin Aeronautics and Northrop Grumman facilities will affect the overwhelming contributions from fugitive and windblown dust from the Los Angeles basin and the San Joaquin Valley. Therefore, the cumulative impacts of PHPP and the Lockheed Martin Aeronautics and Northrop Grumman facilities on the existing air quality after mitigation will not be cumulatively considerable. (Ex. 300, p. 4.1-37.)

c. Localized Cumulative Impacts

The Applicant, in consultation with the District, has conducted a survey of new development projects and stationary sources that have the potential for emissions of criteria air contaminants within six miles of the project site that are either under construction, or have received permits to be built or operate in the foreseeable future. The only nearby background sources that the AVAQMD required to be included in the cumulative modeling analysis were the nearby Lockheed Martin Aeronautics and Northrop Grumman facilities, both located within five miles of the Project site at or around the Palmdale Regional Airport. These are existing sources and the potential cumulative impacts are related to operational emissions. (Ex. 300, p. 4.1-38.)

In addition, analysis of four future projects within the approximate distance from PHPP included: Fairway Business Park, 1.3 miles southwest; Palmdale Transit Village Specific Plan, 2.5 miles southwest; Amargosa Creek Specific Plan, 2

miles northwest; and 30th St. W and Avenue K Projects, 3 miles northwest. (Ex. 300, pp. 4.1-38 - 4.1-39.)

Construction of the four future projects listed above may involve some activities similar to those required for PHPP, including grading, soil handling, and delivery truck traffic. Construction impacts for these projects, including the PHPP, are expected to be temporary. Of the four projects listed above, none have identified construction schedules that would overlap PHPP construction, although several of the projects currently do not have defined construction schedules. In addition, construction equipment and soil disturbing activities tend to have low release heights of air emissions leading to localized impacts, i.e., impacts that would not influence air quality several miles away. Finally, PHPP will provide mitigation to minimize impacts during construction. Cumulative impacts from construction are not considered to be significant because of the limited horizontal extent of impacts from construction activities and temporary nature of the activities. (Ex. 300, p. 4.1-39.)

Based on the activities planned during operation of the four future projects identified in the area of the plant site, there appears to be a very low probability for a cumulatively considerable air quality impact to occur. The future commercial and industrial uses of the Fairway Business Park are not known at this time, and it is possible that one or more businesses could locate in the development that could have large emission sources, or an existing business could expand with the addition of a large emission source. However, if such emission sources were to be installed in the development, those sources would have to be permitted through the AVAQMD and cumulative impacts will be assessed at that time. AVAQMD rules and regulations have been developed to maintain air quality for attainment pollutants, and make progress towards attainment for those pollutants that are not currently in attainment. Compliance with AVAQMD rules and regulations will ensure that new emission sources in this development will not contribute to a cumulatively considerable impact. (Ex. 300, p. 4.1-40.)

Palmdale Transit Village Specific Plan, Amargosa Creek Specific Plan, and 30th St. W and Avenue K Projects allow for the development of housing, retail, offices and mixed-use (i.e., housing with retail) spaces. These property uses do not typically have large emission sources, and the EIRs for these projects do not describe the development of large emission sources. These projects may cause increases in motor vehicle traffic (and emissions) and combustion emissions from space heating and other similar uses. Emissions from these types of sources tend to have low release heights which lead to localized impacts. It is unlikely,

therefore, that these future developments would have a cumulatively significant impact with the PHPP several miles away. (Ex. 300, p. 4.1-40.)

CBD objects to the fact that Staff's cumulative impact analysis reviews projects within a six-mile radius from the project and yet, if mitigation is deemed necessary, does not impose a similar 6 mile radius limitation for the provision of emission reduction credits. (CBD Opening Brief, p. 6.) However, the record establishes that the purpose of the six mile radius is to ensure that all projects that could contribute to a statistically significant concentration overlap for *non-reactive* pollutant concentrations between two stationary source plumes are accounted for in the cumulative impacts analysis. (Ex. 300, p. 4.1-37.) Beyond six miles, no plume interactions or modeled plume impacts would be seen. (*Id*.) If a significant impact was found and PHPP's contribution to that impact was cumulatively considerable, then mitigation addressing the contribution would be required. In the case of PHPP, no such cumulative impact or contribution was found; therefore, no mitigation is required. (Ex. 300, pp. 4.1-39 and 4.1-40.) In contrast, emissions offsets, as ERCs or other forms of reductions, located more than six miles from the proposed project are acceptable mitigation for regional pollutants such as ozone and particulate matter. (Ex. 300, pp. 4.1-27 - 4.1-32.) In this case, we are accepting NO_x and VOC ERCs as mitigation of project emissions of NO_x and VOC which contribute to existing violations of the regional, or secondary, pollutant standard for ozone. (Ex. 300, pp. 4.1-27 – 4.1-32.) For PHPP, particulate matter emission reductions are locally generated, providing mitigation for direct and regional, or secondary particulate matter impacts.

Contrary to CBD's assertion, the record does not "ignore" the Project's contribution to cumulative impacts (CBD Opening Brief, p. 7) but instead conservatively evaluated the potential for cumulative impacts by *combining* the Project's conservatively estimated emissions with existing background conditions and all planned or reasonably foreseeable emissions that could affect the analysis. (Ex. 6, pp. 5.2-73 - 5.2-76; Ex. 300, pp. 4.1-37 - 4.1-40.) The record contains estimates of Project emissions which were very conservative because the modeling assumed worst-case meteorological conditions would occur at the same time as worst-case emissions, which has a very low probability of actually happening. (3/2/11 RT 39:21-25.) For the cumulative analysis, the record presents a conservative background condition to identify emissions from past and present projects. (Ex. 300, p. 4.1-37; 3/2/11 RT 163:9-10.)

Staff and Applicant also worked with the AVAQMD to identify potential new or reasonably foreseeable sources of emissions within six miles of the PHPP site.

(Ex. 300, p. 4.1-37.) The modeling estimated cumulative impacts based on the conservative project and background conditions and the new or reasonably foreseeable emissions. (Ex. 300, p. 4.1-38.)

Based on the modeling results and evidence in the record, we have determined the PHPP will not exceed applicable standards for all pollutants except for PM10. (Ex. 300, pp. 4.1-39-4.1-40; Ex. 307, pp. 19-20.) The record indicates that cumulative PM10 emissions will not be significant because the PHPP is required to obtain complete PM10 offsets. (Ex. 300, p. 4.1-40; 3/2/11 RT 152:12-17.) The analysis is supported by substantial evidence and complies with CEQA. Accordingly, we find that the PHPP will not have a cumulatively considerable impact on air quality. [14 Cal. Code Regs., § 15130(a)(3).]

5. Compliance with LORS

The AVAQMD issued its Preliminary Determination of Compliance (PDOC) for the project on February 12, 2009. The PDOC, or determination of compliance with District rules and regulations, included a set of air quality conditions that are drafted to ensure continuous compliance during construction and operation of the facility. The AVAQMD issued a revised PDOC on June 22, 2009 and a Final Determination of Compliance (FDOC) on May 13, 2010. (Ex. 302.) Compliance with all District rules and regulations was demonstrated to the District's satisfaction in the FDOC. The District's FDOC conditions are adopted in the Conditions of Certification section, below.

a. Federal

The District is responsible for issuing the Federal New Source Review (NSR) permit but is not currently delegated enforcement for the Prevention of Significant Deterioration (PSD) permitting process. The EPA PSD program applies to a new major facility that will emit 250 tons per year (tpy) or more, or if it is one of the listed PSD source categories in the Federal Clean Air Act that has a potential to emit 100 tpy or more of an attainment pollutant. The PHPP is one of the listed categories (fossil fuel fired steam electric generating facility) and will emit more than 100 tpy of NOx, CO, and PM/ PM2.5/PM10. The Project will comply with this PSD requirement by applying for a PSD permit from EPA Region IX. The District's FDOC permit conditions have been designed to ensure that the project would comply with the applicable NSPS Subparts KKKK and IIIII that are delegated to the District for enforcement as part of its Title V permit responsibility.

However, new PSD requirements for greenhouse gas emissions (GHG) become effective January 2, 2011 for facilities which exceed emissions thresholds for traditional PSD emissions categories and with the potential to emit GHG emissions in excess of 75,000 tons of carbon dioxide-equivalent emissions per year (new sources). After July 1, 2011, PSD requirements apply to facilities with the potential to emit in excess of 100,000 tons of carbon dioxide-equivalent emissions per year (new sources) regardless of applicability of PSD for criteria pollutants. As shown in **Greenhouse Gas Table 3** in Air Quality Appendix Air-1, PHPP GHG emissions are greater than 75,000 or 100,000 tons of CO2E per year, such that if PHPP is not permitted and under construction by January 1, 2011, PHPP would be required to get a PSD permit for GHG emissions from the EPA Region IX.

b. State

The Applicant must 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.

The District has evaluated compliance of the emergency diesel fire pump engine with Air Toxic Control Measure (ATCM) requirements under Title 17 of the California Code of Regulations. The District has determined, with their FDOC permit conditions, that the engine will comply with the ATCM requirements.

c. Local

The Applicant provided an air quality permit application to the AVAQMD in 2008. The District's FDOC indicates that the proposed project is expected to comply with all applicable District rules and regulations.

Regulation II Permits

AVAQMD Rule 201 Permits Required - Any person building, altering or replacing any equipment, the use of which may cause the issuance of air contaminants or the use of which may eliminate or reduce or control the issuance of air contaminants, must first obtain authorization for such construction from the AVAQMD. A PTC shall remain in effect until the PTO for the equipment for which the application was filed is granted, denied, or canceled. This Applicant's AFC serves as an application for a PTC.

AVAQMD Rule 202 Temporary Permit to Operate - A person shall notify the AVAQMD before operating or using equipment granted a PTC. Upon such notification, the PTC shall serve as a temporary PTO for the equipment until the PTO is granted or denied. The equipment shall not be operated contrary to conditions specified in the PTC, and testing requirements must be satisfied. The Project would comply with this rule by applying for a permit from the AVAQMD in a timely manner.

AVAQMD Rule 203 Permit to Operate - A person shall not operate or use any equipment, the use of which may cause the issuance of air contaminants, or the use of which may reduce or control the issuance of air contaminants, without first obtaining a written PTO from AVAQMD, or except as provided in Rule 202. The equipment shall not be operated contrary to the conditions specified in the permit to operate. The Project would comply with this rule by obtaining a permit from the AVAQMD in a timely manner and complying with the stated conditions.

AVAQMD Rule 217 Provision for Sampling and Testing Facilities - The permittee may be required to provide and maintain such facilities as are necessary for sampling and testing. In the event of such requirements, the AVAQMD shall notify the Applicant in writing of the required size, number and location of sampling ports; the size and location of the sampling platform; the access to the sampling platform, and the utilities for operating the sampling and testing equipment. The platform and access shall be constructed in accordance with the General Industry Safety Orders of the State of California. The Project would provide such facilities for the combustion turbines and other equipment for which source testing is required.

AVAQMD Rule 218 Stack Monitoring - The owner or operator shall provide, install, and maintain continuous monitoring systems to measure the specific pollutants from fossil fuel-fired steam generators with heat input of 250 MMBtu or more per hour. The combustion turbines are subject to this rule and the facility will be required to have Continuous Emissions Monitoring Equipment (CEMS). The boiler proposed for this Project is rated at 100 MMBtu per hour and, therefore, is not subject to the requirements of this rule. The HTF heater does not produce steam and is not subject to the rule.

AVAQMD Rule 219 Equipment not Requiring a Written Permit Pursuant to Regulation II - The PHPP will employ a number of devices that emit air pollutants, but are exempt from permit pursuant to one or more exemptions listed in Rule 219, including two diesel fuel storage tanks piped exclusively to

emergency engines, water trucks used for mirror washing, HTF piping fugitive emissions, lube oil reservoir(s) (storage tanks), heating ventilation and air conditioning (HVAC) systems, a water heater, water treatment systems, and storage tanks for water treatment chemicals.

AVAQMD Rule 226 Limitations on Potential to Emit - The PHPP is a major source and would comply with Regulation XXX requirements rather than limit its potential to emit. Thus, this rule is not applicable.

Regulation III Fees

AVAQMD Rule 301 Permit Fees - Permit application fees were paid to the AVAQMD with the air permit application.

Regulation IV Prohibitions

AVAQMD Rule 401 Visible Emissions - A person shall not discharge into the atmosphere, from any single source of emissions whatsoever, any air contaminant for a period or periods aggregating more than three (3) minutes in any one hour which is as dark or darker in shade as that designated as No. 1 on the Ringelmann Chart, or of such opacity as to obscure an observer's view to a degree equal to or greater than does smoke which is as dark or darker in shade as that designated as No. 1 on the Ringelmann Chart. The Project emission sources would be equipped with BACT and combust clean fuels and, consequently, compliance with this rule is expected.

AVAQMD Rule 402 Nuisance - A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public or which endanger the comfort, repose, health or safety of any such persons or the public or which cause or have a natural tendency to cause injury or damage to business or property. Due to the application of BACT on each emission source and the distance from the emission sources to any potential receptors, compliance with this rule is expected.

AVAQMD Rule 403 Fugitive Dust - The purpose of this rule is to reduce the amount of PM10 emitted from significant man-made fugitive dust sources and in an amount sufficient to maintain the NAAQS. The provisions of this rule apply to specified bulk storage, earthmoving, construction and demolition, and man-made conditions resulting in wind erosion.

PHPP construction would involve bulk storage of soils, earthmoving, construction and demolition, and manmade conditions that have the potential for fugitive dust emissions. The project operator, or its contractors, would follow the fugitive dust control strategy outlined in a Dust Control Plan that would be prepared for the PHPP.

PHPP operations will involve routine vehicle travel within the solar collector field in order to wash the mirrors and earthmoving during contaminated soil management associated with the bioremediation facility. These operations have the potential for fugitive dust emissions. The owner, or its contractors, would follow the fugitive dust control strategy outlined in the Dust Control Plan that would be prepared for the PHPP.

AVAQMD Rule 404 Particulate Matter Concentration - Rule 404 applies to any person who discharges PM emissions into the atmosphere from any single source operation. The rule limits PM emissions based upon the exhaust flow rate. The provisions of this rule do not apply to emissions resulting from the combustion of liquid or gaseous fuels in steam generators or combustion turbines. The PHPP HTF heater would comply with this rule by using only natural gas fuel. The fire water pump and emergency generator engines are subject to and would comply with this rule by using only ultra-low sulfur diesel fuel. The cooling tower would comply by utilizing a high-efficiency drift eliminator.

AVAQMD Rule 405 Particulate Matter, Emission Rate - A person shall not discharge into the atmosphere from any source operation, particulate matter in excess of the limits shown in the rule. This rule is generally applied to processes that handle bulk dry materials, and is not generally applied to combustion processes, as there is not “process weight” on which to base the emissions limit. Therefore, this rule does not apply to this facility.

AVAQMD Rule 407 Liquid and Gaseous Contaminants - A person shall not discharge into the atmosphere from any equipment: 1) CO exceeding 2,000 ppm by volume measured on a dry basis, averaged over 15 consecutive minutes; or 2) sulfur compounds which would exist as liquid or gas at standard conditions, calculated as SO_2 and averaged over 15 consecutive minutes, exceeding 500 ppm by volume. The use of pipeline quality natural gas fuel and good combustion practice for the combustion turbines, duct burners, auxiliary boiler and HTF heater and ultra-low sulfur diesel fuel in the fire water pump engine and emergency electrical generator engine would ensure compliance with this rule. As shown in AFC Section 5.2.3, CO emissions from the combustion turbines would meet the BACT requirement of 2.0 ppm, and the auxiliary boiler and HTF

heater would both meet emission limits of 50 ppm. The SO_2 concentration from each combustion source is less than 1 ppmv.

AVAQMD Rule 409 Combustion Contaminants - A person shall not discharge into the atmosphere from the burning of fuel, combustion contaminants exceeding 0.1 grain per cubic foot of gas calculated to 12 percent of CO_2 at standard conditions averaged over a minimum of 15 consecutive minutes. The use of pipeline natural gas fuel for the duct burners, auxiliary boiler and HTF heater ensures compliance with this rule. This rule does not apply to emissions from internal combustion engines, such as the combustion turbines, fire water pump or emergency generator engines.

AVAQMD Rule 430 Breakdown Provisions - The owner or operator shall notify the AVAQMD of any occurrence which constitutes a breakdown condition. The owner or operator shall demonstrate the nature and extent of the breakdown by providing to the AVAQMD signed contemporaneous operating logs and/or other relevant evidence which shows that:

a) The breakdown occurred and that the owner/operator can identify the cause of the breakdown; and
b) The equipment was, at the time of the breakdown, being properly operated; and
c) During the period of the breakdown, the owner/operator took all reasonable steps to minimize levels of emissions and to correct the condition that lead to the breakdown.

Such relevant evidence shall be submitted to the AVAQMD within 60 days of the date the breakdown was reported to the AVAQMD. The PHPP would make such notifications and reports, as may become necessary.

AVAQMD Rule 442 Usage of Solvents - A person shall not discharge VOCs into the atmosphere from all VOC containing materials, emissions units, equipment or processes subject to this rule, in excess of 1,190 pounds per month for the entire facility. All VOC-containing materials subject to this rule, whether in its form for intended use or as a waste or used product, shall be stored in nonabsorbent, non-leaking containers which shall be kept closed at all times, except when filling or emptying, and disposed of in a manner to prevent evaporation of VOCs into the atmosphere from the facility. Usage records for all VOC-containing materials subject to this rule shall be maintained pursuant to Rule 109. Usage of solvents will be limited to maintenance clean-up; usage and emissions are not expected to exceed 1,190 pounds per month. Should the

Project use any materials subject to this rule, it would document usage accordingly to ensure the emissions do not exceed the allowable monthly limit.

AVAQMD Rule 463 Storage of Organic Liquids - This rule applies to any above-ground stationary tank with a capacity of 19,815 gallons or greater used for storage of organic liquids, and any above-ground tank with a capacity between 251 gallons and 19,815 gallons used for storage of gasoline. The Project will have HTF (solar array), insulating mineral oil (transformers), hydraulic oil (combustion turbine, steam turbine and other equipment), and lubricating oil on site, as well as diesel fuel stored at the facility. However, none of the containers would exceed the threshold limit of 19,815 gallons and, therefore, this rule would not apply to the PHPP.

AVAQMD Rule 466 Pumps and Compressors - This rule applies to any pump or compressor handling a ROC, where a ROC is any chemical compound which contains the element carbon, which has a Reid vapor pressure (RVP) greater than 80 millimeters mercury (mmHg) (1.55 pounds per square inch [psi]), or an absolute vapor pressure (AVP) greater than 36 mmHg (0.7 psi) at 20 degrees Centigrade (ºC), excluding CO, CO_2, carbonic acid, carbonates and metallic carbides and excluding methane, 1,1,1- trichloroethane, methylene chloride, trifluoromethane, and chlorinated-fluorinated hydrocarbons. The Project will have HTF (solar array), insulating mineral oil (transformers), hydraulic oil (combustion turbine, steam turbine and other equipment), and lubricating oil on site, as well as diesel fuel stored at the facility. However, none of these materials will exceed the threshold vapor pressure limits and gasoline will not be stored in tanks at the facility and, therefore, this rule would not apply to the PHPP.

AVAQMD Rule 466.1 Valves and Flanges - This rule applies to any valve or flange handling a ROC, where a ROC is any chemical compound which contains the element carbon, which has a RVP greater than 80 mmHg (1.55psi), or an AVP greater than 36 mmHg (0.7 psi) at 20ºC, excluding CO, CO_2, carbonic acid, carbonates and metallic carbides and excluding methane, 1,1,1 - trichloroethane, methylene chloride, trifluoromethane, and chlorinated-fluorinated hydrocarbons. The Project will have HTF (solar array), insulating mineral oil (transformers), hydraulic oil (combustion turbine, steam turbine and other equipment), and lubricating oil on site, as well as diesel fuel stored at the facility. However, none of these materials will exceed the threshold vapor pressure limits and, therefore, this rule would not apply to the PHPP.

AVAQMD Rule 474 Fuel Burning Equipment, Oxides of Nitrogen - This rule applies to non-mobile fuel burning equipment with a heat input of at least 555

MMBtu per hour. The auxiliary boiler proposed for this Project is rated at 100 MMBtu per hour, and the HTF heater is rated at 40 MMBtu per hour. Thus, neither unit is subject to the requirements of this rule.

AVAQMD Rule 475 Electric Power Generating Equipment - A person shall not discharge into the atmosphere from any equipment having a maximum rating of more than 10 net MW used to produce electric power, combustion contaminants that exceed both of the following two limits:

a) 11 pounds per hour;

b) 0.01 grains per standard cubic foot (gr/scf) calculated at 3 percent O_2 on a dry basis averaged over 15 consecutive minutes or any other averaging time specified by the AVAQMD.

The emission rate of combustion contaminants (i.e., PM10, as defined in AVAQMD Rule 102) exceeds eleven pounds per hour from each combustion turbine. However, the stack concentration is approximately 0.0022 gr/dscf at full fire with duct burners on and the project will comply with this rule.

AVAQMD Rule 476 Steam Generating Equipment - This rule applies to equipment with a heat input of at least 50 MMBtu per hour. The auxiliary boiler proposed for this Project is rated at 100 MMBtu per hour, and the heater is rated at 40 MMBtu per hour. The proposed project will have specific permit conditions requiring compliance with these provisions.

Regulation IX Standards of Performance for New Stationary Sources

AVAQMD Rule 900 Standards of Performance for New Stationary Sources (NSPS) - As stated in Section 5.2.1.1, the Project will be subject to 40 CFR 60, Subpart IIII Standards of Performance for Stationary Compression Ignition Internal Combustion Engines, and it will comply by purchasing equipment that meets the applicable emission standards. The Project will also be subject to 40 CFR 60 Subpart KKKK, Standards of Performance for Stationary Combustion Turbines. Operation of the turbines with current BACT would ensure that the Project complies with the Part KKKK emission limits.

Regulation X National Emission Standards for Hazardous Air Pollutants

AVAQMD Rule 1000 National Emission Standards for Hazardous Air Pollutants (NESHAP) - As stated in Section 5.2.1.1.2, the Project will not be a major source of hazardous air pollutants (HAPs), and thus these standards are not applicable to the Project.

Regulation XI Source Specific Standards

AVAQMD Rule 1113 Architectural Coatings - The purpose of this rule is to limit VOC emissions from architectural coatings. This rule specifies architectural coatings, storage, cleanup and labeling requirements. With limited exceptions, no person shall: 1) manufacture, blend or repackage for sale within the District; 2) supply, sell or offer for sale within the District; or 3) solicit for application or apply within the District any architectural coating with a VOC content in excess of the corresponding limit specified in the Table 1 of the rule. The PHPP would comply with the requirements of this rule if architectural coatings are applied at the project during construction or subsequent maintenance activities.

AVAQMD Rule 1121 Control of Nitrogen Oxides from Residential-Type, Natural-Gas-Fired Water Heaters - A person shall not distribute, sell, offer for sale, or install within the District gas-fired water heaters with heat input rates less than 75,000 Btu per hour that:

a) Emit NOX in excess of 93 pounds of NOX (calculated as NO2) per billion Btu of heat output; or

b) Are not certified in accordance with the requirements of the rule.

The Project would comply with this rule by purchasing only compliant equipment.

AVAQMD Rule 1122 Solvent Degreasers - This rule applies to all persons who own or operate remote reservoir cold cleaners, batch-loaded cold cleaners, open-top vapor degreasers, and all types of conveyorized degreasers that carry out solvent cleaning operations with a solvent containing VOCs. Solvent cleaning operations that are regulated by this rule include, but are not limited to, the removal of uncured coatings, adhesives, inks, and contaminants such as dirt, soil, oil, and grease from parts, products, tools, machinery, and equipment. The PHPP would comply with the requirements of this rule if such equipment is used at the facility.

AVAQMD Rule 1135 Emissions of Oxides of Nitrogen from Electric Power Generating Systems - This rule is applicable only to units existing on July 19, 1991, which are owned or operated by any one of the following: Southern California Edison, Los Angeles Department of Water and Power, City of Burbank, City of Glendale, and City of Pasadena, or any of their successors. The PHPP will be constructed after 1991 and is not owned by any entity listed in the rule; therefore, this rule is not applicable to the PHPP.

AVAQMD Rule 1146 Emissions of Oxides of Nitrogen from Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters - This rule applies to boilers, steam generators, and process heaters of equal to or greater than 5 MMBtu per hour rated heat input capacity used in any industrial, institutional, or commercial operations with the exception of boilers used by electric utilities to generate electricity. Thus the rule specifically exempts the proposed 100 MMBtu per hour boiler used to generate electricity, but it is applicable to the proposed 40 MMBtu per hour heater. The heater would comply with the limitations of the rule by operating with ultra-low-NOX burners meeting a BACT limit of nine (9) ppmv NOX and 50 ppmv CO.

AVAQMD Rule 1171 Solvent Cleaning Operations - This rule applies to all persons who use VOC-containing materials in solvent cleaning operations during the production, repair, maintenance, or servicing of parts, products, tools, machinery, equipment, or general work areas, and to all persons who store and dispose of VOC-containing materials used in solvent cleaning. The Project would comply with the requirements of this rule if solvent cleaning occurs at the facility during construction or subsequent maintenance activities.

Regulation XIII New Source Review

AVAQMD Regulation XIII New Source Review - This rule provides for preconstruction review of new and modified stationary sources of affected pollutants to insure emissions will not interfere with attainment of ambient air quality standards (AAQS); ensures appropriate new and modified sources of affected pollutants are constructed with BACT; and provides for no significant net increase in emissions from new and modified stationary sources for all non-attainment pollutants and their precursors. Rule 1303 addresses the specific requirements of BACT and offsets.

BACT: An Applicant shall provide BACT for all affected pollutants expected to be emitted from a new emissions unit and for all affected pollutants expected to increase from a modified existing emissions unit. Each of the permitted devices proposed for the PHPP will employ current BACT. The manner in which the Project would comply with BACT is addressed in more detail in AFC Section 5.2.3.

Offsets: An Applicant must provide offsets for new or modified stationary source of PM10, SOX, NOX or VOC for the source's potential to emit when the source's potential to emit equals or exceeds the offset trigger

levels identified in the rule. If offsets are required, they must be provided at specified ratios. Offsets are required for the PHPP because the emissions of PM10, NOX and VOC do exceed the applicable thresholds.

Under Federal and California law, the AVAQMD is required to implement a NSR program that attains, or makes reasonable progress toward attaining, the AAQS within the District. If the pollutant concentrations in ambient air exceed the standards, then the area is designated nonattainment, and offsets must be provided for major new sources or modifications to existing sources. The District is required to develop an Air Quality Management Plan (also referred to as a State Implementation Plan or SIP), which identifies rules and other measures that must be adopted to attain or maintain compliance with the AAQS. AVAQMD Regulation XIII, New Source Review program, is the cornerstone of this process within the District. This regulation provides the requirements, such as how offset calculations must be done and thresholds over which emissions must be offset. It also defines which pollutants must be offset, what ratios must be used, and the criteria of what can be used as an emission reduction credit (ERC). If a project meets the requirements of these rules, then the mitigation (i.e., ERC) can be considered to be completely effective since the program has been developed to ensure eventual attainment of the AAQS. Currently, no specific emission reductions credits have been identified and not all appropriate air agencies have approved the proposed inter-district emission reduction transfers. If the Applicant can obtain an additional quantity of NOx and VOC ERCs to meet a 1.5:1 ratio and if these could be located sufficiently near the project location, then the ozone precursor NSR requirements are met. In addition, if the district completes several steps to develop a rule allowing road paving for PM offsets, this portion of the NSR requirements would be met.

Additional Procedural Requirements Specified in Rule 1302:

Alternative siting: For sources requiring an analysis of alternative sites, sizes, and production processes and environmental control techniques, pursuant to Section 173 of the Federal CAA, the Applicant must prepare an analysis functionally equivalent to requirements of Division 13, section 21000 et. seq. of the Public Resources Code. An alternatives analysis is contained in Section 4.0 of the AFC.

Visibility impacts analysis: Any new major source or major modification shall be subject to review of its impact on visibility in any mandatory Class I area in

accordance with 40 CFR 51.307(b)(2). The Project is a major source; thus, a visibility impacts analysis is provided in Section 5.2.4.2 of the AFC.

Modeling: Emissions from a new or modified stationary source shall not make worse an exceedance of an AAQS. In making this determination, the AVAQMD will take into account increases in cargo carrier and secondary emissions and offsets provided pursuant to this rule. The Project emissions exceed the offset trigger levels and, therefore, modeling is required for the Project. A modeling analysis is presented in AFC Section 5.2.4.2.

Compliance certification: The owner or operator of a proposed new major source or major modification shall certify in writing that all major stationary sources owned or operated by such person (or by any entity controlling, controlled by, or under common control with such person) in California, and subject to emission limitations, are in compliance, or on a schedule for compliance, with all applicable emission limitations and standards. Because the PHPP is a major source of air pollutants, the compliance certification is required and will be provided to the AVAQMD.

AVAQMD Rule 1306 Electric Energy Generating Facilities - The AVAQMD will consider the AFC to be equivalent to an application pursuant to District Rule 1302(B) during the Determination of Compliance review, and will apply all applicable provisions of District Rule 1302 to the application. If the information contained in the AFC does not meet the requirements which would otherwise comprise a complete application pursuant to District Rule 1302(B)(1), the AVAQMD will, within 20 calendar days of receipt of the AFC, specify the information needed to render the application complete and so inform the CEC. The AFC meets the application requirements of Rule 1302.

AVAQMD Rule 1310 Federal Major Facilities and Federal Major Modifications - The provisions of this Rule apply to:

a) Any Federal Major Modification;

b) Any Presumptive Federal Major Modification; or

c) Any Federal Major Facility which requests a Plant Wide Applicability Limit pursuant to the rule.

The PHPP is a new source, not a modification, and does not plan to request a Plant Wide Applicability Limit. Thus, this rule is not applicable.

Regulation XIV Toxics and Other Non-Criteria Pollutants

AVAQMD Rule 1401 New Source Review for Toxic Air Contaminants - The AVAQMD shall analyze the application and Comprehensive Emission Inventory Report for the emission units, determine what rules are applicable, calculate prioritization scores for carcinogenic effects, noncarcinogenic acute and chronic effects, require the preparation of a Health Risk Assessment (HRA), if needed, and then analyze the HRA to calculate the risk to the exposed population. Requirements for the installation of Best Available Control Technology for Toxics (T-BACT) can be imposed if the calculated risk exceeds the standards in the rule. If the calculated risk is considered significant, the permit will be denied. Compliance with Rule 1401 and a HRA are provided in AFC Section 5.10, Public Health, as well as in the Public Health section of this Decision.

Regulation XVII Prevention of Significant Deterioration

Regulation XVII would implement the federal PSD program, upon delegation by the EPA to the district. Because delegation has not occurred, the PSD permit for PHPP will be processed by the EPA and not the local air district under Regulation XVII.

Regulation XXX Title V Permits

Any new facility which is subject to this regulation shall submit an application for a federal operating permit no later than 12 months after commencing operations. As the Project will be a major source, subject to the federal operating permit program, it would apply for a Title V permit in a timely manner.

6. Public Comments

Jim Ledford, mayor of the City of Palmdale, commented "I don't think there's another project that's been scrutinized to the level of this power plant that has -- has been built in the Antelope Valley yet." Mayor Ledford said that the city has done its "homework" and the prevailing winds do not blow north in the Antelope Valley. "Quite frankly, this project will clean the air and the Antelope Valley will be cleaner because of this project." (3/2/11 RT 187:6 –16.)

Jack Ehernberger commented: "I don't see as detailed an analysis of the data as I'd like to see. And I don't see details of the data that was used in order to appraise the appropriateness of estimating a Palmdale environment with the

Victorville environment." (3/2/11 RT 207:3 –7.) Mr. Ehernberger submitted written comments expressing concerns regarding meteorological analysis, concerns about limitations on generation capacity and concerns that road paving would not mitigate particulates in the absence of wind.

We note that CEQA does not require perfection or an exhaustive analysis; it simply requires adequacy, completeness, and a good faith effort at full disclosure, all of which is contained in the Final Staff Assessment (Exs. 300 and 301) and subsequent testimony. (Cal. Code Regs., tit. 14, §15151.) CEQA requires that an environmental review document contain "a sufficient degree of analysis to provide decision-makers with information which enables them to make a decision which intelligently takes account of environmental consequences" the sufficiency of which is to be reviewed "in light of what is reasonably feasible." (*Id*.) Ultimately, "[a]n EIR must include detail sufficient to enable those who did not participate in its preparation to understand and to consider meaningfully the issues raised by the proposed project." *(Laurel Heights Improvement Assn. v. Regents of University of California* (1988) 47 Cal.3d 376, 405.) The level of detail of meteorological data contained in the record provided adequate information from which to base this Decision. As a baseload combined cycle power plant, the need to limit generation capacity is not the same as with a peaker plant. Generally, limitations on generation are imposed on a baseload power plant by market forces. Finally, we note that automobile traffic will still create airborne particulate matter on unpaved roads, even in the absence of wind, so the mitigation would still be effective during windless days.

Marvin Crist, Lancaster City Councilman and member of the Antelope Valley AQMD commented that the AVAQMD has not taken a final position on the power plant, the PM10 rule, nor have we taken a position on the ERCs transfers from the Central Valley. (3/2/11 RT 188:20 –189:4.)

Jim Ledford, mayor of the City of Palmdale, responded to Mr. Crist's comments, above, saying "I'm also a member of the Air Quality Management District. This board has taken action. Mr. Crist is a minority interest on the board and is trying to create confusion and trying to create the -- some effort to delay this project. He doesn't have any board action to back up his claim, so this is his opinion.": (3/2/11 RT 194:6 –18.)

We note that the AVAQMD's FDOC has determined that the PHPP will comply with AVAQMD Rules and Regulations and has expressly approved the use of road paving to offset PM10 emissions. (Ex. 302, p. 14.)

Mark V. Bozigian, the City Manager for the city of Lancaster, submitted a letter on May 2, 2011, requesting suspension of proceedings in the PHPP due to changes of the PSD rules relative to PM2.5. Attached to the letter is another letter from Rex Parris, mayor of the city of Lancaster, to the commanding officer at Air Force Plant 42 stating, "if the proposed Palmdale Power Plant is approved and built, it will limit and threaten the mission of Air Force Plant 42, Lockheed Martin, Northrop Grumman, and Boeing by severely curtailing future expansion options. In October, 2010, the Federal Environmental Protection Agency (EPA) published its Final Rule on Prevention of Significant Deterioration (PSD) for Particulate Matter Less Than 2.5 Micrometers (PM2.5) Increments, Significant Impact Levels (SILs) and Significant Monitoring Concentration (SMC). A copy of the Final Rule is included with this correspondence along with a brief presentation from AVAQMD. The national standard for PM2.5 is 35 micrograms per cubic meter (µg/m3). Air quality modeling conducted for the City of Palmdale for the power plant application shows the background ambient air quality in the Air District as 19 µg/m3. The amount of PM2.5 that would be produced by the proposed power plant would be 12.6 µg/m3, well over the EPA standard of 9 µg/m3 and fully 79 percent of the remaining and federally allowable PM2.5 capacity for all of Plant 42. The additional air pollutants that will be produced by the power plant will leave the Air Force and aerospace firms of Plant 42 with little if any opportunity for additional expansion, and virtually caps any future economic development activity in the area of Plant 42."

The **Department of the Air Force** and the **Plant 42 contractors** (Boeing, Lockheed Martin, and Northrop Grumman) submitted an official statement on July 8, 2011 to the effect that they have not identified any issues or impacts to their programs and operations at Plant 42 from the PHPP.

The record reflects that the U.S. Air Force Plant 42 has been consulted and participated in the PHPP throughout the AFC process (i.e., Ex. 114). The issues arising from the PHPP's emissions of PM2.5 have been briefed by the parties and carefully considered in this Decision, above. The changes to the PSD rules relative to PM2.5 emissions in the area do not warrant a suspension of proceedings.

FINDINGS OF FACT

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

1. The proposed Palmdale Hybrid Power Plant project (PHPP) is located in the Mojave Desert Air Basin within the jurisdiction of the Antelope Valley Air Quality Management District.

2. The PHPP site is in an area designated as non-attainment for both the state and the federal (1-hour and 8-hour) ozone and the state 24-hour and annual PM10 standards.

3. The PHPP site is in an area classified as attainment for the state's CO, NO_2, SO_2, PM2.5, SO_4 and Lead (Pb) standards, and unclassified for the federal PM2.5, CO, NO_2 and SO_2 standards.

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

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

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

7. There is an adequate description of the baseline ambient air conditions in the record.

8. Implementation of Condition of Certification **AQ-SC6**, PHPP construction emissions will not cause a new violation of the NO_2 air quality standard and the project NO_2 construction impact will be less than significant.

9. Implementation of Conditions of Certification **AQ-SC1 to AQ-SC6** during construction of the facility and during the road paving will reduce the short-term construction impacts of PM10 to a level of less than significant.

10. The project's construction-related impacts are mitigated to below a level of significance by measures identified in the Conditions of Certification.

11. Impacts to air quality during initial commissioning will fall below the level of significance.

12. Condition of Certification **AQ-SC8** will minimize emissions fugitive dust emissions below significance by requiring a fugitive dust control plan that includes soil stabilization.

13. Conditions of Certification **AQ-SC9** through **AQ-SC16** minimize VOC emissions associated with the HTF system below significance by requiring a monitored vapor control system at points where the system can vent to the atmosphere, as well as leak-free expansion tanks, all subject to regular inspection.

14. Implementation of Condition of Certification **AQ-SC18** will completely offset the PHPP's contribution to ambient ozone.
15. Paving local roadways to generate emission reduction credits will mitigate the project's PM10 and PM10 precursor (SO_x) emission impacts below significance.

16. PHPP PM2.5 emissions and PM2.5 precursor emissions of SOx will not cause a violation of the federal 24-hour PM2.5 or the state annual PM2.5 air quality standard.

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

CONCLUSIONS OF LAW

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

2. The Commission therefore concludes that implementation of the Conditions of Certification, below, and the mitigation measures described in the evidentiary record, will ensure that the PHPP conforms with all applicable laws, ordinances, regulations, and standards relating 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 **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 Compliance Project Manager (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.

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 **AQ-SC3**, **AQ-SC4**, **AQ-SC5**, **AQ-SC6**, **AQ-SC7** and **AQ-SC8**.

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 District will notify the project owner of any necessary modifications to the plan within 30 days from the date of receipt.

AQ-SC3 Construction Fugitive Dust Control: The AQCMM shall submit documentation to the CPM in each Monthly Compliance Report that demonstrates compliance with the following mitigation measures for the purposes of minimizing fugitive dust emissions created from construction activities and preventing all fugitive dust plumes from leaving the project. Any deviation from the following mitigation measures shall require prior CPM notification and approval.

A. The main access road through the facility to the Main Services Complex will be paved prior to initiating construction in the Main Services Complex, and delivery areas for operations materials (chemicals, replacement parts, etc.) will be paved or treated prior to taking initial deliveries.

B. All unpaved construction roads and unpaved operation and maintenance site roads, as they are being constructed, shall be stabilized with a non-toxic soil stabilizer or soil weighting agent, with or without the use of geotextiles, that can be determined to be both as efficient or more efficient for fugitive dust control as ARB approved soil stabilizers, and shall not increase any other environmental impacts including loss of vegetation to areas beyond where the soil stabilizers are being applied for dust control. All other disturbed areas in the project and linear construction sites shall be watered as frequently as necessary during grading and stabilized with a non-toxic soil stabilizer or soil weighting agent to comply with the dust mitigation objectives of Condition of Certification **AQ-SC4**. The frequency of watering can be reduced or eliminated during periods of precipitation.

C. No vehicle shall exceed 10 miles per hour on unpaved areas within the construction site, with the exception that vehicles may travel up to 25 miles per hour on stabilized unpaved roads as long as such speeds do not create visible dust emissions.

D. Visible speed limit signs shall be posted at the construction site entrances.

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 equivalently effective measures to prevent run-off to roadways, or other similar run-off control measures as specified in the Storm Water Pollution Prevention Plan (SWPPP), only when such SWPPP measures are necessary so that this condition does not conflict with the requirements of the SWPPP.

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 paved public roadway exiting the construction site or exiting other unpaved roads en route from the construction site or construction staging areas 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 resulting from the construction site activities is visible on the public paved roadways.

L. 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.

M. All vehicles that are used to transport solid bulk material on public roadways and that have potential to cause visible emissions shall

be provided with a cover, or the materials shall be sufficiently wetted and loaded onto the trucks in a manner to provide at least one foot of freeboard.

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

Verification: The AQCMM shall provide the CPM a Monthly Compliance Report (MCR) to include:

1. A summary of all actions taken to maintain compliance with this condition;
2. Copies of any complaints filed with the District in relation to project construction; and
3. Any other documentation deemed necessary by the CPM, District or 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 AQCMP shall include a section detailing how the additional mitigation measures will be accomplished within the time limits specified. 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 or District 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 or District before that time.

Verification: The AQCMM shall provide the CPM a MCR to include:

1. A summary of all actions taken to maintain compliance with this condition;
2. Copies of any complaints filed with the District in relation to project construction; and
3. Any other documentation deemed necessary by the CPM or AQCMM to verify compliance with this condition. Such information may be provided via electronic format or disk at the project owner's discretion.

AQ-SC5 Diesel-Fueled Engine Control: The AQCMM shall submit to the CPM, in the MCR, a construction mitigation report that demonstrates compliance with the following mitigation measures for 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 have clearly visible tags issued by the on-site AQCMM showing that the engine meets the conditions set forth herein.

B. All construction diesel engines with a rating of 50 hp or higher shall meet, at a minimum, the Tier 3 California Emission Standards for Off-Road Compression-Ignition Engines, as specified in California Code of Regulations, Title 13, section 2423(b)(1), unless a good faith effort to the satisfaction of the CPM that is certified by the on-site AQCMM demonstrates that such engine is not available for a particular item of equipment. This good faith effort shall be documented with signed written correspondence by the appropriate construction contractors along with documented correspondence with at least two construction equipment rental firms. In the event that a Tier 3 engine is not available for any off-road equipment larger than 50 hp, that equipment shall be equipped with a Tier 2 engine, or an engine that is equipped with retrofit controls to reduce exhaust emissions of nitrogen oxides (NOx) and diesel particulate matter (DPM) to no more than Tier 2 levels 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" for the following, as well as other, reasons.

1. There is no available retrofit control device that has been verified by either the California Air Resources Board or U.S. Environmental Protection Agency to control the engine in question to Tier 2 equivalent emission levels and the highest level of available control using retrofit or Tier 1 engines is being used for the engine in question; or
2. The construction equipment is intended to be on site for 5 days or less.
3. The CPM may grant relief from this requirement if the AQCMM can demonstrate a good faith effort to comply with this requirement and that compliance is not practical.

C. The use of a retrofit control device may be terminated immediately, provided that the CPM is informed within 10 working days of the termination and that a replacement for the equipment item in question meeting the controls required in item "B" occurs within 10 days of termination of the use, if the equipment would be needed to continue working at this site for more than 15 days after the use of the retrofit control device is terminated, if one of the following conditions exists :

1. The use of the retrofit control device is excessively reducing the normal availability of the construction equipment due to increased down time for maintenance, and/or reduced power output due to an excessive increase in back pressure.
2. The retrofit control device is causing or is reasonably expected to cause engine damage.
3. The retrofit control device is causing or is reasonably expected to cause a substantial risk to workers or the public.
4. Any other seriously detrimental cause which has the approval of the CPM prior to implementation of the termination.

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

E. All diesel heavy construction equipment shall not idle for more than five minutes. Vehicles that need to idle as part of their normal operation (such as concrete trucks) are exempted from this requirement.

F. Construction equipment will employ electric motors when feasible.

Verification*:* The AQCMM shall include in the MCR:

1. A summary of all actions taken to maintain compliance with this condition;

2. 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
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-SC6 Except for minor activities as allowed by the AQCMM, such as cement pours, construction activities shall be limited to the hours between one hour after sunrise and one hour before sunset from November 5 through February 15. Construction activities taking place from February 16 through November 4 shall be limited to the hours between one hour after sunrise and thirty (30) minutes before sunset.

Verification: The project owner shall include in the MCR a summary of all actions taken to maintain compliance with this condition.

AQ-SC7 The project owner, when obtaining dedicated vehicles for mirror washing activities and other facility maintenance activities, shall only obtain vehicles that meet California on-road vehicle emission standards or appropriate U.S. EPA/California off-road engine emission standards for the latest model year available when obtained. The plan required in **AQ-SC 2** shall describe the approach the facility owner will use to meet this condition.

Other vehicle/fuel types may be allowed assuming that the emission profile for those vehicles, including fugitive dust generation emissions, is comparable to the vehicles types identified in this condition.

Verification: At least 30 days prior to the start of commercial production, the project owner shall submit to the CPM a copy of the plan that identifies the size and type of the on-site vehicle and equipment fleet and the vehicle and equipment purchase orders and contracts and/or purchase schedule. The plan shall be updated every other year and submitted in the Annual Compliance Report.

AQ-SC8 The project owner shall provide a site operations dust control plan, including all applicable fugitive dust control measures identified in **AQ-SC3** that would be applicable to reducing fugitive dust from ongoing operations; that:

A. describes the active operations and wind erosion control techniques such as windbreaks and chemical dust suppressants, including their ongoing maintenance procedures, that shall be used on areas that could be disturbed by vehicles or wind anywhere within the project boundaries; and

B. identifies the location of signs throughout the facility that will limit traveling on unpaved portion of roadways to solar equipment

maintenance vehicles only. In addition, vehicle speed shall be limited to no more than 10 miles per hour on these unpaved roadways, with the exception that vehicles may travel up to 25 miles per hour on stabilized unpaved roads as long as such speeds do not create visible dust emissions.

The site operations fugitive dust control plan shall include the use of durable non-toxic soil stabilizers on all regularly used unpaved roads and disturbed off-road areas within the project boundaries, and shall include the inspection and maintenance procedures that will be undertaken to ensure that the unpaved roads remain stabilized. The soil stabilizer used shall be a non-toxic soil stabilizer or soil weighting agent, with or without the use of geotextiles, that can be determined to be both as or more efficient for fugitive dust control than ARB approved soil stabilizers, and shall not increase any other environmental impacts including loss of vegetation to areas beyond where the soil stabilizers are being applied for dust control.

The performance and application of the fugitive dust controls shall also be measured against and meet the performance requirements of condition **AQ-SC4**. The performance requirements of **AQ-SC4** shall also be included in the operations dust control plan.

Verification: At least 30 days prior to start of commercial operation, the project owner shall submit to the CPM and the District for review and approval a copy of the plan that identifies the dust and erosion control procedures, including effectiveness and environmental data for the proposed soil stabilizer, that will be used during operation of the project and that identifies all locations of the speed limit signs. Within 60 days after commercial operation, the project owner shall provide to the CPM a report identifying the locations of all speed limit signs, and a copy of the project employee and contractor training manual that clearly identifies that project employees and contractors are required to comply with the dust and erosion control procedures and on-site speed limits.

AQ-SC9 Except for emergency pressure relief valves (PRV), each HTF tank shall be connected to a volatile organic compound (VOC) vapor control system at any point where the system can vent to the atmosphere.

Verification: At least 60 days prior to HTF system construction, the project owner shall provide the CPM drawings signed by a registered mechanical engineer showing compliance with this condition and shall also make the site available for inspection of records and equipment by representatives of the District, ARB, and the Energy Commission.

AQ-SC10 HTF expansion vessel shall be gas tight and vent to a vapor control system with a 99 percent control efficiency for any non-PRV location.

Verification: At least 60 days prior to HTF system construction, the project owner shall provide the CPM drawings signed by a registered mechanical engineer showing compliance with this condition and shall also make the site available for inspection of records and equipment by representatives of the District, ARB, and the Energy Commission

AQ-SC11 The project owner shall establish an inspection and maintenance program to determine, repair, and log leaks in HTF piping network and

expansion tanks. Inspection and maintenance program and documentation shall be available to District staff upon request.

A. All pumps, compressors and pressure relief devices (pressure relief valves or rupture disks) shall be electronically, audio, or visually inspected once every operating period.

B. The project owner shall maintain record of the amount of HTF replaced on a monthly basis for a period of five years. The Applicant may subtract quantifiable liquid losses from the 'replaced' total to determine the amount lost to atmosphere. Any HTF losses that cannot be quantified as liquid losses are presumed lost to atmosphere. Should HTF loss to the atmosphere exceed the Applicants estimate of 0.2 tons per year, the project owner shall implement the following leak detection and repair measures:

   a. All accessible valves, fittings, pressure relief devices (PRDs), hatches, pumps, compressors, etc. shall be inspected quarterly using a leak detection device such as a Foxboro OVA 108 calibrated for methane.

   b. VOC leaks greater than 100-ppmv shall be tagged (with date and concentration) and repaired within seven calendar days of detection.

   c. VOC leaks greater than 10,000-ppmv shall be tagged and repaired within 24-hours of detection.

   d. The project owner shall maintain a log of all VOC leaks exceeding 10,000-ppmv, including location, component type, and repair made.

   e. Any detected leak exceeding 100-ppmv and not repaired in 7-days and 10,000-ppmv not repaired within 24-hours shall constitute a violation of the District's Authority to Construct (ATC)/Permit to Operate (PTO).

C. Pressure sensing equipment shall be installed that will be capable of sensing a major rupture or spill within the HTF network.

Verification: The project owner shall make the site available for inspection of records and equipment by representatives of the District, ARB, and the Energy Commission.

AQ-SC12 Each expansion tank shall have fixed roof without holes, tears, or other such openings, except pressure/vacuum (PV) valves, in the cover which allow the emission of VOC.

Verification: The project owner shall make the site available for inspection of records and equipment by representatives of the District, ARB, and the Energy Commission.

AQ-SC13 All expansion tank hatches shall be kept closed and gap-free, except during maintenance, inspection, or repair.

Verification: The project owner shall make the site available for inspection of records and equipment by representatives of the District, ARB, and the Energy Commission.

AQ-SC14 Expansion tank roof appurtenances shall not exhibit emissions exceeding 10,000-ppmv as methane measured with an instrument calibrated with methane and conducted in accordance with EPA Method 21 or equivalent. All accessible valves, connectors, and PRV's (including rupture disks) shall be inspected quarterly using an AVAQMD approved leak detection device calibrated for methane.

Verification: The project owner shall make the site available for inspection of records and equipment by representatives of the District, ARB, and the Energy Commission.

AQ-SC15 Each expansion tank shall be maintained leak-free. A "leak" is defined as the dripping of liquid volatile organic compounds at a rate of three or more drops per minute, or vapor volatile organic compounds in excess of 10,000-ppm as equivalent methane as determined by EPA Test Method 21 or equivalent. All accessible valves, connectors, and PRV's (including rupture disks) shall be inspected quarterly using an AVAQMD approved leak detection device calibrated for methane.

Verification: The project owner shall make the site available for inspection of records and equipment by representatives of the District, ARB, and the Energy Commission.

AQ-SC16 Project owner shall provide District with total HTF volume required for solar power plant and annual volume of HTF replaced at the facility.

Verification: As part of the Annual Compliance Report the project owner shall include information on HTF total volume and annual usage rates to demonstrate compliance with this condition.

AQ-SC17 The project owner shall provide the CPM copies of any District issued Authority-to-Construct (ATC) and Permit-to-Operate (PTO) for the facility. 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 ATC, PTO, and 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-SC18 The project owner shall demonstrate to the satisfaction of the CPM that adequate emission reduction credits have been purchased prior to start of construction of the project. The project emissions of 115 and 40 tons per year of NOx and VOC, respectively, shall be offset at a ratio of 1.3 to one for ERC's within the MDAB or areas in the SJVAB that are within 15 miles of the AVAQMD western boundary (149.5 and 52 tons per year for NOx and VOC, respectively). If ERCs are obtained from locations greater than 15 miles from the western portion of the AVAQMD, an offset ratio of 1.5 to one shall be utilized for those offsets.

Verification: The project owner shall submit to the CPM a copy of all ERCs to be surrendered to the District at least 60 days prior to start construction. Construction shall not begin until the CPM has approved all ERCS. This approval shall be done in consultation with the District.

AQ-SC19 The project owner shall provide 137 tons per year of PM10 ERCs (128 tons per year for PM10 emissions and 9 tons per year for PM10-precursor SOx emissions) that are banked consistent with the Rules and Regulations of the AVAQMD. Should the project owner pursue road paving as the method to obtain the necessary PM10 ERCs, the project owner shall pave, with asphalt concrete that meets the current county road standards, unpaved local roads to provide emission reductions of 137 tons per year of PM10, prior to start of construction of the project. The project owner shall submit a road paving plan that includes a list and pictures of candidate roads to be paved, their actual daily average traffic count including classifications of vehicles (ADT), and daily vehicle miles travel (DVMT), their actual road dust silt content, and calculations showing the appropriate amount of emissions reductions due to paving of each road segment. Calculations of PM10 emission reduction credits shall be performed in accordance with Sections 13.2.1 and 13.2.2 of the U.S. EPA's AP-42 "Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources", Fifth Edition.

Verification: At least 30 days prior to start of construction, the project owner shall submit documentation showing that the project has obtained 137 tons of banked PM10 ERCs. If the project owner chooses to use road paving to obtain

the necessary ERCs, the project owner shall submit to the CPM for review and approval, the road paving plan 30 days prior to submittal of the plan to the AVAQMD. Construction shall not begin until the CPM has approved all ERCs. This approval shall be done in consultation with the District. All paving of roads done for PM10 offset purposes shall be completed at least 15 days prior to start construction of the project.

AQ-SC20 The project owner shall minimize emissions associated with the simultaneous commissioning of the combustion turbines and not exceed NOx emissions of 250 pounds per hour.

Verification: The project owner shall provide operating records in monthly compliance reports to document compliance with this condition.

DISTRICT'S PERMIT CONDITIONS

COMBUSTION TURBINE GENERATOR POWER BLOCK AUTHORITY TO CONSTRUCT CONDITIONS

[2 individual 1736.4 MMBtu/hr F Class Gas Combustion Turbine Generators, Application Numbers: 00010013 and 00010014]

AQT-1. Operation of this equipment shall be conducted in compliance with all data and specifications submitted with the application under which this permit is issued unless otherwise noted below.

Verification: Not necessary.

AQT-2. This equipment shall be exclusively fueled with pipeline quality natural gas with a sulfur content not exceeding 0.2 grains per 100 dscf on a rolling twelvemonth average basis, and shall be operated and maintained in strict accord with the recommendations of its manufacturer or supplier and/or sound engineering principles. Compliance with this limit shall be demonstrated by providing evidence of a contract, tariff sheet or other approved documentation that shows that the fuel meets the definition of pipeline quality gas.

Verification: The project owner shall complete, or obtain from the fuel supplier, on a monthly basis, a laboratory analysis showing the sulfur content of natural gas being burned at the facility. The sulfur analysis reports shall be incorporated into the quarterly compliance reports.

AQT-3. This equipment is subject to the Federal NSPS codified at 40 CFR Part 60, Subparts A (General Provisions) and KKKK (Standards of Performance for New Stationary Gas Turbines). This equipment is also subject to the Prevention of Significant Deterioration (40 CFR 51.166) and Federal Acid Rain (Title IV) programs. Compliance with all applicable provisions of these regulations is required.

Verification: The project owner shall provide the District, the ARB and the CPM copies of the federal PSD and Acid Rain permits no later than 30 days after their issuance.

AQT-4. Emissions from this equipment (including its associated duct burner) shall not exceed the following emission limits at any firing rate, except for CO, NOx and VOC during periods of startup, shutdown and malfunction:

a. Hourly rates, computed every 15 minutes, verified by CEMS and annual compliance tests:

   i. NOx as NO2 – 16.60 lb/hr (based on 2.0 ppmvd corrected to 15 percent O2 and averaged over one hour)

ii. CO – 15.15 lb/hr (based on 2.0 ppmvd (3.0 ppmvd with duct firing) corrected to 15 percent O2 and averaged over one hour)

b. Hourly rates, verified by annual compliance tests or other compliance methods in the case of SOx:

i. VOC as CH4 – 5.80 lb/hr (based on 1.4 ppmvd (2.0 ppmvd with duct firing) corrected to 15 percent O2)

ii. SOx as SO2 – 1.29 lb/hr (based on 0.2 grains/100 dscf fuel sulfur)

iii. PM10 – 18.0 lb/hr

Verification: The project owner shall submit to the District and CPM the quarterly and annual compliance reports as required by **AQT-17**

AQT-5. Emissions of CO and NOx from this equipment shall only exceed the limits contained in Condition **AQT-4** during startup and shutdown periods as follows:

a. Startup is defined as the period beginning with ignition and lasting until the equipment has reached operating permit limits, i.e., the applicable emission limits listed in Condition **AQT-4**. Cold startup is defined as a startup when the CTG has not been in operation during the preceding continuous 48 hours, although a startup after an aborted partial cold start is still considered a cold start (a cold start that does not reach 85 percent output). Other startup is defined as a startup that is not a cold startup. Shutdown is defined as the period beginning with the lowering of equipment from base load and lasting until fuel flow is completely off and combustion has ceased.

b. Transient conditions shall not exceed the following durations:

i. Cold startup – 110 minutes

ii. Other startup – 80 minutes

iii. Shutdown – 30 minutes

c. During a cold startup emissions shall not exceed the following, verified by CEMS:

i. NOx – 96 lb

ii. CO – 410 lb

d. During any other startup emissions shall not exceed the following, verified by CEMS:

i. NOx – 40 lb

ii. CO – 329 lb

e. During a shutdown emissions shall not exceed the following,

verified by CEMS:

i. NOx – 57 lb

ii. CO – 337 lb

Verification: The project owner shall submit to the District and CPM the quarterly and annual compliance reports as required by **AQT-17**.

AQT-6. Emissions from this facility, including the duct burner, auxiliary equipment, engines, cooling tower, shall not exceed the following emission limits, based on a calendar day summary:

a. NOx – 1359 lb/day, verified by CEMS

b. CO – 4833 lb/day, verified by CEMS

c. VOC as CH4 – 577 lb/day, verified by compliance tests and hours of operation in mode

d. SOx as SO2 – 64 lb/day, verified by fuel sulfur content and fuel use data

e. PM10 – 931 lb/day, verified by compliance tests and hours of operation

Verification: The project owner shall submit to the District and CPM the quarterly and annual compliance reports as required by **AQT-17**.

AQT-7. Emissions from this facility, including the duct burner, auxiliary equipment, engines, cooling tower and fugitive dust for vehicle use in the solar field, shall not exceed the following emission limits, based on a rolling 12 month summary:

a. NOx – 115 tons/year, verified by CEMS

b. CO – 255 tons/year, verified by CEMS

c. VOC as CH4 – 40 tons/year, verified by compliance tests and hours of operation in mode

d. SOx as SO2 – 9 tons/year, verified by fuel sulfur content and fuel use data

e. PM10 – 128 tons/year, verified by compliance tests and hours of operation

f. PM2.5 – 125 tons/year, verified by compliance tests and hours of operation

Verification: The project owner shall submit to the District and CPM the quarterly and annual compliance reports as required by **AQT-17**. Note, the requirement for compliance tests applies only to the stationary sources and fugitive emissions will be verified according to a District-approved calculation protocol.

AQT-8. Particulate emissions from this equipment shall not exceed an opacity equal to or greater than 20 percent for a period aggregating more than three (3) minutes in any one (1) hour, excluding uncombined water vapor.

Verification: The project owner shall submit to the District and CPM the quarterly and annual compliance reports as required by **AQT-17**.

AQT-9. This equipment shall exhaust through a stack at a minimum height of 145 feet.

Verification: At least 60 days prior to construction of the turbine stacks, the project owner shall provide the District and CPM an "approved for construction" drawing showing the appropriate stack height and location of sampling ports and platforms. The project owner shall make the site available to the District, EPA and the CPM for inspection.

AQT-10. The owner/operator shall not operate this equipment after the initial commissioning period without the oxidation catalyst with valid District permit C00nnnn[1] and the selective catalytic reduction system with valid District permit C00nnnn[2] installed and fully functional, i.e., enables the combustion turbines to meet the emission limits listed in condition **AQT-4**.

Verification: As part of the quarterly and annual compliance reports, the project owner shall provide information on any major problem in the operation of the oxidizing catalyst and SCR Systems for the gas turbines and HRSGs. The information shall include, at a minimum, the date and description of the problem and the steps taken to resolve the problem.

AQT-11. The owner/operator shall provide stack sampling ports and platforms necessary to perform source tests required to verify compliance with District rules, regulations and permit conditions. The location of these ports and platforms shall be subject to District approval.

Verification: At least 60 days prior to construction of the turbine stacks, the project owner shall provide the District and CPM an "approved for construction" drawing showing the appropriate stack height and location of sampling ports and platforms. The project owner shall make the site available to the District, EPA and CEC Staff for inspection.

AQT-12. Emissions of NOx, CO, oxygen and ammonia slip shall be monitored using a Continuous Emissions Monitoring System (CEMS). Turbine fuel consumption shall be monitored using a continuous monitoring

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[1] As shown in FDOC, permit number yet to be assigned.
[2] As shown in FDOC, permit number yet to be assigned.

system. Stack gas flow rate shall be monitored using either a Continuous Emission Rate Monitoring System (CERMS) meeting the requirements of 40 CFR 75 Appendix A or a stack flow rate calculation method. The owner/operator shall install, calibrate, maintain, and operate these monitoring systems according to a District-approved monitoring plan AVAQMD Rule 218, 40 CFR 60 and/or 40 CFR 75 as applicable.

Verification: The owner/operator shall install, calibrate, maintain, and operate these monitoring systems according to a District-approved monitoring plan and AVAQMD Rule 218, and they shall be installed prior to initial equipment startup after initial steam blows are completed. Two (2) months prior to installation the operator shall submit a monitoring plan for District review and approval.

AQT-13. The owner/operator shall conduct all required compliance/certification tests in accordance with a District-approved test plan. Thirty (30) days prior to the compliance/certification tests the operator shall provide a written test plan for District review and approval. Written notice of the compliance/certification test shall be provided to the District ten (10) days prior to the tests so that an observer may be present. A written report with the results of such compliance/certification tests shall be submitted to the District within forty-five (45) days after testing.

Verification: The project owner shall notify the District and the CPM within ten (10) working days before the execution of the source tests required in this condition. Source test results shall be submitted to the District and to the CPM within 45 days of the date of the tests.

AQT-14. The owner/operator shall perform the following annual compliance tests on this equipment in accordance with the AVAQMD Compliance Test Procedural Manual. The test report shall be submitted to the District no later than six weeks prior to the expiration date of this permit. The following compliance tests are required:

a. NOx as NO2 in ppmvd at 15 percent oxygen and lb/hr (measured per USEPA Reference Methods 19 and 20).

b. VOC as CH4 in ppmvd at 15 percent oxygen and lb/hr (measured per USEPA Reference Methods 25A and 18).

c. SOx as SO2 in ppmvd at 15 percent oxygen and lb/hr.

d. CO in ppmvd at 15 percent oxygen and lb/hr (measured per USEPA Reference Method 10).

e. PM10 and PM2.5 in mg/m3 at 15 percent oxygen and lb/hr (measured per USEPA Reference Methods 5 and 202 or CARB Method 5).

f. Flue gas flow rate in dscf per minute.

g. Opacity (measured per USEPA reference Method 9).

h. Ammonia slip in ppmvd at 15 percent oxygen.

Verification: The project owner shall notify the District and the CPM within seven (7) working days before the execution of the source tests required in this condition. Source test results shall be submitted to the District and to the CPM within 60 days of the date of the tests.

AQT-15. The owner/operator shall, at least as often as once every five years (commencing with the initial compliance test), include the following supplemental source tests in the annual compliance testing:

a. Characterization of cold startup VOC emissions;

b. Characterization of other startup VOC emissions; and

c. Characterization of shutdown VOC emissions.

Verification: The project owner shall notify the District and the CPM within ten (10) working days before the execution of the source tests required in this condition. Source test results shall be submitted to the District and to the CPM within 60 days of the date of the tests.

AQT-16. Continuous monitoring systems shall meet the following acceptability testing requirements from 40 CFR 60 Appendix B (or otherwise District approved):

a. For NOx, .40 CFR 75.

b. For O2, Performance Specification 3.

c. For CO, Performance Specification 4.

d. For stack gas flow rate, Performance Specification 6 (if CERMS is installed).

e. For ammonia, a District approved procedure that is to be submitted by the owner/operator.

f. For stack gas flow rate (without CERMS), a District approved procedure that is to be submitted by the owner/operator.

Verification: The owner/operator shall install, calibrate, maintain, and operate these monitoring systems according to a District-approved monitoring plan and AVAQMD Rule 218, and they shall be installed prior to initial equipment startup after initial steam blows are completed. Sixty (60) days prior to installation, the operator shall submit a monitoring plan for District review and approval and the CPM for review.

AQT-17. The owner/operator shall submit to the APCO and USEPA Region IX the following information for the preceding calendar quarter by January

30, April 30, July 30 and October 30 of each year this permit is in effect. Each January 30 submittal shall include a summary of the reported information for the previous year. This information shall be maintained on site and current for a minimum of five (5) years and shall be provided to District personnel on request:

a. Operating parameters of emission control equipment, including but not limited to ammonia injection rate, NOx emission rate and ammonia slip.

b. Total plant operation time (hours), duct burner operation time (hours), number of startups, hours in cold startup, hours in other startup, and hours in shutdown.

c. Date and time of the beginning and end of each startup and shutdown period.

d. Average plant operation schedule (hours per day, days per week, weeks per year).

e. All continuous emissions data reduced and reported in accordance with the District approved CEMS protocol.

f. Maximum hourly, maximum daily, total quarterly, and total calendar year emissions of NOx, CO, PM10, VOC and SOx (including calculation protocol).

g. Fuel sulfur content (monthly laboratory analyses, monthly natural gas sulfur content reports from the natural gas supplier(s), or the results of a custom fuel monitoring schedule approved by USEPA for compliance with the fuel monitoring provisions of 40 CFR 60 Subpart KKKK and 40 CFR Part 72 as applicable)

h. A log of all excess emissions, including the information regarding malfunctions/breakdowns required by Rule 430.

i. Any permanent changes made in the plant process or production which would affect air pollutant emissions, and indicate when changes were made.

j. Any maintenance to any air pollutant control system (recorded on an as-performed basis).

Verification: The project owner shall prepare quarterly reports for the preceding calendar quarters by January 30, April 30, July 30 and October 30 with the January 30 report including an annual summary. The reports shall be submitted to the District, EPA and the CPM.

AQT-18. The owner/operator must surrender to the District sufficient valid Emission Reduction Credits for this equipment before the start of construction of any part of the project for which this equipment is

intended to be used. In accordance with Regulation XIII, the operator shall obtain 150 tons of NOx, 52 tons of VOC, and 128 tons of PM10 offsets.

Verification: The project owner shall submit to the CPM a copy of all ERCs to be surrendered to the District at least 60 days prior to start construction.

AQT-19. During an initial commissioning period of no more than 180 days, commencing with the first firing of fuel in this equipment, NOx, CO, VOC and ammonia concentration limits shall not apply. The owner/operator shall minimize emission of NOx, CO, VOC and ammonia to the maximum extent possible during the initial commissioning period.

Verification: The project owner shall submit a MCR to the CPM specifying how this condition is being complied with. In addition, the project owner shall provide evidence of the District's approval of the emission monitoring system to the CPM prior to first firing of the gas turbines.

AQT-20. The owner/operator shall tune each CTG and HRSG to minimize emissions of criteria pollutants at the earliest feasible opportunity in accordance with the recommendations of the equipment manufacturers and the construction contractor.

Verification: The project owner shall submit a MCR to the CPM specifying how this condition is being complied with. In addition, the project owner shall provide evidence of the District's approval of the emission monitoring system to the CPM prior to first firing of the gas turbines.

AQT-21. The owner/operator shall install, adjust and operate each SCR system to minimize emissions of NOx from the CTG and HRSG at the earliest feasible opportunity in accordance with the recommendations of the equipment manufacturers and the construction contractor. The NOx and ammonia concentration limits shall apply coincident with the steady state operation of the SCR systems.

Verification: The project owner shall submit a MCR to the CPM specifying how this condition is being complied with. In addition, the project owner shall provide evidence of the District's approval of the emission monitoring system to the CPM prior to first firing of the gas turbines.

AQT-22. The owner/operator shall submit a commissioning plan to the District and the CEC at least four weeks prior to the first firing of fuel in this equipment. The commissioning plan shall describe the procedures to be followed during the commissioning of the CTGs, HRSGs and steam turbine. The commissioning plan shall include a description of each commissioning activity, the anticipated duration of each activity in hours, and the purpose of the activity. The activities described shall include, but not be limited to, the tuning of the dry low NOx

combustors, the installation and testing of the CEMS, and any activities requiring the firing of the CTGs and HRSGs without abatement by an SCR system.

Verification: The project owner shall submit a MCR to the CPM specifying how this condition is being complied with.

AQT-23. The total number of firing hours of each CTG and HRSG without abatement of NOx by the SCR shall not exceed 624 hours during the initial commissioning period. Such operation without NOx abatement shall be limited to discrete commissioning activities that can only be properly executed without the SCR system in place and operating. Upon completion of these activities, the owner/operator shall provide written notice to the District and CEC and the unused balance of the unabated firing hours shall expire.

Verification: The project owner shall submit a MCR to the CPM specifying how this condition is being complied with.

AQT-24. During the initial commissioning period, emissions from this facility shall not exceed the following emission limits (verified by CEMS):

a. NOx - 32 tons, and 242 pounds/hour/CTG

b. CO - 118 tons, and 1337 pounds/hour/CTG

Verification: The project owner shall submit a MCR to the CPM specifying how this condition is being complied with.

AQT-25. Within 60 days after achieving the maximum firing rate at which the facility will be operated, but not later than 180 days after initial startup, the operator shall perform an initial compliance test. This test shall demonstrate that this equipment is capable of operation at 100 percent load in compliance with the emission limits in Condition **AQT-4**.

Verification: No later than 30 working days before the commencement of the source tests, the project owner shall submit to the District and the CPM a detailed source test plan designed to satisfy the requirements of this condition. The project owner shall incorporate the District and CPM comments into the test plan. The project owner shall notify the District and the CPM at least ten (10) working days prior to the planned source testing date. Source test results shall be submitted to the District and the CPM within 60 days of the source testing date.

AQT-26. The initial compliance test shall include tests for the following. The results of the initial compliance test shall be used to prepare a supplemental health risk analysis if required by the District:

a. PAH;

b. Certification of CEMS and CERMS (or stack gas flow calculation method) at 100 percent load, startup modes and shutdown mode;

c. Characterization of cold startup VOC emissions;

d. Characterization of other startup VOC emissions; and

e. Characterization of shutdown VOC emissions.

Verification: No later than 30 working days before the commencement of the source tests, the project owner shall submit to the District and the CPM a detailed source test plan designed to satisfy the requirements of this condition. Source test results shall be submitted to the District and the CPM within 60 days of the source testing date.

HRSG DUCT BURNER AUTHORITY TO CONSTRUCT CONDITIONS

[2 individual 424.3 MMBtu/hr Natural Gas Duct Burners, Application Numbers: 00000000 and 00000000]

AQDB-1. Operation of this equipment shall be conducted in compliance with all data and specifications submitted with the application under which this permit is issued unless otherwise noted below.

Verification: Not necessary.

AQDB-2. This equipment shall be exclusively fueled with natural gas and shall be operated and maintained in strict accord with the recommendations of its manufacturer or supplier and/or sound engineering principles.

Verification: The project owner shall complete, on a monthly basis, a laboratory analysis showing the sulfur content of natural gas being burned at the facility. The sulfur analysis reports shall be incorporated into the quarterly compliance reports.

AQDB-3. The duct burner shall not be operated unless the combustion turbine generator with valid District permit #, catalytic oxidation system with valid District permit #, and selective catalytic NOx reduction system with valid District permit # are in operation.[3]

Verification: As part of the quarterly and annual compliance reports, the project owner shall include information on the date, time, and duration of any violation of this permit condition.

AQDB-4. This equipment shall not be operated for more than 2000 hours per rolling twelve month period.

Verification: The project owner shall submit to the District and CPM the quarterly and annual compliance reports as required by **AQT-17**.

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[3] As represented in FDOC; all permit numbers yet to be assigned.

AQDB-5. Monthly hours of operation for this equipment shall be recorded and maintained on site for a minimum of five (5) years and shall be provided to District personnel on request.

Verification: During site inspection, the project owner shall make all records and reports available to the District, ARB, EPA and CPM.

OXIDATION CATALYST SYSTEM AUTHORITY TO CONSTRUCT CONDITIONS

[2 individual oxidation catalyst systems, Application Numbers: 0010011 and 0010012]

AQOC-1. Operation of this equipment shall be conducted in compliance with all data and specifications submitted with the application under which this permit is issued unless otherwise noted below.

Verification: As part of the quarterly and annual compliance reports, the project owner shall include information on the date, time, and duration of any violation of this permit condition.

AQOC-2. This equipment shall be operated and maintained in strict accord with the recommendations of its manufacturer or supplier and/or sound engineering principles.

Verification: As part of the quarterly and annual compliance reports, the project owner shall include information on the date, time, and duration of any violation of this permit condition.

AQOC-3. This equipment shall be operated concurrently with the combustion turbine generator with valid District permit B00nnnn.[4]

Verification: As part of the quarterly and annual compliance reports, the project owner shall include information on the date, time, and duration of any violation of this permit condition.

SELECTIVE CATALYTIC REDUCTION SYSTEM AUTHORITY TO CONSTRUCT CONDITIONS

[2 individual SCR systems, Application Numbers: 0010011 and 0010012]

AQSCR-1. Operation of this equipment shall be conducted in compliance with all data and specifications submitted with the application under which this permit is issued unless otherwise noted below.

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[4] As represented in FDOC; permit number to be assigned.

Verification: As part of the quarterly and annual compliance reports, the project owner shall include information on the date, time, and duration of any violation of this permit condition.

AQSCR-2. This equipment shall be operated and maintained in strict accord with the recommendations of its manufacturer or supplier and/or sound engineering principles.

Verification: As part of the quarterly and annual compliance reports, the project owner shall include information on the date, time, and duration of any violation of this permit condition.

AQSCR-3. This equipment shall be operated concurrently with the combustion turbine generator with valid District permit B00nnnn.[5]

Verification: As part of the quarterly and annual compliance reports, the project owner shall include information on the date, time, and duration of any violation of this permit condition.

AQSCR-4. Ammonia shall be injected whenever the selective catalytic reduction system has reached or exceeded 550° Fahrenheit except for periods of equipment malfunction. Except during periods of startup, shutdown and malfunction, ammonia slip shall not exceed 5 ppmvd (corrected to 15 percent O2), averaged over three hours.

Verification: As part of the quarterly and annual compliance reports, the project owner shall include information on the date, time, and duration of any violation of this permit condition.

AQSCR-5. Ammonia injection by this equipment in pounds per hour shall be recorded and maintained on site for a minimum of five (5) years and shall be provided to AVAQMD personnel on request.

Verification: During site inspection, the project owner shall make all records and reports available to the District, ARB, EPA and CPM.

COOLING TOWER AUTHORITY TO CONSTRUCT CONDITIONS

[One Cooling Tower, Application Number: 0010019]

AQCT-1. Operation of this equipment shall be conducted in compliance with all data and specifications submitted with the application under which this permit is issued unless otherwise noted below.

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[5] As represented in FDOC; permit number to be assigned.

Verification: As part of the quarterly and annual compliance reports, the project owner shall include information on the date, time, and duration of any violation of this permit condition.

AQCT-2. This equipment shall be operated and maintained in strict accord with the recommendations of its manufacturer or supplier and/or sound engineering principles.

Verification: As part of the quarterly and annual compliance reports, the project owner shall include information on the date, time, and duration of any violation of this permit condition.

AQCT-3. The drift rate shall not exceed 0.0005 percent with a maximum circulation rate of 130,000 gallons per minute. The maximum hourly PM10 emission rate shall not exceed 1.63 pounds per hour, as calculated per the written District-approved protocol.

Verification: The project owner shall submit to the District and CPM the quarterly and annual compliance reports as required by **AQT-17**.

AQCT-4. The operator shall perform weekly tests of the blow-down water total dissolved solids (TDS). The TDS shall not exceed 5000 ppm on a calendar monthly basis. The operator shall maintain a log which contains the date and result of each blow-down water test in TDS ppm, and the resulting mass emission rate. This log shall be maintained on site for a minimum of five (5) years and shall be provided to District personnel on request.

Verification: During site inspection, the project owner shall make all records and reports available to the District, ARB, EPA and CPM.

AQCT-5. The operator shall conduct all required cooling tower water tests in accordance with a District-approved test and emissions calculation protocol. Thirty (30) days prior to the first such test the operator shall provide a written test and emissions calculation protocol for District review and approval.

Verification: During site inspection, the project owner shall make all records and reports available to the District, ARB, EPA and CPM.

AQCT-6. A maintenance procedure shall be established that states how often and what procedures will be used to ensure the integrity of the drift eliminators. This procedure is to be kept onsite and available to District personnel on request.

Verification: During site inspection, the project owner shall make all records and reports available to the District, ARB, EPA and CPM.

AUXILIARY BOILER AUTHORITY TO CONSTRUCT CONDITIONS

[One 110 MMBtu/hr Gas Fired Auxiliary Boiler, Application Number: 0010018]

AQAB-1. Operation of this equipment shall be conducted in compliance with all data and specifications submitted with the application under which this permit is issued unless otherwise noted below.

Verification: As part of the quarterly and annual compliance reports, the project owner shall include information on the date, time, and duration of any violation of this permit condition.

AQAB-2. This equipment shall be exclusively fueled with natural gas and shall be operated and maintained in strict accord with the recommendations of its manufacturer or supplier and/or sound engineering principles.

Verification: As part of the quarterly and annual compliance reports, the project owner shall include information on the date, time, and duration of any violation of this permit condition.

AQAB-3. This equipment is subject to the Federal NSPS codified at 40 CFR Part 60, Subparts A (General Provisions) and Db (Industrial-Commercial-Institutional Steam Generating Units).

Verification: As part of the quarterly and annual compliance reports, the project owner shall include information on the date, time, and duration of any violation of this permit condition.

AQAB-4. Emissions from this equipment shall not exceed the following hourly emission limits at any firing rate, verified by fuel use and annual compliance tests:

a. NOx as NO2 – 1.21 lb/hr (based on 9.0 ppmvd corrected to 3 percent O2 and averaged over one hour)

b. CO – 4.05 lb/hr (based on 50 ppmvd corrected to 3 percent O2 and averaged over one hour)

c. VOC as CH4 – 0.59 lb/hr

d. SOx as SO2 – 0.06 lb/hr (based on 0.2 grains/100 dscf fuel sulfur)

e. PM10 – 0.82 lb/hr (front and back half)

Verification: The project owner shall submit to the District and CPM the quarterly and annual compliance reports as required by **AQT-17**.

AQAB-5. This equipment shall not be operated for more than 500 hours per rolling twelve month period.

Verification: The project owner shall submit to the District and CPM the quarterly and annual compliance reports as required by **AQT-17**.

AQAB-6. The owner/operator shall maintain an operations log for this equipment on-site and current for a minimum of five (5) years, and said log shall be provided to District personnel on request. The operations log shall include the following information at a minimum:

a. Total operation time (hours per month, by month);

b. Maximum hourly, maximum daily, total quarterly, and total calendar year emissions of NOx, CO, PM10, VOC and SOx (including calculation protocol); and,

c. Any permanent changes made to the equipment that would affect air pollutant emissions, and indicate when changes were made.

Verification: During site inspection, the project owner shall make all records and reports available to the District, ARB, EPA and CPM.

AQAB-7. The owner/operator shall perform the following annual compliance tests on this equipment in accordance with the AVAQMD Compliance Test Procedural Manual. The test report shall be submitted to the District no later than six weeks prior to the expiration date of this permit. The following compliance tests are required:

a. NOx as NO2 in ppmvd at 3 percent oxygen and lb/hr (measured per USEPA Reference Methods 19 and 20).

b. VOC as CH4 in ppmvd at 3 percent oxygen and lb/hr (measured per USEPA Reference Methods 25A and 18).

c. SOx as SO2 in ppmvd at 3 percent oxygen and lb/hr.

d. CO in ppmvd at 3 percent oxygen and lb/hr (measured per USEPA Reference Method 10).

e. PM10 in mg/m3 at 3 percent oxygen and lb/hr (measured per USEPA Reference Methods 5 and 202 or CARB Method 5).

f. Flue gas flow rate in dscf per minute.

g. Opacity (measured per USEPA reference Method 9).

Verification: The project owner shall notify the District and the CPM within seven (7) working days before the execution of the source tests required in this condition. Source test results shall be submitted to the District and to the CPM within 60 days of the date of the tests.

AQAB-8 A non-resettable four-digit (9,999) hour timer shall be installed and maintained on this unit to indicate elapsed operating time.

Verification: The project owner shall make the site available for inspection of records **and** equipment by representatives of the District, ARB, and the Energy Commission.

HTF HEATER AUTHORITY TO CONSTRUCT CONDITIONS

[One 40 MMBtu/hr Gas Fired HTF Heater, Application Number: 0010017]

AQHH-1. Operation of this equipment shall be conducted in compliance with all data and specifications submitted with the application under which this permit is issued unless otherwise noted below.

Verification: As part of the quarterly and annual compliance reports, the project owner shall include information on the date, time, and duration of any violation of this permit condition.

AQHH-2. This equipment shall be exclusively fueled with natural gas and shall be operated and maintained in strict accord with the recommendations of its manufacturer or supplier and/or sound engineering principles.

Verification: As part of the quarterly and annual compliance reports, the project owner shall include information on the date, time, and duration of any violation of this permit condition.

AQHH-3. Emissions from this equipment shall not exceed the following hourly emission limits at any firing rate, verified by fuel use and annual compliance tests:

a. NOx as NO2 – 0.44 lb/hr (based on 9.0 ppmvd corrected to 3 percent O2 and averaged over one hour)

b. CO – 1.47 lb/hr (based on 50 ppmvd corrected to 3 percent O2 and averaged over one hour)

c. VOC as CH4 – 0.22 lb/hr

d. SOx as SO2 – 0.02 lb/hr (based on 0.2 grains/100 dscf fuel sulfur)

e. PM10 – 0.30 lb/hr (front and back half)

Verification: The project owner shall submit to the District and CPM the quarterly and annual compliance reports as required by **AQT-17**.

AQHH-4. This equipment shall not be operated for more than 1000 hours per rolling twelve month period.

Verification: During site inspection, the project owner shall make all records and reports available to the District, ARB, EPA and CPM.

AQHH-5. The owner/operator shall maintain an operations log for this equipment on-site and current for a minimum of five (5) years, and said log shall be provided to District personnel on request. The operations log shall include the following information at a minimum:

a. Total operation time (hours per month, by month);

b. Maximum hourly, maximum daily, total quarterly, and total calendar year emissions of NOx, CO, PM10, VOC and SOx (including calculation protocol); and,

c. Any permanent changes made to the equipment that would affect air pollutant emissions, and indicate when changes were made.

Verification: During site inspection, the project owner shall make all records and reports available to the District, ARB, EPA and CPM.

AQHH-6. The owner/operator shall perform the following annual compliance tests on this equipment in accordance with the AVAQMD Compliance Test Procedural Manual. The test report shall be submitted to the District no later than six weeks prior to the expiration date of this permit. The following compliance tests are required:

a. NOx as NO2 in ppmvd at 3 percent oxygen and lb/hr (measured per USEPA Reference Methods 19 and 20);

b. VOC as CH4 in ppmvd at 3 percent oxygen and lb/hr (measured per USEPA Reference Methods 25A and 18);

c. SOx as SO2 in ppmvd at 3 percent oxygen and lb/hr;

d. CO in ppmvd at 3 percent oxygen and lb/hr (measured per USEPA Reference Method 10);

e. PM10 in mg/m3 at 3 percent oxygen and lb/hr (measured per USEPA Reference Methods 5 and 202 or CARB Method 5);

f. Flue gas flow rate in dscf per minute; and

g. Opacity (measured per USEPA reference Method 9).

Verification: The project owner shall notify the District and the CPM within ten (10) working days before the execution of the source tests required in this condition. Source test results shall be submitted to the District and to the CPM within 60 days of the date of the tests.

AQHH-7 A non-resettable four-digit (9,999) hour timer shall be installed and maintained on this unit to indicate elapsed operating time.

Verification: The project owner shall make the site available for inspection of records and equipment by representatives of the District, ARB, and the Energy Commission.

EMERGENCY GENERATOR AUTHORITY TO CONSTRUCT CONDITIONS

[One 2683 hp emergency IC engine driving a generator, Application Number: 0010015]

AQEG-1. Operation of this equipment shall be conducted in compliance with all data and specifications submitted with the application under which this permit is issued unless otherwise noted below.

Verification: As part of the quarterly and annual compliance reports, the project owner shall include information on the date, time, and duration of any violation of this permit condition.

AQEG-2. This equipment shall be installed, operated and maintained in strict accord with those recommendations of the manufacturer/supplier and/or sound engineering principles which produce the minimum emissions of contaminants.

Verification: As part of the quarterly and annual compliance reports, the project owner shall include information on the date, time, and duration of any violation of this permit condition.

AQEG-3. This unit shall be limited to use for emergency power, defined as when commercially available power has been interrupted. In addition, this unit may be operated as part of a testing program that does not exceed 50 hours of testing or maintenance per calendar year. Furthermore, pursuant to District Rule 1110.2, this unit shall be operated less than 200 hours per calendar year. This requirement includes usage during emergencies.

Verification: During site inspection, the project owner shall make all records and reports available to the District, ARB, EPA and CPM.

AQEG-4. This unit shall only be fired on ultra-low sulfur diesel fuel, whose sulfur concentration is less than or equal to 15 ppm on a weight basis per CARB Diesel or equivalent requirements. Note, a fuel switch to an alternative liquid fuel may be subject to permit applicability and must be processed accordingly.

Verification: During site inspection, the project owner shall make all records and reports available to the District, ARB, EPA and CPM.

AQEG-5. A non-resettable four digit hour timer shall be installed and maintained on this unit to indicate elapsed engine operating time.

Verification: At least 60 days prior to installation, the project owner shall provide the District and CPM an "approved for construction" drawing showing the appropriate hour timer. The project owner shall make the site available to the District, EPA and CPM for inspection.

AQEG-6. The owner/operator shall maintain a log for this unit, which, at a minimum, contains the information specified below. This log shall be maintained current and on-site for a minimum of five (5) years and shall be provided to District personnel on request:

a. Date of each use or test;

b. Duration of each use or test in hours;

c. Reason for each use;

d. Cumulative calendar year use, in hours; and,

e. Fuel sulfur concentration (the owner/operator may use the supplier's certification of sulfur content if it is maintained as part of this log).

Verification: During site inspection, the project owner shall make all records and reports available to the District, ARB, EPA and CPM.

AQEG-7. This equipment shall comply with the applicable requirements of the Airborne Toxic Control Measure (ATCM) for Stationary Compression Ignition Engines (Title 17 CCR 93115).

Verification: At least 60 days prior to installation, the project owner shall provide the District and CPM an "approved for construction" drawing showing the engine specifications. The project owner shall make the site available to the District, EPA and CPM for inspection.

EMERGENCY FIRE SUPPRESSION WATER PUMP AUTHORITY TO CONSTRUCT CONDITIONS

[One 182 hp emergency IC engine driving a fire suppression water pump, Application Number: 0010016]

AQFS-1. Operation of this equipment shall be conducted in compliance with all data and specifications submitted with the application under which this permit is issued unless otherwise noted below.

Verification: As part of the quarterly and annual compliance reports, the project owner shall include information on the date, time, and duration of any violation of this permit condition.

AQFS-2. This equipment shall be installed, operated and maintained in strict accord with those recommendations of the manufacturer/supplier and/or sound engineering principles which produce the minimum emissions of contaminants.

Verification: As part of the quarterly and annual compliance reports, the project owner shall include information on the date, time, and duration of any violation of this permit condition.

AQFS-3. This unit shall be limited to use for emergency fire fighting. In addition, this unit may be operated as part of a testing program that does not exceed 50 hours of testing or maintenance per calendar year. Furthermore, pursuant to District Rule 1110.2, this unit shall be operated less than 200 hours per calendar year. This requirement includes usage during emergencies.

Verification: During site inspection, the project owner shall make all records and reports available to the District, ARB, EPA and CPM.

AQFS-4. This unit shall only be fired on ultra-low sulfur diesel fuel, whose sulfur concentration is less than or equal to 15 ppm on a weight basis per CARB Diesel or equivalent requirements. Note, a fuel switch to an alternative liquid fuel may be subject to permit applicability and must be processed accordingly.

Verification: During site inspection, the project owner shall make all records and reports available to the District, ARB, EPA and CPM.

AQFS-5. A non-resettable four digit hour timer shall be installed and maintained on this unit to indicate elapsed engine operating time.

Verification: At least 60 days prior to installation, the project owner shall provide the District and CPM an "approved for construction" drawing showing the appropriate hour timer. The project owner shall make the site available to the District, EPA and CPM for inspection.

AQFS-6. The owner/operator shall maintain a log for this unit, which, at a minimum, contains the information specified below. This log shall be maintained current and on-site for a minimum of five (5) years and shall be provided to District personnel on request:

a. Date of each use or test;

b. Duration of each use or test in hours;

c. Reason for each use;

d. Cumulative calendar year use, in hours; and,

e. Fuel sulfur concentration (the owner/operator may use the supplier's certification of sulfur content if it is maintained as part of this log).

Verification: During site inspection, the project owner shall make all records and reports available to the District, ARB, EPA and CPM.

AQFS-7. This equipment shall comply with the applicable requirements of the Airborne Toxic Control Measure (ATCM) for Stationary Compression Ignition Engines (Title 17 CCR 93115).

Verification: At least 60 days prior to installation, the project owner shall provide the District and CPM an "approved for construction" drawing showing the engine specifications. The project owner shall make the site available to the District, EPA and CPM for inspection.

C. PUBLIC HEALTH

The public health analysis considers the potential public health effects of project emissions of toxic pollutants. In this analysis, we review the evidence concerning whether such emissions will result in significant adverse public health impacts that violate standards for public health protection. The evidence on Public Health was contained in Exhibits 14, 35, 126, 140, 300, 301, 402, 501 and 3/2/11 RT 33-208.

SUMMARY AND DISCUSSION OF THE EVIDENCE

Project construction and operation will release toxic contaminants to which the public could be exposed through inhalation, skin contact or ingestion via contaminated food or water. State and federal regulatory programs have developed health risk assessment procedures to evaluate potential health effects from these releases.

The risk assessment consists of the following steps:

- Identify the types and amounts of hazardous substances that the Palmdale Hybrid Power Plant (PHPP) could release 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 skin contact; and
- Characterize potential health risks by comparing worst-case exposure to safe standards based on known health effects. (Ex. 300, p. 4.7-7.)

The risks assessment methodology examines the conditions that would lead to the highest, or worst-case, risks. The methodology includes:

- 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;
- Assuming that an individual's exposure to cancer-causing agents occurs continuously for 70 years; and

- Using health-based standards designed to protect the most sensitive members of the population (i.e., the young, elderly, and those with respiratory illnesses). (Ex. 300, p. 4.7-8.)

The assessment process addresses three categories of health impacts: acute (short-term) health effects, chronic (long-term) noncancer effects, and cancer risk (also long-term.) Acute health effects result from short-term (one-hour) exposure to relatively high concentrations of pollutants. Acute effects are temporary in nature and include symptoms such as irritation of the eyes, skin and respiratory tracts. (Ex. 300, p. 4.7-8.)

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 twelve to one hundred percent of a lifetime, or from eight to seventy years. Cancer effects are those cancer risks associated with exposure to pollutants. (Ex. 300, p. 4.7-8.)

The analysis for noncancer 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. RELs are based on the most sensitive adverse health effect reported in the medical and toxicological literature and include margins of safety. The margin of safety addresses uncertainties associated with inconclusive scientific and technical information available at the time of standard setting and is meant to provide a reasonable degree of protection against hazards that research has not yet identified. The margin of safety is designed to prevent pollution levels that have been demonstrated to be harmful, as well as to prevent lower pollutant levels that may pose an unacceptable risk of harm, even if the risk is not precisely identified as to nature or degree. Health protection is achieved if the estimated worst-case exposure is below the relevant reference exposure level. In such a case, an adequate margin of safety exists between the predicted exposure and the estimated threshold dose for toxicity. (Ex. 300, pp. 4.7-8 to 4.7-9.)

Exposure to multiple toxic substances may result in health effects that are equal to, less than, or greater than effects resulting from exposure to the individual chemicals. Only a small fraction of the thousands of potential combinations of chemicals have been tested for the health effects of combined exposures. In

conformity with the California Air Pollution Control Officers Association (CAPCOA) guidelines, the health risk assessment assumes that the effects of each substance are additive for a given organ system. Other possible mechanisms due to multiple exposures include those cases where the actions may be synergistic or antagonistic (where the effects are greater or less than the sum, respectively). For these types of substances, the health risk assessment could underestimate or overestimate the risks.

For carcinogenic substances, the health assessment considers the risk of developing cancer and assumes that continuous exposure to the cancer-causing substance at the predicted level 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.

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 (called *potency factors* and established by OEHHA), 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. (Ex. 300, p. 4.7-9.)

The screening analysis is performed to assess worst-case risks to public health associated with the proposed project. 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, would be performed to obtain a more accurate assessment of potential public health risks. (Ex. 300, p. 4.7-9.)

A total hazard index of less than one indicates that cumulative worst-case exposures are less than, or below, the safe levels. 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 (equivalent to a risk of ten in one million or 10×10^{-6}) is calculated to occur. (Ex. 300, p. 4.7-10.)

Potential risks to public health during construction may be associated with exposure to toxic substances in contaminated soil disturbed during site preparation, as well as diesel exhaust from heavy equipment operation. Criteria pollutant impacts from the operation of heavy equipment and particulate matter from earth moving are examined in the **Air Quality** section of this Decision.

Site disturbances occur during facility construction from excavation, grading, and earth moving. Such activities have the potential to adversely affect public health through various mechanisms, such as the creation of airborne dust, material being carried off-site through soil erosion, and uncovering buried hazardous substances. The Phase I Environmental Site Assessment conducted for this site in 2008 identified no "Recognized Environmental Conditions" per the American Society for Testing and Materials Standards (ASTM) definition. That is, there was no evidence or record of any use, spillage or disposal of hazardous substances on the site, nor any other environmental concern that would require remedial action. In the event that any unexpected contamination is encountered during construction of the PHPP, Conditions of Certification **WASTE-1** and **WASTE-2** require a registered professional engineer or geologist to be available during soil excavation and grading to ensure proper handling and disposal of contaminated soil. (See the **Waste Management** section of this Decision for a more detailed analysis of this topic). (Ex. 300, p. 4.7-11.)

The operation of construction equipment will result in air emissions from diesel-fueled engines. Diesel emissions are generated from sources such as trucks, graders, cranes, welding machines, electric generators, air compressors, and water pumps. Although diesel exhaust contains criteria pollutants such as nitrogen oxides, carbon monoxide, and sulfur oxides, it also includes a complex mixture of thousands of gases and fine particles. These particles are primarily composed of aggregates of spherical carbon particles coated with organic and inorganic substances. Diesel exhaust contains over 40 substances that are listed by the U.S. Environmental Protection Agency (U.S. EPA) as hazardous air pollutants and by the California Air Resources Board (ARB) as toxic air contaminants.

Based on the evidence, the maximum annual onsite emissions estimated by the applicant are 14.3 tons per year of particulate matter 10 (PM10) and 4.2 tons per year of PM2.5. In addition, off-site emissions from construction of the linear facilities would occur. Construction of all project components would occur concurrently over a period of about 27 months. As noted earlier, assessment of chronic (long-term) health effects assumes continuous exposure to toxic substances over a significantly longer time period, typically from 8 to 70 years. Therefore, due to the short duration of construction for this project, health risks from construction emissions were not modeled. (Ex. 300, p. 4.7-12.)

The record shows that impacts due to construction vehicle diesel emissions are invariably less than significant even to close-in receptors. Nevertheless, the record contains mitigation measures to ensure that the emissions are indeed

reduced to the greatest extent possible. These measures include the use of extensive fugitive dust control measures and can be found in the **Air Quality** section of this Decision. The fugitive dust control measures are assumed to result in 90 percent reductions of emissions. In order to further mitigate potential impacts from particulate emissions during the operation of diesel-powered construction equipment, the use of ultra-low sulfur diesel fuel and Tier 3 (or Tier 2 if Tier 3 not available) California Emission Standards for Off-Road Compression-Ignition Engines or the installation of an oxidation catalyst and soot filters on diesel equipment will be implemented. The catalyzed diesel particulate filters are passive, self-regenerating filters that reduce particulate matter, carbon monoxide, and hydrocarbon emissions through catalytic oxidation and filtration. The degree of particulate matter reduction is comparable for both mitigation measures in the range of approximately 85 – 92 percent. Such filters will reduce diesel emissions during construction and reduce any potential for significant health impacts. (Ex. 300, p. 4.7-12.)

During operation, the emission sources include two combustion turbine generators, two duct burners, one auxiliary boiler, one HTF heater, one 10-cell cooling tower, one diesel-fueled emergency generator and one diesel-fueled emergency firewater pump. The evidence explains the methodology used in identifying and quantifying the emission rates of the toxic non-criteria pollutants which could adversely affect public health. (Ex. 300, pp. 4.7-7 to 4.7-12.)

The PHPP's potential contributions to the area's carcinogenic and non-carcinogenic pollutants were obtained from a screening-level health risk assessment performed using the Air Resource Board (ARB)/Office of Environmental Health Hazard Assessment (OEHHA) Hotspots Analysis and Reporting Program (HARP) conducted according to procedures specified in the OEHHA's Air Toxics Hotspots Program Risk Assessment Guidelines by the Applicant. The results from this assessment are summarized in **Public Health Table 1**. (Ex. 300, p. 4.7-10.)

Applicant's screening health risk assessment for the project, including combustion and non-combustion emissions, resulted in a maximum acute hazard index (HI) of 0.028 and a maximum chronic hazard index of 0.0008 at the location of the maximum exposed resident (using 51 residences indentified in the project area). The maximum exposed individual residences for the acute and chronic HI were located approximately 3.6 miles and 3.2 miles southwest of the project, respectively. As **Public Health Table 1** show, both acute and chronic

hazard indices are under the significance level of 1.0, indicating that no short- or long-term adverse health effects are expected.

PUBLIC HEALTH Table 1
Operation Hazard/Risk at Point of Maximum Impact

Type of Hazard/Risk	Hazard Index/Risk	Significance Level	Significant?
Acute Non-cancer	**0.028**	**1.0**	**No**
Chronic Non-cancer	**0.0008**	**1.0**	**No**
Individual Cancer	**0.36 in a million**	**10.0 in a million**	**No**

Ex. 300, p. 4.7-15

As also shown in **Public Health Table 1**, the calculated total worst-case individual cancer risk is 0.36 in one million (at a residence approximately 3.2 miles southwest of the project), which is well below the significance criterion of 10 in 1,000,000 for this screening-level assessment. (Ex. 300, p. 4.7-14.)

Staff also conducted a quantitative evaluation of the health risk assessment using the ARB/OEHHA Hotspots Analysis and Reporting Program (HARP). Results of Staff's analysis and comparison to the Applicant's analysis are summarized in **Public Health Table 2**.

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Public Health Table 2
Results of Staff's Analysis and the Applicant's Analysis for Cancer Risk and Chronic and Acute Hazard

	Staff's Analysis			Applicant's Analysis		
	Cancer Risk (per million)	Chronic HI	Acute HI	Cancer Risk (per million)	Chronic HI	Acute HI
PMI	0.70	0.00056	0.0048	n/a	n/a	n/a
MEIR	0.19	0.00015	0.0019	0.36	0.00080	0.028
MEIW	0.019	0.00016	-	0.040	0.00090	-
Sensitive Receptor	0.18	0.00014	0.0021	0.070	0.00080	-

Note:
PMI= point of maximum impact determined in staff's analysis; located approximately 1.7 miles northeast of the project for cancer risk, 2.3 miles northeast of the project for chronic HI, and 0.23 miles east of the project for acute HI
MEIR = maximally exposed individual, residential is located at a residence approximately 1.3 miles southwest of the project for cancer and acute HI and 2.3 miles southwest for chronic HI
MEIW = maximally exposed individual, worker (located at Sam's Club, approximately 2.4 miles southwest of the project)
Sensitive Receptor is located at Westside Christian School (approximately 2.5 miles southwest of the project) for cancer risk and chronic HI and at Head Start State Preschool approximately 2.6 miles south of the project) for acute HI Source: (Ex. 300, p. 4.7-18.)

The record also shows an assessment of the potential impacts of using diesel-fueled vehicles for mirror washing. Atmospheric dispersion modeling of diesel particulate matter (DPM) emissions from the vehicles was conducted. Mirror washing involves a water truck spraying de-ionized water on the mirrors in a drive-by fashion, and is generally done at night. The record shows that the annual DPM emission rate for mirror washing trucks and other maintenance vehicles is 0.0153 ton/year or 30.6 lbs/yr. The HARP model and local meteorological data were used and emissions were modeled as a volume source and the following assumptions were made in the absence of site-specific information: vertical dimension of 10 feet, horizontal dimension of 50 feet by 50 feet and release height of 10 feet. For the model, the location of the vehicle emissions was assumed to be located in the western area of the site, approximately 880 feet east of the western fenceline and 1,375 feet north of the southern fenceline, in order to give an approximate average location across the mirror field. (Ex. 300, p. 4.7-22.)

Based on the evidence, the maximum predicted offsite concentration of diesel particulate matter was 0.009 $\mu g/m^3$ (at the western fenceline). Cancer risk due to

diesel emissions was determined using HARP to be 2.9 in a million. At the site of the maximally exposed resident, risk was determined to be 0.045 in a million and at the site of the maximally exposed sensitive receptor; risk was determined to be 0.027 in a million. Even when this risk is added to the risk from stationary source emission, the risk to the public is less than significant. (Ex. 300, p. 4.7-22.)

The Center for Biological Diversity (CBD) argues that although the PHPP does not violate state or federal standards, its expert witness testified that the project's PM 2.5 emissions would pose a significant public health impact. (CBD, Opening Brief, p. 8, citing Ex. 402, pp. 2-3.) Applicant offered contrary evidence showing that the health based ambient air quality standards for PM2.5 ensures that the project's emissions of PM2.5 would not result in an adverse public health impact. (3/2/11 RT 42:23 – 47:6.) The record indicates that CBD's expert only reviewed "portions" of the health risk assessment that was prepared by the Applicant for air toxics, including diesel particulate matter, and that he testified that he did not disagree with the conclusions reached in that analysis. CBD clarified that this expert was only offered as an air quality witness, not as a public health expert, thus precluding further cross examination of its expert witness on public health (3/2/11 RT 105:9 – 107:2.) After weighing this evidence, we find that the PHPP's emissions of PM2.5, as explained more fully in the **Air Quality** section of this Decision, will not result in a significant impact.

Finally, the record shows that in addition to being a source of potential toxic air contaminants, the possibility exists for bacterial growth, including Legionella, to occur in the cooling tower. It is the principal cause of legionellosis, otherwise known as Legionnaires' disease, which is similar to pneumonia. Transmission to people results mainly from inhalation or aspiration of aerosolized contaminated water. Untreated or inadequately treated cooling systems, such as industrial cooling towers and building heating, ventilating, and air conditioning systems, have been correlated with outbreaks of legionellosis. (Ex. 300, p. 4.7-23.)

According to the record, good preventive maintenance is very important in the efficient operation of cooling towers and other evaporative equipment. Preventive maintenance includes having effective drift eliminators, periodically cleaning the system if appropriate, maintaining mechanical components in working order, and maintaining an effective water treatment program with appropriate biocide concentrations. (*Id.*)

In order to ensure that Legionella growth is kept to a minimum, we adopt Condition of Certification **PUBLIC HEALTH-1**. This condition will require the

project owner to prepare and implement a biocide and anti-biofilm agent monitoring program to ensure that proper levels of biocide and other agents are maintained within the cooling tower water at all times, that periodic measurements of Legionella levels are conducted, and that periodic cleaning is conducted to remove bio-film buildup. (Ex. 200, p. 4.7-24.)

Due to the minimal changes in lifetime risk at the point of maximum impact and because those minimal risks decrease rapidly with increased distance from the facility, we find that there will be no significant cumulative impacts to public health from the construction or operation of the PHPP.

1. Road Paving

The record contains a public health analysis of the applicant's proposal to pave some or all of the roads identified to generate the appropriate tonnage of PM10 emissions reduction credits (ERC), as reflected in Data Response #103 (Ex. 56) and concludes that such proposal would not result in any impacts in the area of Public Health. In fact, the paving of roads would have a beneficial impact on public health in that paving will reduce the generation of PM10 and PM2.5, thus reducing the risk of impacts on the respiratory system caused by the inhalation of these ultra-fine particulates. Therefore, no additional conditions of certification are required. (Ex. 301, p. 24.)

2. Cumulative Impacts

The record establishes that the maximum cancer risk for operations emissions from the PHPP (calculated by staff) at the point of maximum impact (PMI) is 3.6 in 1,000,000, which is well below the level of significance. In fact, at the Evidentiary Hearing, Staff's expert witness testified that the 3.6 in 1,000,000 figure was an overestimation. (3/2/11 RT 119:10 – 121:15.) Similarly, the maximum chronic HI calculated by staff is 0.00056 and the maximum acute HI is 0.0048. As described above, the contribution of the PHPP project to both cancer risk and chronic and acute noncancer disease are comparatively very small. The evidence establishes and we find that the PHPP project will not contribute to cumulative impacts in the area of public health.

3. LORS

Intervenor, Desert Citizens Against Pollution offered a paper entitled "Green Chemistry Hazard Traits, Endpoints and Other Relevant Data" (Exhibit 501) into

the record and referred to it during the cross examination of Staff's Public Health expert witness. We note that Exhibit 501 states in large bold type below the title of the document, "Pre-Regulatory Draft For Discussion Purposes Only." (Ex. 501, p. 1.) The footer of Exhibit 501 contains the language "for discussion purposes only" on every page thereafter. There was no authentication or any foundation laid for Exhibit 501. No mention was made of the document in any party's brief and there is nothing on the face of the document that explains how it might be relevant to these proceedings. (14 Cal. Code Regs. sec.15384; 20 Cal. Code Regs. sec. 1212.) By its express terms, Exhibit 501 is not a LORS. Accordingly, Exhibit 501 was given no weight. The Commission's regulations require us to analyze all *applicable* LORS. (Cal. Code Regs., tit. 20, §1744.) **Public Health Table 3** summarizes the applicable LORS.

Public Health Table 3
Laws, Ordinances, Regulations, and Standards (LORS)

Applicable Law	Description
Federal	
Clean Air Act section 112 (Title 42, U.S. Code section 7412)	The National Emissions Standards for Hazardous Air Pollutants (NESHAP) requires new sources that emit more than 10 tons per year of any specified Hazardous Air Pollutant (HAP) or more than 25 tons per year of any combination of HAPs to apply Maximum Achievable Control Technology.
State	
California Health and Safety Code section 25249.5 et seq. (Proposition 65)	These sections establish thresholds of exposure to carcinogenic substances above which Prop 65 exposure warnings are required.
California Health and Safety Code section 41700	This section states that "no person shall discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause injury or damage to business or property."
California Code of Regulations, Title 22, Section 60306	Requires that whenever a cooling system uses recycled water in conjunction with an air conditioning facility and a cooling tower that creates a mist that could come into contact with employees or members of the public, a drift eliminator shall be used and chlorine, or other, biocides shall be used to treat the cooling system recirculating water to minimize the growth of Legionella and other micro-organisms.

Applicable Law	Description
State	
California Public Resource Code section 25523(a); Title 20 California Code of Regulations (CCR) section 1752.5, 2300–2309 and Division 2 Chapter 5, Article 1, Appendix B, Part (1); California Clean Air Act, Health and Safety Code section 39650, et seq.	These regulations require a quantitative health risk assessment for new or modified sources, including power plants that emit one or more toxic air contaminants (TACs).
Local	
Antelope Valley Air Quality Management District (AVAQMD) Rule 212	This rule requires notification for projects with a predicted cancer risk greater than or equal to one-in-one-million.
AVAQMD Rule 402	This rule prohibits the discharge of air contaminants or other materials that can cause nuisance or injury.
AVAQMD Regulation X	This regulation notifies sources of the requirements, enforceability, and practices for the California ATCM and Federal MACT standards for control]of California TACs and Federal HAP emissions, respectively. It assigns a prioritization score for toxics and requires the preparation of a HRA by high risk facilities.
AVAQMD Rule 1000	This rule implements the Federal NESHAP promulgated under 40 CFR Part 61.
AVAQMD Rule 1401	This rule discusses the requirements for new source review for air toxics.
AVAQMD CEQA and Federal Conformity Guidelines	This rule provides significance thresholds under CEQA for exposure of sensitive receptors to cancer and noncancer public health risk impacts.

4. Public Comment

R. Lyle Talbot from Desert Citizens Against Pollution commented that the City of Palmdale put "their power plant on the north edge of town with the 75 percent nearly southwest winds blowing it right into the Lancaster School Districts." (3/2/11 RT 180:7 –11). He also submitted written comments expressing concerns about the affects of air emissions on the student and minority populations.

Robina Sowul, founder and executive director of California Safe Schools, cited a study that found significant decreases in lung function due to existing levels of air pollution. The study was performed by the University of California. Ms. Sowul

commented that “at the existing air pollution levels school children in these communities, Lancaster, they’re already losing lung function and they’re at great risk, and even greater risk for respiratory illnesses. Now a huge new source of air pollution is being proposed to be sited directly upwind from the school population. I mean, it’s so difficult to even talk about without wondering why. I mean, this source will emit massive amount of pollutants which are known to affect respiratory health, especially for children and the elderly.” (3/2/11 RT 186:1 –16.)

Virginia Stout commented “when I was a teacher I had an astounding number of students who constantly came in with their inhalers and asthma. And I watched it grow as I’ve lived here over the many years.” She expressed concern regarding the testimony of the environmental and health experts who in her opinion were “glossing” over the need to monitor the health of the people in the area. (3/2/11 RT 200:11–22.)

All of these comments assume the PHPP will have negative health impacts on Lancaster and the nearby vicinity. The record establishes a human health risk assessment was conducted using guidance developed by the Office of Environmental Health Hazard Assessment, the U.S. Environmental Protection Agency, and the California Air Resources Board. There is no competent evidence in this record that PHPP poses any threat to the health of the public in general, or to residents of Lancaster in particular. Results of the health risk assessment for PHPP indicate that the excess cancer risk from PHPP for the nearest resident or offsite worker would be less than 1 in a million and that the acute and chronic hazard indices are significantly less than 1.0. We invite the commenters to consider this evidence upon which this Decision is based.

FINDINGS OF FACT

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

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. Release of non-criteria pollutants from the PHPP will not have acute or chronic adverse public health effects or cause a significant increase in cancer risk.

3. Emissions from the construction, operation, and closure of the natural gas-burning PHPP will not have a significant impact on the public health of the surrounding population.

4. The project owner will implement a Cooling Water Management Plan in accordance with applicable LORS and guidelines to minimize the potential for growth of Legionella bacteria and other micro-organisms in cooling tower emissions.

5. Emissions from road paving to be performed to offset the project PM10 emissions do not pose a significant health risk for the relatively short period involved.

6. PHPP will not contribute to cumulative impacts to public health in the area.

CONCLUSION OF LAW

We therefore conclude that project emissions of noncriteria pollutants do not pose a significant direct, indirect, or cumulative adverse public health risk and that the project will comply with the applicable laws, ordinances, regulations, and standards.

CONDITION OF CERTIFICATION

PUBLIC HEALTH-1 The project owner shall develop and implement a Cooling Water Management Plan to ensure that the potential for bacterial growth in cooling water is kept to a minimum. The Plan shall be consistent with either staff's "Cooling Water Management Program Guidelines" or with the Cooling Technology Institute's "Best Practices for Control of Legionella" guidelines but in either case, the Plan must include sampling and testing for the presence of Legionella bacteria at least every six months. After two years of power plant operations, the project owner may ask the CPM to re-evaluate and revise the Legionella bacteria testing requirement.

Verification: At least 60 days prior to the commencement of cooling tower operations, the Cooling Water Management Plan shall be provided to the CPM for review and approval.

D. WORKER SAFETY AND FIRE PROTECTION

Industrial workers are exposed to potential health and safety hazards on a daily basis. This analysis reviews whether Applicant's proposed health and safety plans will be adequate to protect industrial workers and provide fire protection and emergency response in accordance with all applicable laws, ordinances, regulations, and standards. The evidence was undisputed. (Ex. 22; 44; 119; 300; 301.)

SUMMARY AND DISCUSSION OF THE EVIDENCE

Industrial environments are potentially dangerous during both construction and operation. Workers at the proposed project will be exposed to loud noises, moving equipment, trenches, and confined space entry and egress. Workers may sustain falls, trips, burns, lacerations, and other injuries. They may be exposed to falling equipment or structures, chemical spills, hazardous waste, fires, explosions, and electrical sparks or electrocution. It is important that Palmdale Hybrid Power Plant (PHPP) has well-defined policies and procedures, training, and hazard recognition and control to minimize these hazards and protect workers. (Ex. 300, p. 4.14-4.)

The record extensively 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," both of which must be reviewed by the appropriate agencies prior to project construction and operation. Separate Injury and Illness Prevention Programs, Personal Protective Equipment Programs, Emergency Action Plans, Fire Protection and Prevention Plans, and other general safety procedures will be prepared for both the construction and operation phases of the project. 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. (Ex. 300, pp. 4.14-5 - 4.14-9.)

Finally, in order to ensure that reconductoring of the transmission lines between the Pearl Blossom and Vincent substations is accomplished with the highest degree of worker safety, Condition of Certification **WORKER SAFETY-7** would

require the project owner to provide to the CPM for review a copy of the worker safety plan for that reconductoring.

During construction and operation of the proposed PHPP 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, and heat transfer fluid (HTF) at the project site or switchyard or flammable liquids, explosions, and overheated equipment, may cause small fires. Major structural fires in areas without automatic fire detection and suppression systems are unlikely at power plants. Fires and explosions of natural gas or other flammable gasses or liquids are rare; however, fires involving spills/leaks of HTF have occurred at other solar generating facilities. (Ex. 300, p. 4.14-16.)

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. In the event of a major fire, fire support services, including trained firefighters and equipment for a sustained response, will be provided by the Los Angeles County Fire Department (LACFD). (Ex. 300, p. 4.14-16.)

During construction, portable fire extinguishers and other firefighting equipment will be located and maintained throughout the site, and the permanent fire suppression system will be installed as soon as practical. Safety procedures and training will also be implemented as described in the Construction Fire Protection and Prevention Program. Stations #129, #135, and other LACFD stations will be available to provide fire protection backup for larger fires that cannot be extinguished using the project's portable suppression equipment. (Ex. 300, p. 4.14-16.)

The evidence shows that the project will meet the fire protection and suppression requirements of the California Fire Code, all applicable recommended NFPA standards (including Standard 850, which addresses fire protection at electric generating plants), and all Cal-OSHA requirements with one exception (see below). Fire suppression elements in the proposed plant will include both fixed and portable fire extinguishing systems. (Ex. 300, pp. 4.14-16 - 4.14-17.)

A dedicated 250,000-gallon portion of a 1,000,000-gallon raw water storage tank that will be located on the project site will supply water to the fire suppression system. A sophisticated diesel and electric pump system will ensure a continuous adequate water supply to the fire protection water-piping network, which includes

fire hydrants throughout the site and sprinkler systems at each transformer and in the operations building. (Ex. 300, p. 4.14-17.)

A carbon dioxide (CO_2) 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 activate the system. A fire involving the Heat Transfer Fluid (HTF) in the solar field will extinguish itself after burning the limited volume of fuel leaked since the lines will be isolated and the remainder of the field is nonflammable. (Ex. 300, p. 4.14-17.)

In addition to the fixed fire protection system, smoke detectors, flame detectors, temperature detectors, appropriate class of service portable extinguishers, and fire hydrants must be located throughout the facility at code-approved intervals. These systems are standard requirements of the fire code, NFPA, and will ensure adequate fire protection. (Ex. 300, p. 4.14-17.)

The Applicant will be required by Conditions of Certification **WORKER SAFETY-1** and **-2** to provide a final fire protection and prevention program to both the Energy Commission Compliance Project Manager (CPM) and the LACFD prior to the construction and operation of the project in order to confirm the adequacy of proposed fire protection measures.

The one exception mentioned above pertains to fire department access to the site. Both the California Fire Code (24 Cal. Code Regs., Part 9, chapter 5, § 503.1.2) and the Uniform Fire Code (sections 901 and 902) require that access to the site be reviewed and approved by the fire department. All power plants licensed by the Energy Commission have more than one access point to the power plant site. This is sound fire safety procedure and allows for fire department vehicles and personnel to access the site should the main gate be blocked. The proposed PHPP has only one access point, that being through the main gate off East Avenue M. The record indicates that a proposed second access point to the PHPP would enter the PHPP site from the eastern boundary from a road off East Avenue M that will run parallel to the existing Site 1 Road (the entry way to Air Force Plant 42). A second access point is necessary to ensure fire department access, and it can be restricted to emergency use only and, if possible, should be equipped with an Opticom System for remote keyless entry. Therefore, in order to comply with the requirements of LORS, Condition of Certification **WORKER SAFETY-6** requires the project owner to identify and provide a second access point to the site for emergency vehicles and equip this

secondary gate with either an Opticom System or a keypad for fire department personnel to open the gate.

The PHPP will be the first hybrid solar power plant in Los Angeles County that will use a HTF. Staff has reviewed in-depth past experience at existing solar power plants that are similar to the proposed thermal solar part of this project as well as the records of emergency responses of the San Bernardino County Fire Department (SBCFD) to the only three thermal solar power plants in the state. Emergency response to the existing solar power plants includes medical, fire, rescue, and hazardous materials incidents. Based on the evidence, the SBCFD responded to about 30 incidents and emergencies at the three solar sites, including three major fires and two hazardous materials spills. (Ex. 300, p. 4.14-18.)

The proposed PHPP is very different from the light industry and residential development in the Los Angeles County desert region and also very different from the natural gas power plants built in the Blythe area. The PHPP will have huge amounts of highly combustible (flammable at the elevated operating temperature) heat transfer fluid used and stored on site, as much as 260,000 gallons. It will also have 1200 gallons of diesel, 4,000 gallons of combustible lube oil, and 65,000 gallons of combustible mineral oil. The amount of combustible hydrocarbons stored and used on-site, combined with the potential for escalation of a small fire into a large conflagration, presents an emergency response challenge to the LACFD. The LACFD is adequately equipped to respond to fire, hazmat, rescue, and EMS emergencies in a timely manner but it is very important to note that the PHPP will be located in an extremely harsh desert environment. The ability of a fire fighter to perform duties while wearing a turn-out coat, heavy boots, and a respirator (self contained breathing apparatus) is limited under the best of circumstances. If conducting a rescue or fighting a fire that necessitates use of a respirator, the high-temperatures of the desert, often exceed 115°F, severely limits a fire fighter's ability to perform the duties to 15 minutes at a time. This severe time restriction necessitates the mobilization of more fire fighters to respond to the emergency and a concentrated effort will be needed to prevent escalation if a fire in the solar array occurs. (Ex. 300, p. 4.14-18.)

Joint training exercises with the LACFD in fire suppression, rescue, hazmat spill response, and EMS response is critical to being prepared to address an emergency. Therefore, Condition of Certification **WORKER SAFETY-9** requires the project owner to participate in joint training exercises with the LACFD. The

project owner could coordinate this training with other Energy Commission-licensed solar power plants within Los Angeles County such that the PHPP will only be required to host the annual training on a rotating basis with the other solar, hybrid, and natural gas power plants in the area. (Ex. 300, p. 4.14-18.)

The record contains a state-wide survey that analyzed 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 a volunteer fire-fighting staff. However, 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 is well documented in medical literature. The quickest medical intervention can only be achieved with the use of an on-site defibrillator. Condition of Certification **WORKER SAFETY-5** requires that a portable automatic cardiac defibrillator be located on site and workers trained in its use. (Ex. 300, pp. 4.14-18 - 4.14-19.)

To minimize potential exposure of workers and also the public to coccidioidomycosis or “Valley Fever” during soil excavation and grading, extensive wetting of the soil prior to and during construction activities should be employed and dust masks should be worn at certain times during these activities. The dust (PM10) control measures found in the **Air Quality** section of this Decision should be strictly adhered to in order to adequately reduce the risk of workers contracting Valley Fever. To provide additional protection to workers that could experience elevated exposure during construction activities, Condition of Certification **WORKER SAFETY-8** would require that the dust control measures found in proposed Conditions **AQ-SC3** and **AQ-SC4** be supplemented with additional requirements. (Ex. 400, pp. C.14-12 - C.14-16.)

Staff reviewed the potential for the construction and operation of the PHPP combined with existing industrial facilities and expected new facilities, to result in impacts on the fire and emergency service capabilities of the LACFD. The LACFD stated that every new facility has the potential to impact the fire department, but that the LACFD certainly has the resources and capability to respond to any incident at the proposed facility. Given the lack of unique fire hazards associated with this modern hybrid power plant, this project will not have any significant incremental burden on the department’s ability to respond to a fire or medical emergency. (Ex. 300, 4.4-19.)

The record contains an analysis of the Applicant's proposal to pave some or all the roads identified to generate the appropriate tonnage of PM10 ERCs, as reflected in data response #103 (Ex. 56), and indicates that such proposal would not result in any impacts in the area of **Worker Safety and Fire Protection**. While certain limited specific safety risks exist during road paving operations, the short duration and the standard precautions utilized by a road paving company during this rather routine effort will limit impacts to workers to below a level of significance. Similarly, the risk of a fire or the need for other emergency response during road paving is also very limited for this routine effort. Therefore, no additional conditions of certification are required. (Ex. 301, p. 35.).

1. Public Comment

No public comment was offered regarding **Worker Safety and Fire Protection**.

FINDINGS OF FACT

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

1. Industrial workers are exposed to potential health and safety hazards on a daily basis.

2. To protect workers from job-related injuries and illnesses, the project owner will implement comprehensive Safety and Health Programs for both the construction and the operation phases of the project.

3. Conditions of Certification in this section, as well as in the **Waste Management** and **Air Quality** sections of this Decision, adequately protect construction workers from particulate matter and fugitive dust.

4. PHPP will include on-site fire protection and suppression systems for first line defense in the event of a fire.

5. The Los Angeles County Fire Department will provide fire protection and emergency response services to the project.

6. Existing fire and emergency service resources are adequate to meet project needs.

7. Condition of Certification **WORKER SAFETY-6** requires the project owner to identify and provide a second access point to the site for emergency vehicles and equip this secondary gate with either an Opticom System or a keypad for fire department personnel to open the gate.

8. Condition of Certification **WORKER SAFETY-9** requires the project owner to participate in joint training exercises with the LACFD.

9. Adherence to Condition of Certification **WORKER SAFETY-8** and Conditions **AQ-SC3** and **AQ-SC4** reduce the risk of workers or the public contracting Valley Fever below a significant level.

10. The short duration and the standard precautions utilized by a road paving company during this rather routine effort will limit impacts to workers to below a level of significance.

11. PHPP will not result in cumulative adverse impacts to the Los Angeles County Fire Department's emergency response capabilities.

CONCLUSIONS OF LAW

1. Implementation of the Conditions of Certification, below, and the mitigation measures described in the evidentiary record will ensure that the project conforms with all applicable laws, ordinances, regulations, and standards on industrial worker health and safety.

2. We therefore conclude that implementation of the project owner's Safety and Health Programs and Fire Protection measures will reduce potential adverse impacts to the health and safety of industrial workers to levels of insignificance.

CONDITIONS OF CERTIFICATION

WORKER SAFETY-1 The project owner shall submit to the Compliance Project Manager (CPM) a copy of the 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 which shall also include a Heat Stress Protection Plan and a Best Management Practices (BMPs) for the storage and application of herbicides used to control weeds;

- 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 Los Angeles County Fire Department for review and comment prior to submittal to the CPM for approval.

Verification: At least 30 days prior to the start of construction, the project owner shall submit to the CPM for review and approval a copy of the Project Construction Safety and Health Program. The project owner shall provide a copy of a letter to the CPM from the Los Angeles County Fire Department stating the Fire Department'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 which shall also include a Heat Stress Protection Plan and a Best Management Practices (BMPs) for the storage and application of herbicides used to control weeds beneath and around the solar array;
- An Emergency Action Plan;
- Hazardous Materials Management Program;
- Fire Prevention Program (8 CCR § 3221); and;
- Personal Protective Equipment Program (8 CCR §§ 3401-3411).

The Operation Injury and Illness Prevention Plan, Emergency Action Plan, and Personal Protective Equipment Program shall be submitted to the CPM for review and approval concerning compliance of the program with all applicable Safety Orders. The Operation Fire Prevention Plan and the Emergency Action Plan shall also be submitted to the Los Angeles County Fire Department for review and comment.

Verification: At least 30 days prior to the start of first-fire or 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 Los Angeles County Fire Department stating the Fire Department's comments on the Operations Fire Prevention Plan and Emergency Action Plan.

WORKER SAFETY-3 The project owner shall provide a site Construction Safety Supervisor (CSS) 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 CSS shall:

- Have over-all authority for coordination and implementation of all occupational safety and health practices, policies, and programs;
- Assure that the safety program for the project complies with Cal/OSHA & federal regulations related to power plant projects;
- Assure that all construction and commissioning workers and supervisors receive adequate safety training;
- 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 **-2** are implemented.

Verification: At least 30 days prior to the start of site mobilization, the project owner shall submit to the CPM the name and contact information for the Construction Safety Supervisor (CSS). The contact information of any replacement (CSS) shall be submitted to the CPM within one business day.

The CSS shall submit in the Monthly Compliance Report a monthly safety inspection report to include:

- Record of all employees trained for that month (all records shall be kept on site for the duration of the project);
- Summary report of safety management actions and safety-related incidents that occurred during the month;
- Report of any continuing or unresolved situations and incidents that may pose danger to life or health; and
- Report of accidents and injuries that occurred during the month.

WORKER SAFETY-4 The project owner shall make payments to the Chief Building Official (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 will be responsible for verifying that the Construction Safety Supervisor, as required in **WORKER SAFETY-3**, implements all appropriate Cal/OSHA and Commission safety requirements. The Safety Monitor shall conduct on-site (including

linear facilities) safety inspections at intervals necessary to fulfill those responsibilities.

Verification: At least 30 days 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 external defibrillator (AED) is located on site during construction and operations 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. During construction and commissioning, the following persons shall be trained in its use and shall be on-site whenever the workers that they supervise are on-site: the Construction Project Manager or delegate, the Construction Safety Supervisor or delegate, and all shift foremen. During operations, all power plant employees shall be trained in its use. The training program shall be submitted to the CPM for review and approval.

Verification: At least 30 days prior to the start of site mobilization the project owner shall submit to the CPM proof that a portable AED exists on site and a copy of the training and maintenance program for review and approval.

WORKER SAFETY-6 The project owner shall identify and provide a second access point for emergency personnel to enter the site. This access point and the method of gate operation shall be submitted to the Los Angeles County Fire Department for review and comment and to the CPM for review and approval.

Verification: At least 60 days prior to the start of site mobilization, the project owner shall submit to the Los Angeles County Fire Department and the CPM preliminary plans showing the location of a second access point to the site and a description of how the gate will be opened by the fire department. At least (30) days prior to the start of site mobilization, the project owner shall submit final plans to the CPM review and approval. The final plan submittal shall also include a letter containing comments from the Los Angeles County Fire Department or a statement that no comments were received.

WORKER SAFETY-7 The project owner shall provide to the CPM for review a copy of the worker safety plan for reconductoring the transmission lines between the Pearl Blossom and Vincent substations.

Verification: At least 60 days prior to the start of reconductoring, the project owner shall submit to the CPM the worker safety plan for review.

WORKER SAFETY-8 The project owner shall develop and implement an enhanced Dust Control Plan that includes the requirements described in **AQ-SC3** and additionally requires:

i) site worker use of dust masks (NIOSH N-95 or better) whenever visible dust is present;

ii) implementation of methods consistent with Rule 402 of the Kern County Air Pollution Control District (as amended Nov. 3, 2004); and

iii) implementation of enhanced dust control methods (increased frequency of watering, use of dust suppression chemicals, etc. consistent with **AQ-SC4**) immediately whenever visible dust comes from or onto the site or when PM10 measurements obtained when implementing ii (above) exceed 50 micrograms per cubic meter ($\mu g/m^3$).

Verification: At least 30 days prior to the commencement of site mobilization, the enhanced Dust control Plan shall be provided to the CPM for review and approval.

WORKER SAFETY-9 The project owner shall participate in annual joint training exercises with the Los Angeles County Fire Department (LACFD). The project owner may coordinate this training with other Energy Commission-licensed solar power plants within Los Angeles County such that this project shall host the annual training on a rotating yearly basis with the other solar power plants.

Verification: At least 10 days prior to the start of commissioning, the project owner shall submit to the CPM proof that a joint training program with the LACFD is established. In each January Monthly Compliance Report during construction and the Annual Compliance Report during operation, the project owner shall include the date, list of participants, training protocol, and location of the annual joint training.

E. HAZARDOUS MATERIALS MANAGEMENT

This analysis considers whether the construction and operation of the Palmdale Hybrid Power Plant (PHPP) will create significant impacts to public health and safety resulting from the use, handling, or storage of hazardous materials. Several locational 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 was undisputed. (Exs. 10; 26; 27; 44; 46; 130; 300; 301.)

SUMMARY AND DISCUSSION OF THE EVIDENCE

Engineering controls and administrative controls affect the significance of potential impacts from hazardous materials usage. Engineering controls are those physical or mechanical systems (such as storage tanks or automatic shut-off valves) which can prevent a hazardous material spill from occurring, which can limit the spill 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. These are designed to help prevent accidents or keep them small if they do occur. These are specified at length in the evidence of record. In both cases, the goal is to prevent a spill from causing harm.

Hazardous materials, such as mineral and lubricating oils, corrosion inhibitors, and water treatment chemicals will be present at the facility. Hazardous materials used during the construction phase include gasoline, diesel fuel, motor oil, hydraulic fluid, welding gases, lubricants, solvents, paint, and paint thinner. No acutely toxic hazardous materials will be used on-site during construction. (Ex. 300, p. 4.4-2, p. 4.4-7.)

The evidence of record includes an assessment of the risks posed by the use of hazardous materials. This assessment included the following elements:

- A review of chemicals and the amounts proposed for on-site use and a determination of the need and appropriateness of their use.
- Chemicals which would be used in small amounts, or whose physical state is such that there is virtually no chance that a spill would migrate off the site and impact the public, were removed from further consideration.
- Measures proposed to prevent spills were reviewed and evaluated. These included engineering controls such as automatic shut-off valves and different

size transfer-hose couplings, as well as administrative controls such as worker training and safety management programs.

- Measures proposed to respond to accidents were reviewed and evaluated. These measures also included engineering controls such as catchment basins and methods to keep vapors from spreading, as well as administrative controls such as training emergency response crews.
- An analysis of the theoretical impacts on the public of a worst-case spill of hazardous materials even with the mitigation measures proposed. (Ex. 300, pp. 4.4-6 – 4.4-7.)

1. Project Impacts and Mitigation

The record is clear that, except for aqueous ammonia, none of the hazardous materials, which will be used during the project's construction and operation, pose a significant potential for off-site impacts. This determination is based on the quantities on site, the substances' relative toxicity, physical state, or environmental mobility. (Ex. 300, pp. 4.4-1, 4.4-7 – 4.4-11.)

Although no natural gas is stored, the project will involve the handling of large amounts of this fuel, with an accompanying risk of fire and explosion. The evidence is similarly in accord that compliance with applicable codes which incorporate measures such as the use of double block and bleed valves for secure shut off, automated combustion controls, burner management, inspection of welds, and use of corrosion resistant coatings will suffice to adequately minimize the potential for off-site impacts. (Ex. 300, p. 4.4-8.)

Aqueous ammonia is the only hazardous material 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). A single 30,000-gallon capacity above-ground storage tank will be used to store the 19 percent aqueous ammonia solution. (Ex. 300, p. 4.4-9.)

At a maximum, PHPP will require about 14 tanker truck deliveries of aqueous ammonia per month, for a total of 168 annual tanker truck deliveries, with each delivery totaling about 8,000 gallons. (Ex. 300, p. 4.4-14.) The record contains analyses of the risks associated with the transportation of hazardous materials (with emphasis on aqueous ammonia) in the vicinity of the project site. This evidence shows that the potential for accidental release during transport is

exceedingly low, and that compliance with the existing body of regulations covering the transportation of hazardous materials, as well as the use of the type of delivery vehicle specified in Condition of Certification **HAZ-5,** will ensure that the risk to the public of exposure to significant concentrations of aqueous ammonia remains less than significant. (Ex. 300, pp. 4.4-14 – 4.4-15.)

Therminol VP1 is the heat transfer fluid (HTF) that will be used in the solar panels to collect solar heat and transfer it in order to generate steam to run the steam turbine. Approximately 260,000 gallons of HTF will be contained in the pipes and heat exchanger. Therminol is a mixture of 73.5 percent diphenyl ether and 26.5 percent biphenyl, and is a solid at temperatures below approximately 54°F. Therminol can therefore be expected to remain liquid if a spill occurs. While the risk of off-site migration is minimal, Therminol is highly flammable and fires have occurred at other solar generating plants that use it. In order to ensure that HTF leaks do not pose a significant risk, Condition of Certification **HAZ-7** requires the project owner to install a sufficient number of isolation valves that can be either manually, remotely or automatically activated to limit the maximum amount of spilled HTF to the entire contents of a single solar array "loop" (1250 gallons). Additionally, the Cal-OSHA Process Safety Management (PSM) standard will apply and is included in Condition of Certification **HAZ-2**.

The PHPP fence line will be located approximately 1,500 feet north of the side of runway 7/25 of Air Force Plant 42, a military airport that is also used by commercial aviation airplanes for landing and takeoff practice. This airport has a tower and thus follows advanced electronic flight rules (ILS) for approach, landings, and departures. The nearest solar collector trough array will be located approximately 2,000 feet north of the west end of runway 7/25 (the east/west runway). (Ex. 300, p. 4.4-17.)

The record shows solar array will not be a significant contributor to the risk of a plane crashing at high or low altitude, either in transit or when circling. The ability of military and commercial aircraft that have multiple engines to avoid the power plant and the ability of general aviation single-engine aircraft to glide a considerable distance after malfunction reduces the probability of a plane crashing specifically into the PHPP under these circumstances to below a level of significance. However, because the probability of a crash increases during take off and landing upon direct approach, the proximity of the solar fields north of the east-west runway of Air Force Plant 42 increases the risk of a crash into the solar fields. An evaluation of similar accident scenarios determined that the probability

of an occurrence in those cases were less than one in 10,000,000 and 2.4 accidents over a 30-year period upon take-off. (Ex. 300, p. 4.4-18.)

The National Transportation Safety Board (NTSB) and the California Department of Transportation (Caltrans) Division of Aeronautics found that airport size and type of aviation used are significant determinants in assigning an accident statistic to the category of being airport-related and of occurring in the "airport vicinity." Both the NTSB and Caltrans criteria treat an aircraft accident occurring within a 5-mile radius (as measured from the airport center in accordance with the NTSB data format), as meeting this criterion. This radius includes the entire PHPP site. (Ex. 300, p. 4.4-18.)

Based on the evidence, the probability of a flight accident at Air Force Plant 42 is very low and that the location of the accident would be within Safety Zones 1 or 2 (at the end of the runway), not at the location of the PHPP (the side zone). Therefore, the risk of a plane crashing into the solar array is less than significant. (Ex. 4.4-18 – 4.4-21.)

The construction of underground transmission lines (should the project owner opt to construct Alternative Transmission Route 4) would involve the presence, use, and temporary storage of small amounts of gasoline, diesel fuel, motor oil, lubricants, and perhaps paint, cleaners, and solvents for short periods of time (days) along the entire route. These small amounts, although needed for large heavy directional boring and trenching equipment, would present a less than significant risk to the off-site public. However, an underground transmission line must be insulated from the ground to achieve meaningful power flow. This is achieved by encapsulating the transmission line with an insulator fluid, solid, or gas such as insulating oil, a non-conducting dielectric polymer such as cross-linked polyethylene (XLPE), or sulfur hexafluoride (SF6). Thus, the underground option may result in the presence of additional materials of varying hazardous nature. During operations, a minimal need will exist for the use of hazardous materials for maintenance and repair of underground transmission lines. (Ex. 300, Appendix A, p. A-130)

a. Road Paving Impacts

Energy Commission staff reviewed the Applicant's proposal to pave some or all the roads identified to generate the appropriate tons of PM10 ERCs, as reflected in data response #103 (Ex. 56), and concluded that the proposal will not result in any impacts in the area of Hazardous Materials Management. Staff testified that while certain limited quantities of hazardous materials will be used during road

paving, the short duration and the standard precautions utilized by a road paving company will limit impacts to below a level of significance. Therefore, no additional Conditions of Certification are required. (Ex. 301, p. 18.)

b. Cumulative Impacts

The record also contains a cumulative risk assessment of the potential for impacts due to a simultaneous release of aqueous ammonia from the PHPP and existing or planned facilities in the immediate vicinity of the project. None of the listed projects would store or use hazardous materials and therefore they do not pose a risk of hazardous materials-related cumulative impacts. The Applicant will develop and implement a hazardous materials handling program for the PHPP independent of any other projects considered for potential cumulative impacts. The facility, poses a minimal risk of accidental release that could result in off-site impacts. It is extremely unlikely that an accidental release that has very low probability of occurrence (about one in one million per year) would independently occur at the PHPP site and another facility at the same time. Therefore, the PHPP will not contribute to a cumulatively considerable hazardous materials-related impact. (Ex. 300, p. 4.4-21 – 4.4-22.)

In conclusion, the evidence shows that the proposed Conditions of Certification adequately and appropriately prevent the occurrence of significant adverse impacts from the storage and transportation of hazardous materials which will be used during the construction and the operation of PHPP.

2. Public Comment

Intervenor, Desert Citizens Against Pollution (DCAP), had reserved the right to argue any matters in dispute related to hazardous materials management but deferred entirely to the Center for Biological Diversity (CBD) in its Opening Brief and did not submit a reply brief. (2/14/11 RT 40:6-9; 43:13-22; 4419-46:8; DCAP Opening Brief.) No evidence or argument was received from either Intervenor regarding hazardous materials management.

No public comment was offered regarding hazardous materials management.

FINDINGS OF FACT

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

1. The PHPP project will use hazardous materials during construction and operation, including aqueous ammonia, Therminol VP1, and natural gas.
2. The major public health and safety hazard would be associated with the catastrophic release of aqueous ammonia, which is the only hazardous material to be stored on-site in reportable quantities.
3. A worst-case catastrophic release of aqueous ammonia will not pose a hazard to the public, nor result in off-site concentrations that would cause significant adverse impacts.
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 probability of a flight accident at Air Force Plant 42 is very low and that the location of the accident would occur within Safety Zones 1 or 2 (at the end of the runway), not at the location of the PHPP (the side zone).
7. The short duration and the standard precautions utilized by the road paving company will limit hazardous materials impacts from road paving to below a level of significance.
8. The evidence of record establishes that the hazardous materials used in the construction and operation of the PHPP, 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.

CONCLUSIONS OF LAW

1. Implementation of the mitigation measures described in the evidentiary record and contained in the Conditions of Certification, below, ensures that the project will not cause significant impacts to public health and safety as the result of the handling, storage, or transportation of hazardous materials.
2. With implementation of the Conditions of Certification, below, PHPP will comply with all applicable laws, ordinances, regulations, and standards related to hazardous materials management.
3. We conclude, therefore, that the use of hazardous materials by the Palmdale Hybrid Power Plant will not result in any significant direct, indirect, or cumulative adverse public health and safety impacts.

CONDITIONS OF CERTIFICATION

HAZ-1 During commissioning and operations, the project owner shall not use any hazardous materials not listed in **Appendix A**, below, or in greater quantities than those identified by chemical name in **Appendix A,** unless approved in advance by the Compliance Project Manager (CPM). All inert gases are exempt from this requirement. Paints, thinners, laboratory reagents, and herbicides in amounts less than 20 gallons or 20 pounds are exempt from this requirement unless containing a chemical at any amount which is regulated as an extremely hazardous chemical pursuant to 40 CFR Part 355 Appendix A, or is required by the Compliance Project Manager (CPM) to be listed based upon it's toxic, flammable, combustible, caustic, or explosive nature.

Verification: The project owner shall provide to the CPM, in the Annual Compliance Report, a list of hazardous materials contained at the facility.

HAZ-2 The project owner shall provide a Business Plan, a Spill Prevention, Control, and Countermeasure Plan (SPCC), a Process Safety Management Plan (PSMP) and a Risk Management Plan (RMP) to the Health Hazardous Materials Division of the Los Angeles County Fire Department and the CPM for review. After receiving comments from the Health Hazardous Materials Division of the Los Angeles County Fire Department and the CPM, the project owner shall reflect all recommendations in the final documents. Copies of the final plans shall then be provided to the Health Hazardous Materials Division of the Los Angeles County Fire Department for information and to the CPM for approval.

Verification: At least 30 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 30 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.

At least 30 days prior to delivery of Therminol to the site, the project owner shall provide the final PSM Plan and SPCC Plan to the CUPA for information and to the CPM for approval.

HAZ-3 The project owner shall develop and implement a Safety Management Plan for delivery of aqueous ammonia and other liquid and gaseous hazardous materials by tanker truck. The plan shall include procedures, protective equipment requirements, training and a checklist. It shall also include a section describing all measures to be implemented to prevent mixing of incompatible hazardous materials including provisions to maintain lockout control by a power plant employee not involved in the

delivery or transfer operation. This plan shall be applicable during construction, commissioning, and operation of the power plant.

Verification: At least 30 days prior to the delivery of any liquid or gaseous hazardous material via tanker truck to the facility, the project owner shall provide a Safety Management Plan as described above to the CPM for review and approval.

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

Verification: At least 30 days prior to delivery of aqueous ammonia to the facility, the project owner shall submit final design drawings and specifications for the ammonia storage tank and secondary containment basin to the CPM for review and approval.

HAZ-5 The project owner shall direct all vendors delivering aqueous ammonia to the site to use only tanker truck transport vehicles which meet or exceed the specifications of DOT Code MC-307.

Verification: At least 30 days prior to receipt of aqueous ammonia on site, the project owner shall submit copies of the notification letter to supply vendors indicating the transport vehicle specifications to the CPM for review and approval.

HAZ-6 The project owner shall direct all vendors delivering any hazardous material to the site for use during commissioning and commercial operations to use only the route approved by the CPM. Trucks and tankers will travel on SR-14 and exit onto East Avenue M and from which they will enter the plant site via the access road. If the route must be changed for any reason, the project owner shall obtain the review and approval of the CPM not later than ten (10) days before the next shipment of hazardous materials is due to arrive at the facility and shall notify the Los Angeles County Fire Department at the same time a request for route change is submitted to the CPM.

Verification: At least 30 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. Any change to the route must be reviewed and approved by the CPM and must be made in writing not less than ten (10) days prior to the next shipment of hazardous materials to the facility.

HAZ-7 The project owner shall place an adequate number of isolation valves in the Heat transfer Fluid (HTF) pipe loops so as to be able to isolate a

solar panel loop in the event of a leak of fluid such that the volume of a total loss of HTF from that isolated loop will not exceed 1,250 gallons. These valves shall be capable of being actuated manually and remotely. The engineering design drawings showing the number, location, and type of isolation valves shall be provided to the CPM for review and approval prior to the commencement of the solar array construction.

Verification: At least 60 days prior to the commencement of solar array construction, the project owner shall provide the design drawings as described above 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:

1. Perimeter security consisting of fencing enclosing the construction area;
2. Security guards;
3. Site access control consisting of a check-in procedure or tag system for construction personnel and visitors;
4. Written standard procedures for employees, contractors and vendors when encountering suspicious objects or packages on-site or off-site;
5. Protocol for contacting law enforcement and the CPM in the event of suspicious activity or emergency; and
6. Evacuation procedures.

Verification: At least 30 days prior to commencing construction, the project owner shall notify the CPM that a site-specific Construction Security Plan is available for review and approval.

HAZ-9 The project owner shall prepare a site-specific Security Plan for the operational phase and shall submit it to the CPM for review and approval. The project owner shall implement site security measures addressing physical site security and hazardous materials storage. The level of security to be implemented shall not be less than that described as below (as per NERC 2002).

The Operation Security Plan shall include the following:

1. Permanent full perimeter fence or wall, at least eight feet high around the Power Block and Solar Field and meet the requirements specified in Condition of Certification **BIO-11**;
2. Main entrance security gate, either hand operable or motorized;
3. Evacuation procedures;

4. Protocol for contacting law enforcement and the CPM in the event of suspicious activity or emergency;

5. Written standard procedures for employees, contractors and vendors when encountering suspicious objects or packages on-site or off-site;

6. a. A statement (refer to sample, attachment “A”) signed by the project owner certifying that background investigations have been conducted on all project personnel. Background investigations shall be restricted to ascertain the accuracy of employee identity and employment history, and shall be conducted in accordance with state and federal law regarding security and privacy;

   b. A statement(s) (refer to sample, attachment “B”) signed by the contractor or authorized representative(s) for any permanent contractors or other technical contractors (as determined by the CPM after consultation with the project owner) that are present at any time on the site to repair, maintain, investigate, or conduct any other technical duties involving critical components (as determined by the CPM after consultation with the project owner) certifying that background investigations have been conducted on contractor personnel that visit the project site.

7. Site access controls for employees, contractors, vendors, and visitors;

8. A statement(s) (refer to sample, attachment “C”) signed by the owners or authorized representative of Therminol, hydrogen, 93 percent sulfuric acid, and aqueous ammonia transport vendors certifying that they have prepared and implemented security plans in conformity with 49 CFR 172.802, and that they have conducted employee background investigations in accordance with 49 CFR Part 1572, subparts A and B;

9. Closed Circuit TV (CCTV) monitoring system able to pan, tilt, and zoom (PTZ), recordable, and viewable in the power plant control room and security station (if separate from the control room) providing a view of the main entrance gate, the entrance to the control room, and the ammonia storage tank but angled and physically restricted so as to not view or record any activity at Air Force Plant 42; and

10. Additional measures to ensure adequate perimeter security consisting of either:

1. a. Security guard(s) present 24 hours per day, seven days per week, or

2. b. Power plant personnel on-site 24 hours per day, seven days per week and:

   1) The northern and western sections of the perimeter fence around the solar array shall be viewable by the CCTV system; or

   2) have perimeter breach detectors <u>or</u> on-site motion detectors for all fence lines. 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 plant 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.

<u>Verification:</u> At least 30 days prior to the initial receipt of hazardous materials on-site, the project owner shall notify the CPM that a site-specific Operations Site Security Plan is available for review and approval. In the Annual Compliance Report, the project owner shall include a statement that all current project employee and appropriate contractor background investigations have been performed, and updated certification statements are appended to the Operations Security Plan. In the Annual Compliance Report, the project owner shall include a statement that the Operations Security Plan includes all current hazardous materials transport vendor certifications for security plans and employee background investigations.

Hazardous Materials Appendix A
Hazardous Materials Proposed for Use at the PHPP[a]

Material	CAS No.	Application	Hazardous Characteristics	Maximum Quantity On Site	Federal Reportable Quantity
Acetylene	74-86-2	Welding gas	Health: moderate toxicity Physical: toxic	800 cubic feet	NA
Aqueous Ammonia <20% solution	7664-41-7	NO_X Emissions Control	Health: high toxicity Physical: corrosive, irritant	30,000 gallons	100 pounds
Boiler Water Treatment Chemicals; may include: Carbohydrazide Diethylhydroxylamine Sodium bisulfite Sodium metabisulfite Sodium sulfite Morpholine, Cyclohexamine, Diethylaminoethanol Aminomethylpropanol Methoxypropylamine	Various 497-18-7 3710-84-7 7631-90-5 7681-57-4 7757-83-7 110-91-8 108-91-8 100-37-8 124-68-5 5332-73-0	Oxygen scavenger and neutralizing amine for boiler water treatment.	Health: low to moderate toxicity Physical: varies by ingredient, may be flammable, combustible, and/or corrosive	660 gallons	NA except for Sodium bisulfite: 5,000 pounds
Calcium Oxide (Lime)	1305-78-8	pH Adjustment	Health: low toxicity	4,000 pounds	NA
Carbon Dioxide	124-38-9	Fire suppression	Health: low toxicity Physical: non-flammable gas	24 tons	NA
Diesel Fuel	68476-34-6	Black-start generator fuel, fire-water pump engine	Health: low toxicity Physical: combustible liquid	1,200 gallons (generator), 300 gallons (fire-water pump engine)	NA
Hydrogen	1333-74-0	Generator coolant	Health: low toxicity Physical: flammable gas	320 pounds stored in a tube trailer plus 320 pounds in the cooling loop.	NA
Hydraulic Fluid	None		Health: low to moderate toxicity Physical: Class IIIB combustible liquid	500 gallons in equipment, 110 gallons in storage	NA

Lubrication Oil	64742-65-0	Lubricate rotating equipment	Health: low toxicity	4,000 gallons	NA
Mineral Insulation Oil	8042-47-5		Health: low toxicity	65,000 gallons	NA
Monopotassium Phosphate	7778-77-0	Fertilizer	Health: low toxicity Physical: irritant	250 pounds	NA
NALCO Tri-Act 1800 Cyclohexlyamine (5 – 10%) Monoehtonolamine (10 – 30%) Methoxyproplyamnie (10 – 30%)	108-91-8 141-43-5 5332-73-0	Water Treatment Chemical	Health: high toxicity Physical: corrosive, Class II combustible liquid	Plastic Totes, 2 x 400 gallons	NA
NALCO Elimin-Ox Carbohydazide (5 – 10%)	497-18-7	Water Treatment Chemical	Health: moderate toxicity Physical: sensitizer	Plastic Totes, 2 x 400 gallons	NA
NALCO 3D Trasar 3DT185 Phosphoric Acid (60 – 100%)	7664-38-2	Water Treatment Chemical	Health: high toxicity Physical: corrosive	Plastic Totes, 2 x 400 gallons	5,000 pounds
NALCO 3D Trasar 3DT177 Phosphoric Acid (30%)	7664-38-2	Water Treatment Chemical	Health: moderate toxicity Physical: irritant	Plastic Totes, 2 x 400 gallons	5,000 pounds
NALCO 3D Trasar 3DT190 Substituted aliphatic aldehyde	None	Water Treatment Chemical	Health: low toxicity Physical: irritant	Plastic Totes, 2 x 400 gallons	NA
NALCO Acti-Brom ® 7342 Sodium Bromide	7647-15-6	Water Treatment Chemical	Health: low toxicity Physical: irritant	Plastic Totes, 2 x 400 gallons	NA
NALCO pHreedom® 5200M Sodium salt of phosphonomethylated diamine	None	Water Treatment Chemical	Health: low to moderate toxicity Physical: irritant	Plastic Totes, 2 x 400 gallons	NA
NALCO PCL-1346	None	Water Treatment Chemical	Health: low toxicity Physical: irritant	Plastic Totes, 2 x 400 gallons	NA
NALCO Permacare ® PC-7408 Sodium Bisulfite	7631-90-5	Water Treatment Chemical	Health: low toxicity Physical: irritant	Plastic Totes, 2 x 400 gallons	5,000 pounds
NALCO BT-3000 Sodium Hydroxide Sodium Tripolyphosphate	1310-73-2 7758-29-4	Water Treatment Chemical	Health: high toxicity Physical: corrosive	Plastic Totes, 2 x 400 gallons	1,000 pounds NA

NALCO 8338 Sodium Nitrite Sodium Tolytriazole Sodium Hydroxide	7632-00-0 64665572 1310-73-2	Water Treatment Chemical	Health: moderate toxicity Physical: toxic	Plastic Totes, 2 x 400 gallons	100 pounds NA 1,000 pounds
Natural Gas (methane)	74-82-8	Fuel for the CTGs	Health: low toxicity Physical: flammable gas	140 pounds in equipment and piping	NA
Oxygen	7782-44-7	Welding gas	Health: low toxicity Physical: oxidizer	800 cubic feet	NA
Sodium Hydroxide (50%)	1310-73-2	pH control	Health: high toxicity Physical: corrosive	7,500 gallons	1,000 pounds
Sodium Hypochlorite (12.5%)	7681-52-9	biocide	Health: high toxicity Physical: poison-b, corrosive	2,500 gallons	100 pounds
Sulfuric Acid (93%)	7664-93-9	pH control	Health: high toxicity Physical: corrosive, water reactive	10,000 gallons	1,000 pounds
Therminol VP-1: Diphenyl Ether (73.5%) Biphenyl (26.5%)	101-84-8 92-52-4	Heat transfer fluid	Health: moderate toxicity Physical: irritant, combustible liquid (Class III-B)	260,000 gallons	NA 100 pounds

Source: COP 2008a Table 5.6-3 and AECOM 2009a Table DR-27.

SAMPLE CERTIFICATION (Attachment "A")

Affidavit of Compliance for Project Owners

I, _____

(Name of person signing affidavit) (Title)

do hereby certify that background investigations to ascertain the accuracy of the identity and employment history of all employees of:

_____

(Company Name)

for employment at:

_____

(Project name and location)

have been conducted as required by the California Energy Commission Decision for the above- named project.

_____

(Signature of Officer or Agent)

Dated this _____ day of _____, 20 _____.

THIS AFFIDAVIT OF COMPLIANCE SHALL BE APPENDED TO THE PROJECT SECURITY PLAN AND SHALL BE RETAINED AT ALL TIMES AT THE PROJECT SITE FOR REVIEW BY THE CALIFORNIA ENERGY COMMISSION COMPLIANCE PROJECT MANAGER.

SAMPLE CERTIFICATION (Attachment "B")

Affidavit of Compliance for Contractors

I,

_____
(Name of person signing affidavit)(Title)

do hereby certify that background investigations to ascertain the accuracy of the identity and employment history of all employees of:

_____
(Company Name)

for contract work at:

_____
(Project name and location)

have been conducted as required by the California Energy Commission Decision for the above- named project.

_____
(Signature of Officer or Agent)

Dated this _____ day of _____, 20 _____.

THIS AFFIDAVIT OF COMPLIANCE SHALL BE APPENDED TO THE PROJECT SECURITY PLAN AND SHALL BE RETAINED AT ALL TIMES AT THE PROJECT SITE FOR REVIEW BY THE CALIFORNIA ENERGY COMMISSION COMPLIANCE PROJECT MANAGER.

SAMPLE CERTIFICATION (Attachment "C")

Affidavit of Compliance for Hazardous Materials Transport Vendors

I, _____
(Name of person signing affidavit)(Title)

do hereby certify that the below named company has prepared and implemented security plans in conformity with 49 C.F.R. § 172.880 and has conducted employee background investigations in conformity with 49 C.F.R. § 172, subparts A and B,

_____
(Company Name)

for hazardous materials delivery to:

_____
(Project name and location)

as required by the California Energy Commission Decision for the above- named project.

_____
(Signature of Officer or Agent)

Dated this _____ day of _____, 20 _____.

THIS AFFIDAVIT OF COMPLIANCE SHALL BE APPENDED TO THE PROJECT SECURITY PLAN AND SHALL BE RETAINED AT ALL TIMES AT THE PROJECT SITE FOR REVIEW BY THE CALIFORNIA ENERGY COMMISSION COMPLIANCE PROJECT MANAGER.

F. WASTE MANAGEMENT

The Palmdale Hybrid Power Plant (PHPP) will generate nonhazardous and hazardous wastes during construction and operation. The record contains an evaluation of the proposed waste management plans and mitigation measures intended to reduce the risks and environmental impacts associated with handling, storage, and disposal of project-related nonhazardous and hazardous wastes. This record 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 an analysis of whether these wastes would significantly impact available treatment and disposal sites. The evidence was undisputed. (Exs. 20; 33; 43; 44; 119; 46; 53; 56; 134; 300, 301.)

SUMMARY AND DISCUSSION OF THE EVIDENCE

1. Site Excavation

The certification process requires a Phase I Environmental Site Assessment (ESA) to provide the history of how the site has been used and a list of hazardous waste releases on or near the site to document the presence of any actual or potential soil or water contamination. If the Phase I ESA finds a reasonable likelihood that the site contains hazardous substances, a Phase II ESA must be conducted to analyze the contamination and to establish a remediation plan. (Ex. 300, p. 4.13-7.)

The record indicates that a Phase I ESA, dated May 2008, was prepared in accordance with the American Society for Testing and Materials Standard Practice E 1527-05 for ESAs. The Phase I ESA addressed conditions on the 383-acre vacant site located to the southwest of the intersection of E. Avenue M Road and Sierra Highway, in the City of Palmdale, but did not review transmission, gas, and water linear routes. (Ex. 300, p. 4.13-8.)

The site consists of entire or partial portions of 16 parcels. Based on maps, aerial photographs, and other historical records, the site has been vacant, undeveloped desert land since at least the early 1900s. The City purchased the property from Lockheed Martin in March 2007, at which time there was no evidence of recognized environmental conditions (RECs) in connection with the site. Prior to Lockheed Martin assuming ownership in 1984, a succession of private owners date back to the 1940s. (Ex. 300, p. 4.13-8.)

The record indicates that municipal trash and miscellaneous debris were observed at the site on March 4, 2008. Such debris included tar piles, asphalt piles, scattered tiles/bricks, rusty metal cans, broken glass bottles, clothing, roofing materials, tires, piles of sand/gravel/dirt, concrete debris, and wood. A slightly disturbed surface area, which appeared to have been used for unauthorized dumping, was observed in the central portion of the site. The site visit, however, did not find any evidence of hazardous materials. No observations were made of groundwater monitoring wells, clarifiers, or dry wells; discolored soil, water, or unusual vegetative conditions; or of staining or visual evidence of a hazardous materials release. Buildings and structures were not present, curbing potential concerns about asbestos-containing material, lead-based paint, and mold or water intrusion. In addition, no power line transformers, above-ground storage tanks, underground storage tanks, or petroleum hydrocarbon storage/use/disposal were observed. Based on the evidence, no further assessment is necessary at this time given the nature of the wastes. (Ex. 300, p. 4.13-8.)

Air Force Plant 42, a federally-owned military aerospace facility to the east and south of the proposed PHPP site, was developed in the 1950s. The Air Force's January 2008 Installation Restoration Program (IRP) Monitoring Report, describes a plume of contaminated groundwater adjacent to the east side of the PHPP site. The report shows the plume is migrating to the south, away from the PHPP site. The closest groundwater monitoring wells (on Air Force property) have historically detected trichloroethylene (TCE), chloromethane, toluene, acetone, and perchloroethylene. Since the groundwater plume does not extend to the proposed site, the record indicates that the plume from the adjacent site does not present a REC to the proposed site. (Ex. 300, pp. 4.13-8 - 4.13-9.)

The Air Force's proposed interim remediation plan indicates that the majority of the remaining TCE in the vadose (unsaturated) zone and groundwater is located beneath Building 150, located approximately 1,000 feet east of the PHPP boundary. As noted above, groundwater flow is to the south. The plume boundary is approximately 700 feet east of the PHPP boundary. A soil vapor extraction treatment system is located on the west side of Building 150 and a groundwater treatment system is located southeast of the building. No other off-site sources of concern were identified. The evidence indicates that PHPP construction and operation activities will not affect Air Force Plant 42 remedial actions associated with Building 150, nor will these remedial actions affect PHPP construction or operation. (Ex. 300, p. 4.13-9.)

A subsequent Phase I ESA, dated February 2009, was conducted on the proposed 8.7-mile natural gas, 7.4-mile reclaimed water, 1.0-mile potable water, and 1.0-mile sanitary wastewater pipeline (original and revised) routes. The pipeline routes are primarily in the City of Palmdale, with a short segment in unincorporated Los Angeles County. The pipeline routes are either along city-controlled parcels or land owned by gas and electric utilities. No RECs were identified from historical research (review of topographic maps), database and records review, and a field survey (conducted on January 6, 2009). Portions of the routes are located within the vicinity of active regulatory cases, although no off-site sources of concern were identified. Furthermore, since pipeline construction will not have an impact on soils below a depth of 10 to 15 feet, we will not recommend additional assessment of the routes. The PHPP sanitary wastewater pipeline was subsequently relocated to proceed east along East Ave. M (located approximately 2,000 feet north of Building 150). The evidence includes a review of the Environmental Data Resources (EDR) database the week of April 20, 2009. We agree with the (EDR) review conclusion that contamination from the adjacent Air Force Plant 42 is not expected to have impacted the proposed sanitary wastewater route. (Ex. 300, p. 4.13-9.)

The Applicant conducted a Phase I ESA for portions of the 35.6-mile transmission interconnection, and will be required by Condition of Certification **WASTE-1** to evaluate potentially contaminated sites for the entire length of the transmission route where construction will occur. Condition **WASTE-1** requires a Phase I ESA, and subsequent Phase II ESA and Health Risk Assessment, as appropriate, of those areas that have not been evaluated in the Phase I ESA. In addition, portions of the alignment will traverse properties where there has been agricultural activity. Past agricultural land use can result in remnant concentrations of potentially hazardous pesticides and other agricultural chemicals**.** Condition **WASTE-2** requires the project owner to test for residual pesticides/herbicides on currently or historically farmed land in agricultural areas where transmission line construction will occur. These conditions ensure that any potentially hazardous substances are identified and appropriate mitigation measures are implemented to protect public health and safety during project construction. (Ex. 300, p. 4.13-9.)

During construction, if contamination is discovered on any part of the project (the power block, pipeline routes, transmission line, etc.), the project owner will be required to comply with Conditions of Certification **WASTE-3**, **4,** and **5.** Condition **WASTE-3** requires an experienced and qualified Professional Engineer or Professional Geologist to be available for consultation in the event contaminated soil is encountered. If contaminated soil is discovered, **WASTE-4** requires that

the Professional Engineer or Professional Geologist inspect the site, determine what is required to characterize the nature and extent of contamination, and provide a report to the Energy Commission Compliance Project Manager (CPM) and DTSC with findings and recommended actions. Condition **WASTE-5** requires that any additional work be conducted under the oversight of DTSC, with review and approval from the CPM. (Ex. 300, pp. 4.13-9 - 4.13-10.)

2. Construction

Site preparation and construction of the power plant and its associated facilities will generate both nonhazardous and hazardous wastes in solid and liquid forms. Condition **WASTE-6** requires the project owner to develop and implement a Construction Waste Management Plan that identifies all waste streams and the methods of managing each waste. (Ex. 300, p. 4.13-10.)

a. Nonhazardous Wastes

Construction of the PHPP will generate, on a weekly basis, 40 cubic yards of construction waste, 3 cubic yards of office waste, and 4 spent compressed gas cylinders. Recyclable materials (including the gas cylinders) will be separated and removed as needed to recycling facilities. Non-recyclable items (such as insulation, other plastics, food waste, paint containers, and packing materials) must be disposed at a Class III landfill. (Ex. 300, p. 4.13-10.)

Non-hazardous liquid wastes generated during construction will include 200 gallons per day of sanitary waste, which will be disposed by a sewer connection to the Los Angeles County Sanitation District. Storm water runoff must be managed in accordance with appropriate LORS. Please see the **Soil and Water Resources** section of this Decision for more information on the management of project wastewater and storm water. (Ex. 300, p. 4.13-10.)

b. Hazardous Wastes

During construction, anticipated hazardous wastes include waste paint, spent construction solvents, waste cleaners, waste oil, oily rags, waste batteries, and HRSG cleaning waste. Estimated amounts are 1 cubic yard of empty hazardous material containers (per week), 175 gallons of solvents/oil/paint/oily rags (every 90 days), 60,000 gallons of chealant-type solution (one-time event), and 20 spent alkaline batteries (in two years). Empty hazardous material containers will be returned to the vendor or regularly disposed at a permitted Class I hazardous

waste facility; solvents, used oils, paint, oily rags, and adhesives will be recycled and spent batteries will be disposed at a recycling facility. (Ex. 300, p. 4.13-10.)

Hazardous waste will be collected and stored in a satellite accumulation area or an appropriately-contained hazardous waste accumulation area for less than 90 days. Accumulated wastes will then be properly manifested, transported, and disposed of at a permitted hazardous waste management facility by licensed hazardous waste collection and disposal companies. All wastes must be disposed of 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 will be required by Condition of Certification **WASTE-7** to notify the CPM. Along with the notification, the project owner must describe how the violation will be corrected and include a timeline for completion of the correction. In the event that construction excavation, grading, or trenching activities for the proposed project encounter potentially contaminated soils, specific waste handling, disposal, or other precautions may be necessary pursuant to hazardous waste management LORS. (Ex. 300, pp. 4.13-10 - 4.13-11.)

Both the construction contractor and the project owner/operator could be considered the generators of hazardous wastes at the site during the construction period. Because hazardous waste generator status is determined by site, the project owner will be required to obtain a unique hazardous waste generator identification number for the site prior to starting construction, pursuant to Condition of Certification **WASTE-8**. Wastes will be accumulated on site for less than 90 days and then properly manifested, transported to, and disposed of at a permitted hazardous waste management facility by licensed hazardous waste collection and disposal companies. (Ex. 300, p. 4.13-11.)

Based on the evidence, project construction wastes will be managed in accordance with all applicable LORS. Absent any unusual circumstances and with the implementation of Conditions of Certification **WASTE-7** described above, project compliance with LORS will be sufficient to ensure that no significant impacts will occur as a result of project waste management activities. (Ex. 300, p. 4.13-11.)

c. Construction and Demolition Waste Diversion

The Integrated Waste Management Act of 1989 [Assembly Bill (AB) 939, Sher, Chapter 1095, Statutes of 1989] established landfill waste diversion goals for both state and local jurisdictions. Accordingly, the County of Los Angeles added

Chapter 20.87 to the Los Angeles County Code, requiring construction projects (valued at over $100,000 or requiring demolition or grading permits) to recycle or reuse at least 50 percent of the debris generated. Steps to meet ordinance requirements include submitting the County's Recycling and Reuse Plan and Final Compliance Report. Any violations are subject to administrative penalty, enforcement, and collection proceedings. The ordinance applies to projects in the County's unincorporated areas, where portions of the project's transmission lines would be located. Adoption of Condition of Certification **WASTE-9** ensures the project owner meets the Los Angeles County Construction and Demolition (C&D) diversion requirements for transmission line construction in County jurisdiction. (Ex. 300, p. 4.13-11.)

The majority of the project, including the power block and solar arrays, is located within the city of Palmdale, which does not operate a formal Construction and Demolition Waste Diversion Program. The Applicant will coordinate with the City's Public Works Department in its recovery, recycling, and reuse efforts, as specified in **WASTE-9**. Compliance with Condition of Certification **WASTE-9** will ensure that project construction wastes are managed properly and will further reduce potential impacts to local landfills from project wastes. (Ex. 300, p. 4.13-11.)

3. Operation

Condition **WASTE-10** requires the project owner to develop and implement an Operation Waste Management Plan to identify all waste streams and the methods of managing each waste. (Ex. 300, pp. 4.13-11 - 4.13-12.)

a. Heat Transfer Fluid Release

The PHPP will use "Therminol VP-1," a synthetic oil consisting of diphenyl ether and biphenyl for the heat transfer fluid (HTF). The PHPP solar system will contain 260,000 gallons of HTF, which will not be stored on-site outside of the closed-loop system. Occasional spills of HTF from either equipment failure or human error can result in the generation of contaminated soil. HTF spills typically spread laterally on the bare ground and soak down to a relatively shallow depth. The contaminated soil is regulated as a hazardous material by the State of California due to the constituent biphenyl. Biphenyl is listed in California Code of Regulations, Title 22, Chapter 11 Appendix X (list #299) as an extremely hazardous waste. The listing of a chemical in Appendix X creates the regulatory presumption that a waste containing that chemical (i.e. HTF contaminated soil) is

hazardous unless determined otherwise, pursuant to specified procedures. The determination is required to be based on criteria and lists in Title 22, California Code of Regulations, section 66261.1 et seq., which identify hazardous wastes subject to regulation. DTSC made a 1995 determination that a 10,000 mg/kg concentration of HTF would be assumed hazardous for SEGS III-VI at Kramer Junction. This determination, however, cannot be extrapolated to the proposed project, and DTSC has indicated that determination of whether a discharge of HTF constitutes a hazardous waste would have to be made on a case by case basis. Title 22, California Code of Regulations, section 66260.200(f) places the responsibility of determining whether a waste must be classified as hazardous on the generator of that waste. Once a history of discharges has been established, the project owner may petition DTSC for their concurrence on a standardized waste classification for HTF contaminated soils generated at the facility. (Ex. 300, p. 4.13-12.)

The record estimates generation of 10 cubic yards per year of hazardous HTF-contaminated soils and 750 cubic yards per year of non-hazardous soils. The evidence indicates that no on-site bioremediation unit will be established, and that all HTF contaminated soil will be disposed at properly permitted landfills based on the level of contamination. Unless the project owner expects all HTF contaminated soil to be classified and disposed as hazardous waste, the project owner will be required to assess the waste classification for HTF-impacted soils at the PHPP facility in consultation with the CEC and DTSC as required by Condition of Certification **WASTE-11**. (Ex. 300, p. 4.13-12.)

b. Nonhazardous Wastes

Non-hazardous solid wastes generated during project operations would consist of: (1) air filters (2,100 every five years); (2) spent demineralizer resins (10 cubic feet every 3 years); (3) sand and filter media (100 cubic feet every 3 years); (4) cooling tower basin sludge (2 tons per year); (5) spent softener resins (100 cubic feet every 3 years); (6) water treatment solids (1,200 pounds per hour); and (7) office wastes. (Ex. 300, p. 4.13-12.)

The wastes generated from cooling tower operations (sludge) and from the processing of cooling tower blowdown in an on-site Zero-Liquid Discharge (ZLD) system (filter press solids, dewatered sludge cake) will be containerized and stored in designated areas prior to disposal at an approved waste management facility. To ensure appropriate disposal of these wastes, Condition of Certification **WASTE-12** requires testing of the material and documentation of the handling,

testing, and disposal methods in the Operation Waste Management Plan required in Condition of Certification **WASTE-10**. (Ex. 300, pp. 4.13-12 - 4.13-13.)

There will be no on-site treatment of nonhazardous solid wastes, including of any HTF-contaminated soils. Wastes will be recycled to the greatest extent possible, and the remainder will be removed on a regular basis for disposal in a Class III landfill (Ex. 300, p. 4.13-13.)

Non-hazardous liquid wastes will include 5,400 gallons per day of sanitary wastewater and storm water runoff. Wastewater will be disposed by the sewer connection to the Los Angeles County Sanitation District. Sanitary wastewater and storm water runoff generated during facility operation is discussed in the **Soil and Water Resources** section of this Decision. (Ex. 300, p. 4.13-13.)

c. Hazardous Wastes

The project owner/operator will be considered the generator of hazardous wastes at the site during facility operations. Therefore, the project owner's unique hazardous waste generator identification number, obtained prior to construction in accordance with Condition of Certification **WASTE-8**, will be retained and used for one ton per year of hazardous waste generated during facility operation. (Ex. 300, p. 4.13-13.)

Hazardous wastes that may be generated during routine project operation include hydraulic fluid/oils/grease/oily filters from turbines and hydraulic actuators (less than 5 gallons per day), oily effluent from water separation systems (3,000 gallons per year), oily rags/oil absorbent/oil filters from various sources (55 gallons per month), spent SCR catalyst (20,000 cubic feet every 3 to 5 years), batteries with lead acid (20 every 2 years), household batteries (less than 10 per month), and fluorescent light bulbs (less than 50 per year). Spills and unauthorized releases of hazardous materials or hazardous wastes may generate contaminated soils or cleanup materials that may also require management and disposal as hazardous waste. Proper hazardous material handling and good housekeeping practices will help keep spill wastes to a minimum. However, to ensure proper cleanup and management of any contaminated soils or waste materials generated from hazardous materials spills, Condition of Certification **WASTE-13** requires the project owner/operator to document, clean up, and properly manage and dispose of wastes from any hazardous materials spills or releases in accordance with all applicable federal,

state, and local requirements. (More information on project hazardous materials management provisions, including emergency response and spill reporting and spill control and countermeasures plan requirements is provided in the **Hazardous Materials Management** and **Worker Safety and Fire Protection** sections of this Decision.) (Ex. 300, p. 4.13-13.)

The amounts of hazardous wastes generated during the operation of the PHPP project will be limited, with source reduction and recycling of wastes implemented whenever possible. The hazardous wastes will be temporarily stored on site, transported off site by licensed hazardous waste haulers, and recycled or disposed of at authorized disposal facilities in accordance with established standards applicable to generators of hazardous waste. (Title 22 Cal. Code Regs., § 66262.10 et seq.) Should any operations waste management-related enforcement action be taken or initiated by a regulatory agency, the project owner will be required by Condition of Certification **WASTE-7** to notify the CPM when advised of any such action and provide information on how the violation(s) causing the enforcement action will be corrected. (Ex. 300, pp. 4.13-13 - 4.13-14.)

4. Potential Impacts on Waste Disposal Facilities

During construction and operation of the proposed project, approximately 43 cubic yards per week of nonhazardous solid waste (including scrap wood, concrete, steel, glass, plastic, paper, aluminum, and food) will be generated and recycled or disposed of in a Class III landfill. Approximately 4 spent compressed gas cylinders per week will be recycled. An estimated 750 cubic yards per year of nonhazardous HTF-contaminated soil will also be generated during operations. (Ex. 300, p. 4.13-14.)

Based on the evidence there are 10 non-hazardous (Class III) waste disposal facilities in Los Angeles County that could potentially take the non-hazardous construction and operation wastes generated by the PHPP project. The combined remaining capacity for the landfill facilities is approximately 118.8 million cubic yards. The total amount of nonhazardous waste generated from project construction and operation would contribute significantly less than 1 percent of the available landfill capacity. Disposal of the solid wastes generated by the PHPP project could occur without significantly impacting the capacity or remaining life of any of these facilities. (Ex. 300, p. 4.13-14.)

Hazardous wastes generated during construction and operation will be recycled to the extent possible and practical. Any wastes that cannot be recycled would be transported off-site to a permitted landfill.

Two hazardous waste (Class I) disposal facilities are currently accepting waste and could be used to manage PHPP wastes: the Clean Harbors Buttonwillow Landfill in Kern County, and the Chemical Waste Management Kettleman Hills Landfill in Kings County. The Kettleman Hills facility also accepts Class II wastes. In total, there is a combined excess of 15.5 million cubic yards of remaining hazardous waste disposal capacity at these landfills. The Kettleman Hills facility is in the process of permitting an additional 15 million cubic yards of disposal capacity, and the Buttonwillow facility has 40 years to reach its capacity at its current disposal rate. (Ex. 300, p. 4.13-14.)

Given the availability of recycling facilities for high volume hazardous wastes such as used oil and solvents, along with the remaining capacity available at Class I disposal facilities, the volume of hazardous waste from the PHPP project requiring off-site disposal would be minor and would therefore not significantly impact the capacity or remaining life of the Class I waste facilities. (Ex. 300, p. 4.13-14.)

5. Road Paving

Applicant has proposed to pave roads in the vicinity of the PHPP to generate PM10 emission reduction credits (ERCs) to mitigate impacts to air quality and satisfy state and federal air quality requirements. The Applicant had identified 38 existing unpaved road segments located in the city of Palmdale and/or in unincorporated areas of the county of Los Angeles California. The Applicant believes that eleven segments totaling about 22 miles would be the most cost effective candidates for paving. The Applicant will pave about five segments to generate the ERCs needed. (Exs. 56; 76; 301 p. 33; 3/2/11 RT 52:14 – 53:19.)

The evidence contains an analysis of all the roads identified to generate the appropriate tonnage of PM10 ERCs, as reflected in data response #103 (Ex. 56), and indicates that such proposal would not result in any significant impacts to waste management**.** Construction associated with the paving of the roads must be done in compliance with all applicable waste management laws, ordinances, regulations, and standards. We will require the project owner to assume accountability for waste streams generated within the footprint of the road paving project, which include prevention or mitigation of illegal dumping, off-site

stockpiles, and areas with evidence of use (such as areas with visible waste dumping, areas occupied by squatters, and areas with abandoned structures or vehicles), or conditions that constitute a zoning violation or public health nuisance in Los Angeles County. The project owner shall also be required to have a registered environmental professional available to inspect any site conditions that indicate environmental contamination that may be present in the roadway paving project pursuant to Condition of Certification **WASTE-14**.

6. Cumulative Impacts

In general, cumulative impacts consist of impacts that are created as a result of the proposed project in combination with impacts from other closely related past, present, or reasonably foreseeable future projects. Cumulative impacts can result from individually minor, but collectively significant, actions taking place over time. (Cal. Code Regs., tit. 14, § 15355.) Foreseeable projects within a 3-mile radius of the PHPP are the Fairway Business Park (a 120-acre park for industrial tenants), Palmdale Transit Village Specific Plan (a transit-oriented village with up to 1,027 new housing units and 221,000 square feet of retail and office space), Amargosa Creek Specific Plan (a 152-acre site for a Commercial District and a Medical District), and 30th St W and Avenue K Projects (commercial and townhome developments). (Ex. 300, p. 4.13-15.)

The wastes generated by these projects and the proposed PHPP would incrementally increase the volumes of waste requiring off-site management and disposal at local landfills. However, the PHPP project's proposed waste management methods and mitigation measures (implementation of source reduction, waste minimization and recycling), along with the proposed Conditions of Certification discussed below (including compliance with Los Angeles County's construction and demolition waste recycling and diversion requirements), would ensure that wastes generated by the proposed project would not result in a significant cumulative impact to local waste management and disposal facilities. (Ex. 300, p. 4.13-15.)

7. Public Comment

Josef Yore commented that "in the old days they buried every bit of garbage people had. There was no dump in the Antelope Valley. When I did my research there were 70 wells. The advisory committee out of Wright-Patterson base only came up with ten. And they claim out of the ten, four were contaminated." (3/2/11 RT 174:24 – 175:3.)

As indicated above, the evidence contains observations of a slightly disturbed surface area in the central portion of the site, which appeared to have been used for unauthorized dumping. However the record did not disclose any evidence of hazardous materials. No observations were made of groundwater monitoring wells, clarifiers, or dry wells on the PHPP site. The closest groundwater monitoring wells appear to be on adjacent Air Force property.

FINDINGS OF FACT

Based on the uncontroverted evidence, the Commission makes the following findings:

1. The Phase I Environmental Site Assessment (ESA) found no evidence of any recognized environmental conditions (RECs) at the project site or along the linear corridors.

2. Condition of Certification **WASTE-1** will require a Phase I ESA, and subsequent Phase II ESA and Health Risk Assessment, as appropriate, of those areas that have not been evaluated in the Phase I ESA.

3. Condition of Certification **WASTE-2** requires the project owner to test for residual pesticides/herbicides on currently or historically farmed land in agricultural areas where transmission line construction will occur.

4. The project owner will implement appropriate characterization, disposal, and remediation measures to ensure that the risk of exposure to previously undetected contaminated soils at the site is reduced to insignificant levels.

5. The project will generate nonhazardous and hazardous wastes during excavation, construction, and operation.

6. The project will recycle nonhazardous and hazardous wastes to the extent feasible and in compliance with applicable law.

7. Hazardous wastes that cannot be recycled will be transported by registered hazardous waste transporters to appropriate Class I landfills.

8. Solid nonhazardous wastes that cannot be recycled will be deposited at Class II and III landfills in the local area.

9. Liquid wastes will be classified for appropriate disposal and managed in accordance with the Conditions of Certification listed in the **Soil And Water Resources** section of this Decision.

10. Disposal of project wastes will not result in any significant direct, indirect, or cumulative impacts on existing waste disposal facilities.

CONCLUSIONS OF LAW

1. Implementation of the Conditions of Certification, below, and the waste management practices described in the evidentiary record will reduce potential impacts to insignificant levels and ensure that project wastes are handled in an environmentally safe manner.
2. The management of project wastes will comply with all applicable laws, ordinances, regulations, and standards related to waste management as identified in the pertinent portions of **Appendix A** of this Decision.

CONDITIONS OF CERTIFICATION

WASTE-1 The project owner shall implement the following steps at locations where excavation or significant ground disturbance will occur for the construction of the project transmission line. All steps shall be completed at least 60 days prior to the project transmission line construction to prevent mobilization of contaminants and exposure of workers and the public:

- Step 1. Investigate the tower locations and associated laydown and staging areas for construction of the transmission line to determine whether these locations have a record of hazardous material contamination which would affect construction activities. This investigation shall be performed as a Phase I Environmental Site Assessment (ESA). If contamination is identified that could potentially affect the health and safety of workers or the public during construction of the Proposed Project, proceed to Step 2.
- Step 2. Perform a Phase II ESA to characterize the locations and determine the nature and extent of the contamination present at the location before construction activities proceed within the Project Right-of-Way near the suspect site. If it is determined there are conditions that may pose a risk to the health and safety of workers or the public, or could mobilize contamination, then proceed to Step 3.
- Step 3. Prepare a Health Risk Assessment to determine whether risks may be present and a Remedial Action Plan to identify what remedial measures would be required to facilitate linear construction if there were conditions that pose a risk. Mitigate the health and safety risk according to applicable regulations or requirements. This would include preparation and implementation of site-specific Health and Safety Plans, Work Plans, and/or Remediation Plans.

Verification: The project owner shall submit the Phase I ESA, and Phase II ESA, Health Risk Assessment results and other plans, as applicable, to the CPM at least 60 days prior to commencement of transmission line construction.

WASTE-2 In areas where the land has been or is currently being farmed, and where excavation or significant ground disturbance will occur for the construction of the project transmission line, soil samples shall be collected and tested for herbicides, pesticides, and fumigants to determine the presence and extent of any material levels of contamination.

The sampling and testing plan shall be prepared in consultation with the appropriate Los Angeles County agency, conducted by an appropriate California licensed professional, and sent to a California Certified laboratory for testing. Sampling and analysis shall be consistent with the DTSC's 'Interim Guidance for Sampling Agricultural Properties (Third Revision)' or equivalent. A report documenting the areas proposed for sampling, and the process used for sampling and testing shall be submitted to the Energy Commission for review and approval at least 90 days before transmission line construction occurs in the affected areas. Results of the laboratory testing and recommended resolutions for handling and excavation of material found to exceed regulatory requirements shall be submitted to the Energy Commission 60 days prior to transmission line construction occurs in the affected areas. Should sampling indicate additional remediation or mitigation is required, Conditions of Certification **WASTE-3** and **-4** would apply.

Excavated materials containing elevated levels of pesticide or herbicide require special handling and disposal according to procedures established by the regulatory agencies. Effective dust suppression procedures shall be used in construction areas to reduce airborne emissions of these contaminants and reduce the risk of exposure to workers and the public. Regulatory agencies for the State of California and Los Angeles County shall be contacted by Applicant or its contractor to plan handling, treatment, and/or disposal options.

Verification: The project owner shall identify the current/previous land use for the project transmission tower locations and associated laydown and staging areas for construction of the transmission line. The project owner shall submit a report documenting the areas proposed for sampling, and the process used for sampling and testing to the CPM for approval at least 90 days before transmission line construction occurs in the affected areas. Results of the laboratory testing and recommended mitigation or remediation plan for handling and excavation of material found to exceed regulatory requirements shall be submitted to the CPM for review and approval 60 days prior to transmission line construction.

WASTE-3 The project owner shall contract with an experienced and qualified Professional Engineer or Professional Geologist, who shall be available for consultation and oversight of earth moving activities throughout all phases of site construction. The Professional Engineer/Geologist shall

be given full authority by the project owner to oversee any earth moving activities that have the potential to disturb contaminated soil. Selection of the Professional Engineer/Geologist shall be subject to CPM approval.

Verification: At least 30 days prior to the start of site mobilization, the project owner shall submit the resume of their preferred Professional Engineer or Geologist to the CPM for review and approval. The project owner shall then provide a copy of the contract with the approved Professional Engineer/Geologist prior to the start of site construction activities.

WASTE-4 If potentially contaminated soil is identified during any phase of site construction, including excavation or grading at either the proposed site or linear facilities, as evidenced by discoloration, odor, detection by handheld instruments, or other signs, the Professional Engineer or Professional Geologist shall inspect the site, determine the need for sampling to confirm the nature and extent of contamination, and provide a written report to the project owner, representatives of DTSC, and the CPM stating the recommended course of action.

Depending on the nature and extent of contamination, the Professional Engineer or Professional Geologist shall have the authority to temporarily suspend construction activity at that location for the protection of workers or the public. The Professional Engineer or Professional Geologist shall contact the project owner, the CPM, and representatives of the DTSC for guidance and oversight in accordance with Condition of Certification **WASTE-3**.

Verification: The project owner shall submit any reports filed by the Professional Engineer or Professional Geologist to the CPM within 5 days of their receipt. The project owner shall notify the CPM within 24 hours of any orders issued to halt construction.

WASTE-5 In the event that contamination is identified during assessment of the project site, during any phase of PHPP construction, and if the Project Engineer (PE), Professional Geologist (PG), or CPM reasonably determines that sampling is needed to confirm the nature and extent of contamination, then the Project PE and/or PG shall file a written report to the CPM stating a recommended course of action. If significant contamination (i.e., contamination levels which exceed the EPA Reportable Quantity [RQ] thresholds as listed under the Emergency Planning and Community Right to Know Act [EPCRA]) are identified and which the PG, PE, or CPM reasonably determines may pose a significant risk to workers, the public, or the environment, then the DTSC will be consulted regarding the proposed course of action.

Verification: The project owner shall consult with DTSC, and enter into an agreement at DTSC's request, to ensure oversight of any additional site assessment and remediation work needed to reevaluate the site or address

contamination levels above Reportable Quantities, that have been determined to pose a significant risk to workers or the public found during any phase of PHPP site construction. The project owner shall ensure that the CPM is involved and apprised of all discussions with DTSC, and CPM review and approval shall be required for project decisions addressing site remediation.

WASTE-6 The project owner shall prepare a Construction Waste Management Plan for all wastes generated during construction of the facility and shall submit the plan to the CPM for review and approval prior to the start of construction. The plan shall contain, at a minimum, the following:

- A description of all construction waste streams, including projections of frequency, amounts generated, and hazard classifications; and
- Management methods to be used for each waste stream, including temporary on-site storage, housekeeping and best management practices to be employed, treatment methods and companies providing treatment services, waste testing methods to assure correct classification, methods of transportation, disposal requirements and sites, and recycling and waste minimization/source reduction plans.

Verification: The project owner shall submit the Construction Waste Management Plan to the CPM for approval no less than 30 days prior to the initiation of construction activities at the site.

WASTE-7 Upon notification 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 against the project itself, or against any waste hauler or disposal facility or treatment operator with which the owner contracts, and describe how the violation will be corrected.

Verification: The project owner shall notify the CPM in writing within 10 days of becoming aware of an impending enforcement action and provide a description and timeline for correction of the violation. The CPM shall notify the project owner of any changes that will be required in the way project-related wastes are managed to ensure compliance with LORS.

WASTE-8 The project owner shall obtain a hazardous waste generator identification number from the United States Environmental Protection Agency (U.S. EPA) prior to generating any hazardous waste during construction and operations.

Verification: The project owner shall keep a copy of the identification number on file at the project site and provide documentation of the hazardous waste generation notification and receipt of the number to the CPM in the next scheduled Monthly Compliance Report after receipt of the number. Submittal of the notification and issued number documentation to the CPM is only needed once unless there is a change in ownership, operation, waste generation, or

waste characteristics that requires a new notification to USEPA. Documentation of any new or revised hazardous waste generation notifications or changes in identification number shall be provided to the CPM in the next scheduled compliance report.

WASTE-9 The project owner shall provide a Recycling and Reuse Plan to the County of Los Angeles, consistent with the Chapter 20.87 of the Los Angeles County Code. The project owner shall ensure compliance with all of the County's diversion program requirements in unincorporated areas of Los Angeles County. For construction activities within Palmdale city limits, contractors shall be required to coordinate with the City of Palmdale Public Works Department and utilize the existing recycling and reuse resources available to City contractors, and shall:

- Incorporate C&D recovery plans and BMPs in the project design, where practical
- Include recovery requirements and goals in project specifications and contracts
- Educate contractors and crew on material recovery and reuse techniques
- Coordinate with local agencies and materials exchanges to maximize recovery of C&D reusable materials

Verification: At least 60 days prior to the start of any construction activities, the project owner shall submit the proposed Recycling and Reuse Plan and list of recycling services to the County of Los Angeles and CPM for review and approval. Upon completion of construction, the project owner shall submit proof that the 50 percent diversion rate within the unincorporated portions of Los Angeles County and goals set by the City of Palmdale limits has been achieved and that the requirements of the Recycling and Reuse Plan have been complied with to the County and CPM.

WASTE-10 The project owner shall prepare an Operation Waste Management Plan for all wastes generated during operation of the PHPP facility and shall submit the plan to the CPM for review and approval. The plan shall contain, at a minimum, the following:

- A detailed description of all operation and maintenance waste streams, including projections of amounts to be generated, frequency of generation, and waste hazard classifications;
- Management methods to be used for each waste stream, including temporary on-site storage, housekeeping and best management practices to be employed, treatment methods and companies providing treatment services, waste testing methods to assure correct classification, methods of transportation, disposal

requirements and sites, and recycling and waste minimization/source reduction plans;

- Information and summary records of conversations with the Palmdale area CUPA – Los Angeles County Fire Department– and DTSC regarding any waste management requirements necessary for project activities. Copies of all required waste management permits, notices, and/or authorizations shall be included in the plan and updated as necessary;
- A detailed description of how facility wastes will be managed, and any contingency plans to be employed, in the event of an unplanned closure or planned temporary facility closure; and
- A detailed description of how facility wastes will be managed and disposed of upon closure of the facility.

Verification: The project owner shall submit the Operation Waste Management Plan to the CPM for approval no less than 30 days prior to the start of project operation. The project owner shall submit any required revisions to the CPM within 20 days of notification from the CPM that revisions are necessary. The project owner shall also document in each Annual Compliance Report the actual volume of wastes generated and the waste management methods used during the year; provide a comparison of the actual waste generation and management methods used to those proposed in the original Operation Waste Management Plan; and update the Operation Waste Management Plan as necessary to address current waste generation and management practices.

WASTE-11 If the project owner chooses not to classify all HTF-contaminated soil as hazardous, the project owner shall consult with DTSC to determine the hazardous or non-hazardous classification of contaminated soils. As part of such consultation, the project owner shall:

- Assume that HTF-contaminated soil is hazardous until determined otherwise.
- Establish a history of discharges.
- Petition DTSC for concurrence on a standardized waste classification for HTF-contaminated soils generated at the facility.
- Dispose of soils classified as hazardous and non-hazardous at properly permitted landfills.

Until the CPM is notified of DTSC's standardized waste classification, all HTF-contaminated soils shall be considered hazardous and disposed of at a hazardous waste facility. The project owner shall also inform the CPM upon any plans to change or modify the proposed offsite disposal methods.

Verification: At least 90 days prior to start of project operation, the project owner shall notify the CPM whether it will classify all HTF-contaminated soil as hazardous or whether it will seek standardized waste classification from DTSC. If it chooses to seek standardized waste classification, the project owner shall provide DTSC's determination to the CPM within 30 days' receipt.

WASTE-12 The project owner shall ensure that the cooling tower basin sludge is tested pursuant to Title 22, California Code of Regulations, and section 66262.10 and report the findings to the CPM. The handling, testing, and disposal methods for sludge shall be identified in the Operation Waste Management Plan required in Condition of Certification **WASTE-10**.

Verification: The project owner shall report the results of filter cake testing to the CPM within seven days of sampling. If two consecutive tests show that the sludge is non-hazardous, the project owner may apply to the CPM to discontinue testing. The test results and method and location of sludge disposal shall also be reported in the Annual Compliance Report required in Condition of Certification **WASTE-10**.

WASTE-13 The project owner shall ensure that all spills or releases of hazardous substances, hazardous materials, or hazardous waste are documented and cleaned up and that wastes generated from the release/spill are properly managed and disposed of, in accordance with all applicable federal, state, and local requirements.

The project owner shall document all unauthorized releases and spills of hazardous substances, materials, or wastes that are in excess of reportable quantities (RQs) that occur on the project property or transmission corridors during construction and on the project property during operation. The documentation shall include, at a minimum, the following information:

- location of release;
- date and time of release;
- reason for release;
- volume released;
- amount of contaminated soil/material generated;
- how release was managed and material cleaned up;
- if the release was reported;
- to whom the release was reported;
- release corrective action and cleanup requirements placed by regulating agencies;
- level of cleanup achieved and actions taken to prevent a similar release or spill; and

- disposition of any hazardous wastes and/or contaminated soils and materials that may have been generated by the release.

Verification: Copies of the unauthorized spill documentation shall be provided to the CPM within 30 days of the date the release was discovered.

WASTE- 14 During the construction phase, project owner shall require contracted waste and/or refuse haulers to document each waste load transferred from the construction site to a disposal site and/or recycling center. The project owner shall be responsible for cleanup debris from local illegal dumping, waste burning, or other activities located within the road paving project footprint. If potentially contaminated soil is identified during any phase of road paving, as evidenced by discoloration, odor, detection by handheld instruments, or other signs, the project owner shall have a registered environmental professional inspect the site, determine the need for sampling to confirm the nature and extent of contamination, and provide a written report to the project owner, and the CPM stating the recommended course of action.

Verification: The project owner shall identify permitted solid waste facilities or recycling centers that receive roadway waste and maintain copies of weigh tickets and manifests showing the type and volume of waste disposed. This information shall be maintained at the job site and made accessible to the CPM upon request. The project owner shall submit any reports of contamination filed by the Professional Engineer or Professional Geologist to the CPM within 5 days of their receipt.

VII. ENVIRONMENTAL ASSESSMENT

A. BIOLOGICAL RESOURCES

This topic addresses the potential impacts of project-related activities on biological resources, including state and federally listed species, species of special concern, wetlands, and other areas of biological concern such as unique habitats. The record describes the biological resources in the vicinity of the project site and linear facilities, assesses the potential for adverse impacts due to project development, and identifies measures necessary to mitigate impacts and ensure compliance with applicable laws, ordinances, regulations, and standards. The evidence was uncontroverted except for the Intervenors' dispute with Staff's analysis of potential road paving impacts. (Exs. 7; 30; 39; 46; 47; 51; 53; 56; 57; 61; 67; 74; 76; 77; 79; 80; 81; 82; 85; 86; 88; 90; 95; 98; 101; 106; 118; 128; 129; 132; 136; 146; 300, § 4.2, Appendix A, p. 118 et seq.; 301; 303; 304; 305; 307; 3/2/11 RT 240-285.)

SUMMARY AND DISCUSSION OF THE EVIDENCE

1. Project Site and Vicinity Description

The Palmdale Hybrid Power Project (PHPP) site is located on an undeveloped 333-acre parcel in an industrial zone in the northernmost area of the City of Palmdale. The plant development area is part of an approximately 600-acre city-owned property bounded by Sierra Highway to the west, East Ave M (Columbia Way) to the north, and U.S. Air Force Plant 42 on the south and east. (Ex. 300, pp. 4.2-10 - 4.2-11.)

The 330-acre site includes the solar thermal array, power block, access roads, and on-site support facilities. An additional, temporary 50-acre construction laydown area is located west of the site within the city-owned property. The project also features a 230-kV transmission line (in two line segments) connecting the PHPP to Southern California Edison's (SCE) existing Vincent Substation located about 11 miles southwest of the site. To avoid interference with existing aviation activities near the site, the transmission line is designed to extend 35.6 miles in a corridor that travels to the north and east of the site, then south and west to the Vincent Substation. (Exs. 1; 300, pp. 4.2-10 and 4.2-11.)

The PHPP requires construction of infiltration basins ranging in size from 0.87 to 5.38 acres for stormwater management and also includes the following facilities:

- A natural gas pipeline from the Southern California Gas Company line on E Avenue S located approximately 5 miles south of the proposed project site;
- A 7.4-mile reclaimed water supply pipeline extending west along E Avenue P from the Palmdale Water Reclamation Plant (PWRP), then north along the same route as the proposed natural gas pipeline to the east boundary of the proposed project site;
- A 1.37-mile potable water supply line along E Avenue M to the proposed power plant site; and
- A 1.54-mile sanitary wastewater pipeline along E Avenue M to the proposed power plant site. (Ex. 1; Ex. 300, p. 4.2-12.)

2. Vegetation and Wildlife

The site consists of desert scrub communities located within a matrix of urban development. Agricultural fields, a tank farm, an electrical substation, Air Force Plant 42, and an active rail line are also present in the project area. Three dominant vegetation communities have been identified on the site: Mojave creosote bush scrub, rabbitbush scrub, and a broad swath of Joshua tree woodland. Outside the project footprint, a large windrow of salt cedar occurs along the eastern side of the Air Force Plant 42 access road. The transmission line corridor crosses a variety of native and non-native plant communities including creosote bush scrub, saltbush scrub, Joshua tree woodland, fallow and active agricultural fields, and Juniper woodlands. Numerous drainages are present along the transmission line route and support a variety of riparian-associated plant communities including Mojave riparian forest and desert wash scrub.[1] The project's natural gas and water pipelines will be located in developed roadways. (Ex. 300, p. 4.2-13.)

The Applicant identified two special-status habitats in the project area: Mojave riparian forest and Southern riparian scrub. These communities are high priority for inventory by the California Natural Diversity Data Base. In addition, Joshua tree and Juniper woodland habitats meet the definition of sensitive species and are worthy of consideration. Due to unique floristic composition and structure as

[1] Applicant identified 43 drainages that would be considered State Jurisdictional waters and 14 drainages that qualify as Waters of the United States. Wetlands are not present in the project footprint. According to the Applicant, all areas meeting the regulatory definition of "Waters of the U.S." or "Waters of the State" (jurisdictional waters) will be avoided by the project or spanned by the project's transmission lines. The Applicant has also indicated that existing access roads currently traveling through potentially jurisdictional waters would require limited improvement and some temporary disturbance may be required at individual road crossings. (Ex. 300, pp. 4.2-18 - 4.2-19.)

well as historic and ongoing losses of these communities, many local plans and ordinances have identified these habitats as special status. The California Department of Fish and Game (CDFG) considers these woodland habitats to be vulnerable to extirpation or extinction. (Exs. 1; 300, p. 4.2-17.)

Birds were the most commonly detected wildlife species in the project area. The record contains evidence of Applicant's direct observations of verdin, LeConte's thrasher, black-throated sparrow, and California quail. In addition, the record indicates suitable nesting substrate for red-tailed hawk, American kestrel, ladder-backed woodpecker, loggerhead shrike, Bewick's wren, cactus wren, northern mockingbird, and Scott's oriole. Other species include:

- **Scrub communities:** burrowing owl, lesser nighthawk, horned lark, western meadowlark, sage sparrow, migrant or wintering Brewer's, chipping, and savannah sparrows.

- **Juniper woodland habitat:** western scrub jay, phainopepla, and house finch.

- **Riparian habitat:** flycatchers, warblers, vireos, thrushes, tanagers, grosbeaks and a number of common bird species. In 2010 surveys, at least two bell's vireo males were detected in riparian habitat near the base of Little Rock Dam. A single summer tanager was also noted in this area in 2010.

- **Agricultural fields:** wintering ferruginous hawk, great horned owl, and common raven were observed by the applicant. The Swainson's hawk, a species listed as threatened by the CDFG, was observed by Staff and CDFG on the project site. Alfalfa fields also serve as habitat for flocks of mountain plovers that regularly winter in the greater Antelope Valley. (Ex. 300, pp. 4.2-20 - 4.2-21.)

Many mammals are known to occur in the project vicinity. The record indicates that project vegetation provides foraging and breeding habitat for many mammalian species including:

- **Creosote bush scrub/other desert scrub communities:** Mohave ground squirrel, pocket mouse, white-tailed antelope squirrel, California ground squirrel, desert kangaroo rat, Merriam's kangaroo rat, desert cottontail, desert woodrat, kit fox, and coyote.

- **Joshua tree woodland:** cactus mouse, canyon mouse, and American badger. Several bat species including pallid bats, western pipistrelles, big free-tailed bat, western mastiff bat, Mexican free-tailed bat, and spotted bat.

- **Juniper woodland:** Panamint kangaroo rat, long-tail pocket mouse, pinyon mouse, and mule deer. Common mammalian predators include gray fox, bobcat, and mountain lion.

- **Mojave riparian forest:** ornate shrew, brush mouse, and southern grasshopper mouse; long-tailed weasel (predator); migrant bats such as the western red bat, hoary bat; year-round residents - Yuma myotis, small-footed myotis, and California myotis.

- **Agricultural lands:** Botta's gophers, voles, western harvest mice, and house mice. (Ex. 300, pp. 4.2-21 - 4.2-22.)

In addition**,** the broad diversity of vegetation communities and topographical features in the project area support a variety of reptiles, many unique to particular vegetation types. The Applicant identified several common species in the project area including western fence lizard, side-blotched lizard, gopher snake, desert iguana, desert night lizard, long-nosed leopard lizard, and Mojave rattlesnake. The evidence also includes a few amphibians that are expected to occur in the project area such as the arroyo toad, a federally endangered species and California Species of Special Concern, which occurs in Little Rock Creek approximately 2.6 miles south of the transmission line crossing of Little Rock Creek at Mt. Emma Road. (Ex. 300, pp. 4.2-19 -- 4.2-20.)

3. Special Status Species

Staff's Biological Resources Table 3, replicated below, lists special-status species that are known to occur or could potentially occur in the project area and vicinity. (Ex. 300, pp. 4.2-23 – 4.2-25.)

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Biological Resources Table 3
Special-Status Species, Their Status, and Potential Occurrence
at the Palmdale Hybrid Power Plant Project Site

Scientific Name	Common Name	Status	Potential For Occurrence On-Site
PLANTS			
Androsace elongata ssp. acuta	California androsace	CNPS: 4.2	**High**
Arctostaphylos gabrielensis	San Gabriel manzanita	CNPS:1B.2	**Not likely to occur**
Astragalus lentiginosus var. *Antonius*	San Antonio milk-vetch	CNPS: 1B.3	**Not likely to occur**
Astragalus preussii var. laxiflorus	Lancaster milk-vetch	CNPS: 1B.1	**Low**
Calochortus clavatus var. *Clavatus*	Slender mariposa lily	CNPS: 4.3	**Low**
Calochortus palmeri var. *palmeri*	Palmer's mariposa lily	CNPS: 1B.2	**Not likely to occur**
Calochortus striatus	Alkali mariposa lily	CNPS: 1B.2	**Moderate**
Calystegia peirsonii	Pierson's morning glory	CNPS: 4.2	**High**
Canbya candida	Pygmy poppy	CNPS: 4.2	**High**
Carex vulpinoidea	Brown fox sedge	CNPS: 2.2	**Not likely to occur**
Castilleja gleasonii	Mt. Gleason Indian paintbrush	**SR,** CNPS: 1B.2	**Not likely to occur**
Castilleja plagiotoma	Mojave Indian paintbrush	CNPS: 4.3	**Moderate**
Chorizanthe parryi var. *fernandina*	San Fernando Valley spineflower	**FC, SE,** CNPS:1B.1	**Not likely to occur**
Chorizanthe parryi var. *parryi*	Parry's spineflower	CNPS: 1B.1	**Low**
Chorizanthe spinosa	Mojave spineflower	CNPS:4.2	**Moderate**
Cryptantha holoptera	Winged cryptantha	CNPS: 4.3	**High**
Delphinium parryi ssp. *purpureum*	Mt. Pinos larkspur	CNPS: 4.3	**Moderate**
Eriastrum hooveri	Hoover's eriastrum	**FD,** CNPS: 4.2	**Moderate**
Eriogonum baileyi var. *praebens*	Bailey's woolly buckwheat	CNPS: 4.3	**High**
Galium johnstonii	Johnston's bedstraw	CNPS: 4.3	**Moderate**
Gilia interior	Inland gilia	CNPS: 4.3	**Low**
Gilia latiflora ssp. *cuyamensis*	Cuyama gilia	CNPS: 4.3	**High**
Goodmania luteola	Golden goodmania	CNPS: 4.2	**Moderate**
Juncus duranii	Duran's rush	CNPS: 4.3	**Not likely to occur**
Layia heterotricha	Pale-yellow layia	CNPS: 1B.1	**Moderate**
Lilium parryi	Lemon lily	CNPS: 1B.2	**Not likely to occur**
Linanthus concinnus	San Gabriel linanthus	CNPS: 1B.2	**Not likely to occur**
Loeflingia squarrosa var. *artemisiarum*	Sagebrush loeflingia	CNPS: 2.2	**Not likely to occur**
Mimulus johnsoni	Johnston's monkeyflower	CNPS: 4.3	**Not likely to occur**
Muhlenbergia californica	California muhly	CNPS: 4.3	**Not likely to occur**
Muilla coronata	**Crowned muilla**	CNPS: 4.2	**Present**

Scientific Name	Common Name	Status	Potential For Occurrence On-Site
Nemacladus gracilis	Slender nemacladus	CNPS: 4.3	**High**
Opuntia basilaris var. *brachyclada*	Short-joint beavertail	CNPS: 1B.2	**High**
Orobanche valida ssp. *valida*	Rock Creek broomrape	CNPS: 1B.2	**Not likely to occur**
Perideridia pringlei	Adobe yampah	CNPS: 4.3	**High**
Phacelia mohavensis	Mojave phacelia	CNPS: 4.3	**Low**
Stylocline masonii	Mason's bedstraw	CNPS: 1B.1	**Low**
Symphyotrichum greatae (= Aster greatae)	Greata's aster	CNPS: 1B.3	**Not likely to occur**
Syntrichopappus lemmonii	Lemmon's syntrichopappus	CNPS: 4.3	**High**
Viola aurea	Golden violet	CNPS: 2.2	**Low**
INVERTEBRATES			
Plebulina emigdionis	San Emigdio blue butterfly	CDFG Special Animal	**Low**
FISH			
Catostomus santaanae	Santa Ana sucker	**FT**, CSSC	**Not likely to occur**
Gasterosteus aculeatus williamsoni	Unarmored threespine stickleback	**FE**, **SE**, SP	**Not likely to occur**
Gila orcutti	Arroyo chub	CSSC	**Not likely to occur**
Rhinichthys osculus ssp.	Santa Ana speckled dace	CSSC	**Not likely to occur**
AMPHIBIANS			
Bufo californicus	Arroyo toad	**FE**, CSSC	**Not likely to occur**
Rana muscosa	Mountain (Sierra Madre) yellow-legged frog	**FE**, CSSC	**Not likely to occur**
Spea hammondii	Western spadefoot	CSSC	**Low**
REPTILES			
Anniella pulchra pulchra	Silvery legless lizard	CSSC	**High**
Charina bottae umbratica	Southern rubber boa	**ST**	**Not likely to occur**
Emys (Clemmys) marmorata pallida	Southwestern pond turtle	CSSC	**Low**
Gopherus agassizii	Desert tortoise	**FT, ST**	**Low on power plant/Moderate on Transmission line**
Phrynosoma coronatum blainvillii	San Diego horned lizard	CSSC	**High**
Phrynosoma coronatum frontale	California horned lizard	CSSC	**Moderate**
Thamnophis hammondii	Two-striped garter snake	CSSC	**Low**
BIRDS			
Accipiter cooperii	**Cooper's hawk**	CDFG WL	**Present**
Agelaius tricolor	Tricolored blackbird	CSSC	**Not likely to occur**
Aquila chrysaetos	Golden eagle	SP	**Low on power plant/Moderate on Transmission line**
Asio otus	Long-eared owl	CSSC-	**Moderate**
Athene cunicularia	**Western burrowing owl**	CSSC	**Present**
Buteo regalis	**Ferruginous hawk**	CDFG WL	**Present**
Buteo swainsoni	**Swainson's hawk**	**ST**	**Present**
Chaetura vauxi	**Vaux's swift**	CSSC	**Present**
Charadrius montanus	Mountain plover	CSSC	High

Scientific Name	Common Name	Status	Potential For Occurrence On-Site
Circus cyaneus	Northern harrier	CSSC	**Low**
Coccyzus americanus	Yellow-billed cuckoo	**FC, SE**	**Not likely to occur**
Elanus leucurus	White-tailed kite	SP	**Low**
Empidonax traillii extimus	Southwestern willow flycatcher	**FE, SE**	**Low**
Eremophila alpestris actia	**California horned lark**	CDFG WL	**Present**
Falco columbarius	Merlin	CDFG WL	**High**
Falco mexicanus	**Prairie falcon**	CDFG WL	**Present**
Gymnogyps californianus	California condor	**FE, SE,** SP	**Low**
Haliaeetus leucocephalus	Bald eagle	**FD, SE,** SP	**High**
Icteria virens	Yellow-breasted chat	CSSC	**Low**
Lanius ludovicianus	**Loggerhead shrike**	CSSC	**Present**
Numenius americanus	Long-billed curlew	CDFG WL	**High**
Piranga rubra	Summer tanager	CSSC	**Low**
Pyrocephalus rubinus	Vermilion flycatcher	CSSC	**Low**
Toxostoma bendirei	Bendire's thrasher	CSSC	**Moderate**
Toxostoma lecontei	**LeConte's thrasher**	CDFG WL	**Present**
Vireo bellii pusillus	Least Bell's vireo	**FE, SE**	**Low**
MAMMALS			
Antrozous pallidus	Pallid bat	CSSC	**Moderate**
Chaetodipus fallax pallidus	Pallid San Diego pocket mouse	CSSC	**Moderate**
Corynorhinus townsendii	Townsend's big-eared bat	CSSC	**Low**
Euderma maculatum	Spotted bat	CSSC	**Low**
Eumops perotis	Western mastiff bat	CSSC	**Low**
Lasiurus blossevillii	Western red bat	CSSC	**Moderate**
Onychomys torridus ramona	Southern grasshopper mouse	CSSC	**Moderate**
Perognathus longimembris brevinasus	Los Angeles pocket mouse	CSSC	**Not likely to occur**
Spermophilus mohavensis	**Mohave ground squirrel**	**ST**	**Present**
Taxidea taxus	American badger	CSSC	**High**

FE = Federally listed Endangered
FT = Federally listed Threatened
FD = Federally Delisted
FC = Federal Candidate
SE = State listed Endangered
ST = State listed Threatened (wildlife)
SR = State listed Rare (plants)
CSSC = California Species of Special Concern (wildlife)
SP = State Fully Protected Species
CDFG WL = California Department of Fish and Game Watch List species

CNPS (California Native Plant Society) Designations:
List 1A = Plants presumed extinct in California
List 1B = Plants considered by CNPS to be rare, threatened, or endangered in California, and throughout their range
List 2 = Plants rare, threatened, or endangered in California, but more common elsewhere in their range
List 3 = Plants about which we need more information - a review list.
List 4 = Plants of limited distribution – a watch list

CNPS Threat Rank:
1. = Seriously endangered in California (over 80% of occurrences threatened/high degree and immediacy of threat)
2. = Fairly endangered in California (20-80% occurrences threatened)
3. = Not very endangered in California (<20% of occurrences threatened or no current threats known)

(Ex. 300, p. 4.2-23 – 4.2-25.)

Significant Ecological Areas (SEAs) are specified by the County of Los Angeles General Plan as "ecologically important land and water systems that are valuable as plant or animal communities, often important to the preservation of threatened and endangered species, and conservation of biological diversity within the county." There are 11 SEAs identified within 0.6 to 8 miles of the project site but none are included in the project footprint or within the linear corridors. (Ex. 300, p. 4.2-19.)

4. Construction Impacts and Mitigation

a. Vegetation Impacts

The PHPP footprint and transmission corridor feature a variety of native and exotic vegetation communities. Although the site is isolated from contiguous native plant communities by development, this area retains many natural components identified in healthy ecosystems. Soil complexity was observed in many areas, including microtopography and soil crusts, which are more characteristic of less disturbed plant communities. Due to the large size of the site, the ecology hosts a diverse range of native and non-native vegetation that provides habitat for a broad spectrum of wildlife. (Ex. 300, p. 4.2-36.)

According to the record, development of the power block, solar arrays, and linear facilities would result in the permanent loss of approximately 463.33 acres of native and non-native plant communities. These include Joshua tree woodland, Mojave juniper scrub, and Mojave desert wash scrub, which are considered sensitive and would require compensation to reduce impacts to less than significant levels. Project construction would also result in the loss of Mojave creosote bush scrub; desert saltbush scrub; rabbit brush scrub; agricultural land; California annual grasslands; and disturbed/developed land. Staff's Biological Resources Table 2, replicated below, identifies the plant communities and habitat loss resulting from project construction. (Ex. 300, p. 4.2-14.) Based on this evidence, we find that the loss of habitat associated with the PHPP would be significant without mitigation. (Ex. 300, p. 4.2-36.)

Biological Resources Table 2.
Direct Permanent Surface Disturbance per Affected Vegetation Community and Project Component.

Vegetation Communities/Cover Types	Location					
	Power Plant Site	Construction Laydown Area	Pipelines*	Transmission Line Segments 1	Transmission Line Segments 2	**Total (acres)**
Mojave Creosote Bush Scrub	116.55	0	0	11.96	7.66	**147.39**
Joshua Tree Woodland	183.15	0	0	2.2	3.14	**189.31**
Desert Scrub (Buckwheat, saltbush, Brittlebush)	0	0	0	11.79	5.11	**16.89**
Rabbit brush Scrub	33.0	50.0	0	00.98	0	**84.28**
Mojavean Juniper Scrub	0	0	0	0	6.71	**6.71**
Mojave Riparian Forest	0	0	0	0	0	**0**
Big Sagebrush Scrub	0	0	0	0	0.20	**0.20**
California Annual Grassland	0	0	0	0	5.11	**5.11**
Mojave Desert Wash Scrub	0	0	0	0.39	0	**0.39**
Agricultural Land	0	0	0	10.22	0	**10.22**
Urban and Disturbed Lands	0	0	0	2.82	0	**2.82**
Total (acres)	**332.65**	**50.0**	**0**	**50.38**	**27.93**	**463.33**

*Reclaimed Water, Natural Gas, and Sanitary Wastewater pipelines are located within existing roadways or disturbed road shoulders. The Potable Water Pipeline is located within the PHPP project footprint.
(Ex. 300, p. 4.2-14.)

The Applicant proposed measures to avoid impacts to special-status habitat and restore temporarily disturbed areas. Where avoidance is not feasible, the Applicant proposed to salvage Joshua trees and cacti for inclusion in landscaping and buffer areas. However the salvage and transplantation of Joshua trees would not be considered a mitigation strategy for this species. To mitigate project impacts on native vegetation Conditions of Certification **BIO-1** through **BIO-8** require the project owner to designate a qualified biologist to oversee construction and monitor sensitive resource areas, provide worker training, develop a Biological Resources Mitigation Implementation and Monitoring Plan, and implement best management practices, including avoidance and minimization measures. (Ex. 300, pp. 4.2-37 - 4.2-38.) The permanent loss of sensitive vegetation, including Joshua tree woodland, would be offset through the acquisition of mitigation lands for the Mohave ground squirrel identified in Staff's proposed Condition of Certification **BIO-20**. (Ex. 300, pp. 4.2-37 - 4.2-38.)

Condition of Certification **BIO-9** requires the project owner to provide Energy Commission staff, CDFG, and USFWS with reasonable access to the project site and mitigation lands under control of the project owner to verify compliance with and/or the effectiveness of mitigation measures set forth in the conditions of certification. (Ex. 300, pp. 4.2-102 - 4.2-103.)

Condition of Certification **BIO-10** requires the project owner to implement a Restoration Plan for all areas subject to temporary project disturbance. Condition of Certification **BIO-11** requires floristic surveys for special-status plants, development of measures to avoid direct impacts through avoidance, implementation of best management practices, and habitat acquisition if necessary. (Ex. 300, p. 4.2-38.)

Construction activities and soil disturbance could potentially introduce new noxious weeds to lands adjacent to the PHPP site and linear facilities and also spread weeds already present in the project vicinity. The spread of invasive plants is a major threat to biological resources in the Mojave Desert because nonnative plants displace native plants, increase the threat of wildfire, and supplant wildlife foods. The Applicant proposed measures such as cleaning vehicles prior to mobilization and restoring temporarily disturbed habitat at the conclusion of construction. Staff concurred with these measures and recommended additional measures (weed wash stations and use of weed-free products) to reduce the spread of noxious weeds from project activities. Condition of Certification **BIO-8** incorporates these measures. (Ex. 300, pp. 4.2-38 and 4.2-39.)

Disturbance of the soil's surface caused by construction traffic and other activities could result in increased wind erosion and transport of dust and sand resulting in the degradation of soil and vegetation over a widening area. Dust can have deleterious physiological effects on plants and may affect their productivity and nutritional qualities. The destruction of plants and soil crusts by windblown sand and dust exacerbates the erodibility of the soil and accelerates the loss of nutrients. In addition, soil erosion, which affects vegetation and soil properties, could have an adverse effect on Mohave ground squirrel foraging and burrowing potential. Condition of Certification **BIO-8 and** Conditions of Certification **SOIL&WATER-3** and **SOIL&WATER-4** in the **Soil and Water Section** are designed to reduce impacts of increased dust and other construction activities. (Ex. 300, p. 4.2-39.)

b. Wildlife Impacts

Common Wildlife

Direct mortality of small mammals; amphibians and reptiles; eggs and nestlings of bird species with small, well-hidden nests; and other less mobile species would likely occur during project construction. As noted above, Condition of Certification **BIO-8** incorporates avoidance and minimization measures to reduce construction impacts. (Ex. 300, pp. 4.2-42 - 4.2-43.)

Special-Status Wildlife

The Draft Biological Assessment for the PHPP identified 60 special-status biological resources known to occur within approximately 10 miles of the project site. Listed species that may be subject to project disturbance include desert tortoise, Mohave ground squirrel, arroyo toad, and Swainson's hawk. Critical habitat for federal listed wildlife is not present in the project area. Critical Habitat Unit 1 (Fremont-Kramer) for desert tortoise occurs approximately 16 miles north of the power plant site and 8 miles northeast of the Segment 1 transmission line. Critical Habitat Unit 21 (Little Rock Creek Basin), designated for the arroyo toad, occurs 2.6 miles south of the Segment 2 transmission line. The project owner is required provide mitigation for these species due to the permanent conversion of valuable habitat for these listed species. See below. (Ex. 300, p. 4.2-43.)

Special-Status Invertebrates

According to the Applicant, no special-status invertebrates were detected in the project area. However, the San Emigdio blue butterfly has potential to occur in association with riparian drainages present along the proposed transmission line route. This butterfly is typically found in association with its primary host plant, four-wing saltbush but has also been observed in association with quail brush. If present, direct impacts to this species could occur through the removal of host plants from clearing and grading for tower placement. Potential indirect effects to the species could occur from the spread of noxious or invasive weeds or dust that degrade habitat utilized by this species. Implementation of Conditions of Certification **BIO-1** through **BIO-9,** which require avoidance of riparian areas and weed and dust control measures, should reduce impacts to less than significant. (Ex. 300, p. 4.2-44.)

Special-Status Amphibians

Several rare amphibian species have been documented in the region, including arroyo toad, mountain yellow-legged frog, and spadefoot toad. The evidence indicates, however, that habitat for mountain yellow-legged frogs is not present in the project area and consequently, mountain yellow-legged frogs do not have the potential to occur in the project area. (Ex. 300, p. 4.2-44.)

The Applicant's surveys conducted in 2009 did not identify arroyo toads in the project area. However, this species may persist in variable stream systems if they have access to suitable pools. Considering the federal status of this species, we find that pre-construction clearance surveys and monitoring are warranted. To avoid and/or minimize the possible incidental take of arroyo toads along the transmission line corridor at Little Rock Creek, avoidance and minimization measures regarding the arroyo toad have been incorporated in Condition of Certification **BIO-12**. We find that implementation of Conditions of Certification **BIO-1** through **BIO-9** and **BIO-12** will help prevent take of arroyo toads and reduce impacts to less-than-significant levels. (Ex. 300, pp. 4.2-44 and 4.2-45.)

Spadefoot toads have limited potential to occur in the project area and if present would likely be found south of Mt. Emma road along the proposed transmission line route. Suitable habitat does not occur on the power plant site; however, some suitable habitat occurs along the foothills of the San Gabriel Mountains. General avoidance and minimization measures for sensitive species including pre-construction surveys, relocation, and restoration of disturbed areas as required by Condition of Certification **BIO-8** would reduce impacts to spadefoot toads (if present) to less than-significant levels. (Ex. 300, p. 4.2-45.)

Special-Status Reptiles

The AFC identified six special-status reptile species in the vicinity of the project: desert tortoise, silvery legless lizard, San Diego coast horned lizard, California coast horned lizard, southwestern pond turtle, and two-striped garter snake. Coast horned lizards and silvery legless lizards have been reported in the project area. These cryptic species are difficult to detect and are easily overlooked during surveys. Implementation of Conditions of Certification **BIO-1** through **BIO-9** will reduce impacts to coast horned lizards and silvery legless lizards to less-than-significant levels. Based on habitat and climatic conditions at the crossing, southwestern pond turtle and two-striped garter snake are not expected to occur in the project footprint. (Ex. 300, pp. 4.2-45 and 4.2-46.)

Desert Tortoise. The evidence includes information on desert tortoise surveys conducted in 2006, 2008, and 2009. Desert tortoise or their sign were not located on the power plant site; however, one burrow that potentially could be used by a tortoise was found in 2008 on the 3,960-foot ZOI transect for the power plant site, west of the site. This burrow was overgrown with vegetation and had no sign of recent use (e.g., scat, tracks, etc.). The closest sighting of desert tortoise is a 2001 record reported from approximately nine miles northeast of the northeast corner of transmission line Segment 1. Applicant's desert tortoise expert considers the potential for desert tortoises to be present along the north-south portion of transmission line Segment 1 and the southeast portion of transmission line Segment 2 to be low. Some of the vegetation communities present on the transmission line route (e.g., desert scrub, desert wash, and Joshua tree woodland) are used by the desert tortoise. (Ex. 300, pp. 4.2-46 - 4.2-47.)

Construction will increase the number of transmission towers and substation-associated structures that provide potential nest and perch sites for common ravens, which are known predators of juvenile desert tortoise. Availability of perch sites and prey items has led to substantial increases in raven populations in desert regions, particularly near human development. Human activities including trash dumping, farming, sewage treatment, and irrigation potentially provide food, which attracts unnaturally high numbers of tortoise predators such as the common raven, kit fox, and coyote. Ravens were observed in the project area and would be expected to use the new transmission line structures as potential nest and perch sites. Any loss of juvenile tortoises could have a long-term effect on the tortoise population by reducing the recruitment of juvenile tortoises into the adult life stages. (Ex. 300, p. 4.2-48.)

To mitigate impacts on desert tortoise from raven predation, the project owner will pay a one-time fee in the amount of $48,142.50 (2010 dollars) through the Renewal Energy Action Team (REAT) Account held by the National Fish and Wildlife Foundation (NFWF). This payment would support the Mojave Desert Recovery Unit of the Regional Raven Management Program, sponsored by the USFWS in cooperation with the CDFG and BLM. In addition, the project owner will acquire and enhance 665.5 acres of desert scrub communities to compensate for the potential take of Mohave ground squirrel, which would also mitigate the loss of habitat for desert tortoise. (See Condition of Certification **BIO-20** ground squirrel discussion, below.) (Ex. 300, pp. 4.2-48 - 4.2-49.)

Condition of Certification **BIO-13** requires installation of tortoise exclusion fencing, clearance surveys, monitoring; verification, and compensation

measures. Condition of Certification **BIO-14** requires a Raven Monitoring, Management, and Control Plan and payment of the NFWF fee. We find that implementation of these conditions should reduce impacts to desert tortoise, if present, to less-than-significant levels. These conditions should also satisfy the requirements of Fish and Game Code Section 2081 [California Endangered Species Act or CESA]. (Ex. 300, pp. 4.2-48 - 4.2-50.)

Special-Status Bird Species

Project construction will remove nesting and foraging habitat and could result in direct and cumulative impacts to bird species due to habitat loss or injury/fatality of individuals. With the exception of a few non-native birds such as European starling, the loss of active bird nests or young is regulated by the federal Migratory Bird Treaty Act and Fish and Game Code Section 3503. Mitigation measures to avoid and minimize direct impacts to nesting birds by avoiding nests, eggs, and young migratory birds are included in Condition of Certification **BIO-15**. (Ex. 300, pp. 4.2-50 - 4.2-51.)

Species that utilize the project site for foraging, but not nesting, such as the prairie falcon, Brewer's sparrow, mountain plover, Lawrence's goldfinch, and Vaux's swift would not be affected; however, the loss of foraging habitat would be an adverse impact. Overall, the loss of nesting and foraging habitat for these special-status bird species would add to the cumulative, significant loss of habitat for these species within the region. Implementation of Condition of Certification **BIO-20**, the compensatory mitigation plan for Mohave ground squirrels, would offset this habitat loss by the preservation of similar plant communities. (Ex. 300, p. 4.2-51.)

Swainson's Hawk. In 2009, Applicant conducted protocol surveys for the Swainson's hawk (state-listed Threatened) within a one-mile radius of the power plant site and 0.5-mile radius of linear facilities. Swainson's hawks were not observed during these surveys or at historic nest sites visited during the surveys. However, the CDFG considers a nest site to be active if it was used at least once during the past 5 years. In addition, the evidence includes information on observations of Swainson's hawks nesting within 14 miles of the PHPP site, a nest site approximately ten miles east of the PHPP site and five miles east of the transmission line corridor. An adult Swainson's hawk was observed by the CDFG at the PHPP power plant site and one juvenile bird was observed perching in a tree along transmission line Segment 1 in September 2009. (Ex. 300, pp. 4.2-51 and 4.2-52.)

Direct impacts to this species, if present, could occur during the clearing and grubbing portion of the project when potential nest trees are removed from the site. During construction of the transmission line, impacts to this species could occur when vehicle access and equipment are near the large trees that border the many agricultural fields present along Segment 1. To mitigate for the loss of foraging habitat, the CDFG recommends that impacts to suitable foraging habitat within a five-mile radius of an active nest must be considered. Therefore, the project owner must provide habitat compensation for the loss of foraging habitat. (Ex. 300, p. 4.2-53.)

Condition of Certification **BIO-16** requires the project owner to implement Swainson's hawk impact avoidance and minimization measures. Condition of Certification **BIO-17** requires the project owner to guarantee that an adequate level of funding is available to implement the measures described in Condition **BIO-16.** Depending on the location and habitat type of the proposed Mohave ground squirrel mitigation lands, some or all of the required compensation for Swainson's hawk could be achieved through implementation of Mohave ground squirrel habitat compensation. (Ex. 300, p. 4.2-54.)

For the purposes of compliance with CESA, the project owner must ensure financial security for the replacement costs of 305 acres of foraging habitat plus 10.22 acres of agricultural lands lost during transmission line construction, using a 2:1 ratio. Staff determined that Swainson's Hawk habitat compensation would cost at least $9.2 million (2010 dollars). (Ex. 300, pp. 4.2-3, 4.2-53 -- 4.2-57.) See Staff's Biological Resources Table 4a, replicated below.

Biological Resources Table 4a
Swainson's Hawk Compensation Cost Estimate[1]

	Task	Cost
1.	Land Acquisition 305 acres at 2:1 ratio=610 acres	$10,000 per acre[2]
2.	Level 1 Environmental Site Assessment	$3000 per parcel[3]
3.	Appraisal	$5000 per parcel
4.	Initial site work - clean-up, enhancement , restoration	$250 per acre[4]
5.	Closing and Escrow Costs – 1 transaction includes landowner to 3rd party and 3rd party to agency	$5000 per transaction
6.	Biological survey for determining mitigation value of land (habitat based with species specific augmentation)	$5000 per parcel
7.	3rd party administrative costs - includes staff time to work with agencies and landowners; develop management plan; oversee land transaction; organizational reporting and due diligence; review of acquisition documents; assembling acres to acquire….	10% of land acquisition cost (#1)
8.	Agency costs to review and determine accepting land donation - includes 2 physical inspections; review and approval of the Level 1 ESA	15% of land acquisition costs (#1) × 1.17 (17% of the 15% for

	assessment; review of all title documents; drafting deed and deed restrictions; issue escrow instructions; mapping the parcels….	overhead)
	SUBTOTAL - Acquisition & Initial Site Work	*$8,116,050.00*
9.	Long-term Management and Maintenance (LTMM) Fund - includes land management; enforcement and defense of easement or title [short and long term]; monitoring….	$1450 per acre[5]
	SUBTOTAL - Acquisition, Initial Site Work, & LTMM	*$9,000,550.00*
	NFWF Fees	
10.	Establish the project specific account	n/a (presumes establishment of Mohave ground squirrel account for project)
11.	NFWF management fee for acquisition & initial site work	3% of SUBTOTAL
12.	NFWF Management fee for LTMM Fund	1% of LTMM Fund
13.	Call for and Process Pre-Proposal Modified RFP	n/a (presumes establishment of Mohave ground squirrel account for project)
	TOTAL for deposit in REAT-NFWF Project Specific Account	*$9,252,876.50*

1. Estimates prepared in consultation with CDFG. All costs are best estimates as of fall 2010. Actual costs will be determined at the time of the transactions and may change the funding needed to implement the required mitigation obligation. Note: regardless of the estimates, the developer is responsible for providing adequate funding to implement the required mitigation.
2. Based on mean of data provided by CDFG for land acquisition in Los Angeles County. If the agencies, developer, or 3rd party has better, credible information on land costs in the specific area where project-specific mitigation lands are likely to be purchased, that data overrides this general estimate. Note: regardless of the estimates, the developer is responsible for providing adequate funding to implement the required mitigation.
3. For the purposes of determining costs, an average parcel is 60 acres (based on input from DFG).
4. Based on information from CDFG.
5. Estimate for purposes of calculating general costs. The actual long term management and maintenance costs will be determined using a Property Assessment Report (PAR) tailored to the specific acquisition. (Ex. 300, p. 4.2-55.)

Burrowing owls. Burrowing owls or their sign (i.e., individuals, pellets, or feathers) were not observed within 500 feet of the PHPP power plant site or linear facilities during focused surveys in 2008 and 2009. During the desert tortoise surveys, a single burrowing owl was observed adjacent to transmission line Segment 1 approximately 1,200 feet from the project alignment. Although surveys did not detect direct signs of burrowing owls, the presence of rodent burrows in the project area provides nesting opportunities. In addition, it is likely that burrowing owls could forage in the area as this species is known to occur in the Antelope Valley. If burrowing owls are present within a construction zone or adjacent to such an area, disturbance could destroy occupied burrows, cause the

owls to abandon their burrows, result in the incidental loss of fertile eggs or nestlings, or lead to nest abandonment. (Ex. 300, p. 4.2-57.)

The Applicant proposed conducting pre-construction surveys on the plant site and along all linear facilities in areas supporting suitable habitat, using methods recommended by CDFG. If owls are present within areas subject to project disturbance, construction must be rescheduled to avoid the breeding season. If it is necessary to destroy an occupied burrow, the project owner would implement a passive relocation plan, construct artificial burrows, and acquire compensatory lands that would be funded in perpetuity to offset the loss of foraging habitat. These measures have been incorporated in Condition of Certification **BIO-18**. (Ex. 300, p. 4.2-58.)

Golden eagles*.* Golden eagles were not observed at the PHPP power plant or along the linear facilities, but are known to occur in the region. The most likely potential for golden eagles to occur is along portions of the transmission line corridors where the right of way crosses natural lands. (Ex. 300, p. 4.2-58.)

Direct impacts to golden eagles could occur through the loss of or disruption of foraging habitat, noise, construction activities and human disturbance or collision with solar panels or other project features. Condition of Certification **BIO-15** requires the project owner to implement measures to avoid and minimize impacts to nesting birds. Also, the USFWS has raised concerns regarding potential collision threats associated with solar and renewable technologies. To address potential collision concerns, Condition of Certification **BIO-24** requires a monitoring and reporting program that would document and report potential collision mortality from the solar fields. Implementation of this condition would comply with Section 3511 of the California Fish and Game Code [“no take” requirement for State Fully Protected Species]. (Ex. 300, pp. 4.2-59 -- 4.2-60.)

Special-Status Mammals

Mohave ground squirrel*.* While the project site is not known to support this species, there is potential for this species to be present onsite and along the transmission line route. The Applicant agreed to acquire and enhance mitigation lands to compensate for the potential take of Mohave ground squirrels during project construction. Using ratios of 2:1 for the power plant site and 3:1 for the linear routes, the project owner must acquire 665 acres of compensatory mitigation. These ratios and the impact avoidance, minimization, and compensation measures described in the Incidental Take Permit application are incorporated into Conditions of Certification **BIO-19** and **BIO-20**. We find that implementation of these conditions would reduce impacts to Mohave ground

squirrel to less-than-significant levels and would also satisfy the CDFG's requirements under Fish and Game Code Section 2081 [CESA]. (Ex. 300, pp. 4.2-60 -- 4.2-62.)

Condition of Certification **BIO-20** requires the project owner to provide financial assurances to guarantee an adequate level of funding to implement the compensation measures. Staff provided a calculation of the security amount (~$10 million in 2010 dollars), which includes estimates of all transaction and management fees. (Ex. 300, pp. 4.2-62 -- 4.2-63.)

Biological Resources Table 4b
Mohave Ground Squirrel Compensation Cost Estimate[1]

	Task	Cost
1.	Land Acquisition (total of 665 acres) 2:1 ratio on power plant site 3:1 on transmission line	$10,000 per acre[2]
2.	Level 1 Environmental Site Assessment	$3000 per parcel[3]
3.	Appraisal	$5000 per parcel
4.	Initial site work - clean-up, enhancement , restoration	$250 per acre[4]
5.	Closing and Escrow Costs – 1 transaction includes landowner to 3rd party and 3rd party to agency	$5000 per transaction
6.	Biological survey for determining mitigation value of land (habitat based with species specific augmentation)	$5000 per parcel
7.	3rd party administrative costs - includes staff time to work with agencies and landowners; develop management plan; oversee land transaction; organizational reporting and due diligence; review of acquisition documents; assembling acres to acquire….	10% of land acquisition cost (#1)
8.	Agency costs to review and determine accepting land donation - includes 2 physical inspections; review and approval of the Level 1 ESA assessment; review of all title documents; drafting deed and deed restrictions; issue escrow instructions; mapping the parcels….	15% of land acquisition costs (#1) × 1.17 (17% of the 15% for overhead)
	SUBTOTAL - Acquisition & Initial Site Work	*$8,847,825.00*
9.	Long-term Management and Maintenance (LTMM) Fund - includes land management; enforcement and defense of easement or title [short and long term]; monitoring….	$1450 per acre[5]
	SUBTOTAL - Acquisition, Initial Site Work, & LTMM	*$9,812,075.00*
	NFWF Fees	
10.	Establish the project specific account	$12,000
11.	NFWF management fee for acquisition & initial site work	3% of SUBTOTAL
12.	NFWF Management fee for LTMM Fund	1% of LTMM Fund
13.	Call for and Process Pre-Proposal Modified RFP	$30,000
	TOTAL for deposit in REAT-NFWF Project Specific Account	*$10,141,152*

1. Estimates prepared in consultation with CDFG. All costs are best estimates as of fall 2010. Actual costs will be determined at the time of the transactions and may change the funding needed to implement the required mitigation obligation. Note: regardless of the estimates, the developer is responsible for providing adequate funding to implement the required mitigation.
2. Based on mean of data provided by CDFG for land acquisition in Los Angeles County. If the agencies, developer, or 3rd party has better, credible information on land costs in the specific

area where project-specific mitigation lands are likely to be purchased, that data overrides this general estimate. Note: regardless of the estimates, the developer is responsible for providing adequate funding to implement the required mitigation.

3. For the purposes of determining costs, an average parcel is 60 acres (based on input from CDFG).
4. Based on information from CDFG.
5. Estimate for purposes of calculating general costs. The actual long term management and maintenance costs will be determined using a Property Assessment Report (PAR) tailored to the specific acquisition. (Ex. 300, p. 4.2-63)

American badger. Project construction could kill or injure American badgers or desert kit fox by crushing or entombing them with heavy equipment. Construction activities could also result in disturbance or harassment of individuals. Condition of Certification **BIO-21** requires the project owner to employ a qualified biologist to perform a preconstruction survey for badger and kit fox dens in the project area, including areas within 250 feet of all project facilities, utility corridors, and access roads. The project owner must flag and avoid occupied badger and kit fox dens during ground-disturbing activities and establish a buffer to avoid loss of maternity dens. If avoidance of a non-maternity den is not feasible, badgers or kit foxes must be relocated. (Ex. 300, p. 4.2-64.)

Pallid San Diego Pocket Mouse and Southern Grasshopper Mouse. The Pallid San Diego pocket mouse and southern grasshopper mouse have the potential to occur in the project area, including the project site and associated linear facilities. If present, these species are likely distributed across the site in low densities but removal of vegetation would harm any of these species present onsite. The Applicant proposed biological monitoring, the salvaging of individuals uncovered during construction, and restoration of disturbed areas following construction. These measures were incorporated in Conditions of Certification **BIO-1** through **BIO-9**. In addition, Condition of Certification **BIO-20** requires the acquisition of lands to mitigate for impacts to Mohave ground squirrel and this would be sufficient to mitigate for the loss of mouse habitat since the mouse species are likely to co-occur in some of the acquired Mohave ground squirrel habitat. (Ex. 300, p. 4.2-64 and 4.2-65.)

<u>Special-Status Bats</u>

In general, bats are highly mobile and it is unlikely that construction activities would result in mortality of bats in the project area. Typically bats forage during nighttime hours when construction activities are limited. The Applicant proposed monitoring and avoidance measures during construction to reduce impacts to hibernacula or day roosts. These measures have been incorporated in Condition of Certification **BIO-22,** which requires pre-construction surveys, avoidance of

maternity colonies, provision of substitute roosting habitat, and exclusion of bats prior to demolition of roosts. (Ex. 300, p. 4.2-65 and 4.2-66.)

Increased Risk from Roads/Traffic

Project construction and improvement of access roads would increase vehicle traffic, increasing the risk of injuring or killing desert tortoise and other wildlife. Construction traffic along access and spur roads, particularly in areas used by nesting birds or near ephemeral water sources, could adversely affect wildlife by disrupting breeding, foraging, and movement. Wildlife species are most vulnerable to disturbances during their breeding seasons and these disturbances could result in nest, roost, or territory abandonment and subsequent reproductive failure during the breeding season. Condition of Certification **BIO-8** includes measures confining vehicular traffic to existing routes of travel, prohibiting cross-country vehicle and equipment use outside designated work areas, and imposing a speed limit of 25 miles per hour within the project area, on maintenance roads for linear facilities, and on access roads to the site. (Ex. 300, p. 4.2-70.)

Noise Impacts

Noise from clearing, grading, and construction use would generate the greatest construction impacts on wildlife, especially in undisturbed portions of the transmission line alignment. More mobile species like birds and larger mammals are expected to disperse into adjacent habitat areas during the land clearing and grading phases associated with tower construction. The loudest noise is created by steam blows needed after construction to clear out the steam system. Condition of Certification **NOISE-8** requires any high-pressure steam blows to be muffled with an appropriate silencer. Based on the analysis in the **Noise** section of this Decision**,** we find that noise impacts to nesting birds and other wildlife would be less than significant if appropriate mitigation measures are implemented. (Ex. 300, pp. 4.2-70 and 4.2-71.)

Lighting

Lighting may also be required to facilitate nighttime construction activities, which might disrupt the activities and affect behavior of nocturnal wildlife. As discussed in the Visual Resources section, construction lighting must be consistent with worker safety codes, directed toward the center of the construction site, shielded to prevent light from straying offsite, and task-specific. Condition of Certification **VIS-3** includes temporary lighting measures during construction. With

implementation of this measure, we find construction lighting at the PHPP would have no adverse effects on wildlife. (Ex. 300, p. 4.2-73.)

c. Impacts to Wildlife Movement Corridors/ Native Wildlife Nursery Sites

The site is large enough to support populations of species with very limited home ranges that never disperse from the site (i.e. small mammals, reptiles, and plants). However, the transmission line would span an important movement corridor for wildlife at Little Rock Creek. Despite the existing development adjacent to Little Rock Creek, there are adequate vegetated natural areas that provide for wildlife movement in the area. Construction of the transmission line will occur within a very limited footprint in an existing utility corridor during daylight hours. While wildlife activity would be reduced when construction crews are present, many species tend move at night in any event. Therefore, transmission line construction impacts on wildlife movement may temporarily be adverse, but limited and not significant. (Ex. 300 p. 4.2-66 and 4.2-67.)

d. Impacts to Waters of State

Construction at the power plant site would not result in permanent impacts to state or federal jurisdictional waters because such jurisdictional features are not present on the site. While state jurisdictional waters occur on the transmission line route the towers have been sited to avoid these features. Vehicle passage and maintenance of the access roads will result in temporary impacts to 0.08 acres of state jurisdictional waters but long-term impacts will be avoided. (Ex. 300 p. 4.2-67.)

Condition of Certification **BIO-23** requires the project owner to avoid use of the crossings during periods of ponded or flowing water, to install railroad flat cars to provide access over drainages if needed, and to implement best management practices to minimize the potential for off-site sediment transport. Implementation of Condition of Certification **BIO-23** ensures that the project's temporary impacts to state waters associated with desert washes will be mitigated to less-than-significant levels. This condition also fulfills requirements of CDFG's Lake and Streambed Alteration Agreement program established by Fish and Game Code Section 1600 et seq. Condition of Certification **BIO-23** also requires the project owner to avoid permanent impacts to all waters of the United States. (Ex. 300 p. 4.2-68.)

6. Operation Impacts and Mitigation

Potential operational impacts include increased risk of raven predation on desert tortoise and wildlife, increased levels of traffic and disturbance, potential collisions with structures, and lighting. These impacts are discussed below.

a. Ravens and other Predators

Operation of the PHPP could provide new sources of food, water, and nesting sites that might draw unnaturally high numbers of tortoise predators, such as the common raven. As discussed above, Condition of Certification **BIO-14** requires the development and implementation of a Raven Monitoring, Management, and Control Plan to mitigate for the regional effects of ravens and the payment of a one-time fee in the amount of $48,142.50 (2010 dollars) to support regional raven management plan activities. We find the fee would offset contributions of the project to cumulative impacts associated with regional increases in raven numbers, and would reduce impacts to desert tortoise from raven predation to less-than-significant levels. (Ex. 300 pp. 4.2-68 and 4.2-69.)

In addition to ravens, feral and domestic dogs have emerged as significant predators of the desert tortoise and Mohave ground squirrels. Implementation of Condition of Certification **BIO-6** [Worker Environmental Awareness Program], and Condition of Certification **BIO-8** [restrictions on bringing pets to the site] would reduce the potential for these impacts. (Ex. 300 pp. 4.2-69 and 4.2-70.)

b. Increased Risk from Roads/Traffic

To minimize the risks of increased traffic fatality and other hazards associated with roads at the project site, a variety of impact minimization measures are incorporated in Condition of Certification **BIO-8,** as discussed above.

c. Noise

The primary noise sources associated with operation of the PHPP include the steam turbine generators, cooling tower, start-up boiler, and various pumps and fans. As described in the **Noise** analysis, power plant noise levels are predicted to be less than significant at all sensitive receptors during daytime and nighttime operation. Therefore, we find that the operational noise impact on surrounding wildlife would also be less than significant. (Ex. 300, p. 4.2-71.)

d. Bird Collisions and Electrocution

Birds are known to collide with transmission lines and other elevated structures, causing injury and fatality. The tallest structure at the site is the heat recovery steam generator stack (HRSG) at 145 feet tall. The power block, cooling tower, and other structures are 60 feet or less in height. While the HRSG structures would pose a collision risk because of their height and location in the landscape, the overall signature of the HRSG is fairly limited. In addition, while the site supports a variety of bird species, many of which are migratory, the site is not located in a high-risk area for collision. Therefore, we find the risk of collision at the power plant site and transmission line corridor to be less than significant. (Ex. 300, pp. 4.2-71 and 4.2-72.)

Swainson's hawks, bald and golden eagles, peregrine falcons, and other large aerial perching birds are susceptible to electrocution on power lines because of their large size, distribution, and proclivity to perch on tall structures that offer views of potential prey. The transmission line would be energized at 220-kV, which poses a low risk for most avian electrocutions. Condition of Certification **BIO-8** requires transmission lines and all electrical components to be designed, installed, and maintained in accordance with the Avian Power Line Interaction Committee's (APLIC's) Suggested Practices for Raptor Protection on Power Lines and Mitigating Bird Collisions with Power Lines to reduce the likelihood of large bird electrocutions and collisions. (Ex. 300, p. 4.2-72.)

e. Lighting and Glare

The primary concern with lighting is associated with avian species. Increased lighting during low-light periods can cause some species to leave the area and can disrupt foraging, breeding, or other activities. Many insects are drawn to lights, and species that prey on insects, such as bats, may be attracted to lighted areas. PHPP operations would require on-site nighttime lighting for safety and security, which could disturb nocturnal wildlife. To reduce off-site lighting impacts, Condition of Certification **VIS-4** restricts project lighting to areas required for safety, security, and operation, and requires shielded exterior lights to minimize light or glare. Implementation of these measures ensures that lighting at the site should have no adverse effects on wildlife. (Ex. 300, p. 4.2-73.)

Depending on the time of day, glare or polarized light could cause birds to collide with the solar arrays. Given the lack of research-based data, we cannot conclude that glare and polarized impacts are not significant. Condition of Certification **BIO-24** [Avian and Bat Protection Plan/ Monitoring Impacts of Solar Technology

on Birds and Bats] requires the project owner to monitor and minimize potential bird mortality due to glare. (Ex. 300, pp. 4.2-73 – 4.2-74.)

7. 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.)

Because the project will result in the permanent loss of natural lands, the Commission must consider whether the project, after the application of mitigation, would contribute to the cumulative significant loss and degradation of habitat for desert plants and wildlife, including desert tortoise, Mohave ground squirrel, Swainson's hawk, burrowing owl, and other special-status species. As proposed, the project would involve the conversion of natural lands on the plant site and linear facilities. While good quality habitat occurs on the site and numerous wildlife species utilize the area; the site is isolated from adjacent natural lands. In addition, while habitat loss is occurring on a regional level, the project site does not have the potential to play a significant role in the conservation of sensitive plants and wildlife in the Antelope Valley. With the exception of Swainson's hawk, which was observed foraging on the site, desert tortoise and Mohave ground squirrel have a low potential to occur on the project site. Construction of the transmission line could remove important foraging habitat for wildlife and result in short term impacts to desert washes. However, these impacts would be minimal compared to the large-scale loss of habitat occurring in the region. Implementation of Conditions of Certification **BIO-1** through **BIO-25** will ensure that the project's significant adverse impacts on biological resources are mitigated to insignificant levels and thus, reduce the project's contribution to direct and indirect cumulative biological impacts to insignificant levels. (Ex. 300, pp. 4.2-75 -- 4.2-76.)

8. Facility Closure

Condition of Certification **BIO-25** requires that impacts to biological resources must be addressed prior to the permanent closure of the project. Facility closure mitigation measures must be included in the Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP) required by Condition of Certification **BIO-7**. Specifically, the closure plan must ensure sufficient funds for

decommissioning and habitat restoration as well as the removal of the transmission conductors to prevent bird collisions with transmission line ground wires. (Ex. 300, p. 4.2-82 and 4.2-83.)

9. Road Paving Mitigation for PM10

As a component of the Air Quality Conditions of Certification, Applicant proposed to pave several short road segments near the project to offset PM10 emissions by reducing dust from vehicle traffic on unpaved roadways. (See Condition of Certification **AQSC-19**.) Road paving activities can involve potential impacts to vegetation and wildlife on or adjacent to the work areas. Since the existing roadways proposed for paving occur in relatively disturbed areas (i.e., residential, agricultural, disturbed, and some natural lands) and are regularly traveled and maintained, the potential impacts would be minimal and should not result in the permanent loss of important habitat for sensitive species. Staff's Table Rebuttal-1, replicated below, identifies the road segments initially proposed for paving and the **Traffic and Transportation** analysis in this Decision describes the locations and usage of these road segments. (Ex. 301, pp. 3.4-29 et seq.)

Biological Resources Table Rebuttal-1
Road Locations and Existing Conditions

Road Number/ Street	Existing Conditions	Potential for Sensitive Species	Expected Right of Way Width
1 - Avenue B	Low density rural residences, fallow and active agricultural lands, desert scrub, and various ephemeral drainages	Moderate	40 feet
2 - Avenue S-2	Residential development on approximately one-acre lots. Landscape vegetation, ruderal fields, and disturbed areas	Low	40 feet
3 - 110th Street East	Primarily natural lands, road appears to be within active channel of seasonal drainage.	Moderate	92 feet
4 - 40th Street West	Urban residential lands. Landscaped areas.	Low	40 feet
5 - Avenue Q	Low density rural residences, desert scrub, and various ephemeral drainages	Moderate	92 feet
6 - Avenue S-6	Residential development on approximately one-acre lots. Landscape vegetation, ruderal fields, and disturbed areas	Low	40 feet
7 - Avenue T-10	Residential development on approximately one-acre lots. Landscape vegetation, ruderal fields, and disturbed areas	Low	40 feet
8 - Avenue N-8	Urban residential lands. Landscaped areas.	Low	60 feet
9 - Avenue G	Primarily fallow agricultural lands likely supporting rabbit bush scrub, various desert	Moderate	40 feet

Road Number/ Street	Existing Conditions	Potential for Sensitive Species	Expected Right of Way Width
	scrub, and several ephemeral drainages		
10 - Carson Mesa Road	Primarily natural lands with various scrub communities, juniper woodland, and small ephemeral drainages. Generally parallels a railroad ROW and Highway 14	Moderate	40 feet

Source: Ex. 301, p. 4.

According to the evidence, the habitats along these road segments and surrounding areas include the same baseline habitats described in the record for the site and linear corridors. Staff's testimony on road paving identifies the biological resources that occur near the road segments and concludes that the suite of mitigation measures described in Conditions of Certification **BIO-1** through **BIO-25**, below, are sufficient to address any potential impacts to biological resources due to road paving. Most of the habitats associated with these roads have been subject to repeated disturbance. Impacts to native vegetation from road paving are expected to be minimal based on the existing disturbed road shoulders and ROWs. In addition, adjacent native vegetation communities have largely been subject to historic and ongoing disturbance thus reducing the likelihood of significant impacts to protected habitats. (Ex. 301, p. 5, et seq.)

Applicant's consultants conducted surveys on those road segments in early March 2011 to confirm the nature and location of the roads and to review potential environmental impacts. According to Applicant's witness: "the roadbeds are already disturbed through maintenance grading of unpaved roadways" and "[w]e did confirm our previous views that the paving of the road segment would not result in unmitigated adverse impacts, that there was (sic) no potential impacts to biological resources, jurisdictional waters, and no cultural resources were found in this fairly cursory survey of the five miles of roads proposed for paving." (3/2/11 RT 221-222.)

Intervenor CBD (joined by Intervenor DCAP) objected to the evidence on road paving impacts, arguing that the analysis was incomplete because it did not include protocol surveys of biological resources along the roads proposed for paving. CBD also asserted that it would be inappropriate to allow for post-

certification surveys of the roadways proposed for paving. (CBD's Opening Brief pp. 9-10; CBD's Rebuttal Brief pp. 3-6.)

Both Staff's and Applicant's witnesses testified that protocol surveys were not required for the road segments because surveys of sensitive habitat in the project vicinity, which incorporates the roadway segments, were completed, mitigation was identified, and the Conditions of Certification would apply to road paving activities. (3/2/11 RT 222:12-25, 282:15-283:25, 305:7-307:22.) We also note for the record that pre-construction surveys of biological resources are typically required for seasonal species or to determine the existence of previously unidentified sensitive species at the time of construction. (See e.g., Conditions of Certification **BIO-11** [pre-construction floristic surveys to determine the presence of sensitive plant species]; **BIO-12** [pre-construction surveys for arroyo toad]; **BIO 13** [desert tortoise]; **BIO 14** [migratory bird nests]; **BIO-16** [Swainson's hawk]; and **BIO-18** [burrowing owls]). See Biological Resources Mitigation Appendix A, below

CBD maintains that the issue is not simply the failure to perform protocol level surveys but rather, the failure to perform adequate biological surveys capable of disclosing the full range of biological impacts associated with the proposed road paving. According to CBD, CEQA requires that these surveys, whether or not they are protocol level surveys, to contribute to a meaningful understanding of the project's environmental effects. (CBD Rebuttal Brief pp. 3-6.) We note that CEQA sets forth a different, somewhat lesser, standard for reviewing the environmental impacts of mitigation measures, specifying that less detail is necessary when discussing the environmental impacts of a mitigation measure. [Cal. Code Regs., tit. 14, §15126.4(a)(1)(D).] Nevertheless, Staff conducted a detailed analysis of the road paving proposal including review of available literature and information in the surrounding areas, maps and photographs of the road segments and surrounding areas, and visits to all of the road segments contained in the initial proposal. (Ex. 301, p. 5 et seq.; 3/2/11 RT 276-277.)

Applicant's revised list of proposed roads for paving was submitted February 28, 2011, a few days before the March 2, 2011 hearing. (Ex. 146.) The revised list identifies the most disturbed roadways and avoids roads where sensitive habitat and drainage areas were observed. We believe CBD's concern about a full environmental study of road paving impacts was effectively resolved by the revised list of road paving options. In addition, we find the evidence on the potential environmental effects of this PM10 mitigation measure is more than sufficient to satisfy CEQA requirements. Further, we find it appropriate to require

the project owner to conduct pre-construction surveys prior to road paving because this approach is consistent with other provisions of the Conditions of Certification and will provide the most accurate results at the time of project construction.

10. Mitigation

Staff's Table 4, replicated below, summarizes the project's significant impacts on biological resources and identifies the mitigation measures required to reduce the impacts to insignificant levels.

Biological Resources Table 4
Summary of Impacts/Mitigation

Biological Resource	Impact/Mitigation
Mojave Desert Plant Communities and Wildlife Habitat	Impact: Permanent loss of approximately 333 acres of native vegetation at the power plant site, 50 acres at the adjacent laydown area, and 75.49 acres along the transmission line; potential direct impacts to terrestrial wildlife by heavy equipment and grading; increased risk of road kill; increased disturbance/dust to nearby vegetation and wildlife; spread of non-native invasive weeds. Mitigation: Avoidance and minimization measures (BIO-1 through BIO-8); restoration/compensation (BIO-10).
Special-Status Plants	Impact: Potential loss and fragmentation of habitat, potential loss of individuals or populations. Mitigation: Surveys for rare plants prior to ground disturbance, avoidance of large populations of rare plants, and compensatory mitigation if large numbers of rare plants cannot be avoided (BIO-10 and BIO-11).
Common Wildlife	Impact: Potential mortality or disturbance during construction and operation, loss or fragmentation of habitat, displacement, disruption of movement. Mitigation: Avoidance and minimization measures (BIO-1 through BIO-9).
Waters of the State	Impact: Temporary impacts to 0.08 acre of waters of the state where access roads cross drainages. Mitigation: Measures to minimize impacts to Arizona crossings, including avoiding use of the crossings during periods of ponded or flowing water, the installation of railroad flat cars to provide access over the drainage if needed, the implementation of Best Management Practices to minimize the potential for off-site sediment transport, and restoration and compensation should permanent loss of jurisdictional habitat occur (BIO-24).
Special-Status Wildlife	
San Emigdio blue butterfly	Impact: Loss of host plants during construction, degradation of habitat. Mitigation: Dust control measures (BIO-8).

Biological Resource	Impact/Mitigation
Arroyo Toad	Impact: Potential take of individuals during construction. Mitigation: General avoidance and minimization measures (BIO-1 through BIO-9); specific arroyo toad avoidance and minimization measures (BIO-12).
Coast horned lizard, spadefoot toad, and Silvery Legless Lizard	Impact: Potential mortality and disturbance, loss of habitat, and habitat fragmentation Mitigation: General avoidance and minimization measures (BIO-1 through BIO-9).
Desert Tortoise	Impact: Low potential for take of individuals during operation and construction; increased risk of predation from ravens and other predators; increased road kill hazard from construction and operations traffic. Mitigation: Avoidance and minimization measures (BIO-1 through BIO-9, BIO-13); off-site habitat acquisition of 665 acres (BIO-20) for Mohave ground squirrel habitat; raven management plan and fee (BIO-14).
Swainson's Hawk	Impact: Potential loss of nest, eggs, or young; loss of breeding habitat; loss of 5.08 acres of agricultural and 600 acres of native lands that support foraging due to construction of power plant and transmission line Segment 1; disturbance of nesting and foraging activities for populations on and near the plant site and linear facilities. Mitigation: General avoidance and minimization measures (BIO-1 through BIO-9); pre-construction surveys and minimization measures (BIO-16); and habitat compensatory mitigation (BIO-17).
Western Burrowing Owl	Impact: Potential loss of nest, eggs, or young; loss of breeding and foraging habitat; disturbance of nesting and foraging activities for populations on and near the plant site and linear facilities. Mitigation: Implement burrowing owl impact avoidance and mitigation measures; pre-construction surveys; detection and avoidance of active burrows and, if necessary, the acquisition of mitigation lands; and the creation of artificial burrows for displaced individuals (BIO 18).
Golden Eagle	Impact: Low potential for loss of foraging or nesting habitat. Mitigation: General avoidance and minimization measures (BIO-1 through BIO-9); pre-construction surveys and minimization measures (BIO-15); and avian and bat protection plan (BIO-24).
Other Migratory/Special-Status Birds • Loggerhead Shrike • California Horned Lark • Le Conte's Thrasher • Prairie Falcon • Mountain Plover • Vaux Swift	Impact: Disturbance of nesting activities, potential loss of nest, eggs, or young; loss of breeding and foraging habitat. Mitigation: Conduct pre-construction nesting surveys, implement avoidance measures (BIO-15); off-site habitat acquisition and enhancement (BIO-20).
Bird Collisions and Electrocution	Impact: Avian species, including special-status species, could be subject to mortality due to collisions and/or electrocution on project transmission lines or solar arrays. Mitigation: Transmission lines and all electrical components shall be designed, installed, and maintained in accordance with the Avian Power Line Interaction Committee's (APLIC's) *Suggested Practices for Avian Protection on Power Lines* (APLIC 2006) and *Mitigating Bird Collisions with Power Lines* (APLIC 2004) (BIO-8) and avian and bat protection plan (BIO-24).
Mohave Ground Squirrel	Impact: Potential take of individuals during construction and operation; permanent loss of 322 acres of potential habitat; increased road kill hazard from construction and operations traffic. Mitigation: Avoidance and minimization measures including clearance surveys (BIO-1 through BIO-9, BIO-19); off-site habitat acquisition,

Biological Resource	Impact/Mitigation
	endowment, and enhancement of 665 acres (BIO-20).
American Badger and Kit Fox	Impact: Potential loss and fragmentation of habitat, loss of foraging grounds, crushing or entombing of animals during construction. Mitigation: Conduct pre-construction surveys and implement avoidance measures (BIO-21).
Pallid San Diego Pocket Mouse and Southern Grasshopper Mouse	Impact: Potential loss and fragmentation of habitat, potential mortality and disturbance of animals during construction. Mitigation: General avoidance and minimization measures (BIO-1 through BIO-9), off-site habitat acquisition and enhancement (BIO-20).
Special-Status Bats	Impact: Potential loss and fragmentation of habitat, potential mortality and disturbance of animals during construction, potential disruption of roost sites. Mitigation: Avoidance and minimization measures, including pre-construction surveys, avoidance of maternity colonies, provision of substitute roosting habitat, and exclusion of bats prior to demolition of roosts (BIO-22).

(Ex. 300, p. 4.2-34 and 4.2-36.)

11. Alternative Route 4, Partially Undergrounded Transmission Line

As discussed in the **Alternatives** section of this Decision, the Applicant and Staff stipulated to "Alternative Route 4," which gives the project owner the option of undergrounding a portion of the transmission line along Sierra Highway to avoid aviation concerns and to shorten the transmission line route. The underground portion of the transmission line would follow the project's underground gas pipeline for 6.75 miles and then proceed as an overhead line for 6.05 miles to the Vincent Substation for a total of approximately 12.8 miles. (Ex. 300, Appendix A, pp. A-1 - A-6, Figure 2.) The evidence establishes that impacts on biological resources resulting from construction and operation of Alternative Route 4 would be substantially less than the impacts of the proposed 35-mile transmission line alignments. (Ex. 300, Appendix A, p. A-118 et seq.)

Vegetation Impacts and Impacts to Special –Status Plants

Construction of Alternative Route 4 would result in *the least* impacts to native vegetation communities and would avoid the construction and development of extensive transmission line rights-of-way in relatively undisturbed desert habitat. By constructing Route 4 in disturbed environments and within existing city streets, this alternative reduces both direct and indirect impacts to native vegetation. Because of the urban setting, (i.e., road shoulders, ruderal plant communities, and barren areas), potential impacts to rare plants would also be reduced. The shorter length of the line coupled with the reduced development

footprint would further minimize potential impacts to rare plants. (Ex. 300, Appendix A, p. A-118.)

Since Route 4 would result in fewer impacts to native vegetation communities and would be located in or along existing roadways through largely urbanized and disturbed areas, habitats that support native wildlife species are less likely to occur. Thus, impacts on wildlife due to Alternative Route 4 would be lower than impacts resulting from construction of the 35-mile transmission line alignments. (Ex. 300, Appendix A, p. A-118.)

Impacts to Special-Status Invertebrates

Alternative Route 4 would avoid potential San Emigdio blue butterfly habitat because it is physically separated from Una Lake and Little Rock Creek where this species could occur and, therefore, reduce potential impacts on this butterfly species. (Ex. 300, Appendix A, p. A-119.)

Impacts to Special-Status Amphibians

Alternative Route 4 would avoid amphibian habitat along Little Rock Creek and in the system of washes that would be crossed by the Segment 1 and Segment 2 transmission line alignments and thus reduce potential impacts to special-status amphibians. (Ex. 300, Appendix A, p. A-119.)

Impacts to Special-Status Reptiles

Alternative Route 4 would avoid most of the habitat that supports desert tortoise and other sensitive reptiles. Specifically, it would avoid the large open areas of creosote bush scrub and other desert communities that occur along the Segment 1 and Segment 2 transmission line alignments. The urban setting would also reduce the project's contribution to raven perches in the area and further reduce impacts to desert tortoise. The urban setting would also avoid most of the direct impacts to the two stripped garter snake, western pond turtle, horned lizards, and silver legless lizards. (Ex. 300, Appendix A, p. A-119.)

Impacts to Migratory/Special-Status Bird Species

Alternative Route 4 would have the lowest potential to impact sensitive birds including Swainson's hawk nesting and foraging habitat. Since most of Route 4 would be located within existing city streets, direct impacts to birds are not likely to occur. Although Route 4 passes near Una Lake and Palmdale Lake, which support a varied suite of sensitive birds, these areas would not be directly impacted since Route 4 would be adjacent to an existing highway and railroad. Additionally, since this alternative avoids Little Rock Creek a known nesting site for least Bell's vireo and other song birds, it would reduce potential impacts to

burrowing owls and golden eagles since these species are typically not found in an urban setting. (Ex. 300, Appendix A, pp. A-119 -- A-120.)

Impacts to Special-Status Mammals

Alternative Route 4 would result in the least impacts to native vegetation communities that support sensitive mammals. Specifically, Route 4 would avoid potential habitat for the Mohave ground squirrel located along the Segment 1 and 2 rights-of-way. This alternative would also reduce potential impacts to American badgers, desert kit fox, pallid San Diego pocket mouse and the southern grasshopper mouse due to the urban setting. (Ex. 300, Appendix A, p. A-120.)

Alternative Route 4 would also result in fewer impacts to habitat for sensitive bats and would avoid most of the habitat that could support roosting habitat for bats. It would also avoid most of the rocky outcrops, tunnels associated with the Palmdale ditch, and large riparian areas that occur on the Segment 1 and Segment 2 alignment. (Ex. 300, Appendix A, p. A-120.)

Impacts to Wildlife Movement Corridors or Native Wildlife Nursery Sites

Alternative Route 4 also reduces impacts to wildlife movement since it is located within existing roadways in urbanized areas, which do not support wildlife habitat. (Ex. 300, Appendix A, p. A-120.)

Impacts to Waters of the State

Although a jurisdictional delineation was not completed for this alternative and several drainages would be bisected by the alignment, most of the drainages occur in culverts, on well established access roads, or within areas that would not be subject to project disturbance. (Ex. 300, Appendix A, p. A-121.)

Operation Impacts

Because this alternative would have a shorter transmission line, avian collision risks are lower than those associated with the 35-mile line. However, there is a collision risk associated with Una Lake and Palmdale Lake, an area known to support a variety of shore birds and other avian species. Because of this risk, this alternative does not substantially reduce collision risks to birds; however, the mitigation measures described in Condition **BIO-8**, below, will ensure that collision risks are reduced to insignificant levels. (Ex. 300, Appendix A, p. A-121.)

No additional Conditions of Certification are proposed for Alternative Route 4. However, If the project owner pursues Alternative Route 4 instead of the 35-mile Segment 1 and 2 alignments, the impact acreages associated with Conditions of Certification **BIO-14**, **BIO-17**, and **BIO-20** can be reduced as stipulated in

Revised Conditions **Alternative Route 4 BIO-14, -17,** and **-20**, which are inserted at the end of this section following the Conditions of Certification.

FINDINGS OF FACT

Based on the evidence of record, we find as follows:

1. The project site provides habitat for both common and special status wildlife and plant species.
2. The project has the potential to result in significant impacts on the desert tortoise, Mohave ground squirrel, burrowing owl, arroyo toad, Swainson's hawk, Joshua tree woodland, and other common and special-status animal and plant species.
3. The habitat mitigation strategy of 2:1 ratio for the power plant site and 3:1 ratio for the linear facilities, requiring the acquisition and maintenance of at least 665 acres, is adequate to compensate for the permanent loss of habitat for Swainson's hawk, desert tortoise, and Mohave ground squirrel caused by construction and operation of the project.
4. The Swainson's hawk habitat mitigation plan requiring acquisition of 610 acres including a minimum of 366.3 acres of Joshua tree woodland (loss of site habitat) is adequate to compensate for the permanent loss of habitat in the event that the Mohave ground squirrel mitigation strategy does not provide sufficient Swainson's hawk habitat.
5. The project owner shall provide a one-time permanent disturbance fee of $48,142.50 (2010 dollars) to the project sub-account of the Renewable Energy Action Team (REAT) held by the National Fish and Wildlife Foundation (NFWF) to support the REAT Regional Raven Management Program.
6. The impact avoidance and minimization measures included in the Conditions of Certification will serve to reduce impacts to Swainson's hawk, desert tortoise, arroyo toad, and Mohave ground squirrel and other species to below the level of significance.
7. Preconstruction nest surveys, no-disturbance buffers around active nests, and monitoring of nests will be adequate to minimize impacts to nesting birds covered under the Migratory Bird Treaty Act.
8. Transmission lines and all electrical components will be designed in accordance with the Avian Power Line Interaction Committee's Suggested Practices for Raptor Protection on Power Lines and Mitigating Bird Collisions with Power Lines to reduce the likelihood of large bird electrocutions and collisions.

9. Alternative Route 4, the partially undergrounded 12.8-mile transmission line described in the record, is the preferred alternative of the alternative transmission line routes considered by Staff.

10. The rare and native desert plant survey and impact avoidance and minimization plans will be adequate to reduce impacts to rare and native desert plants to below the level of significance.

11. The streambed impact avoidance and minimization measures will also serve to reduce biological impacts to these features caused by construction and operation of the project to below the level of significance.

12. With implementation of noise abatement measures, the project's construction and operational noise levels would not cause a significant adverse effect to wildlife.

13. The measures specified in the Conditions of Certification will adequately mitigate the potential direct, indirect, and cumulative adverse effects of the PHPP upon biological resources to below a level of significance.

14. With the implementation of the mitigation measures, the project will conform to all applicable laws, ordinances, regulations, and standards governing biological resources.

CONCLUSIONS OF LAW

We conclude that with implementation of the Conditions of Certification set forth below, construction and operation of PHPP will not create any significant direct, indirect, or cumulative impacts to biological resources. We further conclude that the project will conform with all applicable laws, ordinances, regulations, and standards relating to biological resources. See Commission Staff's Table 5, below.

Biological Resources Table 5
Compliance with Laws, Ordinances, Regulations, and Standards

Applicable Law	Description	Rationale for Compliance
Federal		
Federal Endangered Species Act (Title 16, United States Code, section 1531 et seq., and Title 50, Code of Federal Regulations, part 17.1 et seq.)	Designates and provides for protection of threatened and endangered plant and animal species and their critical habitat. "Take" of a federally-listed species is prohibited without an incidental take permit, which may be obtained through Section 7 consultation (between federal agencies) or a Section 10 Habitat Conservation Plan.	The project is not expected to result in take of listed species and a federal Biological Opinion would not be required. Conditions of Certification BIO-1 through BIO-9, BIO-12, BIO-13, and BIO-14 include measures to minimize or avoid the potential for take of the federally listed arroyo toad and desert tortoise.
Migratory Bird Treaty (Title 16, United States Code, sections 703 through 711)	Makes it unlawful to take or possess any migratory nongame bird (or any part of such migratory nongame bird) as designated in the Migratory Bird Treaty Act unless permitted by regulation (e.g., duck hunting).	Condition of Certification BIO-15 includes preconstruction nest surveys, no-disturbance buffers around active nests, and monitoring of nests to minimize impacts to nesting birds covered under the Migratory Bird Treaty Act.
Bald and Golden Eagle Protection Act (Title 16, United States Code section 668)	Provides for the protection of the bald eagle and the golden eagle by prohibiting, except under certain specified conditions, the take, possession, and commerce of such birds. The 1972 amendments increased penalties for violating provisions of the act or regulations issued pursuant thereto and strengthened other enforcement measures. Rewards are provided for information leading to arrest and conviction for violation of the act.	Condition of Certification BIO-15 includes preconstruction nest surveys, no-disturbance buffers around active nests, and monitoring of nests to minimize impacts to nesting birds including bald and golden eagles. In addition, staffs Condition of Certification BIO-24 require the development of an avian and bat protection plan.
State		
California Endangered Species Act of 1984 (Fish and Game Code, sections 2050 through 2098)	Protects California's rare, threatened, and endangered species. "Take" of a state-listed species is prohibited without an Incidental Take Permit.	Conditions of Certification BIO-1 through BIO-9, BIO-13, BIO-14, BIO-16, BIO-17, BIO-19, and BIO-20 would ensure that the project is not likely to jeopardize the continued existence of desert tortoise, arroyo toad, Swainson's hawk, or Mohave ground squirrel or result in the degradation of occupied habitat for any state-listed species.
California Code of Regulations (Title 14, sections 670.2 and 670.5)	Lists the plants and animals of California that are declared rare, threatened, or endangered.	Analysis of potential project impacts to rare, threatened, or endangered species is provided above, and conditions of certification are proposed that would minimize impacts to these species.

Applicable Law	Description	Rationale for Compliance
Fully Protected Species (Fish and Game Code, sections 3511, 4700, 5050, and 5515)	Designates certain species as fully protected and prohibits the take of such species or their habitat unless for scientific purposes (see also California Code of Regulations, Title 14, section 670.7).	Golden eagle, bald eagle, California condor, and white-tailed kite are species designated as fully protected that have the potential to occur in the project area. However, Condition of Certification BIO-15 and BIO-24 includes preconstruction nest surveys, no-disturbance buffers around active nests, monitoring of nests to minimize impacts to nesting birds including fully protected species, and requires the development of an avian and bat protection plan.
Nest or Eggs (Fish and Game Code section 3503)	Protects California's birds by making it unlawful to take, possess, or needlessly destroy the nest or eggs of any bird.	Condition of Certification BIO-15 includes preconstruction nest surveys, no-disturbance buffers around active nests, and monitoring of nests to minimize impacts to nesting birds. Condition of Certification BIO-6 includes a Worker Environmental Awareness Program to educate workers about compliance with environmental regulations, including Fish and Game Code section 3503.
Migratory Birds (Fish and Game Code section 3513)	Protects California's migratory birds by making it unlawful to take or possess any migratory nongame bird as designated in the Migratory Bird Treaty Act or any part of such migratory nongame birds.	Condition of Certification BIO-15 includes preconstruction nest surveys, no-disturbance buffers around active nests, and monitoring of nests to minimize impacts to nesting birds. Condition of Certification BIO-6 includes a Worker Environmental Awareness Program to educate workers about compliance with environmental regulations, including Fish and Game Code section 3513.
Significant Natural Areas (Fish and Game Code section 1930 et seq.)	Designates certain areas such as refuges, natural sloughs, riparian areas, and vernal pools as significant wildlife habitat.	Condition of Certification BIO-23 includes measures to minimize and avoid impacts to riparian habitat.

Applicable Law	Description	Rationale for Compliance
California Environmental Quality Act (CEQA), CEQA Guidelines section 15380	CEQA defines rare species more broadly than the definitions for species listed under the state and federal Endangered Species Acts. Under section 15830, species not protected through state or federal listing but nonetheless demonstrable as "endangered" or "rare" under CEQA should also receive consideration in environmental analyses. Included in this category are many plants considered rare by the California Native Plant Society (CNPS) and some animals on the CDFG's Special Animals List.	Implementation of Conditions of Certification BIO-1 through BIO-25 would ensure that the project would be in compliance with CEQA.
Streambed Alteration Agreement (Fish and Game Code sections 1600 et seq.)	Regulates activities that may divert, obstruct, or change the natural flow or the bed, channel, or bank of any river, stream, or lake in California designated by CDFG in which there is at any time an existing fish or wildlife resource or from which these resources derive benefit. Impacts to vegetation and wildlife resulting from disturbances to waterways are also reviewed and regulated during the permitting process.	Condition of Certification BIO-23 includes measures to minimize and avoid impacts to jurisdictional waters of the state.
Water Quality Control Plan for the Lahontan Region (Basin Plan)	The Basin Plan establishes water quality objectives that protect the beneficial uses of surface water and groundwater in the Region. The Basin Plan describes implementation plans and other control measures designed to ensure compliance with statewide plans and policies and provide comprehensive water quality planning. Beneficial uses for minor surface water bodies of the Koehn Hydrologic Area include wildlife habitat.	Condition of Certification BIO-23 includes measures to minimize and avoid impacts to jurisdictional waters of the state.
California Native Plant Protection Act of 1977 (Fish and Game Code section 1900 et seq.)	Designates state rare, threatened, and endangered plants.	Conditions of Certification BIO-10 and BIO-11 include restoration and compensation for impacts to native plant communities, special-status plant surveys, and a Sensitive Plant Protection Plan to minimize impacts to special-status plants.
California Desert Native Plants Act of 1981 (Food and Agricultural Code section 80001 et seq. and California Fish and Game Code sections 1925-1926)	Protects non-listed California desert native plants from unlawful harvesting on both public and private lands in Imperial, Inyo, Kern, Los Angeles, Mono, Riverside, San Bernardino, and San Diego counties. Unless issued a valid permit, wood receipt, tag, and seal by the commissioner or sheriff, harvesting, transporting, selling, or possessing specific desert plants is prohibited.	Conditions of Certification BIO-1 through BIO-10, and BIO-20 include measures to minimize and mitigate potential impacts to Joshua Trees and/or cacti.

Applicable Law	Description	Rationale for Compliance
Local Antelope Valley Areawide General Plan.	This plan requires the minimizing disruption and degradation of the environment, integrating land uses with natural environmental systems, instituting measures to mitigate the impacts of environmental hazards, and prohibiting expansion of urban uses into areas of rare and endangered species. It promotes the designation of significant plant and wildlife habitats as Significant Ecological Areas (SEAs), preservation of biotic diversity in the valley by designating rare and unique plant and animal SEAs and the measures for their protection, and adding new SEAs when appropriate. If projects have the potential to impact biotic resources, a biological assessment will be required. This plan requires the establishment of an open space network and prohibits the harvesting of Joshua trees or juniper trees for fuel or for their relocation out of its normal habitats. Management plans will be developed for MIS (Management Indicator Species) in cooperation with CDFG, standing dead trees will be maintained at reasonable density providing nesting habitat for raptors and other predators; interim management plans will be created when actual recovery plans do not exist.	Implementation of staff's proposed Conditions of Certification **BIO-1** through **BIO-25** would ensure that the project remains in compliance with the Antelope Valley Areawide General Plan.
City of Palmdale General Plan	The City of Palmdale General Plan (1993) sets forth goals to preserve and protect biological resources, including: (1) preserve significant natural and man-made open space areas; (2) protect significant ecological resources and ecosystems, including, but not limited to, sensitive flora and fauna habitat areas; (3) preserve designated natural hillsides and ridgelines in the Planning Area, to maintain the aesthetic character of the Antelope Valley; (4) protect the quality and quantity of local water resources; and (5) promote the attainment of state and federal air quality standards. Biological resources are addressed in the City's General Plan Goal ER2, which calls for protecting "…significant ecological resources and ecosystems, including, but not limited to, sensitive flora and fauna habitat areas." Significant Ecological Areas are identified at Big Rock Wash, Little Rock Wash, Ritter Ridge, Portal Ridge and Alpine	Implementation of staff's proposed Conditions of Certification **BIO-1** through **BIO-25** would ensure that the project remains in compliance with the City of Palmdale General Plan.

Applicable Law	Description	Rationale for Compliance
	Butte. Biological surveys are required for any new development in these areas, and significant environmental resources are required to be considered and preserved to the extent feasible. The plan also calls for the preservation of natural drainage courses and riparian areas containing significant concentrations of ecological resources, as well as significant Joshua tree woodlands. The City will require biological assessments and reports for projects in known or suspected natural habitat areas prior to Project approval. These reports will be used to establish significant natural habitat areas and ecologically sensitive zones to prevent disturbance and degradation of these areas. Recommended mitigation measures as identified in the reports will be required to be implemented as development occurs.	
County of Los Angeles Significant Ecological Areas	Significant Ecological Areas are specified by the CLAGP as "ecologically important land and water systems that are valuable as plant or animal communities, often important to the preservation of threatened and endangered species, and conservation of biological diversity within the County." There are a total of 31 existing and proposed SEAs within Los Angeles County and a total of 11 within 10 miles of the project. Only the Little Rock Wash and Kentucky Springs SEA overlaps the project area. Little Rock Wash SEA is spanned by the transmission line in two locations. (County of Los Angeles, 2007a).	Staff has included conditions of certification to reduce impacts to biological resources that occur in these areas. Staff's proposed Conditions of Certification **BIO-1** through **BIO-25** include measures to minimize or avoid the potential to conflict with polices protecting ecologically important land and water systems within the County.
City of Palmdale Native Desert Vegetation Ordinance	The City has adopted Ordinance No. 952, referred to as the Native Desert Vegetation Ordinance. This ordinance is designed to preserve a number of specimen-quality juniper (*Juniperus californica*) and Joshua trees (*Yucca brevifolia*) that add to community identity, and to encourage the use of native vegetation in new development landscaping. All landscaping for new developments must conform to the requirements set forth in the Native Desert Vegetation Ordinance	Staff's proposed Conditions of Certification **BIO-1** through **BIO-10**, and **BIO-20** include measures to minimize and mitigate potential impacts to Joshua Trees and/or cacti.

Source: Ex. 300, pp. 4.2-78 – 4.2-82.

CONDITIONS OF CERTIFICATION

DESIGNATED BIOLOGIST SELECTION[2]

BIO-1 The project owner shall assign at least one Designated Biologist to the project. The project owner shall submit the resume of the proposed Designated Biologist, with at least three references and contact information, to the Energy Commission Compliance Project Manager (CPM) for approval in consultation with the California Department of Fish and Game (CDFG) and U.S. Fish and Wildlife Service (USFWS).

The Designated Biologist must meet the following minimum qualifications:

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

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

3. At least one year of field experience with biological resources found in or near the project area;

4. Meet the current USFWS Authorized Biologist qualifications criteria (USFWS 2008b) and demonstrate familiarity with protocols and guidelines for the desert tortoise, and be approved by the USFWS; and

5. Possess a recovery permit for desert tortoise and a California ESA Memorandum of Understanding pursuant to Section 2081(a) for desert tortoise and Mohave ground squirrel or have adequate experience and qualifications to obtain these authorizations.

In lieu of the above requirements, the resume shall demonstrate to the satisfaction of the CPM, in consultation with CDFG and USFWS, that the proposed Designated Biologist or alternate has the appropriate training and background to effectively implement the conditions of certification.

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[2] USFWS <www.fws.gov/ventura/speciesinfo/protocols_guidelines/docs/dt> designates biologists who are approved to handle tortoises as “Authorized Biologists.” Such biologists have demonstrated to USFWS that they possess sufficient desert tortoise knowledge and experience to handle and move tortoises appropriately, and have received USFWS approval. Authorized Biologists are permitted to then approve specific monitors to handle tortoises, at their discretion. The California Department of Fish and Game (CDFG) must also approve such biologists, potentially including individual approvals for monitors approved by the Authorized Biologist. Designated Biologists are the equivalent of Authorized Biologists. Only Designated Biologists and certain Biological Monitors who have been approved by the Designated Biologist would be allowed to handle desert tortoises.

Verification: The project owner shall submit the specified information at least 60 days prior to the start of any project-related site disturbance activities. 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 10 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 Biologists shall complete a USFWS Qualifications Form (USFWS 2008b) (www.fws.gov/ventura/speciesinfo/protocols_guidelines) and submit it to the USFWS and CPM within 60 days prior to ground breaking for review and final approval.

DESIGNATED BIOLOGIST DUTIES

BIO-2 The project owner shall ensure that the Designated Biologist performs the following during any site (or related facilities) mobilization, ground disturbance, grading, construction, operation, and closure activities. The Designated Biologist may be assisted by the approved Biological Monitor(s) but remains the contact for the project owner and CPM. The Designated Biologist duties shall include the following:

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 resources compliance efforts, particularly in areas requiring avoidance or containing sensitive biological resources, such as special-status species or their habitat;

4. Clearly mark sensitive biological resource areas and inspect these areas at appropriate intervals for compliance with regulatory terms and conditions;

5. Inspect active construction areas where animals may have become trapped prior to construction commencing each day. At the end of the day, inspect for the installation of structures that prevent entrapment or allow escape during periods of construction

inactivity. Periodically inspect areas with high vehicle activity (e.g., parking lots) for animals in harm's way;

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

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

8. Maintain written records of the tasks specified above and those included in the BRMIMP. Summaries of these records shall be submitted in the Monthly Compliance Report and the Annual Compliance Report;

9. Train the Biological Monitors as appropriate, and ensure their familiarity with the BRMIMP, Worker Environmental Awareness Program (WEAP) training, and USFWS guidelines on desert tortoise surveys and handling procedures <www.fws.gov/ventura/speciesinfo/protocols_guidelines>; and

10. Maintain the ability to be in regular, direct communication with representatives of CDFG and USFWS, including notifying these agencies of dead or injured listed species and reporting special-status species observations to the California Natural Diversity Data Base.

Verification: The Designated Biologist shall submit in the Monthly Compliance Report to the CPM copies of all written reports and summaries that document biological resources compliance 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 his/her duties cease, 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 in consultation with CDFG and USFWS. The resume shall demonstrate, to the satisfaction of the CPM, the appropriate education and experience to accomplish the assigned biological resource tasks. Biological Monitors involved in any aspect of desert tortoise surveys or handling must meet the criteria to be considered a USFWS Authorized Biologist (USFWS 2008b) and demonstrate familiarity with the most recent protocols and guidelines for the desert tortoise.

Biological Monitor(s) training by the Designated Biologist shall include familiarity with the conditions of certification, BRMIMP, WEAP, USFWS guidelines on desert tortoise surveys and handling procedures <www.fws.gov/ventura/speciesinfo/protocols_guidelines> and all permits.

Verification: The project owner shall submit the specified information to the CPM for approval at least 60 days prior to the start of any project-related site disturbance activities. The Designated Biologist shall submit a written statement to the CPM confirming that individual Biological Monitor(s) has 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 at least 10 days prior to their first day of monitoring activities.

BIOLOGICAL MONITOR DUTIES

BIO-4 The Biological Monitors shall assist the Designated Biologist in conducting surveys and in monitoring of mobilization, ground disturbance, grading, construction, operation, and closure activities. The Designated Biologist shall remain the contact for the project owner and CPM.

Verification: The Designated Biologist shall submit in the Monthly Compliance Report to the CPM copies of all written reports and summaries that document biological resources compliance activities, including those conducted or monitored by Biological Monitors. If actions may affect biological resources during operation, a Biological Monitor, under the supervision of the 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 his/her duties cease, as approved by the CPM.

DESIGNATED BIOLOGIST AND BIOLOGICAL MONITOR AUTHORITY

BIO-5 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.

The Designated Biologist shall have the authority to immediately stop any activity that is not in compliance with these conditions and/or order any reasonable measure to avoid take of an individual of a listed species. If required by the Designated Biologist and Biological Monitor(s) the project owner's construction/operation manager shall halt all site mobilization, ground disturbance, grading, construction, and operation activities in areas specified by the Designated Biologist. The Designated Biologist shall:

1. Require a halt to all activities in any area when determined that there would be an unauthorized adverse impact to biological resources if the activities continued;

2. Inform the project owner and the construction/operation manager when to resume activities;

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, and

4. 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 morning following the incident, or Monday morning in the case of a weekend) of any non-compliance or a halt of any site mobilization, ground disturbance, grading, construction, and operation activities. The project owner shall notify the CPM of the circumstances and actions being taken to resolve the problem.

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

WORKER ENVIRONMENTAL AWARENESS PROGRAM (WEAP)

BIO-6 The project owner shall develop and implement PHPP-specific Worker Environmental Awareness Program (WEAP) and shall secure approval for the WEAP from USFWS, CDFG, and the CPM. The WEAP shall be administered to all on-site personnel including surveyors, construction engineers, employees, contractors, contractor's employees, supervisors, inspectors, subcontractors, and delivery personnel. The WEAP shall be implemented during site mobilization, ground disturbance, grading, construction, operation, and closure. The WEAP shall:

1. Be developed by or in consultation with the Designated Biologist and consist of an on-site or training center presentation in which supporting written material and electronic media is made available to all participants;

2. Discuss the locations and types of sensitive biological resources on the project site and adjacent areas and explain the reasons for protecting these resources;

3. Place special emphasis on Swainson's hawk, arroyo toad, desert tortoise and Mohave ground squirrel, including information on physical characteristics, distribution, behavior, ecology, sensitivity to human activities, legal protection, penalties for violations, reporting requirements, and protection measures;

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 he/she 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 project-related site disturbance activities, the project owner shall provide to the CPM a copy of the 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, the project owner shall submit two copies of the CPM-approved final WEAP.

Training acknowledgement forms signed during construction shall be kept on file by the project owner for at least six months after the start of commercial operation.

Throughout the life of the project, the worker education program shall be repeated annually for permanent employees, and shall be routinely administered within one week of arrival to any new construction personnel, foremen, contractors, subcontractors, and other personnel potentially working within the project area. Upon completion of the orientation, employees shall sign a form stating that they attended the program and understand all protection measures. These forms shall be maintained by the project owner and shall be made available to the CPM upon request. Workers shall receive and be required to visibly display a hardhat sticker or certificate that they have completed the training.

During project operation, signed statements for 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

BIO-7 The project owner shall develop a Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP) and submit two copies

of the proposed BRMIMP to the CPM (for review and approval) and shall implement the measures identified in the approved BRMIMP. The BRMIMP shall incorporate impact avoidance and minimization measures described in final versions of the Mohave Ground Squirrel Translocation Plan; the Restoration Plan; the Hazardous Materials Plan; the Sensitive Plant Protection Plan; the Raven Monitoring, Management, and Control Plan; the Swainson's Hawk Monitoring and Mitigation Plan; the Burrowing Owl Monitoring and Mitigation Plan; the Streambed Avoidance and Mitigation Plan; and the Closure Plan.

The BRMIMP shall be prepared in consultation with the Designated Biologist and shall include the following:

1. All biological resources mitigation, monitoring, and compliance measures proposed and agreed to by the project owner (including the Air Quality Road Paving PM10 Mitigation Plan) ;

2. All biological resources conditions of certification identified as necessary to avoid or mitigate impacts;

3. All biological resource mitigation, monitoring, and compliance measures required in federal agency terms and conditions;

4. All sensitive biological resources to be impacted, avoided, or mitigated by project construction, operation, and closure;

5. All required mitigation measures for each sensitive biological resource;

6. A detailed description of measures that shall be taken to avoid or mitigate temporary disturbances from construction activities;

7. All locations on a map, at an approved scale, of sensitive biological resource areas subject to disturbance and areas requiring temporary protection and avoidance during construction;

8. Aerial photographs, at an approved scale, of all areas to be disturbed during project construction activities; include one set prior to any site or related facilities mobilization disturbance and one set subsequent to completion of project construction. Provide planned timing of aerial photography and a description of why times were chosen. Provide a final accounting of the before/after acreages and a determination of whether additional habitat compensation is necessary in the Construction Termination Report;

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

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

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

12. A discussion of biological resources-related facility closure measures including a description of funding mechanism(s); and

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

Verification: The project owner shall submit the BRMIMP to the CPM at least 60 days prior to start of any project-related site disturbance activities. The CPM, in consultation with other appropriate agencies, will determine the BRMIMP's acceptability within 45 days of receipt. The BRMIMP shall contain all of the required measures included in all biological conditions of certification. No ground disturbance may occur prior to the CPM's approval of the final BRMIMP.

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 appropriate agencies to ensure no conflicts exist.

Implementation of BRMIMP measures (construction activities that were monitored, species observed) will be reported in the Monthly Compliance Reports by the Designated Biologist. Within 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.

IMPACT AVOIDANCE AND MINIMIZATION MEASURES

BIO-8 The project owner shall undertake the following measures to manage the construction site and related facilities in a manner to avoid or minimize impacts to biological resources:

1. Limit Disturbance Area. The boundaries of all areas to be disturbed (including staging areas, access roads, and sites for temporary placement of spoils) shall be delineated with stakes and flagging prior to construction activities in consultation with the Designated Biologist. Spoils shall be stockpiled in disturbed areas lacking native vegetation and which do not provide habitat for special-status species. Parking areas, staging and disposal site locations shall also be located in areas without native vegetation or special-

status species habitat. All disturbances, vehicles, and equipment shall be confined to the flagged areas.

2. Minimize Road Impacts. New and existing roads that are planned for construction, widening, or other improvements shall not extend beyond the flagged impact area as described above. All vehicles passing or turning around will do so within the planned impact area or in previously disturbed areas. Where new access is required outside of existing roads (e.g. new spur roads) or the construction zone, the route will be clearly marked (i.e., flagged and/or staked) prior to the onset of construction.

3. Minimize Traffic Impacts. Vehicular traffic during project construction and operation shall be confined to existing routes of travel to and from the project site, and cross country vehicle and equipment use outside designated work areas shall be prohibited. The speed limit shall not exceed 25 miles per hour within the project area, on maintenance roads for linear facilities, or on access roads to the PHPP site.

4. Monitor During Construction. The Designated Biologist or Biological Monitor shall be present at the construction site during all project activities that have potential to disturb soil, vegetation, and wildlife. In areas that could support desert tortoise, Mohave ground squirrel, or any other sensitive wildlife species, the USFWS-approved Designated Biologist or Biological Monitor shall walk immediately ahead of equipment during brushing and grading activities.

5. Salvage Wildlife during Clearing and Grubbing. The Designated Biologist or Biological Monitor shall salvage and relocate sensitive wildlife during clearing and grading operations. The species shall be salvaged when conditions will not jeopardize the health and safety of the monitor and relocated off-site habitat.

6. Minimize Impacts of Transmission/Pipeline Alignments, Roads, and Staging Areas. For construction activities outside of the plant site (transmission line, pipeline alignments) access roads, pulling sites, and storage and parking areas shall be designed, installed, and maintained with the goal of minimizing impacts to native plant communities and sensitive biological resources. Transmission lines and all electrical components shall be designed, installed, and maintained in accordance with the Avian Power Line Interaction Committee's (APLIC's) *Suggested Practices for Avian Protection on Power Lines* (APLIC 2006) and *Mitigating Bird Collisions with Power Lines* (APLIC 2004) to reduce the likelihood of bird electrocutions and collisions.

7. Avoid Use of Toxic Substances. Road surfacing and sealants as well as soil bonding and weighting agents used on unpaved surfaces shall be non-toxic to wildlife and plants. Anticoagulants shall not be used for rodent control.

8. Minimize Lighting Impacts. Facility lighting shall be designed, installed, and maintained to prevent side casting of light towards wildlife habitat.

9. Avoid Vehicle Impacts to Desert Tortoise. No vehicles or construction equipment shall be moved prior to an inspection of the ground beneath the vehicle for the presence of desert tortoise. If a desert tortoise is observed, it will be left to move on its own. If the tortoise does not move, the animal will be relocated to a safe location within 500 feet of the project area. No tortoise shall be moved without authorization from the CDFG, USFWS, and CPM.

10. Avoid Wildlife Pitfalls. At the end of each work day, the Designated Biologist shall ensure that all potential wildlife pitfalls (trenches, bores, and other excavations) outside the permanently fenced area have been backfilled. If backfilling is not feasible, all trenches, bores, and other excavations shall be sloped at a 3:1 ratio at the ends to provide wildlife escape ramps, or covered completely to prevent wildlife access, or fully enclosed with tortoise-exclusion fencing. All trenches, bores, and other excavations shall be inspected periodically throughout and at the end of each workday by the Designated Biologist or a Biological Monitor. Should wildlife become trapped, the Designated Biologist or Biological Monitor shall remove and relocate the individual to a safe location. Any wildlife encountered during the course of construction shall be allowed to leave the construction area unharmed.

11. Avoid Entrapment of Desert Tortoise and Mohave Ground Squirrel. Any construction pipe, culvert, or similar structure with a diameter greater than 3 inches, stored less than 8 inches above ground and within desert tortoise or Mohave ground squirrel habitat for one or more days/nights, shall be inspected for tortoises or Mohave ground squirrel before the material is moved, buried, or capped. As an alternative, all such structures may be capped before being stored outside the fenced area, or placed on pipe racks. These materials would not need to be inspected or capped if they are stored within the permanently fenced area after the clearance surveys have been completed.

12. Minimize Standing Water. Water applied to dirt roads and construction areas (trenches or spoil piles) for dust abatement shall use the minimal amount needed to meet safety and air quality

standards in an effort to prevent the formation of puddles, which could attract desert tortoises and common ravens to construction sites. A Biological Monitor shall patrol these areas to ensure water does not puddle and attract desert tortoise, common ravens, and other wildlife to the site and shall take appropriate action to reduce water application where necessary.

13. Minimize Spills of Hazardous Materials. All vehicles and equipment shall be maintained in proper working condition to minimize the potential for fugitive emissions of motor oil, antifreeze, hydraulic fluid, grease, or other hazardous materials. The Designated Biologist shall be informed of any hazardous spills immediately as directed in the project Hazardous Materials Plan. Hazardous spills shall be immediately cleaned up and the contaminated soil properly disposed of at a licensed facility. Servicing of construction equipment shall take place only at a designated area. Service/maintenance vehicles shall carry a bucket and pads to absorb leaks or spills.

14. Worker Guidelines. During construction all trash and food-related waste shall be placed in self-closing containers and removed daily from the site. Workers shall not feed wildlife or bring pets to the project site. Except for law enforcement personnel, no workers or visitors to the site shall bring firearms or weapons.

15. Avoid Spread of Noxious Weeds. The project owner shall implement the following Best Management Practices during construction and operation to prevent the spread and propagation of noxious weeds:

    a. Limit the size of any vegetation and/or ground disturbance to the absolute minimum and limit ingress and egress to defined routes;

    b. Prevent spread of non-native plants via vehicular sources by implementing Trackclean™ or other methods of vehicle cleaning for vehicles coming and going from construction sites. Earth-moving equipment shall be cleaned prior to transport to the construction site;

    c. Use only weed-free straw, hay bales, and seed for erosion control and sediment barrier installations, and

    d. Avoid using invasive non-native species in landscaping plans and erosion control.

16. Stockpile Topsoil. To increase chances for revegetation success, topsoil shall be stockpiled from the project plant site and along

project linear features for use in revegetation of temporarily disturbed areas. The top tow (2) to six (6) inches of native topsoil depending on soil conditions that occur at each area subject to temporary disturbance that are relatively free of noxious weeds such as Russian thistle, yellow star thistle, or similar exotics shall be scraped and separately stockpiled for use in revegetation. The amount of topsoil needed for the project plant site and laydown area will be estimated when final design plans are available, and only the amount expected to be needed for revegetation of temporarily disturbed areas will be collected and stockpiled. The collection and stockpiling of topsoil shall be conducted as described in *Rehabilitation of Disturbed Lands in California.* (Newton and Claassen 2003, pp. 39-40.)

17. Implement Erosion Control Measures. Standard erosion control measures shall be implemented for all phases of construction and operation where sediment run-off from exposed slopes threatens to enter "Waters of the State". Sediment and other flow-restricting materials shall be moved to a location where they shall not be washed back into the stream. All disturbed soils and roads within the project site shall be stabilized to reduce erosion potential, both during and following construction. Areas of disturbed soils (access and staging areas) with slopes toward a drainage shall be stabilized to reduce erosion potential.

18. Monitor Ground-Disturbing Activities Prior to Site Mobilization. If ground-disturbing activities are required prior to site mobilization, such as for geotechnical borings or hazardous waste evaluations, a Designated Biologist or Biological Monitor shall be present to monitor any actions that could disturb soil, vegetation, or wildlife.

19. Control and Regulate Fugitive Dust. To reduce the potential for the transmission of fugitive dust the owner shall implement dust control measures. These shall include:

    a. The owner shall apply non-toxic soil binders, equivalent or better in efficiencies than the CARB- approved soil binders, to active unpaved roadways, unpaved staging areas, and unpaved parking area(s) throughout construction to reduce fugitive dust emissions.

    b. Water the disturbed areas of the active construction sites at least three times per day and more often if uncontrolled fugitive dust is noted.

    c. Enclose, cover, water twice daily, and/or apply non-toxic soil binders according to manufacturer's specifications to exposed piles with a 5 percent or greater silt content.

d. Establish a vegetative ground cover (in compliance with biological resources impact mitigation measures above) or otherwise create stabilized surfaces on all unpaved areas at each of the construction sites within 21 days after active construction operations have ceased.

e. Increase the frequency of watering, if water is used as a soil binder for disturbed surfaces, or implement other additional fugitive dust mitigation measures, to all active disturbed fugitive dust emission sources when wind speeds (as instantaneous wind gusts) exceed 25 mph.

Verification: All mitigation measures and their implementation methods shall be included in the BRMIMP and implemented. Implementation of the measures will be reported in the Monthly Compliance Reports by the Designated Biologist. Within 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.

COMPLIANCE VERIFICATION

BIO-9 The project owner shall provide Energy Commission staff, CDFG, and USFWS with reasonable access to the project site and mitigation lands under the control of the project owner and shall otherwise fully cooperate with the Energy Commission's efforts to verify the project owner's compliance with, or the effectiveness of, mitigation measures set forth in the conditions of certification. The project owner shall hold harmless the Designated Biologist, the Energy Commission and staff, and any other agencies with regulatory requirements addressed by the Energy Commission's sole permitting authority for any costs the project owner incurs in complying with the management measures, including stop work orders issued by the CPM or the Designated Biologist. The Designated Biologist shall do all of the following:

1. Notification. Notify the CPM, CDFG, and USFWS at least 14 calendar days before initiating ground-disturbing activities. Immediately notify the CPM, CDFG, and USFWS in writing if the project owner is not in compliance with any conditions of certification, including but not limited to any actual or anticipated failure to implement mitigation measures within the time periods specified in the conditions of certification. CDFG shall be notified at their Southern Region Headquarters Office, 4949 Viewridge Avenue, San Diego, CA 92123; (858) 467-4201. USFWS shall be notified at their Ventura office at 2493 Portola Road, Suite B, Ventura, CA 93003; (805) 644-1766.

2. Monitoring During Grading. Remain on site daily while grubbing and grading are taking place to avoid or minimize take of listed species, to check for compliance with all impact avoidance and minimization

measures, and to check all exclusion zones to ensure that signs, stakes, and fencing are intact and that human activities are restricted in these protected zones.

3. Fence Monitoring. During construction maintain and check desert tortoise exclusion fences on a daily basis to ensure the integrity of the fence is maintained. The Designated Biologist shall be present on site to monitor construction and determine fence placement during fence installation. During operation of the project, fence inspections shall occur at least once per month throughout the life of the project, and more frequently after storms or other events that might affect the integrity and function of desert tortoise exclusion fences. Fence repairs shall occur within two days (48 hours) of detecting problems that affect the functioning of the desert tortoise exclusion fencing.

4. Monthly Compliance Inspections. Conduct compliance inspections at a minimum of once per month after clearing, grubbing, and grading are completed and until construction is completed and submit a monthly compliance report to the CPM, USFWS, and CDFG. All observations of listed species and their sign shall be reported to the Designated Biologist for inclusion in the monthly compliance report.

5. Annual Listed Species Status Report. No later than January 31 of every year the PHPP facility remains in operation, provide the CPM, USFWS, and CDFG an annual Listed Species Status Report, which shall include, at a minimum: 1) a general description of the status of the project site and construction/operation activities, including actual or projected completion dates, if known; 2) a copy of the table in the BRMIMP with notes showing the current implementation status of each mitigation measure; 3) an assessment of the effectiveness of each completed or partially completed mitigation measure in minimizing and compensating for project impacts, and 4) recommendations on how effectiveness of mitigation measures might be improved.

6. Final Listed Species Mitigation Report. No later than 45 days after initiation of project operation, provide the CPM a Final Listed Species Mitigation Report that shall include, at a minimum: 1) a copy of the table in the BRMIMP with notes showing when each of the mitigation measures was implemented; 2) all available information about project-related incidental take of listed species; 3) information about other project impacts on the listed species; 4) construction dates; 5) an assessment of the effectiveness of conditions of certification in minimizing and compensating for project impacts; 6) recommendations on how mitigation measures

might be changed to more effectively minimize and mitigate the impacts of future projects on the listed species; and 7) any other pertinent information, including the level of take of the listed species associated with the project.

7. Notification of Injured, Dead, or Relocated Listed Species. In the event of a sighting in an active construction area (e.g., with equipment, vehicles, or workers), injury, kill, or relocation of any listed species, the CPM, CDFG, and USFWS shall be notified immediately by phone. Notification shall occur no later than noon on the business day following the event if it occurs outside normal business hours so that the agencies can determine if further actions are required to protect listed species. Written follow-up notification via FAX or electronic communication shall be submitted to these agencies within two calendar days of the incident and include the following information as relevant:

   a. Injured Desert Tortoise. If a desert tortoise is injured as a result of project-related activities during construction, the Designated Biologist shall immediately take it to a CDFG-approved wildlife rehabilitation and/or veterinarian clinic. Any veterinarian bills for such injured animals shall be paid by the project owner. Following phone notification as required above, the CPM, CDFG, and USFWS shall determine the final disposition of the injured animal, if it recovers. Written notification shall include, at a minimum, the date, time, location, circumstances of the incident, and the name of the facility where the animal was taken.

   b. Desert Tortoise/Mohave Ground Squirrel Fatality. If a desert tortoise or Mohave ground squirrel is killed by project-related activities during construction or operation, or if a desert tortoise or Mohave ground squirrel is otherwise found dead, submit a written report with the same information as an injury report. These desert tortoises shall be salvaged according to guidelines described in *Salvaging Injured, Recently Dead, Ill, and Dying Wild, Free-Roaming Desert Tortoise* (Berry 2001). The project owner shall pay to have the desert tortoises transported and necropsied. The report shall include the date and time of the finding or incident.

8. Stop Work Order. The CPM may issue the project owner a written stop work order to suspend any activity related to the construction or operation of the project to prevent or remedy a violation of one or more conditions of certification (including but not limited to failure to comply with reporting, monitoring, or habitat acquisition obligations) or to prevent the illegal take of an endangered, threatened, or

candidate species. The project owner shall comply with the stop work order immediately upon receipt thereof.

Verification: No later than two calendar days following the above-required notification of a sighting, kill, injury, or relocation of a listed species, the project owner shall deliver to the CPM, CDFG, and USFWS via FAX or electronic communication the written report from the Designated Biologist describing all reported incidents of the sighting, injury, kill, or relocation of a listed species, identifying who was notified and explaining when the incidents occurred. In the case of a sighting in an active construction area, the project owner shall, at the same time, submit a map (e.g., using Geographic Information Systems) depicting both the limits of construction and sighting location to the CPM, CDFG, and USFWS.

No later than January 31st of every year the PHPP facility remains in operation, provide the CPM an annual Listed Species Status Report as described above, and a summary of desert tortoise exclusion fence inspections and repairs conducted in the course of the year.

RESTORATION PLAN FOR IMPACTS TO NATIVE VEGETATIONCOMMUNITIES

BIO-10 The project owner shall provide restoration for impacts to native vegetation communities and develop and implement a Restoration Plan for all areas subject to temporary project disturbance. Upon completion of construction, all temporarily disturbed areas shall be revegetated, excluding the road and roadbed. The following measures shall be implemented for the revegetation effort areas not subject to the facility Landscape Plan. These measures will include:

1. Plan Details. The plans shall include at minimum: (a) the location of the mitigation site; (b) locations and details for top soil storage; (c) the plant species to be used; (d) seed collection guidelines; (e) a schematic depicting the mitigation area; (f) time of year that the planting will occur and the methodology of the planting; (g) a description of the irrigation methodology if used; (h) measures to control exotic vegetation on site; (i) success criteria; (j) a detailed monitoring program; and k) locations and impacts to all Joshua and Juniper Trees. All habitats dominated by non-native species prior to project disturbance shall be revegetated using appropriate native species.

2. Topsoil Salvage. Topsoil shall be stockpiled from the project plant site and linear features for use in revegetation of temporarily disturbed soils. The top two (2) to six (6) inches of soil depending on soil conditions that occur at each area subject to temporary disturbance that are relatively free of noxious weeds such as Russian thistle, yellow star thistle, or similar exotics shall be scraped and separately stockpiled for use in revegetation of

temporarily disturbed areas. The amount of topsoil needed for the project plant site and laydown area will be estimated when final design plans are available, and only the amount expected to be needed for revegetation of temporarily disturbed areas will be collected and stockpiled. The collection and stockpiling of topsoil shall be conducted as described on pages 39-40 of *Rehabilitation of Disturbed Lands in California* (Newton and Claassen 2003).

3. Seed Stock. Only seed of locally occurring species shall be used for revegetation. Seeds shall contain a mix of short-lived early pioneer species such as native annuals and perennials and subshrubs (for example, squirreltail, cheesebush, matchweed, peppergrass, rabbitbrush, creosote bush, burro-weed, wolfberry, Nevada tea, needlegrass, rice grass, goldenhead). Seeding shall be conducted as described in Chapter 5 of *Rehabilitation of Disturbed Lands in California* (Newton and Claassen 2003, as updated). A list of plant species suitable for Mojave Desert region revegetation projects, including recommended seed treatments, are included in Appendix A-8 of the same report. The list of plants observed during the required special-status plant surveys of the PHPP project area can also be used as a guide to site-specific plant selection for revegetation.

4. Monitoring Requirement and Success Criteria. Post-seeding and planting monitoring will be yearly from years one to five or until the success criteria are met. If the survival and cover requirements have not been met, the owner is responsible for replacement planting to achieve these requirements. Replacement plants shall be monitored with the same survival and growth requirements as previously mentioned. Remediation activities (e.g. additional planting, removal of non-native invasive species, or erosion control) shall be taken during the five-year period if necessary to ensure the success of the restoration effort. If the mitigation fails to meet the established performance criteria after the five-year maintenance and monitoring period, monitoring and remedial activities shall extend beyond the five-year period until the criteria are met or unless otherwise specified by the Energy Commission. If a fire occurs in a revegetation area within the five-year monitoring period, the owner shall be responsible for a one-time replacement. If a second fire occurs, no replanting is required, unless the fire is caused by the owner's activity.

Verification: All mitigation measures and their implementation methods shall be included in the BRMIMP and implemented. Within 90 days after completion of project construction, the project owner shall provide to the CPM verification of the total vegetation and community subject to temporary and permanent disturbance. If habitat disturbance exceeded that described in this analysis, the CPM shall

notify the project owner of any additional mitigation required to compensate for any additional habitat disturbances t. To monitor and evaluate the success of the restoration the owner shall submit annual reports of the restoration including the status of the site, percent cover of native and exotics, and any remedial actions conducted by the owner to the CPM.

SPECIAL-STATUS PLANT SURVEYS/PROTECTION PLAN

BIO-11 To avoid impacts to State and federally listed Threatened and Endangered, Proposed, Petitioned, and Candidate or California Native Plant Society List 1B or 2, plants that might occur on the PHPP site or along the proposed transmission line alignments, pre-construction surveys shall be conducted in these areas in the Spring closest to commencement of construction of the power plant site and reclaimed water pipeline, and in the Spring prior to the commencement of ground disturbance for the transmission line and natural gas pipeline. If special-status plant species are detected within 100 feet of the project footprint, the qualified botanist shall prepare a Sensitive Plant Protection Plan to avoid direct and indirect impacts. The project owner shall implement the following measures:

1. Pre-Construction Floristic Surveys. A qualified botanist shall conduct floristic surveys on the PHPP project site and along linear facilities in all areas subject to ground-disturbing activity, including, but not limited to, tower pad preparation and construction areas, tower removal sites, pulling and tensioning sites, assembly yards, and areas subject to grading for new access roads. Surveys shall be conducted within 100 feet of all surface-disturbing activities at the appropriate time of year and according to the most current guidelines from the California Department of Fish and Game and the California Native Plant Society.

2. Sensitive Plant Protection Plan. If special-status plant species are detected during pre-construction surveys, a qualified botanist shall prepare a Sensitive Plant Protection Plan (Plan). Populations of rare plants shall be flagged and mapped prior to any ground disturbance. Where possible the owner shall modify the placement of structures, access roads, laydown areas, and other ground-disturbing activities in order to avoid the plants. The Plan shall include measures for avoiding direct impacts and accidental impacts during construction by identifying the plant occurrence location and establishing an appropriately sized buffer. The Plan shall also include measures to avoid indirect impacts including: sedimentation from adjacent disturbed soils; alterations of the site hydrology from changes in the drainage patterns; dust deposition; and displacement or degradation of the habitat from the introduction and spread of noxious weeds. The Plan shall also

include a discussion of monitoring and reporting requirements during and after construction.

a. Prior to any ground disturbance, any populations of listed plant species identified during the surveys shall be protected by a buffer zone if they can be avoided. The buffer zone shall be established around these areas and shall be of sufficient size to eliminate potential disturbance to the plants from human activity and any other potential sources of disturbance including human trampling, erosion, and dust. The size of the buffer will depend upon the proposed use of the immediately adjacent lands, and includes consideration of the plant's ecological requirements (e.g., sunlight, moisture, shade tolerance, edaphic physical and chemical characteristics) that are identified by the Designated Biologist. The buffer for herbaceous species shall be, at minimum, 50 feet from the perimeter of the population or the individual. A smaller buffer may be established, provided there are adequate measures in place to avoid the take of the species, with the approval of the USFWS, CDFG, and CPM.

b. Impacts to non-listed plant species (i.e., CNPS List 1 and 2, species) shall first be avoided where feasible, and, where not feasible, impacts shall be compensated through reseeding (with locally collected seed stock), or other CPM-approved methods. If Project activities will result in loss of more than 10 percent of the known individuals within an existing population of non-listed special-status plant species, the project owner shall preserve existing off-site occupied habitat that is not already part of the public lands in perpetuity at a 2:1 mitigation ratio. The CPM may reduce this ratio depending on the sensitivity of the plant. The preserved habitat shall be occupied by the plant species impacted, and be of superior or similar habitat quality to the impacted areas in terms of soil features, extent of disturbance, habitat structure, and dominant species composition, as determined by a qualified plant ecologist.

3. State or Federally Listed Plant Species: If impacts to listed plants are determined to be unavoidable, the USFWS shall be consulted for authorization and/or the CDFG shall be consulted for authorization through an Incidental Take Permit. Additional mitigation measures to protect or restore listed plant species or their habitat may be required by the CDFG before impacts are authorized.

4. Agency Notification and Avoidance: If State or federally listed plant species are detected during the pre-construction floristic surveys,

the CPM, USFWS, and CDFG shall be notified in writing no more than 15 days from detection of the plants.

5. Review and Submittal of Plan: The project owner shall submit to the CPM, USFWS, and CDFG a draft Sensitive Plant Protection Plan. Prior to any ground-disturbing activities within 100 feet of the sensitive plant occurrences detected during the pre-construction floristic surveys, the project owner shall submit to the CPM a final Plan that reflects review and approval by Energy Commission staff in consultation with CDFG and USFWS.

Verification: No later than 60 days prior to ground disturbance the project owner shall submit a report describing the results of floristic surveys conducted on the PHPP power plant site and along the proposed transmission line alignment. The report shall be submitted to the CPM, USFWS, and CDFG and shall describe qualifications of the surveyor, survey methods including dates and times, a discussion of visits to reference sites, figures depicting the area(s) surveyed, figures depicting the locations of any special-status plants observed, and a list of all plant species detected.

If special-status plant species are detected during the surveys, the project owner shall submit to the CPM and CDFG a Sensitive Plant Protection Plan (Plan) at least 60 days prior to the start of any ground-disturbing activities within 100 feet of the sensitive plant occurrences detected during the pre-construction floristic surveys. The CPM will determine the Plan's acceptability in consultation with CDFG and USFWS within 15 days of receipt of the Plan. Any modifications to the approved Plan shall be made only after approval by Energy Commission staff in consultation with CDFG. The project owner shall notify the CPM no fewer than 5 working days before implementing any CPM-approved modifications to the Plan.

Within 30 days after completion of construction the project owner shall provide to the CPM, USFWS, and CDFG a construction termination report discussing how mitigation measures described in the Plan were implemented.

AVOIDANCE MEASURES FOR ARROYO TOAD

BIO-12 The project owner shall conduct pre-construction surveys for arroyo toads at the Little Rock Creek transmission line crossing on Segment 2 and implement impact avoidance and minimization measure during all construction activities. These measures include, but are not limited to, the following:

1. Surveys. Prior to ground disturbance the project owner shall retain a biologist who is familiar with arroyo toads that occur in desert habitats to conduct clearance surveys prior to construction and monitor all construction activities at Little Rock Creek. Clearance surveys shall be completed within 24 hours of construction. If arroyo toads are detected a 500 foot disturbance free buffer shall

be implemented and the area shall be avoided until the owner completes consultation with the USFWS.

2. Monitoring. The project owner shall conduct full time monitoring during ground disturbance and construction of the all areas within 500 feet of Little Rock Creek. Although this species is primarily nocturnal and aestivates during the winter monitoring shall occur year round whenever day time temperatures exceed 50 degrees Fahrenheit and during periods of rainfall. If arroyo toads are detected the Designated Biologist shall contact the CPM and USFWS within 24 hours. Work shall not occur within 500 feet of Little Rock Creek until approved by the CPM and USFWS.

Verification: Within 30 days of completion of arroyo toad clearance surveys the Designated Biologist shall submit a report to the CPM describing how mitigation measures described above have been satisfied. The report shall include the survey results and any other information needed to demonstrate compliance with the measures described above.

DESERT TORTOISE CLEARANCE SURVEYS AND EXCLUSION FENCING

BIO-13 The project owner shall undertake appropriate measures to manage construction at the plant site and linear facilities in a manner to avoid impacts to desert tortoise. Methods for clearance surveys, fence installation, and other procedures shall be consistent with those described in the *Guidelines for Handling Desert Tortoise During Construction Projects* (Desert Tortoise Council 1999) or more current guidance provided by CDFG and USFWS. These measures include, but are not limited to, the following:

1. Fence Installation. Prior to ground disturbance, the entire plant site shall be fenced with permanent desert tortoise-exclusion fence. To avoid impacts to desert tortoise during fence construction, the proposed fence alignment shall be flagged and the alignment surveyed within 24 hours prior to fence construction. Surveys shall be conducted by the Designated Biologist using techniques approved by the USFWS and CDFG. Biological Monitors may assist the Designated Biologist under his or her supervision. These surveys shall provide 100 percent coverage of all areas to be disturbed during fence construction and an additional transect along both sides of the proposed fence line. This fence line transect shall cover an area approximately 90 feet wide centered on the fence alignment. Transects shall be no greater than 30 feet apart. All desert tortoise burrows, and burrows constructed by other species that might be used by desert tortoises, shall be examined to assess occupancy of each burrow by desert tortoises and handled in accordance with USFWS-approved protocol.

a. Timing, Supervision of Fence Installation. The exclusion fencing shall be installed prior to the onset of site clearing and grubbing. The fence installation shall be supervised by the Designated Biologist and monitored by the Biological Monitors to ensure the safety of any tortoise present.

b. Fence Material and Installation. The permanent tortoise exclusionary fencing shall be constructed in compliance with current USFWS guidelines.

c. Security Gates. Security gates shall be designed with minimal ground clearance to deter ingress by tortoises, including gates that would exclude public access to the PHPP site.

d. Tower Fencing. If tortoises are discovered during clearance surveys of the linear routes, the tower locations shall be temporarily fenced with tortoise exclusion fencing to prevent desert tortoise entry during construction. Temporary fencing must follow current USFWS guidelines for permanent fencing and supporting stakes shall be sufficiently spaced to maintain fence integrity.

e. Fence Inspections. Following installation of the desert tortoise exclusion fencing for both the permanent site fencing and temporary fencing in the utility corridors, the fencing shall be regularly inspected. Permanent fencing shall be inspected monthly and during/following all major rainfall events. Any damage to the fencing shall be temporarily repaired immediately to keep tortoises out of the site, and permanently repaired within two days of observing damage. Inspections of permanent site fencing shall occur for the life of the project. Temporary fencing must be inspected weekly and, where drainages intersect the fencing, during and immediately following major rainfall events. All temporary fencing shall be repaired immediately upon discovery and, if the fence may have permitted tortoise entry while damaged, the Designated Biologist shall inspect the utility corridor or tower site for tortoise.

2. Desert Tortoise Clearance Surveys. Following construction of the tortoise exclusionary fencing around the Plant Site, all fenced areas shall be cleared of tortoises by the Designated Biologist, who may be assisted by Biological Monitors. A minimum of two clearance surveys, with negative results, must be completed, and these must coincide with heightened desert tortoise activity from late March through May and during October. To facilitate seeing the ground from different angles, the second clearance survey shall be walked at 90 degrees to the orientation of the first clearance survey.

3. Relocation for Desert Tortoise. If desert tortoises are detected on the PHPP plant site during clearance or other activities,the owner shall halt ground disturbing activities within 500 feet of the tortoise, prepare a Desert Tortoise Translocation Plan, and coordinate with the USFWS, CDFG, and CPM regarding the disposition of the animals. If located during clearance surveys within the transmission line project route, the tortoise would be allowed to continue unimpeded out of harm's way. Only in the event that a tortoise required relocation to prevent injury, project impact area the Designated Biologist shall move the tortoise the shortest possible distance, keeping it out of harm's way but still within its home range. Desert tortoise encountered during construction of any of the utility corridors shall be similarly treated in accordance with the techniques described in the *Guidelines for Handling Desert Tortoise during Construction Projects* (Desert Tortoise Council 1999) or more current guidance on the USFWS website. Any person handling tortoise must be approved by the USFWS and CDFG and be on site during ground disturbance or construction. If a desert tortoise is discovered on the PHPP power plant site the project owner shall prepare a Desert Tortoise Translocation Plan. The Translocation Plan shall follow the most current USFWS guidelines for the translocation of desert tortoise and shall be submitted to the USFWS, CDFG, and CPM for approval. Desert tortoise shall not be moved pending the approval of the Plan. Prior to initiating further ground disturbance at the project site the project owner shall conduct additional clearance surveys of the power plant site.

4. Burrow Inspection. All potential desert tortoise burrows within the fenced area shall be searched for presence. In some cases, a fiber optic scope may be needed to determine presence or absence within a deep burrow. To prevent reentry by a tortoise or other wildlife, all burrows shall be collapsed once absence has been determined..

5. Burrow Excavation. Burrows inhabited by tortoises shall be excavated by the Designated Biologist or other USFWS/CDFG/CPM approved handler, using hand tools, and then collapsed or blocked to prevent re-occupation. If excavated during May through July, the Designated Biologist shall search for desert tortoise nests/eggs. All desert tortoise handling and removal, and burrow excavations, including nests, shall be conducted by the Designated Biologist or other USFWS/CDFG/CPM approved handler (See Paragraph 3 above) in accordance with the USFWS-approved protocol (Desert Tortoise Council 1999) or more current guidance on the USFWS website.

6. Monitoring During Clearing. Following construction of the desert tortoise exclusion fencing and clearance surveys heavy equipment shall be allowed to enter the project site to perform earth work such as clearing, grubbing, leveling, and trenching. A Biological Monitor shall be onsite during initial clearing and grading activities. Should a tortoise be discovered, the measures outlined in Paragraph 3 shall be followed.

7. Reporting. The Designated Biologist shall record the following information for any desert tortoises observed or handled: a) the locations (narrative and maps) and dates of observation; b) general condition and health, including injuries, state of healing and whether desert tortoise voided their bladders; c) location moved from and location moved to (using GPS technology); d) gender, carapace length, and diagnostic markings (i.e., identification numbers or marked lateral scutes); e) ambient temperature when handled and released; and f) digital photograph of each handled desert tortoise as described in the paragraph below. Desert tortoise moved from within project areas shall be marked for future identification as described in *Guidelines for Handling Desert Tortoise during Construction Projects* (Desert Tortoise Council 1999) or more current guidance on the USFWS website. Digital photographs of the carapace, plastron, and fourth costal scute shall be taken. Scutes shall not be notched for identification. Any desert tortoises observed within the project area or adjacent habitat shall be reported to the USFWS, CDFG, and CPM by written and electronic correspondence within 24 hours.

Verification:

Within 30 days of completion of desert tortoise clearance surveys the Designated Biologist shall submit a report to the CPM, USFWS, and CDFG describing how each of the mitigation measures described above has been satisfied. The report shall include the desert tortoise survey results, capture and release locations of any relocated desert tortoises, and any other information needed to demonstrate compliance with the measures described above.

If a desert tortoise is located on the power plant site the project owner shall submit to Energy Commission staff, USFWS and CDFG a draft Desert Tortoise Translocation Plan. The CPM will review the Plan and provide comments within 30 days receipt of the draft plan. All modifications to the Desert Tortoise Translocation Plan must be made only after approval by the Energy Commission staff in consultation with USFWS and CDFG. The project owner shall notify the CPM no fewer than five working days before implementing any CPM-approved modifications to the Translocation Plan.

Within 30 days after initiation of translocation activities, the Designated Biologist shall provide to the CPM for review and approval, a written report identifying which items of the Translocation Plan have been completed, and a summary of all modifications to measures made during implementation.

RAVEN FEE, MONITORING, MANAGEMENT, AND CONTROL PLAN

BIO-14 The project owner shall design and implement a Raven Monitoring, Management, and Control Plan (Raven Plan) that is consistent with the most current USFWS-approved raven management guidelines and that meets the approval of the USFWS, CDFG, and the CPM. Any subsequent modifications to the approved Raven Plan shall be made only with approval of the CPM in consultation with USFWS and CDFG. The Raven Plan shall include but not be limited to a program to monitor increased raven presence in the Project vicinity and to implement raven control measures as needed based on that monitoring. The purpose of the plan is to avoid any Project-related increases in raven numbers during construction, operation, and decommissioning. The threshold for implementation of raven control measures shall be any increases in raven numbers from baseline conditions, as detected by monitoring to be proposed in the Raven Plan. Regardless of raven monitoring results, the project owner shall be responsible for all other aspects of the Raven Plan, including avoidance and minimization of project-related trash, water sources, or perch/roost sites that could contribute to increased raven numbers. In addition, to offset the cumulative contributions of the Project to desert tortoise from increased raven numbers, the Project owner shall also contribute to the USFWS Regional Raven Management Program. The Project owner shall do all of the following:

1. <u>Prepare and Implement a Raven Management Plan</u> that includes the following:

    a. Identify conditions associated with the Project that might provide raven subsidies or attractants;

    b. Describe management practices to avoid or minimize conditions that might increase raven numbers and predatory activities;

    c. Describe control practices for ravens;

    d. Address monitoring and nest removal during construction and for the life of the Project, and;

    e. Discuss reporting requirements.

2. <u>Contribute to the REAT Regional Raven Management Program</u>. The project owner shall submit payment to the project sub-account of the REAT Account held by the National Fish and Wildlife

Foundation (NFWF) to support the REAT Regional Raven Management Program. The amount shall be a one-time payment of $105 per acre (458.5 acres) of permanent disturbance fee $48,142.50.

Verification: No later than 30 days prior to any construction-related ground disturbance activities, the Project owner shall provide the CPM, USFWS, and CDFG with the final version of a Raven Plan. All modifications to the approved Raven Plan shall be made only with approval of the CPM in consultation with USFWS and CDFG.No later than 60 days prior to the start of construction, the project owner shall provide written verification to the CPM that NFWF has received and accepted payment into the project's sub-account of the REAT Account to support the USFWS Regional Raven Management Program. On January 31st of each year following construction, the Designated Biologist shall provide a report to the CPM that includes: a summary of the results of raven management and control activities for the year; a discussion of whether raven control and management goals for the year were met; and recommendations for raven management activities for the upcoming year.

PRE-CONSTRUCTION NEST SURVEYS AND IMPACT AVOIDANCE MEASURES FOR MIGRATORY BIRDS

BIO-15 Pre-construction nest surveys shall be conducted if construction activities will occur from February 1 through August 15. The Designated Biologist or Biological Monitor conducting the surveys shall be experienced bird surveyors and familiar with standard nest-locating techniques such as those described in Martin and Guepel (1993). Surveys shall be conducted in accordance with the following guidelines:

1. Surveys shall cover all potential nesting habitat in the project site and within 500 feet of the boundaries of the plant site and linear facilities;

2. At least two pre-construction surveys shall be conducted, separated by a minimum 10-day interval. One of the surveys shall to be conducted within the 10 days preceding initiation of construction activity. Additional follow-up surveys may be required if periods of construction inactivity exceed three weeks in any given area, an interval during which birds may establish a nesting territory and initiate egg laying and incubation;

3. If active nests are detected during the survey, a no-disturbance buffer zone (protected area surrounding the nest, the size of which is to be determined by the Designated Biologist in consultation with CDFG, USFWS, and CPM) and a monitoring plan shall be developed. Nest locations shall be mapped using GPS technology and submitted, along with a weekly report stating the survey results, to the CPM; and

4. The Designated Biologist shall monitor the nest until he or she determines that nestlings have fledged and dispersed. Activities that might, in the opinion of the Designated Biologist and in consultation with the CPM, disturb nesting activities shall be prohibited within the buffer zone until such a determination is made.

5. If an occupied golden eagle nest is detected within one mile of the active construction, a one mile no activity buffer will be implemented. The prescribed buffers may be adjusted to reflect existing conditions including ambient noise, topography, and disturbance with the approval of the CPM. The biological monitor(s) shall conduct regular monitoring of the nest to determine success/failure and to ensure that project activities are not conducted within the buffer(s) until the nesting cycle is complete or the nest fails. The biological monitor(s) shall be responsible for documenting the results of the surveys and ongoing monitoring and will provide a copy of the monitoring reports for impact areas to the respective agencies. The Project owner shall also prepare and implement a Golden Eagle Monitoring and Management Plan for the duration of construction to ensure that Project construction activities do not result in injury or disturbance to golden eagles. The monitoring methods shall be consistent with those described in the Interim Golden Eagle Inventory and Monitoring Protocols; and Other Recommendations (Page l et al. 2010) or more current guidance from the USFWS. The Monitoring and Management Plan shall be prepared in consultation with the USFWS. Triggers for adaptive management shall include any evidence of Project-related disturbance to nesting golden eagles, including but not limited to: agitation behavior (displacement, avoidance, and defense); increased vigilance behavior at nest sites; changes in foraging and feeding behavior, or nest site abandonment. The Monitoring and Management Plan shall include a description of adaptive management actions, which shall include, but not be limited to, cessation of construction activities that are deemed by the Designated Biologist to be the source of golden eagle disturbance.

Verification: At least 10 days prior to the start of any project-related ground disturbance activities, the project owner shall provide the CPM a letter-report describing the findings of the pre-construction nest surveys, including the time, date, and duration of the survey; identity and qualifications of the surveyor(s); and a list of species observed. If active nests are detected during the survey, the report shall include a map or aerial photo identifying the location of the nest and shall depict the boundaries of the no-disturbance buffer zone around the nest.

SWAINSON'S HAWK IMPACT AVOIDANCE AND MINIMIZATION MEASURES

BIO-16 The project owner shall implement the following measures to avoid and offset impacts to Swainson's hawk:

1. Pre-Construction Surveys. To assure that nesting Swainson's hawks are not disturbed by construction activities, a qualified ornithologist approved by the CDFG and CPM shall conduct pre-construction surveys prior to commencement of ground disturbing activities. Survey results shall be provided to the CDFG and CPM in a written report, within 30 days of commencement of construction activities.

2. Swainson's Hawk Monitoring and Mitigation Plan. If a Swainson's hawk nest site is found within 0.5 mile of the project site, the Designated Biologist shall prepare a Swainson's Hawk Monitoring and Mitigation Plan in consultation with CDFG and Energy Commission staff. This plan shall include detailed measures to avoid and minimize impacts to Swainson's hawks in and near the construction areas and shall also include the following:

   a. If a nest site is found, no new disturbances or other project-related activities that may cause nest abandonment or forced fledging will be initiated within 0.5 mile of an active nest between 1 March and 15 September. These buffer zones may be adjusted in consultation with the CPM and CDFG.

   b. During the nesting season (March 1 through September 15), the Designated Biologist shall be present daily, during any site mobilization, ground disturbance or construction on site, monitoring the behavior of any nesting Swainson's hawks within 0.5 mile of the project. The Designated Biologist shall have authority to order the cessation of all construction activities within 0.5 mile of any Swainson's hawk nest if the birds exhibit abnormal nesting behavior which may cause reproductive failure (nest abandonment and loss of eggs and/or young). Construction shall not resume until the Designated Biologist has consulted with the CDFG and CPM. The Designated Biologist, CPM, and CDFG must confirm that the bird's behavior has normalized prior to the initiation of construction.

   c. If construction or other project-related activities cause nest abandonment by a Swainson's hawk or forced fledging, monitoring of the nest site by a qualified biologist shall be required to determine if the nest is abandoned. If the nest is abandoned and if the nestlings are still alive, the project owner shall fund the recovery and hacking (controlled release of captive reared young) of the nestling(s). Transport to the raptor center shall only be approved by the CPM and CDFG Regional Representative.

   d. If relocation of nestlings is required, the project owner shall provide a written report documenting the relocation efforts. The

report shall include what actions were taken to avoid the nest, the location of the nest, the number and condition of the eggs/nestlings taken from the nest, the location of where the eggs/nestlings are incubated, the survival rate, the location of the nests where the chicks are relocated, and whether the birds were accepted by the adopted parent.

e. Nest trees for Swainson's hawks in the project area shall not be removed unless avoidance measures are determined to be infeasible. If a nest tree for a Swainson's hawk must be removed from the PHPP project area, it shall occur between 1 October and 1 February.

3. Discovery of an Injured Swainson's Hawk. If a Swainson's hawk is found injured during project-related activities on the project site, it shall be immediately relocated to a raptor recovery center approved by the CDFG Regional Representative. Any costs associated with the care or treatment of such injured Swainson's hawks shall be borne by the project owner. The Designated Representative shall immediately notify the CDFG and CPM of the incident unless the incident occurs outside of normal business hours. In that event, the CDFG and CPM shall be notified no later than noon on the next business day. Notification to the CDFG and CPM shall be via telephone or email, followed by a written incident report. Notification shall include the date, time, location, and circumstances of the incident.

Verification: Survey results shall be provided to the CDFG and CPM in a written report, within 30 days of commencement of construction activities. If pre-construction surveys detect nesting Swainson's hawks within 0.5 mile of proposed construction activities, the Designated Biologist shall provide to CDFG and the CPM a Swainson's Hawk Monitoring and Mitigation Plan at least 30 days prior to the start of any project-related site disturbance activities. The project owner shall report monthly to CDFG and the CPM for the duration of construction on the implementation of Swainson's hawk avoidance and minimization measures described in the Swainson's Hawk Monitoring and Mitigation Plan. Within 30 days after completion of construction, the project owner shall provide to the CDFG and CPM a written construction termination report identifying how mitigation measures described in the plan have been completed.

No later than two calendar days following the above-required notification of a sighting, kill, injury, or relocation of a Swainson's hawk, the project owner shall deliver to the CPM and CDFG via FAX or electronic communication the written report from the Designated Biologist describing all reported incidents of the sighting, injury, kill, or relocation of a Swainson's hawk, identifying who was notified and explaining when the incident(s) occurred. In the case of a sighting in an active construction area, the project owner shall, at the same time, submit a

map (e.g., using Geographic Information Systems) depicting both the limits of construction and sighting location to the CPM and CDFG.

SWAINSON'S HAWK HABITAT COMPENSATORY MITIGATION

BIO-17 The project owner shall either assume that Swainson's hawk nest within five miles of the project site and provide compensatory mitigation as described below or complete CFDG protocol surveys within five miles of project facilities that result in permanent impacts to Swainson's hawk foraging habitat. If surveys are completed they shall include the following components.

The survey periods shall follow a specified schedule:

- Period I occurs from 1 January to 31 March;
- Period II occurs from 1 April to 30 April;
- Period III occurs from 1 May to 30 May; and
- Period IV occurs from 1 June to 15 July.

No fewer than three surveys per period in at least two survey periods shall be completed immediately prior to the start of project construction. All nest sites shall be recorded, mapped using GIS and provided to the CPM and CDFG. Compensatory mitigation at a 2:1 ratio shall be required for permanent impacts. If active Swainson's hawk nests (i.e., any nest active within five years) are not detected within 5 miles of the project site or linear facilities, the project owner will not be required to provide compensatory mitigation.

If the project owner assumes presence, the project owner shall provide compensatory mitigation acreage for 610 acres of Swainson's hawk habitat lands, adjusted to reflect the final project footprint, as specified in this condition. In addition, the project owner shall provide funding for initial improvement and long-term maintenance, enhancement, and management of the acquired lands for protection and enhancement Swainson's hawk populations, and comply with other related requirements of this condition.

a. Loss of foraging habitat for Swainson's hawks shall be mitigated by providing Habitat Management (HM) lands at a ratio of 2:1 for any foraging habitat impacted within a 5-mile radius of active Swainson's hawk nest(s) (CDFG considers a nest active if it was used one or more times within the last 5 years). Foraging habitat includes but is not limited to alfalfa; fallow fields; beet, tomato, onions, and other low-growing row or field crops; dry-land and irrigated pasture; and cereal grain crops (including corn after harvest). Joshua tree woodland shall be considered foraging habitat in the Antelope Valley.

b. Lands which are currently in urban use or lands that have no existing or potential value for foraging Swainson's hawks will not require mitigation. The project owner will provide the CPM and CDFG a report of potential foraging lands impacted by the proposed project as determined by consultation with the CDFG and recent site-specific surveys conducted by a CDFG-qualified raptor biologist.

This acreage was calculated as follows: a ratio of 2:1 for the PHPP power plant site (610 acres) and a 2:1 ratio (10.22 acres) for the loss of agricultural lands associated with Segment 1 of the transmission line. Costs of these requirements are estimated to be $9,000,550.00 (see Biological Resources Tables 4a for a complete breakdown of costs and acreage). All costs are best estimates as of fall 2010. Actual costs will be determined at the time of the transactions and may change the funding needed to implement the required mitigation obligation based on changing land costs or management fees. Regardless of the estimates, the project owner is responsible for providing adequate funding to implement the required mitigation.

These impact acreages shall be adjusted to reflect the final project footprint. For purposes of this condition, the Project footprint means all lands disturbed in the construction and operation of the Palmdale Hybrid Power Plant Project Site and 10.22 acres of agricultural lands that occur on Segment 1.

This compensation acreage may be included ("nested") within the acreage acquired and managed as Mohave ground squirrel habitat compensation (Condition of Certification **BIO-20**) only if:

- A minimum of 610 acres of suitable foraging habitat including a minimum of 366.3 acres of Joshua tree woodland are present.
- The composition of vegetation communities that occur within the proposed mitigation lands, including the acreage of Joshua tree woodland, may be adjusted based on the habitat value of the proposed mitigation lands with the approval of the CPM and CDFG.
- The Mohave ground squirrel habitat compensation lands are acquired and dedicated as permanent conservation lands within 18 months of the start of project construction.

If these three criteria are not met, then the project owner shall provide the required number of acres of Swainson's hawk habitat compensation lands, adjusted to reflect the final project footprint and additional delineation of suitable habitat, independent of any compensation land required under other conditions of certification, and shall also provide funding for the initial improvement and long-term

maintenance and management of the acquired lands, and shall comply with other related requirements this condition.

The project owner shall provide financial assurances as described below in the amount of $9,000,550.00. In lieu of acquiring lands itself, the Project owner may satisfy the requirements of this condition by depositing funds into a Renewable Energy Action Team (REAT) Account established with the National Fish and Wildlife Foundation (NFWF), as described below. If the Project owner elects to establish a REAT NFWF Account and have NFWF and the agencies complete the required habitat compensation, then the total estimated cost of complying with this condition is $9,252,876.50. The amount of security or NFWF deposit shall be adjusted up or down to reflect any revised cost estimates recommended by REAT.

The actual costs to comply with this condition will vary depending on the final footprint of the project, the costs of acquiring compensation habitat, the costs of initially improving the habitat, and the actual costs of long-term management as determined by a Property Analysis Report or similar analysis (below). The 610 acre habitat requirement, and associated funding requirements based on that acreage, shall be adjusted up or down if there are changes in the final footprint of the project or the associated costs of evaluation, acquisition, management, and other factors listed in Biological Resources Tables 4a. Regardless of actual cost, the project owner shall be responsible for funding all requirements of this condition.

COMPENSATORY MITIGATION LAND ACQUISITION

1. Method of Acquisition. Compensation lands shall be acquired by either of the two options listed below. Regardless of the method of acquisition, the transaction shall be complete only upon completion of all terms and conditions described in this Condition of Certification.

    a. The project owner shall acquire lands and transfer title and/or conservation easement to a state or federal land management agency or to a third-party non-profit land management organization, as approved by the CPM in consultation with CDFG; or

    b. The Project owner shall deposit funds into a project-specific subaccount within the REAT Account established with the NFWF, in the amount as indicated in Biological Resources Tables 4a (adjusted to reflect final project footprint and any applicable REAT adjustments to costs).

2. Selection Criteria for Compensation Lands. The compensation lands selected for acquisition to meet Energy Commission and CESA requirements shall be equal to or better than the quality and function of the habitat impacted and:

   a. Be within the Western Mojave Desert;

   b. Provide moderate to good quality foraging habitat for Swainson's hawk with capacity to improve in quality and value for this species; and

   c. Be near lands for which there is reasonable evidence (for example, recent (<15 years) CNDDB occurrences on or immediately adjacent to the proposed lands) suggesting current occupation by Swainson's hawk ideally with populations that are stable, recovering, or likely to recover.

   d. be near larger blocks of lands that are either already protected or planned for protection, or which could feasibly be protected long-term by a public resource agency or a non-governmental organization dedicated to habitat preservation;

   e. not have a history of intensive recreational use or other disturbance that might cause future erosional damage or other habitat damage, and make habitat recovery and restoration infeasible;

   f. not be characterized by high densities of invasive species, either on or immediately adjacent to the parcels under consideration, that might jeopardize habitat recovery and restoration; and

   g. not contain hazardous wastes that cannot be removed to the extent that the site could not provide suitable habitat; and

   h. have water and mineral rights included as part of the acquisition, unless the CPM, in consultation with CDFG, agrees in writing to the acceptability of land without these rights.

3. Review and Approval of Compensation Lands Prior to Acquisition. The project owner shall submit a formal acquisition proposal to the CPM describing the parcel(s) intended for purchase. This acquisition proposal shall discuss the suitability of the proposed parcel(s) as compensation lands for Swainson's hawk in relation to the criteria listed above and must be approved by the CPM. The CPM will share the proposal with and consult with CDFG before deciding whether to approve or disapprove the proposed acquisition.

4. Compensation Lands Acquisition Conditions: The project owner shall comply with the following conditions relating to acquisition of the compensation lands after the CPM, in consultation with CDFG approved the proposed compensation lands:

   a. Preliminary Report: The Project owner, or approved third party, shall provide a recent preliminary title report, initial hazardous materials survey report, biological analysis, and other necessary or requested documents for the proposed compensation land to the CPM. All documents conveying or conserving compensation lands and all conditions of title are subject to review and approval by the CPM, in consultation with CDFG. For conveyances to the State, approval may also be required from the California Department of General Services, the Fish and Game Commission and the Wildlife Conservation Board.

   b. Title/Conveyance: The Project owner shall acquire and transfer fee title to the compensation lands, a conservation easement over the lands, or both fee title and conservation easement as required by the CPM in consultation with CDFG. Any transfer of a conservation easement or fee title must be to CDFG, a non-profit organization qualified to hold title to and manage compensation lands (pursuant to California Government Code section 65965), or to other public agency approved by the CPM in consultation with CDFG. If an approved non-profit organization holds fee title to the compensation lands, a conservation easement shall be recorded in favor of CDFG or another entity approved by the CPM. If an approved non-profit holds a conservation easement, CDFG shall be named a third party beneficiary. If an entity other than CDFG holds a conservation easement over the compensation lands, the CPM may require that CDFG or another entity approved by the CPM, in consultation with CDFG, be named a third party beneficiary of the conservation easement. The Project owner shall obtain approval of the CPM, in consultation with CDFG, of the terms of any transfer of fee title or conservation easement to the compensation lands.

   c. Property Analysis Record. Upon identification of the compensation lands, the Project owner shall conduct a Property Analysis Record (PAR) or PAR-like analysis to establish the appropriate amount of the long-term maintenance and management fund to pay the in-perpetuity management of the compensation lands. The PAR or PAR-like analysis must be approved by the CPM, in consultation with CDFG, before it can be used to establish funding levels or management activities for the compensation lands.

5. Compensation Lands Acquisition Costs: The Project owner shall pay all other costs related to acquisition of compensation lands and

conservation easements. In addition to actual land costs, these acquisition costs shall include but shall not be limited to the items listed below. Management costs including site cleanup measures are described separately, in the following section.

a. Level 1 Environmental Site Assessment;

b. Appraisal;

c. Title and document review costs;

d. Expenses incurred from other state, federal, or local agency reviews;

e. Closing and escrow costs;

f. Overhead costs related to providing compensation lands to CDFG or an approved third party;

g. Biological survey(s) to determine mitigation value of the land; and

h. Agency costs to accept the land (e.g., writing and recording of conservation easements; title transfer).

COMPENSATORY MITIGATION LAND IMPROVEMENT

1. Land Improvement Requirements: The Project owner shall fund activities that the CPM, in consultation with the CDFG, requires for the initial protection and habitat improvement of the compensation lands. These activities will vary depending on the condition and location of the land acquired, but may include surveys of boundaries and property lines, installation of signs, trash removal and other site cleanup measures, construction and repair of fences, invasive plant removal, removal of roads, and similar measures to protect habitat and improve habitat quality on the compensation lands.

   The costs of these activities are estimated at $250 an acre, but will vary depending on the measures that are required for the compensation lands. A non-profit organization, CDFG or another public agency may hold and expend the habitat improvement funds if it is qualified to manage the compensation lands (pursuant to Gov. Code § 65965), if it meets the approval of the CPM in consultation with CDFG, and if it is authorized to participate in implementing the required activities on the compensation lands. If CDFG takes fee title to the compensation lands, the habitat improvement fund must be paid to CDFG or its designee.

COMPENSATORY MITIGATION LAND LONG-TERM MANAGEMENT

1. Long-term Management Requirements: Long-term management is required to ensure that the compensation lands are managed and maintained to protect and enhance habitat for desert tortoise. Management activities may include maintenance of signs, fences, removal of invasive weeds, monitoring, security and enforcement, and control or elimination of unauthorized use.

2. Long-term Management Plan. The project owner shall pay for the preparation of a Management Plan for the compensation lands. The Management Plan shall reflect site-specific enhancement measures on the acquired compensation lands. The plan shall be submitted for approval of the CPM, in consultation with CDFG.

3. Long-Term Maintenance and Management Funding. The Project owner shall provide money to establish an account with a non-wasting capital that will be used to fund the long-term maintenance and management of the compensation lands. The amount of money to be paid will be determined through an approved PAR or PAR-like analysis conducted for the compensation lands. The amount of required funding is initially estimated to be $1,450 for every acre of compensation lands. If compensation lands will not be identified and a PAR or PAR-like analysis completed within the time period specified for this payment (see the verification section at the end of this condition), the Project owner shall provide initial payment of $854,500.00 calculated at $1,450 an acre for each compensation acre, as shown in Biological Resources Tables 4a (above) into an account for long-term maintenance and management of compensation lands. The amount of the required initial payment or security for this item shall be adjusted for any change in the Project footprint as described above. If an initial payment is made based on the estimated per-acre costs, the project owner shall deposit additional money as may be needed to provide the full amount of long-term maintenance and management funding indicated by a PAR or PAR-like analysis, once the analysis is completed and approved. If the approved analysis indicates less than $1,450 an acre will be required for long-term maintenance and management, the excess paid will be returned to the Project owner.

   The project owner must obtain the CPM's approval of the entity that will receive and hold the long-term maintenance and management fund for the compensation lands. The CPM will consult with the project owner and CDFG before deciding whether to approve an entity to hold the project's long-term maintenance and management funds on any lands. The CPM, in consultation with the project

owner and CDFG, may designate another state agency or non-profit organization to hold the long-term maintenance and management fee if the organization is qualified to manage the compensation lands in perpetuity.

If CDFG takes fee title to the compensation lands, CDFG shall determine whether it will hold the long-term management fee in the special deposit fund, leave the money in the REAT Account, or designate another entity such as NFWF to manage the long-term maintenance and management fee for CDFG and with CDFG supervision.

The Project owner shall ensure that an agreement is in place with the long-term maintenance and management fee holder/manager to ensure the following conditions:

i. Interest. Interest generated from the initial capital shall be available for reinvestment into the principal and for the long-term operation, management, and protection of the approved compensation lands, including reasonable administrative overhead, biological monitoring, improvements to carrying capacity, law enforcement measures, and any other action approved by CDFG designed to protect or improve the habitat values of the compensation lands.

ii. Withdrawal of Principal. The long-term maintenance and management fee principal shall not be drawn upon unless such withdrawal is deemed necessary by the CPM, in consultation with CDFG, or the approved third-party long-term maintenance and management fee manager to ensure the continued viability of the species on the compensation lands. If CDFG takes fee title to the compensation lands, monies received by CDFG pursuant to this provision shall be deposited in a special deposit fund established solely for the purpose to manage lands in perpetuity unless CDFG designates NFWF or another entity to manage the long-term maintenance and management fee for CDFG.

iii. Pooling Funds. A CPM- approved non-profit organization qualified to hold long-term maintenance and management fees solely for the purpose to manage lands in perpetuity, may pool the fund with other funds for the operation, management, and protection of the compensation lands for local populations of desert tortoise. However, for reporting purposes, the long-term maintenance and management fee fund must be tracked and reported individually to the CDFG and CPM.

iv. Reimbursement Fund. The project owner shall provide reimbursement to CDFG or an approved third party for reasonable expenses incurred during title, easement, and documentation

review; expenses incurred from other State or State-approved federal agency reviews; and overhead related to providing compensation lands.

COMPENSATORY MITIGATION LAND SECURITY

1. Compensation Mitigation Security: The project owner shall provide security sufficient for funding acquisition, improvement, and long-term management of Swainson's hawk compensation land. Financial assurance can be provided to the CPM in the form of an irrevocable letter of credit, a pledged savings account or another form of security ("Security"). Prior to submitting the Security to the CPM, the Project owner shall obtain the CPM's approval, in consultation with CDFG of the form of the Security.

   The security amount shall be based on the estimates provided in Biological Resources Tables 4a**.** This amount shall be updated and verified prior to payment and shall be adjusted to reflect actual costs or more current estimates as agreed upon by the REAT agencies.

   The Project owner shall provide verification that financial assurances have been established to the CPM with copies of the document(s) to CDFG, to guarantee that an adequate level of funding is available to implement any of the mitigation measures required by this condition that are not completed prior to the start of ground-disturbing activities described in Section A of this condition.

   In the event that the project owner defaults on the Security, the CPM may use money from the Security solely for implementation of the requirements of this condition. The CPM's use of the security to implement measures in this condition may not fully satisfy the Project owner's obligations under this condition. Any amount of the Security that is not used to carry out mitigation shall be returned to the Project owner upon successful completion of the associated requirements in this condition.

   Security for the requirements of this condition shall be provided in the amount of $9,252,876.50 if the project owner elects to use the REAT Account with NFWF pursuant to paragraph 4 of this condition, below). The Security is calculated in part from the items that follow but adjusted as specified below (consult Biological Resources Tables 4a for the complete breakdown of estimated costs). However, regardless of the amount of the security or actual cost of implementation, the project owner shall be responsible for implementing all aspects of this condition.

   i. land acquisition costs for compensation land, calculated at $10,000/acre;

ii. Site assessments, appraisals, biological surveys, transaction closing and escrow costs, calculated as $18,000 total per parcel (presuming 60 acres per parcel)

iii. Initial site clean-up, restoration, or enhancement, calculated at $250/acre;

iv. Third-party and agency administrative transaction costs and overhead, calculated as percentages of land cost;

v. Long-term management and maintenance fund, calculated at $1,450 per acre;

vi. NFWF fees to establish a project-specific account; manage the sub-account for acquisition and initial site work; and manage the sub-account for long term management and maintenance.

2. The project owner may elect to comply with some or all of the requirements in this condition by providing funds to implement the requirements into the Renewable Energy Action Team (REAT) Account established with the National Fish and Wildlife Foundation (NFWF). To use this option, the Project owner must make an initial deposit to the REAT Account in an amount equal to the estimated costs of implementing the requirement (as set forth in the Security section of this condition, paragraph 3, above). If the actual cost of the acquisition, initial protection and habitat improvements, long-term funding or other cost is more than the estimated amount initially paid by the project owner, the project owner shall make an additional deposit into the REAT Account sufficient to cover the actual acquisition costs, the actual costs of initial protection and habitat improvement on the compensation lands, the long-term funding requirements as established in an approved PAR or PAR-like analysis, or the other actual costs that are estimated in the table. If those actual costs or PAR projections are less than the amount initially transferred by the applicant, the remaining balance shall be returned to the project owner.

4. The responsibility for acquisition of compensation lands may be delegated to a third party other than NFWF, such as a non-governmental organization supportive of desert habitat conservation, by written agreement of the Energy Commission. Such delegation shall be subject to approval by the CPM, in consultation with CDFG prior to land acquisition, enhancement or management activities. Agreements to delegate land acquisition to an approved third party, or to manage compensation lands, shall be executed and implemented within 18 months of the Energy Commission's certification of the project.

5. The project owner may request the CPM to provide it with all available information about any funds held by the Energy Commission, CDFG or NFWF as project security, or funds held in a NFWF sub-account for this project, or other project-specific account held by a third party. The CPM shall also fully cooperate with any independent audit that the project owner may choose to perform on any of these funds.

Verification: The project owner shall provide the CPM with either the results of the nesting surveys or written verification that the project owner shall assume presence no less than 60 days prior to ground disturbance or site mobilization. on the project site.

If the mitigation actions required under this condition are not completed at least 30 days prior to the start of ground-disturbing activities, the Project owner shall provide verification to the CPM and CDFG that an approved Security has been established in accordance with this condition of certification no later than 30 days prior to beginning Project ground-disturbing activities. Financial assurance can be provided to the CPM in the form of an irrevocable letter of credit, a pledged savings account or another form of security ("Security"). Prior to submitting the Security to the CPM, the project owner shall obtain the CPM's approval, in consultation with CDFG of the form of the Security. The project owner, or an approved third party, shall complete and provide written verification to the CPM and CDFG of the compensation lands acquisition and transfer within 18 months of the start of Project ground-disturbing activities.

No later than 12 months after the start of any ground-disturbing project activities, the project owner shall submit a formal acquisition proposal to the CPM describing the parcel(s) intended for purchase, and shall obtain approval from the CPM, in consultation with CDFG prior to the acquisition. If NFWF or another approved third party is handling the acquisition, the project owner shall fully cooperate with the third party to ensure the proposal is submitted within this time period. The project owner or an approved third party shall complete the acquisition and all required transfers of the compensation lands, and provide written verification to the CPM and CDFG of such completion, no later than 18 months after the issuance of the Energy Commission Decision.

The project owner shall complete and submit to the CPM a PAR or PAR-like analysis no later than 60 days after the CPM approves compensation lands for acquisition associated with any phase of construction. The project owner shall fully fund the required amount for long-term maintenance and management of the compensation lands for that phase of construction no later than 30 days after the CPM approves a PAR or PAR-like analysis of the anticipated long-term maintenance and management costs of the compensation lands. Written verification shall be provided to the CPM and CDFG to confirm payment of the long-term maintenance and management funds.

No later than 60 days after the CPM determines what activities are required to provide for initial protection and habitat improvement on the compensation lands for any phase of construction, the project owner shall make funding available for those activities and provide written verification to the CPM of what funds are available and how costs will be paid. Initial protection and habitat improvement activities on the compensation lands for that phase of construction shall be completed, and written verification provided to the CPM, no later than six months after the CPM's determination of what activities are required on the compensation lands.

The project owner, or an approved third party, shall provide the CPM and CDFG with a management plan for the compensation lands associated with any phase of construction within 180 days of the land or easement purchase, as determined by the date on the title. The CPM, in consultation with CDFG shall approve the management plan after its content is acceptable to the CPM.

Within 90 days after completion of all project related ground disturbance, the project owner shall provide to the CPM and CDFG an analysis, based on aerial photography, with the final accounting of the amount of habitat disturbed during Project construction. If this analysis shows that more lands were disturbed than was anticipated in this condition, the project owner shall provide the Energy Commission with additional compensation lands and funding commensurate with the added impacts and applicable mitigation ratios set forth in this condition. A final analysis of all project related ground disturbance may not result in a reduction of compensation requirements if the deadlines established under this condition for transfer of compensation lands and funding have passed prior to completion of the analysis.

BURROWING OWL IMPACT AVOIDANCE, MINIMIZATION, AND COMPENSATION MEASURES

BIO-18 The project owner shall implement the following measures to avoid and offset impacts to burrowing owls:

1. Pre-Construction Surveys. Concurrent with desert tortoise clearance surveys the Designated Biologist shall conduct pre-construction surveys for burrowing owls within the project site and along all linear facilities in accordance with CDFG guidelines (CBOC 1993). Pre-construction surveys for burrowing owls shall occur no more than 30 days prior to initiation of ground disturbance or site mobilization activities. The survey area shall include the Project Disturbance Area and surrounding 500 foot survey buffer where access is legally available.

2. Implement Avoidance Measures. If an active burrowing owl burrow is detected within 500 feet from the Project Disturbance Area the following avoidance and minimization measures shall be implemented:

a. Establish Non-Disturbance Buffer. Fencing shall be installed at a 250-foot radius from the occupied burrow to create a non-disturbance buffer around the burrow. The non-disturbance buffer and fence line may be reduced to 160 feet if all Project-related activities that might disturb burrowing owls would be conducted during the non-breeding season (September 1st through January 31st). Signs shall be posted in English and Spanish at the fence line indicating no entry or disturbance is permitted within the fenced buffer.

b. Monitoring: If construction activities would occur within 500 feet of the occupied burrow during the nesting season (February 1 – August 31st) the Designated Biologist or Biological Monitor shall monitor to determine if these activities have potential to adversely affect nesting efforts, and shall implement measures to minimize or avoid such disturbance.

3. Passive Relocation of Burrowing Owls. If pre-construction surveys indicate the presence of burrowing owls within the Project Disturbance Area (the Project Disturbance Area means all lands disturbed in the construction and operation of the PHPP Project), the Project owner shall prepare and implement a Burrowing Owl Relocation and Mitigation Plan, in addition to the avoidance measures described above. The final Burrowing Owl Relocation and Mitigation Plan shall be approved by the CPM, in consultation with USFWS and CDFG, and shall:

a. Identify and describe suitable relocation sites on the project site or within 1 mile of the Project Disturbance Area, and describe measures to ensure that burrow installation or improvements would not affect sensitive species habitat or existing burrowing owl colonies in the relocation area;

b. Provide guidelines for creation or enhancement of at least two natural or artificial burrows per relocated owl, including a discussion of timing of burrow improvements, specific location of burrow installation, and burrow design. Design of the artificial burrows shall be consistent with CDFG guidelines (CDFG 1995) and shall be approved by the CPM in consultation with CDFG and USFWS;

c. Passive relocation sites shall be in areas of suitable habitat for burrowing owl nesting, and be characterized by minimal human disturbance and access. Relative cover of non-native plants within the proposed relocation sites shall not exceed the relative cover of non-native plants in the adjacent habitats;

d. Provide detailed methods and guidance for passive relocation of burrowing owls occurring within the Project Disturbance Area; and

4. Acquire Compensatory Mitigation Lands for Burrowing Owls. The following measures for compensatory mitigation shall apply only if burrowing owls are detected within the Project Disturbance Area. The Project owner shall acquire, in fee or in easement, 19.5 acres of land for each burrowing owl that is displaced by construction of the Project. This compensation acreage of 19.5 acres per single bird or pair of nesting owls assumes that there is no evidence that the compensation lands are occupied by burrowing owls. If burrowing owls are observed to occupy the compensation lands, then only 9.75 acres per single bird or pair is required, per CDFG (1995) guidelines. If the compensation lands are contiguous to currently occupied habitat, then the replacement ratio will be 13.0 acres per pair or single bird. The Project owner shall provide funding for the enhancement and long-term management of these compensation lands. The acquisition and management of the compensation lands may be delegated by written agreement to CDFG or to a third party, such as a non-governmental organization dedicated to habitat conservation, subject to approval by the CPM, in consultation with CDFG and USFWS prior to land acquisition or management activities. Additional funds shall be based on the adjusted market value of compensation lands at the time of construction to acquire and manage habitat. In lieu of acquiring lands itself, the Project owner may satisfy the requirements of this condition by depositing funds into the Renewable Energy Action Team (REAT) Account established with the National Fish and Wildlife Foundation (NFWF), as described in Section 3.i. of Condition of Certification **BIO-20**.

   a. Criteria for Burrowing Owl Mitigation Lands. The terms and conditions of this acquisition or easement shall be as described in Paragraph 1 of **BIO-20** [Mohave ground squirrel Compensatory Mitigation], with the additional criteria to include: 1) the mitigation land must provide suitable habitat for burrowing owls, and 2) the acquisition lands must either currently support burrowing owls or be within dispersal distance from areas occupied by burrowing owls (generally approximately 5 miles). The burrowing owl mitigation lands may be included with the Mohave ground squirrel mitigation lands ONLY if these two burrowing owl criteria are met. If the burrowing owl mitigation land is separate from the acquisition required for Mohave ground squirrel compensation lands, the Project owner shall fulfill the requirements described below in this condition.

b. Security. If burrowing owl mitigation land is separate from the acreage required for Mohave ground squirrel compensation lands the Project owner or an approved third party shall complete acquisition of the proposed compensation lands prior to initiating ground-disturbing Project activities. Alternatively, financial assurance can be provided by the Project owner to the CPM with copies of the document(s) to CDFG and the USFWS, to guarantee that an adequate level of funding is available to implement the mitigation measure described in this condition. These funds shall be used solely for implementation of the measures associated with the Project. Financial assurance can be provided to the CPM in the form of an irrevocable letter of credit, a pledged savings account or another form of security ("Security") prior to initiating ground-disturbing Project activities. Prior to submittal to the CPM, the Security shall be approved by the CPM, in consultation with CDFG and the USFWS to ensure funding. The estimated costs of enhancement and endowment (see subsection, Mohave ground squirrel, for a discussion of the assumptions used in calculating the Security, which are based on an estimate of $15,169 per acre to fund acquisition, enhancement, and long-term management). The final amount due will be determined by the PAR analysis conducted pursuant to **BIO-17**.

Verification: If pre-construction surveys detect burrowing owls within 500 feet of proposed construction activities, the Designated Biologist shall provide to the CPM, CDFG and USFWS documentation indicating that non-disturbance buffer fencing has been installed at least 10 days prior to the start of any construction-related ground disturbance activities. The Project owner shall report monthly to the CPM, CDFG, and USFWS for the duration of construction on the implementation of burrowing owl avoidance and minimization measures.

Within 30 days after completion of construction the Project owner shall provide to the CPM, CDFG and USFWS a written construction termination report identifying how mitigation measures described in the plan have been completed.

If pre-construction surveys detect burrowing owls within the Project Disturbance Area, the Project owner shall notify the CPM, CDFG and USFWS no less than 10 days of completing the surveys that a relocation of owls is necessary. The Project owner shall do all of the following if relocation of one or more burrowing owls is required:

a. Within 30 days of completion of the burrowing owl pre-construction surveys, submit to the CPM, CDFG and USFWS a Burrowing Owl Relocation and Mitigation Plan.

b. No less than 90 days prior to acquisition of the burrowing owl compensation lands, the Project owner, or an approved third party, shall submit a formal

acquisition proposal to the CPM, CDFG, and USFWS describing the parcel intended for purchase. At the same time the Project owner shall submit a PAR or PAR-like analysis for the parcels for review and approval by the CPM, CDFG and USFWS.

c. Within 90 days of the land or easement purchase, as determined by the date on the title, the Project owner shall provide the CPM with a management plan for review and approval, in consultation with CDFG and USFWS, for the compensation lands and associated fund

d. No later than 30 days prior to the start of construction-related ground disturbing activities, the Project owner shall provide written verification of Security in accordance with this condition of certification.

e. No later than 18 months after the start of construction-related ground disturbance activities, the Project owner shall provide written verification to the CPM, CDFG and USFWS that the compensation lands or conservation easements have been acquired and recorded in favor of the approved recipient.

f. On January 31st of each year following construction for a period of five years, the Designated Biologist shall provide a report to the CPM, USFWS, and CDFG that describes the results of monitoring and management of the burrowing owl relocation area. The annual report shall provide an assessment of the status of the relocation area with respect to burrow function and weed infestation, and shall include recommendations for actions the following year for maintaining the burrows as functional burrowing owl nesting sites and minimizing the occurrence of weeds.

MOHAVE GROUND SQUIRREL CLEARANCE SURVEYS

BIO-19 The project owner shall undertake appropriate measures to manage construction at the plant site and linear facilities in a manner to avoid or minimize impacts to Mohave ground squirrel. These measures include, but are not limited to, the following:

1. Clearance Survey. After the installation of the desert tortoise exclusion fence and prior to any ground disturbance, the Designated Biologist(s) shall examine the area to be disturbed for Mohave ground squirrels and their burrows. The survey shall provide 100 percent coverage of the project limits. Potentially occupied burrows as determined by a permitted MGS biologist authorized by the CDFG shall be fully excavated by hand by the Designated Biologist(s).

2. Translocation Plan. The project owner shall develop and implement a Mohave Ground Squirrel Translocation Plan to address the handling and disposition of any Mohave ground squirrels

encountered during the clearance surveys. The Translocation Plan shall be approved by Energy Commission staff in consultation with CDFG. The Translocation Plan shall designate a translocation site as close as possible to the project, and which provides suitable conditions for long-term survival of the relocated Mohave ground squirrel. The plan shall include but not be limited to the following components.

a. identify the appropriate time when translocation may occur

b. the methods of capture, handling, and safe transfer

c. methods of health assessment

d. identify the proposed translocation site

e. identify monitoring and post translocation survivorship

f. identify remedial actions, and

g. reporting procedures to document translocation success.

3. Records of Capture. If Mohave ground squirrels are captured via trapping or burrow excavation, the Designated Biologist shall maintain a record of each Mohave ground squirrel handled, including: a) the locations (Global Positioning System [GPS] coordinates and maps) and time of capture and/or observation as well as release; b) sex; c) approximate age (adult/juvenile); d) weight; e) general condition and health, noting all visible conditions including gait and behavior, diarrhea, emaciation, salivation, hair loss, ectoparasites, and injuries; and f) ambient temperature when handled and released. Any Mohave ground squirrels observed within the project area or adjacent habitat shall be reported to the CDFG and CPM by written and electronic correspondence within 24-hours.

Verification: No less than 60 days prior to any site mobilization the project owner shall provide the CPM and CDFG a draft Mohave Ground Squirrel Translocation Plan. At least 60 days prior to start of any project-related ground disturbance activities, the project owner shall provide the CPM with the final version of a Mohave Ground Squirrel Translocation Plan that has been approved by Energy Commission staff in consultation with CDFG. The CPM will determine the plan's acceptability within 15 days of receipt of the final plan. All modifications to the approved Translocation Plan must be made only after approval of the Energy Commission staff in consultation with CDFG. The project owner shall notify the CPM no fewer than 5 working days before implementing any CPM-approved modifications to the Translocation Plan.

Within 30 days of completion of Mohave ground squirrel clearance surveys the Designated Biologist shall submit a report to the CPM and CDFG describing how mitigation measures described above have been satisfied. The report shall include the Mohave ground squirrel survey results, capture and release locations of any relocated squirrels, and any other information needed to demonstrate compliance with the measures described above.

Within 30 days after initiation of translocation activities, the Designated Biologist shall provide to the CPM for review and approval, a written report identifying which items of the Translocation Plan have been completed, and a summary of all modifications to measures made during implementation.

MOHAVE GROUND SQUIRREL HABITAT COMPENSATORY MITIGATION

BIO-20 The project owner shall provide compensatory mitigation acreage of 665 acres of Mohave ground squirrel habitat lands, adjusted to reflect the final project footprint, as specified in this condition. In addition, the project owner shall provide funding for initial improvement and long-term maintenance, enhancement, and management of the acquired lands for protection and enhancement Mohave ground squirrel populations, and comply with other related requirements of this condition.

This mitigation ratio is based on a 2:1 ratio for the power plant site and a 3:1 ratio for the transmission line route. Costs of these requirements are estimated to be $9,812,075.00. See Biological Resources Table 4b for a complete breakdown of costs and acreage. All costs are best estimates as of fall 2010. Actual costs will be determined at the time of the transactions and may change the funding needed to implement the required mitigation obligation based on changing land costs or management fees. Regardless of the estimates, the project owner is responsible for providing adequate funding to implement the required mitigation.

In lieu of acquiring lands itself, the project owner may satisfy the requirements of this condition by depositing funds into a Renewable Energy Action Team (REAT) Account established with the National Fish and Wildlife Foundation (NFWF), as described below. If the Project owner elects to establish a REAT NFWF Account and have NFWF and the agencies complete the required habitat compensation, then the total estimated cost of complying with this condition is $10,141,152.00. The amount of security or NFWF deposit shall be adjusted up or down to reflect any revised cost estimates recommended by REAT.

The actual costs to comply with this condition will vary depending on the final footprint of the project, the costs of acquiring compensation

habitat, the costs of initially improving the habitat, and the actual costs of long-term management as determined by a Property Analysis Report or similar analysis (below). The 665-acre habitat requirement, and associated funding requirements based on that acreage, shall be adjusted up or down if there are changes in the final footprint of the project or the associated costs of evaluation, acquisition, management, and other factors listed in Biological Resources Table 4b. Regardless of actual cost, the project owner shall be responsible for funding all requirements of this condition.

COMPENSATORY MITIGATION LAND ACQUISITION

1. Method of Acquisition. Compensation lands shall be acquired by either of the two options listed below. Regardless of the method of acquisition, the transaction shall be complete only upon completion of all terms and conditions described in this Condition of Certification.

   a The project owner shall acquire lands and transfer title and/or conservation easement to a state or federal land management agency or to a third-party non-profit land management organization, as approved by the CPM in consultation with CDFG; or

   b. The project owner shall deposit funds into a project-specific subaccount within the REAT Account established with the NFWF, in the amount as indicated in Biological Resources Table 4b (adjusted to reflect final project footprint and any applicable REAT adjustments to costs).

2. Selection Criteria for Compensation Lands. The compensation lands selected for acquisition shall:

   a. Be in the western Mojave Desert;

   b. Provide moderate to good quality habitat for Mohave ground squirrel with capacity to improve in quality and value for this species;

   c. Be a contiguous block of land (preferably) or located so they result in a contiguous block of protected habitat;

   d. Be adjacent to larger blocks of lands that are already protected, or be in a location approved by the CDFG, such that there is connectivity between the acquired lands and the protected lands;

   e. Be connected to lands for which there is reasonable evidence (for example, recent [<15 years] CNDDB occurrences on or

immediately adjacent to the proposed lands) suggesting current occupation by Mohave ground squirrel, ideally with populations that are stable, recovering, or likely to recover;

f. Not have a history of intensive recreational use, grazing, or other disturbance that might make habitat recovery and restoration infeasible;

g. Not be characterized by high densities of invasive species, either on or immediately adjacent to the parcels under consideration, that might jeopardize habitat recovery and restoration; and

h. Not be encumbered by easements or uses that would preclude fencing of the site or preclude or unacceptably constrain management of the site for the primary benefit of the species and their habitat for which mitigation lands were secured.

3. Review and Approval of Compensation Lands Prior to Acquisition. The project owner shall submit a formal acquisition proposal to the CPM describing the parcel(s) intended for purchase. This acquisition proposal shall discuss the suitability of the proposed parcel(s) as compensation lands for Mohave ground squirrel in relation to the criteria listed above and must be approved by the CPM. The CPM will share the proposal with and consult with CDFG before deciding whether to approve or disapprove the proposed acquisition.

4. Compensation Lands Acquisition Conditions: The project owner shall comply with the following conditions relating to acquisition of the compensation lands after the CPM, in consultation with CDFG approved the proposed compensation lands:

   a. Preliminary Report: The Project owner, or approved third party, shall provide a recent preliminary title report, initial hazardous materials survey report, biological analysis, and other necessary or requested documents for the proposed compensation land to the CPM. All documents conveying or conserving compensation lands and all conditions of title are subject to review and approval by the CPM, in consultation with CDFG. For conveyances to the State, approval may also be required from the California Department of General Services, the Fish and Game Commission and the Wildlife Conservation Board.

   b. Title/Conveyance: The Project owner shall acquire and transfer fee title to the compensation lands, a conservation easement over the lands, or both fee title and conservation easement as required by the CPM in consultation with CDFG. Any transfer of

a conservation easement or fee title must be to CDFG, a non-profit organization qualified to hold title to and manage compensation lands (pursuant to California Government Code section 65965), or to other public agency approved by the CPM in consultation with CDFG. If an approved non-profit organization holds fee title to the compensation lands, a conservation easement shall be recorded in favor of CDFG or another entity approved by the CPM. If an approved non-profit holds a conservation easement, CDFG shall be named a third party beneficiary. If an entity other than CDFG holds a conservation easement over the compensation lands, the CPM may require that CDFG or another entity approved by the CPM, in consultation with CDFG, be named a third party beneficiary of the conservation easement. The Project owner shall obtain approval of the CPM, in consultation with CDFG, of the terms of any transfer of fee title or conservation easement to the compensation lands.

c. Property Analysis Record: Upon identification of the compensation lands, the Project owner shall conduct a Property Analysis Record (PAR) or PAR-like analysis to establish the appropriate amount of the long-term maintenance and management fund to pay the in-perpetuity management of the compensation lands. The PAR or PAR-like analysis must be approved by the CPM, in consultation with CDFG, before it can be used to establish funding levels or management activities for the compensation lands.

5. Compensation Lands Acquisition Costs: The Project owner shall pay all other costs related to acquisition of compensation lands and conservation easements. In addition to actual land costs, these acquisition costs shall include but shall not be limited to the items listed below. Management costs including site cleanup measures are described separately, in the following section.

   a. Level 1 Environmental Site Assessment;

   b. Appraisal;

   c. Title and document review costs;

   d. Expenses incurred from other state, federal, or local agency reviews;

   e. Closing and escrow costs;

   f. Overhead costs related to providing compensation lands to CDFG or an approved third party;

g. Biological survey(s) to determine mitigation value of the land; and

h. Agency costs to accept the land (e.g., writing and recording of conservation easements; title transfer).

COMPENSATORY MITIGATION LAND IMPROVEMENT

1. Land Improvement Requirements: The Project owner shall fund activities that the CPM, in consultation with the CDFG requires for the initial protection and habitat improvement of the compensation lands. These activities will vary depending on the condition and location of the land acquired, but may include surveys of boundaries and property lines, installation of signs, trash removal and other site cleanup measures, construction and repair of fences, invasive plant removal, removal of roads, and similar measures to protect habitat and improve habitat quality on the compensation lands.

   The costs of these activities are estimated at $250 an acre, but will vary depending on the measures that are required for the compensation lands. A non-profit organization, CDFG or another public agency may hold and expend the habitat improvement funds if it is qualified to manage the compensation lands (pursuant to Gov. Code § 65965), if it meets the approval of the CPM in consultation with CDFG, and if it is authorized to participate in implementing the required activities on the compensation lands. If CDFG takes fee title to the compensation lands, the habitat improvement fund must be paid to CDFG or its designee.

COMPENSATORY MITIGATION LAND LONG-TERM MANAGEMENT

1. Long-term Management Requirements: Long-term management is required to ensure that the compensation lands are managed and maintained to protect and enhance habitat for desert tortoise. Management activities may include maintenance of signs, fences, removal of invasive weeds, monitoring, security and enforcement, and control or elimination of unauthorized use.

2. Long-term Management Plan: The project owner shall pay for the preparation of a Management Plan for the compensation lands. The Management Plan shall reflect site-specific enhancement measures on the acquired compensation lands. The plan shall be submitted for approval of the CPM, in consultation with CDFG.

3. Long-Term Maintenance and Management Funding: The Project owner shall provide money to establish an account with a non-wasting capital that will be used to fund the long-term maintenance and management of the compensation lands. The amount of money to be

paid will be determined through an approved PAR or PAR-like analysis conducted for the compensation lands. The amount of required funding is initially estimated to be $1,450 for every acre of compensation lands. If compensation lands will not be identified and a PAR or PAR-like analysis completed within the time period specified for this payment (see the verification section at the end of this condition), the Project owner shall provide initial payment of $9,642,250.00calculated at $1,450 an acre for each compensation acre, as shown in Biological Resources Table 4b (above) into an account for long-term maintenance and management of compensation lands. The amount of the required initial payment or security for this item shall be adjusted for any change in the Project footprint as described above. If an initial payment is made based on the estimated per-acre costs, the project owner shall deposit additional money as may be needed to provide the full amount of long-term maintenance and management funding indicated by a PAR or PAR-like analysis, once the analysis is completed and approved. If the approved analysis indicates less than $1,450 an acre will be required for long-term maintenance and management, the excess paid will be returned to the Project owner.

The project owner must obtain the CPM's approval of the entity that will receive and hold the long-term maintenance and management fund for the compensation lands. The CPM will consult with the project owner and CDFG before deciding whether to approve an entity to hold the project's long-term maintenance and management funds on any lands. The CPM, in consultation with the project owner and CDFG, may designate another state agency or non-profit organization to hold the long-term maintenance and management fee if the organization is qualified to manage the compensation lands in perpetuity.

If CDFG takes fee title to the compensation lands, CDFG shall determine whether it will hold the long-term management fee in the special deposit fund, leave the money in the REAT Account, or designate another entity such as NFWF to manage the long-term maintenance and management fee for CDFG and with CDFG supervision.

The Project owner shall ensure that an agreement is in place with the long-term maintenance and management fee holder/manager to ensure the following conditions:

i. Interest. Interest generated from the initial capital shall be available for reinvestment into the principal and for the long-term operation, management, and protection of the approved compensation lands, including reasonable administrative overhead, biological monitoring, improvements to carrying capacity, law enforcement

measures, and any other action approved by CDFG designed to protect or improve the habitat values of the compensation lands.

ii. Withdrawal of Principal. The long-term maintenance and management fee principal shall not be drawn upon unless such withdrawal is deemed necessary by the CPM, in consultation with CDFG, or the approved third-party long-term maintenance and management fee manager to ensure the continued viability of the species on the compensation lands. If CDFG takes fee title to the compensation lands, monies received by CDFG pursuant to this provision shall be deposited in a special deposit fund established solely for the purpose to manage lands in perpetuity unless CDFG designates NFWF or another entity to manage the long-term maintenance and management fee for CDFG.

iii. Pooling Funds. A CPM- approved non-profit organization qualified to hold long-term maintenance and management fees solely for the purpose to manage lands in perpetuity, may pool the fund with other funds for the operation, management, and protection of the compensation lands for local populations of desert tortoise. However, for reporting purposes, the long-term maintenance and management fee fund must be tracked and reported individually to the CDFG and CPM.

iv. Reimbursement Fund. The project owner shall provide reimbursement to CDFG or an approved third party for reasonable expenses incurred during title, easement, and documentation review; expenses incurred from other State or State-approved federal agency reviews; and overhead related to providing compensation lands.

COMPENSATORY MITIGATION LAND SECURITY

1. Compensation Mitigation Security: The project owner shall provide security sufficient for funding acquisition, improvement, and long-term management of desert tortoise compensation land. Financial assurance can be provided to the CPM in the form of an irrevocable letter of credit, a pledged savings account or another form of security ("Security"). Prior to submitting the Security to the CPM, the Project owner shall obtain the CPM's approval, in consultation with CDFG of the form of the Security.

   The security amount shall be based on the estimates provided in Biological Resources Table 4b**.** This amount shall be updated and verified prior to payment and shall be adjusted to reflect actual costs or more current estimates as agreed upon by the REAT agencies.

The Project owner shall provide verification that financial assurances have been established to the CPM with copies of the document(s) to CDFG, to guarantee that an adequate level of funding is available to implement any of the mitigation measures required by this condition that are not completed prior to the start of ground-disturbing activities described in Section A of this condition.

In the event that the project owner defaults on the Security, the CPM may use money from the Security solely for implementation of the requirements of this condition. The CPM's use of the security to implement measures in this condition may not fully satisfy the Project owner's obligations under this condition. Any amount of the Security that is not used to carry out mitigation shall be returned to the Project owner upon successful completion of the associated requirements in this condition.

Security for the requirements of this condition shall be provided in the amount of $10,141,152.00 if the project owner elects to use the REAT Account with NFWF pursuant to paragraph 4 of this condition, below). The Security is calculated in part from the items that follow but adjusted as specified below (consult Biological Resources Table 4b for the complete breakdown of estimated costs). However, regardless of the amount of the security or actual cost of implementation, the project owner shall be responsible for implementing all aspects of this condition.

i. land acquisition costs for compensation land, calculated at $10,000/acre;

ii. Site assessments, appraisals, biological surveys, transaction closing and escrow costs, calculated as $18,000 total per parcel (presuming 60 acres per parcel)

iii. Initial site clean-up, restoration, or enhancement, calculated at $250/acre;

iv. Third-party and agency administrative transaction costs and overhead, calculated as percentages of land cost;

v. Long-term management and maintenance fund, calculated at $1,450 per acre;

vi. NFWF fees to establish a project-specific account; manage the sub-account for acquisition and initial site work; and manage the sub-account for long term management and maintenance.

2. The project owner may elect to comply with some or all of the requirements in this condition by providing funds to implement the

requirements into the Renewable Energy Action Team (REAT) Account established with the National Fish and Wildlife Foundation (NFWF). To use this option, the Project owner must make an initial deposit to the REAT Account in an amount equal to the estimated costs of implementing the requirement (as set forth in the Security section of this condition, paragraph 3, above). If the actual cost of the acquisition, initial protection and habitat improvements, long-term funding or other cost is more than the estimated amount initially paid by the project owner, the project owner shall make an additional deposit into the REAT Account sufficient to cover the actual acquisition costs, the actual costs of initial protection and habitat improvement on the compensation lands, the long-term funding requirements as established in an approved PAR or PAR-like analysis, or the other actual costs that are estimated in the table. If those actual costs or PAR projections are less than the amount initially transferred by the applicant, the remaining balance shall be returned to the project owner.

3. The responsibility for acquisition of compensation lands may be delegated to a third party other than NFWF, such as a non-governmental organization supportive of desert habitat conservation, by written agreement of the Energy Commission. Such delegation shall be subject to approval by the CPM, in consultation with CDFG prior to land acquisition, enhancement or management activities. Agreements to delegate land acquisition to an approved third party, or to manage compensation lands, shall be executed and implemented within 18 months of the start of project related ground disturbance.

4. The project owner may request the CPM to provide it with all available information about any funds held by the Energy Commission, CDFG or NFWF as project security, or funds held in a NFWF sub-account for this project, or other project-specific account held by a third party. The CPM shall also fully cooperate with any independent audit that the project owner may choose to perform on any of these funds.

Verification: The project owner shall provide the CPM with written notice of intent to start ground disturbance at least 30 days prior to the start of ground-disturbing activities on the project site.

If the mitigation actions required under this condition are not completed at least 30 days prior to the start of ground-disturbing activities, the Project owner shall provide verification to the CPM and CDFG that an approved Security has been established in accordance with this condition of certification no later than 30 days prior to beginning Project ground-disturbing activities. Financial assurance can be provided to the CPM in the form of an irrevocable letter of credit, a pledged

savings account or another form of security ("Security"). Prior to submitting the Security to the CPM, the project owner shall obtain the CPM's approval, in consultation with CDFG of the form of the Security. The project owner, or an approved third party, shall complete and provide written verification to the CPM and CDFG of the compensation lands acquisition and transfer within 18 months of the start of Project ground-disturbing activities.

No later than 12 months after the start of any phase of ground-disturbing project activities, the project owner shall submit a formal acquisition proposal to the CPM describing the parcels intended for purchase, and shall obtain approval from the CPM, in consultation with CDFG prior to the acquisition. If NFWF or another approved third party is handling the acquisition, the project owner shall fully cooperate with the third party to ensure the proposal is submitted within this time period. The project owner or an approved third party shall complete the acquisition and all required transfers of the compensation lands, and provide written verification to the CPM and CDFG of such completion, no later than 18 months after the start of project related ground disturbance activities. If NFWF or another approved third party is being used for all or part of the acquisition, the project owner shall ensure that funds needed to accomplish the acquisition are transferred in timely manner to facilitate the planned acquisition and to ensure the land can be acquired and transferred prior to the 18-month deadline.

The project owner shall complete and submit to the CPM a PAR or PAR-like analysis no later than 60 days after the CPM approves compensation lands for acquisition associated with any phase of construction. The project owner shall fully fund the required amount for long-term maintenance and management of the compensation lands for that phase of construction no later than 30 days after the CPM approves a PAR or PAR-like analysis of the anticipated long-term maintenance and management costs of the compensation lands. Written verification shall be provided to the CPM and CDFG to confirm payment of the long-term maintenance and management funds.

No later than 60 days after the CPM determines what activities are required to provide for initial protection and habitat improvement on the compensation lands for any phase of construction, the project owner shall make funding available for those activities and provide written verification to the CPM of what funds are available and how costs will be paid. Initial protection and habitat improvement activities on the compensation lands for that phase of construction shall be completed, and written verification provided to the CPM, no later than six months after the CPM's determination of what activities are required on the compensation lands.

The project owner, or an approved third party, shall provide the CPM and CDFG with a management plan for the compensation lands associated with any phase of construction within180 days of the land or easement purchase, as determined by the date on the title. The CPM, in consultation with CDFG shall approve the management plan after its content is acceptable to the CPM.

Within 90 days after completion of all project related ground disturbance, the project owner shall provide to the CPM and CDFG an analysis, based on aerial photography, with the final accounting of the amount of habitat disturbed during Project construction. If this analysis shows that more lands were disturbed than was anticipated in this condition, the project owner shall provide the Energy Commission with additional compensation lands and funding commensurate with the added impacts and applicable mitigation ratios set forth in this condition. A final analysis of all project related ground disturbance may not result in a reduction of compensation requirements if the deadlines established under this condition for transfer of compensation lands and funding have passed prior to completion of the analysis.

AMERICAN BADGER AND DESERT KIT FOX IMPACT AVOIDANCE AND MINIMIZATION MEASURES

BIO-21 Prior to ground disturbance the owner shall conduct pre-construction surveys for American badgers and desert kit fox. These surveys may be conducted concurrent with the desert tortoise surveys. Surveys shall be conducted as described below:

Biological Monitors shall perform pre-construction surveys for badger and kit fox dens in the project area, including areas within 250 feet of all project facilities, utility corridors, and access roads. If dens are detected, each den shall be classified as inactive, potentially active, or definitely active.

Inactive dens that would be directly impacted by construction activities shall be excavated by hand and backfilled to prevent reuse by badgers or kit fox. Potentially active dens that would be directly impacted by construction activities shall be monitored by the Biological Monitor for three consecutive nights using a tracking medium (such as diatomaceous earth or fire clay) and/or infrared camera stations at the entrance. If no tracks are observed in the tracking medium or no photos of the target species are captured after three nights, the den shall be excavated and backfilled by hand.

If present, occupied badger dens shall be flagged and ground-disturbing activities avoided within 50 feet of the occupied den avoided. Maternity dens shall be avoided during the pup-rearing season (15 February through 1 July) and a minimum 200-foot buffer established. Buffers may be modified with the concurrence of CDFG and CPM. Maternity dens shall be flagged for avoidance, identified on construction maps, and a biological monitor shall be present during construction.

If avoidance of a non-maternity den is not feasible, badgers shall be relocated by slowly excavating the burrow (either by hand or mechanized equipment under the direct supervision of the biologist,

removing no more that 4 inches at a time) before or after the rearing season (15 February through 1 July). Any relocation of badgers shall occur only after consultation with the CDFG and CPM. A written report documenting the badger removal shall be provided to the CPM within 30 days of relocation.

Verification: The project owner shall submit a report to the CPM and CDFG within 30 days of completion of badger and kit fox surveys. The report shall describe survey methods, results, mitigation measures implemented, and the results of the mitigation.

BAT AVOIDANCE AND MINIMIZATION MEASURES

BIO-22 Prior to ground disturbance the project owner shall conduct a survey for roosting bats within 200 feet of project activities within 15 days prior to any grading of rocky outcrops or removal of trees (particularly trees 12 inches in diameter or greater at 4.5 feet above grade with loose bark or other cavities).

The project owner shall also conduct surveys for roosting bats during the maternity season (1 March to 31 July) within 300 feet of project activities. Trees and rocky outcrops shall be surveyed by a qualified bat biologist Surveys shall include a minimum of one day and one evening. The biologist shall be approved by the Designated Biologist. If active maternity roosts or hibernacula are found, the rock outcrop or tree occupied by the roost shall be avoided (i.e., not removed) by the project, if feasible. If avoidance of the maternity roost is not feasible, the bat biologist shall survey (through the use of radio telemetry or other CDFG/CPM-approved methods) for nearby alternative maternity colony sites. If the bat biologist determines in consultation with and with the approval of the CDFG, and CPM that there are alternative roost sites used by the maternity colony and young are not present, then no further action is required. However, if there are no alternative roosts sites used by the maternity colony, provision of substitute roosting bat habitat is required. If active maternity roosts are absent, but a hibernaculum (i.e., a non-maternity roost) is present, then exclusion of bats prior to demolition of roosts is required.

1. Provision of substitute roosting bat habitat. If a maternity roost will be impacted by the project, and no alternative maternity roosts are in use near the site, substitute roosting habitat for the maternity colony shall be provided on, or in close proximity to, the project site no less than three months prior to the eviction of the colony. Alternative roost sites will be constructed in accordance with the specific bats' requirements in coordination with CDFG and the CPM. Alternative roost sites must be of comparable size and proximal in location to the impacted colony. The CDFG shall also

be notified of any hibernacula or active nurseries within the construction zone.

2. Exclude bats prior to demolition of roosts. If non-breeding bat hibernacula are found in trees scheduled to be removed or in crevices in rock outcrops within the grading footprint, the individuals shall be safely evicted, under the direction of the qualified bat biologist, by opening the roosting area to allow airflow through the cavity or other means determined appropriate by the bat biologist (e.g., installation of one-way doors). In situations requiring one-way doors, a minimum of one week shall pass after doors are installed and temperatures should be sufficiently warm for bats to exit the roost. This action should allow all bats to leave during the course of one week. Roosts that need to be removed in situations where the use of one-way doors is not necessary in the judgment of the qualified bat biologist shall first be disturbed by various means at the direction of the bat biologist at dusk to allow bats to escape during the darker hours, and the roost tree shall be removed or the grading shall occur the next day (i.e., there shall be no less or more than one night between initial disturbance and the grading or tree removal).

   If an active maternity roost is located in an area to be impacted by the project, and alternative roosting habitat is available, the demolition of the roost site must commence before maternity colonies form (i.e., prior to 1 March) or after young are flying (i.e., after 31 July) using the exclusion techniques described above.

Verification: The project owner shall submit a report to the CPM and CDFG within 30 days of completion of roosting bat surveys and any subsequent mitigation. The report shall describe survey methods, results, mitigation measures implemented, and the results of the mitigation.

STREAMBED IMPACT MINIMIZATION AND COMPENSATION MEASURES

BIO-23 The project owner shall implement Best Management Practices and other measures described below to protect jurisdictional waters of the state occurring along the linear alignments. The project owner shall implement the following measures to minimize impacts to waters of the state:

1. Best Management Practices: The applicant shall comply with the following conditions:

   a. Prior to any activities that cross or have the potential to impact any jurisdictional drainage the owner shall provide a detailed map to the CDFG and CPM in a GIS format that identifies all potential crossings of jurisdictional habitats including bridges and culverts. The maps shall identify the type of crossing

proposed by the owner such as bridges, culverts, or other mechanism and the best management practices that would be employed.

b. Precautions to minimize turbidity/siltation shall be taken into account during project planning and shall be installed prior to construction. Precautions may also include placement of silt fencing, weed-free straw bales, or sand bags, so that silt or other deleterious materials are not allowed to pass to downstream reaches. The method used to prevent siltation shall be monitored and cleaned/repaired weekly.

c. The project owner shall not operate vehicles or equipment in ponded or flowing water except as described in this condition. Diversion of any stream is not authorized. Bridging of Little Rock Wash is not authorized in this condition.

d. Dewatering is not authorized in this condition.

e. At the completion of construction all temporary bridges, culverts, or other structures shall be removed unless authorized by the CDFG and CPM.

f. When any activity requires moving of equipment across a flowing stream, such operations shall be conducted without substantially increasing stream turbidity. The project owner shall bridge by the use of railroad flat cars or other bridging material all ponded or flowing streams if vehicles where high flow levels occur.

g. Where drainages support sheet flow in direct response to rainfall for periods of less than 48 hours construction of bridges is not required. Vehicle use in these areas shall not result in silt/mud/turbid water from reaching downstream areas.

h. Vehicles driven across ephemeral drainages when water is present shall be completely clean of petroleum residue and water levels shall be below the vehicles axels.

i. Any equipment or vehicles driven and/or operated within or adjacent to the stream/lake shall be checked and maintained daily, to prevent leaks of materials that if introduced to water could be deleterious to aquatic life.

j. Installation of bridges, culverts, or other structures shall be such that water flow (velocity and low flow channel width) is not impaired. Bottoms of temporary culverts shall be placed at or

below stream channel grade. A biological monitor shall be present during the installation of all bridges, culverts and BMPs.

k. Installation of bridges or culverts shall be done in a manner that shall prevent pollution and/or siltation and which shall provide flows to downstream reaches. Flows to downstream reaches shall be provided during all times.

l. The project owner shall not allow water containing mud, silt, or other pollutants from grading, aggregate washing, or other activities to enter a lake or flowing stream or be placed in locations that may be subjected to high storm flows.

m. If turbidity/siltation levels resulting from project related activities constitute a threat to aquatic life, activities associated with the turbidity/siltation, shall be halted until effective CPM approved control devices are installed, or abatement procedures are initiated.

n. The project owner shall comply with all litter and pollution laws. All contractors, subcontractors, and employees shall also obey these laws, and it shall be the responsibility of the project owner to ensure compliance.

o. If a stream's low flow channel, bed or banks/lake bed or banks have been altered, these shall be returned as nearly as possible to their original configuration and width, without creating future erosion problems. The gradient of the streambed shall be returned to pre project grade unless such operation is part of a restoration project, in which case, the change in grade must be approved by the Department prior to project commencement.

p. No debris, soil, silt, sand, bark, slash, sawdust, rubbish, construction waste, cement or concrete or washings thereof, asphalt, paint, oil or other petroleum products or any other substances which could be hazardous to aquatic life, or other organic or earthen material from any logging, construction, or other associated project related activity shall be allowed to contaminate the soil and/or enter into or placed where it may be washed by rainfall or runoff into, waters of the State. Any of these materials, placed within or where they may enter a stream or lake, by the owner or any party working under contract, or with the permission of the owner, shall be removed immediately.

q. When operations are completed, any excess materials or debris shall be removed from the work area. No rubbish shall be

deposited within 150 feet of the high water mark of any stream or lake.

r. Stationary equipment such as motors, pumps, generators, and welders, located within or adjacent to the stream/lake shall be positioned over drip pans. Stationary heavy equipment shall have suitable containment to handle a catastrophic spill/leak. Clean up equipment such as extra boom, absorbent pads, skimmers, shall be on site prior to the start of dredging.

s. No equipment maintenance shall be done within or near any stream channel where petroleum products or other pollutants from the equipment may enter these areas under any flow.

t. The cleanup of all spills shall begin immediately. The CDFG and CPM shall be notified immediately by the owner of any spills and shall be consulted regarding clean-up procedures.

2. Non-native Vegetation Removal. The owner shall remove any non-native vegetation (tree tobacco, castor bean, etc.) from any drainage that requires the placement of a bridge, culvert or other structure. Removal shall be done at least twice annually (Spring/Summer) during implementation of the PHPP project. The removal of riparian vegetation is not authorized under this condition. Should the removal of riparian vegetation become necessary temporary impacts will be mitigated at a ratio of 2:1 and permanent impacts will be mitigated at a ratio of 5:1.

3. Reporting of Special-Status Species: If any special-status species are observed on or in proximity to the project site, or during project surveys, the project owner shall submit California Natural Diversity Data Base (CNDDB) forms and maps to the CNDDB within five working days of the sightings and provide the regional CDFG office with copies of the CNDDB forms and survey maps. The CNDDB form is available online at: www.dfg.ca.gov/whdab/pdfs/natspec.pdf. This information shall be mailed within five days to: California Department of Fish and Game, Natural Diversity Data Base, 1807 13th Street, Suite 202, Sacramento, CA 95814, (916) 324-3812. A copy of this information shall also be mailed within five days to CDFG and the CPM.

4. Notification: The project owner shall notify the CPM and CDFG, in writing, at least five days prior to initiation of project activities in jurisdictional areas and at least five days prior to completion of project activities in jurisdictional areas. The project owner shall notify the CPM and CDFG of any change of conditions to the project, the jurisdictional impacts, or the mitigation efforts, if the

conditions at the site of the proposed project change in a manner which changes risk to biological resources that may be substantially adversely affected by the proposed project. The notifying report shall be provided to the CPM and CDFG no later than seven days after the change of conditions is identified. As used here, change of condition refers to the process, procedures, and methods of operation of a project; the biological and physical characteristics of a project area; or the laws or regulations pertinent to the project, as described below. A copy of the notifying change of conditions report shall be included in the annual reports.

a. Biological Conditions: a change in biological conditions includes, but is not limited to, the following: 1) the presence of biological resources within or adjacent to the project area, whether native or non-native, not previously known to occur in the area; or 2) the presence of biological resources within or adjacent to the project area, whether native or non-native, the status of which has changed to endangered, rare, or threatened, as defined in section 15380 of Title 14 of the California Code of Regulations.

b. Physical Conditions: a change in physical conditions includes, but is not limited to, the following: 1) a change in the morphology of a river, stream, or lake, such as the lowering of a bed or scouring of a bank, or changes in stream form and configuration caused by storm events; 2) the movement of a river or stream channel to a different location; 3) a reduction of or other change in vegetation on the bed, channel, or bank of a drainage, or 4) changes to the hydrologic regime such as fluctuations in the timing or volume of water flows in a river or stream.

c. Legal Conditions: a change in legal conditions includes, but is not limited to, a change in Regulations, Statutory Law, a Judicial or Court decision, or the listing of a species, the status of which has changed to endangered, rare, or threatened, as defined in section 15380 of Title 14 of the California Code of Regulations.

5. Code of Regulations: The project owner shall provide a copy of the Energy Commission Decision to all contractors, subcontractors, and the applicant's project supervisors. Copies shall be readily available at work sites at all times during periods of active work and must be presented to any CDFG personnel or personnel from another agency upon demand. The CPM reserves the right to issue a stop work order or allow CDFG to issue a stop work order after giving notice to the project owner and the CPM, if the CPM, in consultation with CDFG, determines that the project owner has

breached any of the terms or conditions or for other reasons, including but not limited to the following:

a. The information provided by the applicant regarding streambed conditions is incomplete or inaccurate;

b. New information becomes available that was not known to it in preparing the terms and conditions;

c. The project or project activities as described in the Final Staff Assessment have changed; or

d. The conditions affecting biological resources changed or the CPM, in consultation with CDFG, determines that project activities will result in a substantial adverse effect on the environment.

Verification: No fewer than 30 days prior to the start of any site or related facilities mobilization activities, the project owner shall implement the mitigation measures described above. No fewer than 30 days prior to the start of work potentially affecting waters of the state, the project owner shall provide written verification (i.e., through incorporation into the BRMIMP) to the CPM that the above best management practices will be implemented and provide a discussion of work in waters of the state in Compliance Reports for the duration of the project. Compliance Reports shall be submitted every six months.

AVIAN AND BAT PROTECTION PLAN / MONITORING BIRD AND BAT IMPACTS FROM SOLAR TECHNOLOGY

BIO-24 The project owner shall prepare and implement an Avian and Bat Protection Plan to monitor bird and bat collisions with facility features (study described below). The Project owner shall use the monitoring data to inform and develop an adaptive management program that would avoid and minimize Project-related avian and bat impacts. Project-related bird and bat deaths or injuries shall be reported to the CPM, CDFG and USFWS. The CPM, in consultation with CDFG and USFWS, shall determine if the Project-related bird or bat deaths or injuries warrant implementation of adaptive management measures contained in the Avian and Bat Protection Plan. The study design for the Avian and Bat Protection Plan shall be approved by the CPM in consultation with CDFG and USFWS, and, once approved, shall be incorporated into the project's BRMIMP and implemented. The Plan shall include adaptive management strategies that include the placement of bird flight diverters, aerial markers, or other strategies to minimize collisions with the solar arrays

The Avian and Bat Protection Plan shall include a Bird and Bat Monitoring Study to monitor the death and injury of birds from collisions with facility features such as reflective mirror-like surfaces. The study

design shall be approved by the CPM in consultation with CDFG and USFWS, and shall be incorporated into the project's BRMIMP and implemented. The Bird Monitoring Study shall be based upon prior studies by McCrary et al. (1986) or other applicable literature, and shall include detailed specifications on data and carcass collection protocol and a rationale justifying the proposed schedule of carcass searches. The study shall also include seasonal trials to assess bias from carcass removal by scavengers as well as searcher bias and proposed disposition of dead or injured birds.

Verification: No more than 60 days prior to ground disturbance the project owner shall submit to the CPM, USFWS and CDFG a final Avian and Bat Protection Plan. Modifications to the Avian Protection Plan shall be made only after approval from the CPM.

For one year following the beginning of power plant operation, the Designated Biologist shall submit quarterly reports to the CPM, CDFG, and USFWS describing the methods, dates, durations, and results of monitoring. The quarterly reports shall provide a detailed description of any project-related bird or wildlife deaths or injuries detected during the monitoring study or at any other time. Following the completion of the fourth quarter of monitoring the Designated Biologist shall prepare an Annual Report that summarizes the year's data, analyzes any project-related bird fatalities or injuries detected, and provides recommendations for future monitoring and any adaptive management actions needed. The Annual Report shall be provided to the CPM, CDFG, and USFWS. Quarterly reporting shall continue until the CPM, in consultation with CDFG and USFWS determine whether more years of monitoring are needed, and whether mitigation and adaptive management measures are necessary. After the Bird and Bat Monitoring Study is determined by the CPM to be complete, the project owner or contractor shall prepare a paper that describes the study design and monitoring results to be submitted to the CPM, CDFG, USFWS, and a peer-reviewed scientific journal. Proof of submittal shall be provided to the CPM within one year of concluding the monitoring study.

CLOSURE PLAN MEASURES

BIO-25 The project owner shall implement and incorporate into the facility closure plan measures to address the local biological resources related to facility closure. A funding mechanism shall be developed in consultation with the Energy Commission staff to ensure sufficient funds are available for revegetation, reclamation, and decommissioning if the project site will not be re-powered or developed. The facility closure plan shall address biological resources-related mitigation measures. In addition to these measures, the plan shall include the following:

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

2. Removal of all above-ground and subsurface power plant site facilities and related facilities;

3. Methods for restoring wildlife habitat and promoting the re-establishment of native plant and wildlife species;

4. Revegetation of the project site and other disturbed areas utilizing appropriate methods for establishing native vegetation if the site will not be repowered or developed; and

5. A cost estimate to complete closure-related activities.

In addition, the project owner shall secure funding to ensure implementation of the plan and provide to the CPM written evidence of the dedicated funding mechanism(s).

Verification:

At least 12 months prior to commencement of planned closure activities, the project owner shall address all biological resources-related issues associated with facility closure, and provide final measures, in a Biological Resources Element. The draft planned permanent or unplanned closure measures shall be submitted to the CPM for comment by staff, CDFG, and USFWS. After revision, final measures shall comprise the Biological Resources Element, which shall include the items listed above as well as written evidence of the dedicated funding mechanism(s) for these measures. The final Biological Resources Element shall become part of the facility closure plan, which is submitted to the CPM within 90 days of the permanent closure or another period of time agreed to by the CPM.

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 (see the Conditions of Certification in the **Compliance** section of this Decision).

Upon facility closure, the project owner shall implement measures in the Biological Resources Element and provide written status updates on all closure activities to the CPM at a frequency determined by the CPM.

REVISED CONDITIONS FOR PARTIAL UNDERGROUND TRANSMISSION LINE ALTERNATIVE ROUTE 4

If the project owner opts to construct and operate Transmission Line Alternative Route 4, the following Revised Conditions of Certification **BIO-14**, **BIO-17**, and **BIO-20** reflect the reduced acreages subject to project impacts. The following Biological Resources **TABLES 3.2-5 and 3.2-6** shall apply to these Revised Conditions:

Biological Resources Table 3.2-5
Swainson's Hawk Compensation Cost Estimate[1]

	Task	**Cost**
1.	Land Acquisition 300 acres at 2:1 ratio=600 acres	$10,000 per acre[2]
2.	Level 1 Environmental Site Assessment	$3000 per parcel[3]
3.	Appraisal	$5000 per parcel
4.	Initial site work - clean-up, enhancement , restoration	$250 per acre[4]
5.	Closing and Escrow Costs – 1 transaction includes landowner to 3rd party and 3rd party to agency	$5000 per transaction
6.	Biological survey for determining mitigation value of land (habitat based with species specific augmentation)	$5000 per parcel
7.	3rd party administrative costs - includes staff time to work with agencies and landowners; develop management plan; oversee land transaction; organizational reporting and due diligence; review of acquisition documents; assembling acres to acquire….	10% of land acquisition cost (#1)
8.	Agency costs to review and determine accepting land donation - includes 2 physical inspections; review and approval of the Level 1 ESA assessment; review of all title documents; drafting deed and deed restrictions; issue escrow instructions; mapping the parcels….	15% of land acquisition costs (#1) × 1.17 (17% of the 15% for overhead)
	SUBTOTAL *- Acquisition & Initial Site Work*	***$7,983,000.00***
9.	Long-term Management and Maintenance (LTMM) Fund - includes land management; enforcement and defense of easement or title [short and long term]; monitoring….	$1450 per acre[5]
	SUBTOTAL *- Acquisition, Initial Site Work, & LTMM*	***$8,853,000.00***
	NFWF Fees	
10.	Establish the project specific account	n/a (presumes establishment of Mohave ground squirrel account for project)

11.	NFWF management fee for acquisition & initial site work	3% of SUBTOTAL
12.	NFWF Management fee for LTMM Fund	1% of LTMM Fund
13.	Call for and Process Pre-Proposal Modified RFP	n/a (presumes establishment of Mohave ground squirrel account for project)
	***TOTAL** for deposit in REAT-NFWF Project Specific Account*	***$9,101,190.00***

1. Estimates prepared in consultation with CDFG. All costs are best estimates as of fall 2010. Actual costs will be determined at the time of the transactions and may change the funding needed to implement the required mitigation obligation. Note: regardless of the estimates, the developer is responsible for providing adequate funding to implement the required mitigation.
2. Based on mean of data provided by CDFG for land acquisition in Los Angeles County. If the agencies, developer, or 3rd party has better, credible information on land costs in the specific area where project-specific mitigation lands are likely to be purchased, that data overrides this general estimate. Note: regardless of the estimates, the developer is responsible for providing adequate funding to implement the required mitigation.
3. For the purposes of determining costs, an average parcel is 60 acres (based on input from DFG).
4. Based on information from CDFG.
5. Estimate for purposes of calculating general costs. The actual long term management and maintenance costs will be determined using a Property Assessment Report (PAR) tailored to the specific acquisition.

Biological Resources Table 3.2-6
Mohave Ground Squirrel Compensation Cost Estimate[1]

	Task	Cost
1.	Land Acquisition (total of 600 acres) 2:1 ratio on power plant site Compensatory mitigation is not required for the transmission line right-of-way	$10,000 per acre[2]
2.	Level 1 Environmental Site Assessment	$3000 per parcel[3]
3.	Appraisal	$5000 per parcel
4.	Initial site work - clean-up, enhancement , restoration	$250 per acre[4]
5.	Closing and Escrow Costs – 1 transaction includes landowner to 3rd party and 3rd party to agency	$5000 per transaction
6.	Biological survey for determining mitigation value of land (habitat based with species specific augmentation)	$5000 per parcel
7.	3rd party administrative costs - includes staff time to work with agencies and landowners; develop management plan; oversee land transaction; organizational reporting and due diligence; review of acquisition documents; assembling acres to acquire….	10% of land acquisition cost (#1)
8.	Agency costs to review and determine accepting land donation - includes 2 physical inspections; review and	15% of land acquisition costs (#1) × 1.17 (17%

	approval of the Level 1 ESA assessment; review of all title documents; drafting deed and deed restrictions; issue escrow instructions; mapping the parcels….	of the 15% for overhead)
	SUBTOTAL *- Acquisition & Initial Site Work*	***$7,983,000.00***
9.	Long-term Management and Maintenance (LTMM) Fund - includes land management; enforcement and defense of easement or title [short and long term]; monitoring….	$1450 per acre[5]
	SUBTOTAL *- Acquisition, Initial Site Work, & LTMM*	***$8,853,000.00***
	NFWF Fees	
10.	Establish the project specific account	$12,000
11.	NFWF management fee for acquisition & initial site work	3% of SUBTOTAL
12.	NFWF Management fee for LTMM Fund	1% of LTMM Fund
13.	Call for and Process Pre-Proposal Modified RFP	$30,000
	TOTAL *for deposit in REAT-NFWF Project Specific Account*	***$9,143,190.00***

1. Estimates prepared in consultation with CDFG. All costs are best estimates as of fall 2010. Actual costs will be determined at the time of the transactions and may change the funding needed to implement the required mitigation obligation. Note: regardless of the estimates, the developer is responsible for providing adequate funding to implement the required mitigation.
2. Based on mean of data provided by CDFG for land acquisition in Los Angeles County. If the agencies, developer, or 3rd party has better, credible information on land costs in the specific area where project-specific mitigation lands are likely to be purchased, that data overrides this general estimate. Note: regardless of the estimates, the developer is responsible for providing adequate funding to implement the required mitigation.
3. For the purposes of determining costs, an average parcel is 60 acres (based on input from CDFG).
4. Based on information from CDFG.
5. Estimate for purposes of calculating general costs. The actual long term management and maintenance costs will be determined using a Property Assessment Report (PAR) tailored to the specific acquisition.

RAVEN FEE, MONITORING, MANAGEMENT, AND CONTROL PLAN

ALTERNATIVE BIO-14 The project owner shall design and implement a Raven Monitoring, Management, and Control Plan (Raven Plan) that is consistent with the most current USFWS-approved raven management guidelines and that meets the approval of the USFWS, CDFG, and the CPM. Any subsequent modifications to the approved Raven Plan shall be made only with approval of the CPM in consultation with USFWS and CDFG. The Raven Plan shall include but not be limited to a program to monitor increased raven presence in the Project vicinity and to implement raven control measures as needed based on that monitoring. The purpose of the plan is to avoid any Project-related increases in raven numbers during construction, operation, and

decommissioning. The threshold for implementation of raven control measures shall be any increases in raven numbers from baseline conditions, as detected by monitoring to be proposed in the Raven Plan. Regardless of raven monitoring results, the project owner shall be responsible for all other aspects of the Raven Plan, including avoidance and minimization of project-related trash, water sources, or perch/roost sites that could contribute to increased raven numbers. In addition, to offset the cumulative contributions of the Project to desert tortoise from increased raven numbers, the Project owner shall also contribute to the USFWS Regional Raven Management Program. The Project owner shall do all of the following:

3. Prepare and Implement a Raven Management Plan that includes the following:
    a. Identify conditions associated with the Project that might provide raven subsidies or attractants;
    b. Describe management practices to avoid or minimize conditions that might increase raven numbers and predatory activities;
    c. Describe control practices for ravens;
    d. Address monitoring and nest removal during construction and for the life of the Project, and;
    e. Discuss reporting requirements.
4. Contribute to the REAT Regional Raven Management Program. The project owner shall submit payment to the project sub-account of the REAT Account held by the National Fish and Wildlife Foundation (NFWF) to support the REAT Regional Raven Management Program. The amount shall be a one-time payment of $105 per acre (384 acres) of permanent disturbance fee $40,320.

Verification: No later than 30 days prior to any construction-related ground disturbance activities, the Project owner shall provide the CPM, USFWS, and CDFG with the final version of a Raven Plan. All modifications to the approved Raven Plan shall be made only with approval of the CPM in consultation with USFWS and CDFG. No later than 60 days prior to the start of construction, the project owner shall provide written verification to the CPM that NFWF has received and accepted payment into the project's sub-account of the REAT Account to support the USFWS Regional Raven Management Program. On January 31st of each year following construction, the Designated Biologist shall provide a report to the CPM that includes: a summary of the results of raven management and control activities for the year; a discussion of whether raven control and management goals for the year were met; and recommendations for raven management activities for the upcoming year.

SWAINSON'S HAWK HABITAT COMPENSATORY MITIGATION

ALTERNATIVE BIO-17 The project owner shall either assume that Swainson's hawk nest within five miles of the project site and provide compensatory mitigation as described below or complete CFDG protocol surveys within five miles of project facilities that result in permanent impacts to Swainson's hawk foraging habitat. If surveys are completed they shall include the following components.

The survey periods shall follow a specified schedule: Period I occurs from 1 January to 31 March, Period II occurs from 1 April to 30 April, Period III occurs from 1 may to 30 May, and Period IV occurs from 1 June to 15 July. No fewer than three surveys per period in at least two survey periods shall be completed immediately prior to the start of project construction. All nest sites shall be recorded, mapped using GIS and provided to the CPM and CDFG. Compensatory mitigation at a 2:1 ratio shall be required for permanent impacts. If active Swainson's hawk nests (i.e., any nest active within five years) are not detected within 5 miles of the project site or linear facilities, the project owner will not be required to provide compensatory mitigation.

If the project owner assumes presence, the project owner shall provide compensatory mitigation acreage for 600 acres of Swainson's hawk habitat lands, adjusted to reflect the final project footprint, as specified in this condition. In addition, the project owner shall provide funding for initial improvement and long-term maintenance, enhancement, and management of the acquired lands for protection and enhancement Swainson's hawk populations, and comply with other related requirements of this condition.

a. Loss of foraging habitat for Swainson's hawks shall be mitigated by providing Habitat Management (HM) lands at a ratio of 2:1 for any foraging habitat impacted within a 5-mile radius of active Swainson's hawk nest(s) (CDFG considers a nest active if it was used one or more times within the last 5 years). Foraging habitat includes but is not limited to alfalfa; fallow fields; beet, tomato, onions, and other low-growing row or field crops; dry-land and irrigated pasture; and cereal grain crops (including corn after harvest). Joshua tree woodland shall be considered foraging habitat in the Antelope Valley.

b. Lands which are currently in urban use or lands that have no existing or potential value for foraging Swainson's hawks will not require mitigation. The project owner will provide the CPM

and CDFG a report of potential foraging lands impacted by the proposed project as determined by consultation with the CDFG and recent site-specific surveys conducted by a CDFG-qualified raptor biologist.

This acreage was calculated as follows: a ratio of 2:1 for the PHPP power plant site (600 acres). Costs of these requirements are estimated to be $7,983,000.00 (see **Biological Resources Tables 3.2-** for a complete breakdown of costs and acreage). All costs are best estimates as of fall 2010. Actual costs will be determined at the time of the transactions and may change the funding needed to implement the required mitigation obligation based on changing land costs or management fees. Regardless of the estimates, the project owner is responsible for providing adequate funding to implement the required mitigation.

These impact acreages shall be adjusted to reflect the final project footprint. For purposes of this condition, the Project footprint means all lands disturbed in the construction and operation of the Palmdale Hybrid Power Plant Project Site.
This compensation acreage may be included ("nested") within the acreage acquired and managed as Mohave ground squirrel habitat compensation (Condition of Certification **BIO-20**) only if:

a. A minimum of 600 acres of habitat including a minimum of 366.3 acres of Joshua tree woodland, 233.1 acres of Mojave creosote bush scrub.
b. The Mohave ground squirrel habitat compensation lands are acquired and dedicated as permanent conservation lands within 18 months of the start of project construction.

If these two criteria are not met, then the project owner shall provide the required number of acres of Swainson's hawk habitat compensation lands, adjusted to reflect the final project footprint and additional delineation of suitable habitat, independent of any compensation land required under other conditions of certification, and shall also provide funding for the initial improvement and long-term maintenance and management of the acquired lands, and shall comply with other related requirements this condition.

The project owner shall provide financial assurances as described below in the amount of $8,853,000.00. In lieu of acquiring lands itself, the Project owner may satisfy the requirements of this condition by depositing funds into a Renewable Energy Action Team (REAT) Account established with the National Fish and Wildlife Foundation (NFWF), as described below. If the Project owner elects to establish a REAT NFWF Account and have NFWF and the agencies complete the

required habitat compensation, then the total estimated cost of complying with this condition is $9,101,190.00. The amount of security or NFWF deposit shall be adjusted up or down to reflect any revised cost estimates recommended by REAT.

The actual costs to comply with this condition will vary depending on the final footprint of the project, the costs of acquiring compensation habitat, the costs of initially improving the habitat, and the actual costs of long-term management as determined by a Property Analysis Report or similar analysis (below). The 600 acre habitat requirement, and associated funding requirements based on that acreage, shall be adjusted up or down if there are changes in the final footprint of the project or the associated costs of evaluation, acquisition, management, and other factors listed in **Biological Resources Tables 3.2-5**. Regardless of actual cost, the project owner shall be responsible for funding all requirements of this condition.

COMPENSATORY MITIGATION LAND ACQUISITION

1. Method of Acquisition. Compensation lands shall be acquired by either of the two options listed below. Regardless of the method of acquisition, the transaction shall be complete only upon completion of all terms and conditions described in this Condition of Certification.

    a. The project owner shall acquire lands and transfer title and/or conservation easement to a state or federal land management agency or to a third-party non-profit land management organization, as approved by the CPM in consultation with CDFG; or

    b. The Project owner shall deposit funds into a project-specific subaccount within the REAT Account established with the NFWF, in the amount as indicated in **Biological Resources Tables 3.2-5** (adjusted to reflect final project footprint and any applicable REAT adjustments to costs).

2. Selection Criteria for Compensation Lands. The compensation lands selected for acquisition to meet Energy Commission and CESA requirements shall be equal to or better than the quality and function of the habitat impacted and:

    a. Be within the Western Mojave Desert;

    b. Provide moderate to good quality foraging habitat for Swainson's hawk with capacity to improve in quality and value for this species; and

c. Be near lands for which there is reasonable evidence (for example, recent (<15 years) CNDDB occurrences on or immediately adjacent to the proposed lands) suggesting current occupation by Swainson's hawk ideally with populations that are stable, recovering, or likely to recover.

d. be near larger blocks of lands that are either already protected or planned for protection, or which could feasibly be protected long-term by a public resource agency or a non-governmental organization dedicated to habitat preservation;

e. not have a history of intensive recreational use or other disturbance that might cause future erosional damage or other habitat damage, and make habitat recovery and restoration infeasible;

f. not be characterized by high densities of invasive species, either on or immediately adjacent to the parcels under consideration, that might jeopardize habitat recovery and restoration; and

g. not contain hazardous wastes that cannot be removed to the extent that the site could not provide suitable habitat; and

h. have water and mineral rights included as part of the acquisition, unless the CPM, in consultation with CDFG, agrees in writing to the acceptability of land without these rights.

3. Review and Approval of Compensation Lands Prior to Acquisition. The project owner shall submit a formal acquisition proposal to the CPM describing the parcel(s) intended for purchase. This acquisition proposal shall discuss the suitability of the proposed parcel(s) as compensation lands for Swainson's hawk in relation to the criteria listed above and must be approved by the CPM. The CPM will share the proposal with and consult with CDFG before deciding whether to approve or disapprove the proposed acquisition.

4. Compensation Lands Acquisition Conditions: The project owner shall comply with the following conditions relating to acquisition of the compensation lands after the CPM, in consultation with CDFG approved the proposed compensation lands:

a. Preliminary Report: The Project owner, or approved third party, shall provide a recent preliminary title report, initial hazardous materials survey report, biological analysis, and other necessary or requested documents for the proposed compensation land to the CPM. All documents conveying or conserving compensation lands and all conditions of title are subject to review and approval by the CPM, in consultation with CDFG. For conveyances to the State, approval may also be required from

the California Department of General Services, the Fish and Game Commission and the Wildlife Conservation Board.

b. Title/Conveyance: The Project owner shall acquire and transfer fee title to the compensation lands, a conservation easement over the lands, or both fee title and conservation easement as required by the CPM in consultation with CDFG. Any transfer of a conservation easement or fee title must be to CDFG, a non-profit organization qualified to hold title to and manage compensation lands (pursuant to California Government Code section 65965), or to other public agency approved by the CPM in consultation with CDFG. If an approved non-profit organization holds fee title to the compensation lands, a conservation easement shall be recorded in favor of CDFG or another entity approved by the CPM. If an approved non-profit holds a conservation easement, CDFG shall be named a third party beneficiary. If an entity other than CDFG holds a conservation easement over the compensation lands, the CPM may require that CDFG or another entity approved by the CPM, in consultation with CDFG, be named a third party beneficiary of the conservation easement. The Project owner shall obtain approval of the CPM, in consultation with CDFG, of the terms of any transfer of fee title or conservation easement to the compensation lands.

c. Property Analysis Record. Upon identification of the compensation lands, the Project owner shall conduct a Property Analysis Record (PAR) or PAR-like analysis to establish the appropriate amount of the long-term maintenance and management fund to pay the in-perpetuity management of the compensation lands. The PAR or PAR-like analysis must be approved by the CPM, in consultation with CDFG, before it can be used to establish funding levels or management activities for the compensation lands.

5. Compensation Lands Acquisition Costs: The Project owner shall pay all other costs related to acquisition of compensation lands and conservation easements. In addition to actual land costs, these acquisition costs shall include but shall not be limited to the items listed below. Management costs including site cleanup measures are described separately, in the following section.

a. Level 1 Environmental Site Assessment;

b. Appraisal;

c. Title and document review costs;

d. Expenses incurred from other state, federal, or local agency reviews;

e. Closing and escrow costs;

f. Overhead costs related to providing compensation lands to CDFG or an approved third party;

g. Biological survey(s) to determine mitigation value of the land; and

h. Agency costs to accept the land (e.g., writing and recording of conservation easements; title transfer).

COMPENSATORY MITIGATION LAND IMPROVEMENT

1. Land Improvement Requirements: The Project owner shall fund activities that the CPM, in consultation with the CDFG, requires for the initial protection and habitat improvement of the compensation lands. These activities will vary depending on the condition and location of the land acquired, but may include surveys of boundaries and property lines, installation of signs, trash removal and other site cleanup measures, construction and repair of fences, invasive plant removal, removal of roads, and similar measures to protect habitat and improve habitat quality on the compensation lands.

   The costs of these activities are estimated at $250 an acre, but will vary depending on the measures that are required for the compensation lands. A non-profit organization, CDFG or another public agency may hold and expend the habitat improvement funds if it is qualified to manage the compensation lands (pursuant to California Government Code section 65965), if it meets the approval of the CPM in consultation with CDFG, and if it is authorized to participate in implementing the required activities on the compensation lands. If CDFG takes fee title to the compensation lands, the habitat improvement fund must be paid to CDFG or its designee.

COMPENSATORY MITIGATION LAND LONG-TERM MANAGEMENT

1. Long-term Management Requirements: Long-term management is required to ensure that the compensation lands are managed and maintained to protect and enhance habitat for desert tortoise. Management activities may include maintenance of signs, fences, removal of invasive weeds, monitoring, security and enforcement, and control or elimination of unauthorized use.

2. Long-term Management Plan. The project owner shall pay for the preparation of a Management Plan for the compensation lands. The Management Plan shall reflect site-specific enhancement measures on the acquired compensation lands. The plan shall be submitted for approval of the CPM, in consultation with CDFG.

3. Long-Term Maintenance and Management Funding. The Project owner shall provide money to establish an account with a non-wasting capital that will be used to fund the long-term maintenance and management of the compensation lands. The amount of money to be paid will be determined through an approved PAR or PAR-like analysis conducted for the compensation lands. The amount of required funding is initially estimated to be $1,450 for every acre of compensation lands. If compensation lands will not be identified and a PAR or PAR-like analysis completed within the time period specified for this payment (see the verification section at the end of this condition), the Project owner shall provide initial payment of $870,000.00 calculated at $1,450 an acre for each compensation acre, as shown in **Biological Resources Tables 3.2-5** (above) into an account for long-term maintenance and management of compensation lands. The amount of the required initial payment or security for this item shall be adjusted for any change in the Project footprint as described above. If an initial payment is made based on the estimated per-acre costs, the project owner shall deposit additional money as may be needed to provide the full amount of long-term maintenance and management funding indicated by a PAR or PAR-like analysis, once the analysis is completed and approved. If the approved analysis indicates less than $1,450 an acre will be required for long-term maintenance and management, the excess paid will be returned to the Project owner.

   The project owner must obtain the CPM's approval of the entity that will receive and hold the long-term maintenance and management fund for the compensation lands. The CPM will consult with the project owner and CDFG before deciding whether to approve an entity to hold the project's long-term maintenance and management funds on any lands. The CPM, in consultation with the project owner and CDFG, may designate another state agency or non-profit organization to hold the long-term maintenance and management fee if the organization is qualified to manage the compensation lands in perpetuity.

   If CDFG takes fee title to the compensation lands, CDFG shall determine whether it will hold the long-term management fee in the special deposit fund, leave the money in the REAT Account, or designate another entity such as NFWF to manage the long-term maintenance and management fee for CDFG and with CDFG supervision.

The Project owner shall ensure that an agreement is in place with the long-term maintenance and management fee holder/manager to ensure the following conditions:

i. Interest. Interest generated from the initial capital shall be available for reinvestment into the principal and for the long-term operation, management, and protection of the approved compensation lands, including reasonable administrative overhead, biological monitoring, improvements to carrying capacity, law enforcement measures, and any other action approved by CDFG designed to protect or improve the habitat values of the compensation lands.

ii. Withdrawal of Principal. The long-term maintenance and management fee principal shall not be drawn upon unless such withdrawal is deemed necessary by the CPM, in consultation with CDFG, or the approved third-party long-term maintenance and management fee manager to ensure the continued viability of the species on the compensation lands. If CDFG takes fee title to the compensation lands, monies received by CDFG pursuant to this provision shall be deposited in a special deposit fund established solely for the purpose to manage lands in perpetuity unless CDFG designates NFWF or another entity to manage the long-term maintenance and management fee for CDFG.

iii. Pooling Funds. A CPM- approved non-profit organization qualified to hold long-term maintenance and management fees solely for the purpose to manage lands in perpetuity, may pool the fund with other funds for the operation, management, and protection of the compensation lands for local populations of desert tortoise. However, for reporting purposes, the long-term maintenance and management fee fund must be tracked and reported individually to the CDFG and CPM.

iv. Reimbursement Fund. The project owner shall provide reimbursement to CDFG or an approved third party for reasonable expenses incurred during title, easement, and documentation review; expenses incurred from other State or State-approved federal agency reviews; and overhead related to providing compensation lands.

COMPENSATORY MITIGATION LAND SECURITY

1. Compensation Mitigation Security: The project owner shall provide security sufficient for funding acquisition, improvement, and long-term management of Swainson's hawk compensation land. Financial assurance can be provided to the CPM in the form of an irrevocable letter of credit, a pledged savings account or another

form of security ("Security"). Prior to submitting the Security to the CPM, the Project owner shall obtain the CPM's approval, in consultation with CDFG of the form of the Security.

The security amount shall be based on the estimates provided in **Biological Resources Tables 3.2-5.** This amount shall be updated and verified prior to payment and shall be adjusted to reflect actual costs or more current estimates as agreed upon by the REAT agencies.

The Project owner shall provide verification that financial assurances have been established to the CPM with copies of the document(s) to CDFG, to guarantee that an adequate level of funding is available to implement any of the mitigation measures required by this condition that are not completed prior to the start of ground-disturbing activities described in Section A of this condition.

In the event that the project owner defaults on the Security, the CPM may use money from the Security solely for implementation of the requirements of this condition. The CPM's use of the security to implement measures in this condition may not fully satisfy the Project owner's obligations under this condition. Any amount of the Security that is not used to carry out mitigation shall be returned to the Project owner upon successful completion of the associated requirements in this condition.

Security for the requirements of this condition shall be provided in the amount of $9,101,190.00 if the project owner elects to use the REAT Account with NFWF pursuant to paragraph 4 of this condition, below). The Security is calculated in part from the items that follow but adjusted as specified below (consult **Biological Resources Tables 3.2-5** for the complete breakdown of estimated costs). However, regardless of the amount of the security or actual cost of implementation, the project owner shall be responsible for implementing all aspects of this condition.

i. land acquisition costs for compensation land, calculated at $10,000/acre;

ii. Site assessments, appraisals, biological surveys, transaction closing and escrow costs, calculated as $18,000 total per parcel (presuming 60 acres per parcel)

iii. Initial site clean-up, restoration, or enhancement, calculated at $250/acre;

iv. Third-party and agency administrative transaction costs and overhead, calculated as percentages of land cost;

v. Long-term management and maintenance fund, calculated at $1,450 per acre;

vi. NFWF fees to establish a project-specific account; manage the sub-account for acquisition and initial site work; and manage the sub-account for long term management and maintenance.

2. The project owner may elect to comply with some or all of the requirements in this condition by providing funds to implement the requirements into the Renewable Energy Action Team (REAT) Account established with the National Fish and Wildlife Foundation (NFWF). To use this option, the Project owner must make an initial deposit to the REAT Account in an amount equal to the estimated costs of implementing the requirement (as set forth in the Security section of this condition, paragraph 3, above). If the actual cost of the acquisition, initial protection and habitat improvements, long-term funding or other cost is more than the estimated amount initially paid by the project owner, the project owner shall make an additional deposit into the REAT Account sufficient to cover the actual acquisition costs, the actual costs of initial protection and habitat improvement on the compensation lands, the long-term funding requirements as established in an approved PAR or PAR-like analysis, or the other actual costs that are estimated in the table. If those actual costs or PAR projections are less than the amount initially transferred by the applicant, the remaining balance shall be returned to the project owner.

3. The responsibility for acquisition of compensation lands may be delegated to a third party other than NFWF, such as a non-governmental organization supportive of desert habitat conservation, by written agreement of the Energy Commission. Such delegation shall be subject to approval by the CPM, in consultation with CDFG prior to land acquisition, enhancement or management activities. Agreements to delegate land acquisition to an approved third party, or to manage compensation lands, shall be executed and implemented within 18 months of the Energy Commission's certification of the project.

4. The project owner may request the CPM to provide it with all available information about any funds held by the Energy Commission, CDFG or NFWF as project security, or funds held in a NFWF sub-account for this project, or other project-specific account held by a third party. The CPM shall also fully cooperate with any independent audit that the project owner may choose to perform on any of these funds.

Verification: The project owner shall provide the CPM with either the results of the nesting surveys or written verification that the project owner shall assume presence no less than 60 days prior to ground disturbance or site mobilization. on the project site.

If the mitigation actions required under this condition are not completed at least 30 days prior to the start of ground-disturbing activities, the Project owner shall provide verification to the CPM and CDFG that an approved Security has been established in accordance with this condition of certification no later than 30 days prior to beginning Project ground-disturbing activities. Financial assurance can be provided to the CPM in the form of an irrevocable letter of credit, a pledged savings account or another form of security ("Security"). Prior to submitting the Security to the CPM, the project owner shall obtain the CPM's approval, in consultation with CDFG of the form of the Security. The project owner, or an approved third party, shall complete and provide written verification to the CPM and CDFG of the compensation lands acquisition and transfer within 18 months of the start of Project ground-disturbing activities.

No later than 12 months after the start of any ground-disturbing project activities, the project owner shall submit a formal acquisition proposal to the CPM describing the parcel(s) intended for purchase, and shall obtain approval from the CPM, in consultation with CDFG prior to the acquisition. If NFWF or another approved third party is handling the acquisition, the project owner shall fully cooperate with the third party to ensure the proposal is submitted within this time period. The project owner or an approved third party shall complete the acquisition and all required transfers of the compensation lands, and provide written verification to the CPM and CDFG of such completion, no later than 18 months after the issuance of the Energy Commission Decision.

The project owner shall complete and submit to the CPM a PAR or PAR-like analysis no later than 60 days after the CPM approves compensation lands for acquisition associated with any phase of construction. The project owner shall fully fund the required amount for long-term maintenance and management of the compensation lands for that phase of construction no later than 30 days after the CPM approves a PAR or PAR-like analysis of the anticipated long-term maintenance and management costs of the compensation lands. Written verification shall be provided to the CPM and CDFG to confirm payment of the long-term maintenance and management funds.

No later than 60 days after the CPM determines what activities are required to provide for initial protection and habitat improvement on the compensation lands for any phase of construction, the project owner shall make funding available for those activities and provide written verification to the CPM of what funds are available and how costs will be paid. Initial protection and habitat improvement activities on the compensation lands for that phase of construction shall be completed, and written verification provided to the CPM, no later than six months after the CPM's determination of what activities are required on the compensation lands.

The project owner, or an approved third party, shall provide the CPM and CDFG with a management plan for the compensation lands associated with any phase of construction within 180 days of the land or easement purchase, as determined

by the date on the title. The CPM, in consultation with CDFG shall approve the management plan after its content is acceptable to the CPM.

Within 90 days after completion of all project related ground disturbance, the project owner shall provide to the CPM and CDFG an analysis, based on aerial photography, with the final accounting of the amount of habitat disturbed during Project construction. If this analysis shows that more lands were disturbed than was anticipated in this condition, the project owner shall provide the Energy Commission with additional compensation lands and funding commensurate with the added impacts and applicable mitigation ratios set forth in this condition. A final analysis of all project related ground disturbance may not result in a reduction of compensation requirements if the deadlines established under this condition for transfer of compensation lands and funding have passed prior to completion of the analysis.

MOHAVE GROUND SQUIRREL HABITAT COMPENSATORY MITIGATION

ALTERNATIVE BIO-20 The project owner shall provide compensatory mitigation acreage of 600 acres of Mohave ground squirrel habitat lands, adjusted to reflect the final project footprint, as specified in this condition. In addition, the project owner shall provide funding for initial improvement and long-term maintenance, enhancement, and management of the acquired lands for protection and enhancement Mohave ground squirrel populations, and comply with other related requirements of this condition.

This mitigation ratio is based on a 2:1 ratio for the power plant site. Costs of these requirements are estimated to be $8,853,000.00 (see **Biological Resources Table 3.2-6** for a complete breakdown of costs and acreage). All costs are best estimates as of fall 2010. Actual costs will be determined at the time of the transactions and may change the funding needed to implement the required mitigation obligation based on changing land costs or management fees. Regardless of the estimates, the project owner is responsible for providing adequate funding to implement the required mitigation.

In lieu of acquiring lands itself, the project owner may satisfy the requirements of this condition by depositing funds into a Renewable Energy Action Team (REAT) Account established with the National Fish and Wildlife Foundation (NFWF), as described below. If the Project owner elects to establish a REAT NFWF Account and have NFWF and the agencies complete the required habitat compensation, then the total estimated cost of complying with this condition is $9,143,190.00. The amount of security or NFWF deposit shall be adjusted up or down to reflect any revised cost estimates recommended by REAT.

The actual costs to comply with this condition will vary depending on the final footprint of the project, the costs of acquiring compensation habitat, the costs of initially improving the habitat, and the actual costs of long-term management as determined by a Property Analysis Report or similar analysis (below). The 600 acre habitat requirement, and associated funding requirements based on that acreage, shall be adjusted up or down if there are changes in the final footprint of the project or the associated costs of evaluation, acquisition, management, and other factors listed in **Biological Resources Table 3.2-6**. Regardless of actual cost, the project owner shall be responsible for funding all requirements of this condition.

COMPENSATORY MITIGATION LAND ACQUISITION

1. Method of Acquisition. Compensation lands shall be acquired by either of the two options listed below. Regardless of the method of acquisition, the transaction shall be complete only upon completion of all terms and conditions described in this Condition of Certification.

    a. The project owner shall acquire lands and transfer title and/or conservation easement to a state or federal land management agency or to a third-party non-profit land management organization, as approved by the CPM in consultation with CDFG; or

    b. The project owner shall deposit funds into a project-specific subaccount within the REAT Account established with the NFWF, in the amount as indicated in **Biological Resources Table 3.2-6** (adjusted to reflect final project footprint and any applicable REAT adjustments to costs).

2. Selection Criteria for Compensation Lands. The compensation lands selected for acquisition shall:

    a. Be in the western Mojave Desert;

    b. Provide moderate to good quality habitat for Mohave ground squirrel with capacity to improve in quality and value for this species;

    c. Be a contiguous block of land (preferably) or located so they result in a contiguous block of protected habitat;

    d. Be adjacent to larger blocks of lands that are already protected, or be in a location approved by the CDFG, such that there is connectivity between the acquired lands and the protected lands;

e. Be connected to lands for which there is reasonable evidence (for example, recent [<15 years] CNDDB occurrences on or immediately adjacent to the proposed lands) suggesting current occupation by Mohave ground squirrel, ideally with populations that are stable, recovering, or likely to recover;

f. Not have a history of intensive recreational use, grazing, or other disturbance that might make habitat recovery and restoration infeasible;

g. Not be characterized by high densities of invasive species, either on or immediately adjacent to the parcels under consideration, that might jeopardize habitat recovery and restoration; and

h. Not be encumbered by easements or uses that would preclude fencing of the site or preclude or unacceptably constrain management of the site for the primary benefit of the species and their habitat for which mitigation lands were secured.

3. Review and Approval of Compensation Lands Prior to Acquisition. The project owner shall submit a formal acquisition proposal to the CPM describing the parcel(s) intended for purchase. This acquisition proposal shall discuss the suitability of the proposed parcel(s) as compensation lands for Mohave ground squirrel in relation to the criteria listed above and must be approved by the CPM. The CPM will share the proposal with and consult with CDFG before deciding whether to approve or disapprove the proposed acquisition.

4. Compensation Lands Acquisition Conditions: The project owner shall comply with the following conditions relating to acquisition of the compensation lands after the CPM, in consultation with CDFG approved the proposed compensation lands:

a. Preliminary Report: The Project owner, or approved third party, shall provide a recent preliminary title report, initial hazardous materials survey report, biological analysis, and other necessary or requested documents for the proposed compensation land to the CPM. All documents conveying or conserving compensation lands and all conditions of title are subject to review and approval by the CPM, in consultation with CDFG. For conveyances to the State, approval may also be required from the California Department of General Services, the Fish and Game Commission and the Wildlife Conservation Board.

b. Title/Conveyance: The Project owner shall acquire and transfer fee title to the compensation lands, a conservation easement over the lands, or both fee title and conservation easement as

required by the CPM in consultation with CDFG. Any transfer of a conservation easement or fee title must be to CDFG, a non-profit organization qualified to hold title to and manage compensation lands (pursuant to California Government Code section 65965), or to other public agency approved by the CPM in consultation with CDFG. If an approved non-profit organization holds fee title to the compensation lands, a conservation easement shall be recorded in favor of CDFG or another entity approved by the CPM. If an approved non-profit holds a conservation easement, CDFG shall be named a third party beneficiary. If an entity other than CDFG holds a conservation easement over the compensation lands, the CPM may require that CDFG or another entity approved by the CPM, in consultation with CDFG, be named a third party beneficiary of the conservation easement. The Project owner shall obtain approval of the CPM, in consultation with CDFG, of the terms of any transfer of fee title or conservation easement to the compensation lands.

c. Property Analysis Record. Upon identification of the compensation lands, the Project owner shall conduct a Property Analysis Record (PAR) or PAR-like analysis to establish the appropriate amount of the long-term maintenance and management fund to pay the in-perpetuity management of the compensation lands. The PAR or PAR-like analysis must be approved by the CPM, in consultation with CDFG, before it can be used to establish funding levels or management activities for the compensation lands.

5. Compensation Lands Acquisition Costs: The Project owner shall pay all other costs related to acquisition of compensation lands and conservation easements. In addition to actual land costs, these acquisition costs shall include but shall not be limited to the items listed below. Management costs including site cleanup measures are described separately, in the following section.

   a. Level 1 Environmental Site Assessment;
   b. Appraisal;
   c. Title and document review costs;
   d. Expenses incurred from other state, federal, or local agency reviews;
   e. Closing and escrow costs;
   f. Overhead costs related to providing compensation lands to CDFG or an approved third party;

g. Biological survey(s) to determine mitigation value of the land; and

h. Agency costs to accept the land (e.g., writing and recording of conservation easements; title transfer).

COMPENSATORY MITIGATION LAND IMPROVEMENT

1. Land Improvement Requirements: The Project owner shall fund activities that the CPM, in consultation with the CDFG requires for the initial protection and habitat improvement of the compensation lands. These activities will vary depending on the condition and location of the land acquired, but may include surveys of boundaries and property lines, installation of signs, trash removal and other site cleanup measures, construction and repair of fences, invasive plant removal, removal of roads, and similar measures to protect habitat and improve habitat quality on the compensation lands.

   The costs of these activities are estimated at $250 an acre, but will vary depending on the measures that are required for the compensation lands. A non-profit organization, CDFG or another public agency may hold and expend the habitat improvement funds if it is qualified to manage the compensation lands (pursuant to California Government Code section 65965), if it meets the approval of the CPM in consultation with CDFG, and if it is authorized to participate in implementing the required activities on the compensation lands. If CDFG takes fee title to the compensation lands, the habitat improvement fund must be paid to CDFG or its designee.

COMPENSATORY MITIGATION LAND LONG-TERM MANAGEMENT

1. Long-term Management Requirements: Long-term management is required to ensure that the compensation lands are managed and maintained to protect and enhance habitat for desert tortoise. Management activities may include maintenance of signs, fences, removal of invasive weeds, monitoring, security and enforcement, and control or elimination of unauthorized use.

2. Long-term Management Plan. The project owner shall pay for the preparation of a Management Plan for the compensation lands. The Management Plan shall reflect site-specific enhancement measures on the acquired compensation lands. The plan shall be submitted for approval of the CPM, in consultation with CDFG.

3. Long-Term Maintenance and Management Funding. The Project owner shall provide money to establish an account with a non-wasting capital that will be used to fund the long-term maintenance

and management of the compensation lands. The amount of money to be paid will be determined through an approved PAR or PAR-like analysis conducted for the compensation lands. The amount of required funding is initially estimated to be $1,450 for every acre of compensation lands. If compensation lands will not be identified and a PAR or PAR-like analysis completed within the time period specified for this payment (see the verification section at the end of this condition), the Project owner shall provide initial payment of $870,000.00 calculated at $1,450 an acre for each compensation acre, as shown in **Biological Resources Table 3.2-6** (above) into an account for long-term maintenance and management of compensation lands. The amount of the required initial payment or security for this item shall be adjusted for any change in the Project footprint as described above. If an initial payment is made based on the estimated per-acre costs, the project owner shall deposit additional money as may be needed to provide the full amount of long-term maintenance and management funding indicated by a PAR or PAR-like analysis, once the analysis is completed and approved. If the approved analysis indicates less than $1,450 an acre will be required for long-term maintenance and management, the excess paid will be returned to the Project owner.

The project owner must obtain the CPM's approval of the entity that will receive and hold the long-term maintenance and management fund for the compensation lands. The CPM will consult with the project owner and CDFG before deciding whether to approve an entity to hold the project's long-term maintenance and management funds on any lands. The CPM, in consultation with the project owner and CDFG, may designate another state agency or non-profit organization to hold the long-term maintenance and management fee if the organization is qualified to manage the compensation lands in perpetuity.

If CDFG takes fee title to the compensation lands, CDFG shall determine whether it will hold the long-term management fee in the special deposit fund, leave the money in the REAT Account, or designate another entity such as NFWF to manage the long-term maintenance and management fee for CDFG and with CDFG supervision.

The Project owner shall ensure that an agreement is in place with the long-term maintenance and management fee holder/manager to ensure the following conditions:

i. Interest. Interest generated from the initial capital shall be available for reinvestment into the principal and for the long-term operation, management, and protection of the approved compensation lands, including reasonable administrative overhead, biological monitoring, improvements to carrying

capacity, law enforcement measures, and any other action approved by CDFG designed to protect or improve the habitat values of the compensation lands.

ii. Withdrawal of Principal. The long-term maintenance and management fee principal shall not be drawn upon unless such withdrawal is deemed necessary by the CPM, in consultation with CDFG, or the approved third-party long-term maintenance and management fee manager to ensure the continued viability of the species on the compensation lands. If CDFG takes fee title to the compensation lands, monies received by CDFG pursuant to this provision shall be deposited in a special deposit fund established solely for the purpose to manage lands in perpetuity unless CDFG designates NFWF or another entity to manage the long-term maintenance and management fee for CDFG.

iii. Pooling Funds. A CPM- approved non-profit organization qualified to hold long-term maintenance and management fees solely for the purpose to manage lands in perpetuity, may pool the fund with other funds for the operation, management, and protection of the compensation lands for local populations of desert tortoise. However, for reporting purposes, the long-term maintenance and management fee fund must be tracked and reported individually to the CDFG and CPM.

iv. Reimbursement Fund. The project owner shall provide reimbursement to CDFG or an approved third party for reasonable expenses incurred during title, easement, and documentation review; expenses incurred from other State or State-approved federal agency reviews; and overhead related to providing compensation lands.

COMPENSATORY MITIGATION LAND SECURITY

1. Compensation Mitigation Security: The project owner shall provide security sufficient for funding acquisition, improvement, and long-term management of desert tortoise compensation land. Financial assurance can be provided to the CPM in the form of an irrevocable letter of credit, a pledged savings account or another form of security ("Security"). Prior to submitting the Security to the CPM, the Project owner shall obtain the CPM's approval, in consultation with CDFG of the form of the Security.

   The security amount shall be based on the estimates provided in **Biological Resources Table 3.2-6.** This amount shall be updated and verified prior to payment and shall be adjusted to reflect actual costs or more current estimates as agreed upon by the REAT agencies.

The Project owner shall provide verification that financial assurances have been established to the CPM with copies of the document(s) to CDFG, to guarantee that an adequate level of funding is available to implement any of the mitigation measures required by this condition that are not completed prior to the start of ground-disturbing activities described in Section A of this condition.

In the event that the project owner defaults on the Security, the CPM may use money from the Security solely for implementation of the requirements of this condition. The CPM's use of the security to implement measures in this condition may not fully satisfy the Project owner's obligations under this condition. Any amount of the Security that is not used to carry out mitigation shall be returned to the Project owner upon successful completion of the associated requirements in this condition.

Security for the requirements of this condition shall be provided in the amount of $9,143,190.00 if the project owner elects to use the REAT Account with NFWF pursuant to paragraph 4 of this condition, below). The Security is calculated in part from the items that follow but adjusted as specified below (consult **Biological Resources Table 3.2-6** for the complete breakdown of estimated costs). However, regardless of the amount of the security or actual cost of implementation, the project owner shall be responsible for implementing all aspects of this condition.

i. land acquisition costs for compensation land, calculated at $10,000/acre;

ii. Site assessments, appraisals, biological surveys, transaction closing and escrow costs, calculated as $18,000 total per parcel (presuming 60 acres per parcel);

iii. Initial site clean-up, restoration, or enhancement, calculated at $250/acre;

iv. Third-party and agency administrative transaction costs and overhead, calculated as percentages of land cost;

v. Long-term management and maintenance fund, calculated at $1,450 per acre; and

vi. NFWF fees to establish a project-specific account; manage the sub-account for acquisition and initial site work; and manage the sub-account for long term management and maintenance.

2. The project owner may elect to comply with some or all of the requirements in this condition by providing funds to implement the requirements into the Renewable Energy Action Team (REAT) Account established with the National Fish and Wildlife Foundation (NFWF). To use this option, the Project owner must make an initial deposit to the REAT Account in an amount equal to the estimated

costs of implementing the requirement (as set forth in the Security section of this condition, paragraph 3, above). If the actual cost of the acquisition, initial protection and habitat improvements, long-term funding or other cost is more than the estimated amount initially paid by the project owner, the project owner shall make an additional deposit into the REAT Account sufficient to cover the actual acquisition costs, the actual costs of initial protection and habitat improvement on the compensation lands, the long-term funding requirements as established in an approved PAR or PAR-like analysis, or the other actual costs that are estimated in the table. If those actual costs or PAR projections are less than the amount initially transferred by the applicant, the remaining balance shall be returned to the project owner.

3. The responsibility for acquisition of compensation lands may be delegated to a third party other than NFWF, such as a non-governmental organization supportive of desert habitat conservation, by written agreement of the Energy Commission. Such delegation shall be subject to approval by the CPM, in consultation with CDFG prior to land acquisition, enhancement or management activities. Agreements to delegate land acquisition to an approved third party, or to manage compensation lands, shall be executed and implemented within 18 months of the start of project related ground disturbance.

4. The project owner may request the CPM to provide it with all available information about any funds held by the Energy Commission, CDFG or NFWF as project security, or funds held in a NFWF sub-account for this project, or other project-specific account held by a third party. The CPM shall also fully cooperate with any independent audit that the project owner may choose to perform on any of these funds.

Verification: The project owner shall provide the CPM with written notice of intent to start ground disturbance at least 30 days prior to the start of ground-disturbing activities on the project site.

If the mitigation actions required under this condition are not completed at least 30 days prior to the start of ground-disturbing activities, the Project owner shall provide verification to the CPM and CDFG that an approved Security has been established in accordance with this condition of certification no later than 30 days prior to beginning Project ground-disturbing activities. Financial assurance can be provided to the CPM in the form of an irrevocable letter of credit, a pledged savings account or another form of security ("Security"). Prior to submitting the Security to the CPM, the project owner shall obtain the CPM's approval, in consultation with CDFG of the form of the Security. The project owner, or an approved third party, shall complete and provide written verification to the CPM

and CDFG of the compensation lands acquisition and transfer within 18 months of the start of Project ground-disturbing activities.

No later than 12 months after the start of any phase of ground-disturbing project activities, the project owner shall submit a formal acquisition proposal to the CPM describing the parcels intended for purchase, and shall obtain approval from the CPM, in consultation with CDFG prior to the acquisition. If NFWF or another approved third party is handling the acquisition, the project owner shall fully cooperate with the third party to ensure the proposal is submitted within this time period. The project owner or an approved third party shall complete the acquisition and all required transfers of the compensation lands, and provide written verification to the CPM and CDFG of such completion, no later than 18 months after the start of project related ground disturbance activities. If NFWF or another approved third party is being used for all or part of the acquisition, the project owner shall ensure that funds needed to accomplish the acquisition are transferred in timely manner to facilitate the planned acquisition and to ensure the land can be acquired and transferred prior to the 18-month deadline.

The project owner shall complete and submit to the CPM a PAR or PAR-like analysis no later than 60 days after the CPM approves compensation lands for acquisition associated with any phase of construction. The project owner shall fully fund the required amount for long-term maintenance and management of the compensation lands for that phase of construction no later than 30 days after the CPM approves a PAR or PAR-like analysis of the anticipated long-term maintenance and management costs of the compensation lands. Written verification shall be provided to the CPM and CDFG to confirm payment of the long-term maintenance and management funds.

No later than 60 days after the CPM determines what activities are required to provide for initial protection and habitat improvement on the compensation lands for any phase of construction, the project owner shall make funding available for those activities and provide written verification to the CPM of what funds are available and how costs will be paid. Initial protection and habitat improvement activities on the compensation lands for that phase of construction shall be completed, and written verification provided to the CPM, no later than six months after the CPM's determination of what activities are required on the compensation lands.

The project owner, or an approved third party, shall provide the CPM and CDFG with a management plan for the compensation lands associated with any phase of construction within180 days of the land or easement purchase, as determined by the date on the title. The CPM, in consultation with CDFG shall approve the management plan after its content is acceptable to the CPM.

Within 90 days after completion of all project related ground disturbance, the project owner shall provide to the CPM and CDFG an analysis, based on aerial photography, with the final accounting of the amount of habitat disturbed during

Project construction. If this analysis shows that more lands were disturbed than was anticipated in this condition, the project owner shall provide the Energy Commission with additional compensation lands and funding commensurate with the added impacts and applicable mitigation ratios set forth in this condition. A final analysis of all project related ground disturbance may not result in a reduction of compensation requirements if the deadlines established under this condition for transfer of compensation lands and funding have passed prior to completion of the analysis.

BIOLOGICAL RESOURCES MITIGATION APPENDIX A

Many of the Conditions of Certification require the submittal of draft plans, financial securities, proposals, or survey results prior to the start of construction. These reports are necessary to ensure impacts will be minimized, as the proposed project would be located in an area with a rich diversity of sensitive biological resources. Staff's Biological Resources Table 6, replicated below, summarizes these pre-construction plan requirements.

Staff's Biological Resources Table 6
Summary of Pre-Construction Plans and Proposals

Condition of Certification	Plan/Report to be Submitted	Timing
BIO-6	Worker Environmental Awareness Program (WEAP)	At least 60 days prior to the start of any project-related site disturbance activities
BIO-7	Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP)	At least 60 days prior to start of any project-related site disturbance activities
BIO-10	a. Restoration Plan b. Formal acquisition proposal for Joshua Tree Woodland and Mojavean Juniper Scrub compensation lands describing the parcel(s) intended for purchase	a. To be included in BRMIMP b. No less than 90 prior to acquisition of compensation lands
BIO-11	a. Report describing results of floristic surveys b. Sensitive Plant Protection Plan (to be prepared only if sensitive species are detected during floristic surveys)	a. At least 60 days prior to the start of any ground-disturbing activities b. At least 60 days prior to the start of any ground-disturbing activities
BIO-12	Report describing results of arroyo toad clearance surveys and compliance with mitigation measures	Within 30 days of completion of arroyo toad clearance surveys
BIO-13	a. Draft Desert Tortoise Translocation Plan b. Final Desert Tortoise Translocation Plan c. Report identifying which items of the Translocation Plan have been completed, and a summary of all modifications to measures made	a. No less than 60 days prior to start of any site mobilization or disturbance activities b. Within 30 days after initiation of translocation activities c. Within 30 days of completion of desert tortoise clearance

Condition of Certification	Plan/Report to be Submitted	Timing
	during implementation d. Report describing how each of the mitigation measures described in BIO-13 has been satisfied	surveys
BIO-14	a. Final Raven Monitoring, Management, and Control Plan b. Payment of Raven Fee	a. No less than 60 days prior to start of any site mobilization or disturbance activities b. No less than 60 days prior to start of any site mobilization activities
BIO-15	Letter-report describing the findings of the pre-construction nest surveys	At least 10 days prior to the start of any project-related ground disturbance activities
BIO-16	a. Report describing results of pre-construction Swainson's hawk surveys b. Swainson's Hawk Monitoring and Mitigation Plan (to be prepared only if pre-construction surveys detect nesting Swainson's hawks within one mile of proposed construction activities)	a. Within 30 days of commencement of construction activities b. At least 30 days prior to the start of any project-related site disturbance activities
BIO-17	a. Formal acquisition proposal for Swainson's hawk compensation lands describing the parcel(s) intended for purchase b. Written verification that the compensation lands or conservation easements have been acquired and recorded in favor of the approved recipient(s) c. As an alternative to (b) above, written verification of Security in accordance with this condition of certification. d. If Security is provided, the project owner, or an approved third party, shall complete and provide written verification of the proposed compensation lands acquisition e. Management plan for the compensation lands and associated funds	a. No less than 90 days prior to acquisition of the compensation lands b. Within 18 months of the start of project ground-disturbing activities c. No later than 30 days prior to beginning project ground-disturbing activities d. Within 18 months of the start of project ground-disturbing activities e. Within 180 days of the land or easement purchase, as determined by the date on the title

Condition of Certification	Plan/Report to be Submitted	Timing
BIO-18	a. Draft Burrowing Owl Relocation Area Management Plan (to be completed only if burrowing owls will be relocated) b. Final Burrowing Owl Relocation Area Management Plan c. Burrowing Owl Monitoring and Mitigation Plan (to be completed only if pre-construction surveys detect burrowing owls within 500 feet of proposed construction activities)	a. No less than 60 days prior to start of any site mobilization or disturbance activities b. Prior to any ground-disturbing activities c. At least 30 days prior to the start of any project-related site disturbance activities
BIO-19	a. Draft Mohave Ground Squirrel Translocation Plan b. Final version of a Mohave Ground Squirrel Translocation Plan c. Report describing results of Mohave ground squirrel clearance surveys and compliance with mitigation measures	d. No less than 60 days prior to start of any site mobilization or disturbance activities a. At least 60 days prior to start of any project-related ground disturbance activities b. Within 30 days of completion of Mohave ground squirrel clearance surveys
BIO-20	a. Written verification that the compensation lands or conservation easements have been acquired and recorded in favor of the approved recipient(s) b. As an alternative to (b) above, written verification of Security in accordance with this condition of certification. c. If Security is provided, the project owner, or an approved third party, shall complete and provide written verification of the proposed compensation lands acquisition d. Management plan for the compensation lands and associated funds	a. No less than 90 days prior to acquisition of the compensation lands b. No later than 30 days prior to beginning project ground-disturbing activities c. No later than 30 days prior to beginning project ground-disturbing activities d. Within 180 days of the land or easement purchase, as determined by the date on the title
BIO-21	Report describing results of badger and kit fox surveys and compliance with mitigation measures	Within 30 days of completion of badger and kit fox surveys
BIO-22	Report describing results of roosting bat surveys and compliance with	Within 30 days of completion of

Condition of Certification	Plan/Report to be Submitted	Timing
	mitigation measures	roosting bat surveys
BIO-23	Written verification (i.e., through incorporation into the BRMIMP) that the best management practices outlined in BIO-23 will be implemented	No fewer than 30 days prior to the start of work potentially affecting waters of the state
BIO-24	Report describing measures to be implemented to monitor and reduce bird and bat collisions with facility structures	No more than 60 days prior to ground disturbance
BIO-26	a. Written verification that Security in accordance with this condition of certification.	a. No later than 30 days prior to beginning project ground-disturbing activities

B. SOIL AND WATER RESOURCES

This section focuses on the soil and water resources associated with the Palmdale Hybrid Power Plant (PHPP), 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 (LORS). The evidence is contained in the following exhibits: Ex. 11; 16; 21; 27; 34; 39; 44; 45; 46; 56; 76; 83; 102; 106; 125; 128; 127; 133; 137; 138; 141; 146; 300; 301).

SUMMARY AND DISCUSSION OF THE EVIDENCE

1. Soil Resources

The soils at the PHPP site developed from alluvial fan deposits of silts and sands. These alluvial deposits in the proposed power block and construction laydown areas consist of fine to coarse sandy loam to loamy sand, which have a moderate potential for water erosion, drain well, and have moderate to high potential for wind erosion. The utility service pipelines and transmission line would be constructed in a variety of soil types that generally have a moderate potential for water erosion and a higher potential for wind erosion. Strong winds prevailing from the west can develop in the spring, dislodge fine-grained sediment and create dust storms. (Ex. 300, p. 4.9-7.)

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 and -2**. (Ex. 300, pp. 4.9-14 - 4.9-16.)

2. Groundwater

Groundwater beneath the PHPP occurs in the Antelope Valley Groundwater Basin (AVGB) in three main aquifers. Each aquifer has a gradient towards the center of the basin. The principal aquifer is shallow and unconfined, and nearly

all groundwater pumping occurs in this shallow aquifer. The deeper aquifers are separated from the principal aquifer by lacustrine deposits, and are regionally contaminated with arsenic. The depth to first-encountered groundwater beneath the PHPP has historically ranged from approximately 350 to 400 feet below ground surface (bgs). (Ex. 300, p. 4.9-7.)

Changes in groundwater elevation in the AVGB are the result of seasonal changes in groundwater pumping, precipitation and evapotranspiration. Groundwater pumping has caused ground subsidence and earth fissures in Lancaster and at Edwards Air Force Base. Due to continued groundwater pumping, by 1992 approximately 292 square miles of Antelope Valley had subsided more than one foot. This subsidence has permanently reduced aquifer-system storage by approximately 50,000 acre-feet. (Ex. 300, p. 4.9-7.)

A Phase I Environmental Assessment prepared in May 2008 for the PHPP site concluded that the PHPP site has been undeveloped since the early 1900s. Visual observations were made of debris and unauthorized disposal at various locations at the PHPP site, and removal of this debris was recommended prior to the start of construction. No on-site recognized environmental conditions (RECs) were identified and no additional assessment was recommended in the Phase 1.

RECs were indentified off-site at Air Force Plant 42 and the Palmdale Regional Airport, located to the south and east of the PHPP. Historical operations at Air Force Plant 42 led to the release of trichloroethylene (TCE) which has migrated to the groundwater and formed a measurable plume in the groundwater. According to a 2007 Monitoring Report, the TCE plume does not extend to the PHPP site, but remains confined to areas underlying Air Force Plant 42. Groundwater remediation at Plant 42 is ongoing and overseen by the California Department of Toxic Substances Control (DTSC) and the Lahontan Regional Water Quality Control Board (RWQCB).

3. Project Water Supply and Treatment

The PHPP site is located within the AVGB, a closed basin which underlies an extensive alluvial valley in the western Mojave Desert. Water resources in this area are extremely limited and vegetation sparse. The valley is closed topographically with all surface water draining internally to the valley's ephemeral desert playas – the Rosamond, Buckhorn, and Rogers Lakes. In such closed basins, minerals in groundwater are typically concentrated in the groundwater by evapotranspiration. Evapotranspiration is the only natural method of groundwater

discharge in the basin. While annual precipitation is less than 8 inches in the valley with over 90 percent of the rainfall typically occurring from November to April, the average annual evapotranspiration rate is estimated at 66.19 inches. This is over eight times the rate of precipitation. (Ex. 300, pp. 4.9-6 - 4.9-7.)

A summary of the PHPP proposed construction and operation water supply demand, source, and volume requirements is provide in **Soil and Water Table 1**.

Soil and Water Table 1
Proposed Annual Project Water Source and Use[1]

	Water Demand	Water Supply Source	Estimated Average Volume of Water Required	Estimated Maximum Volume of Water Required
Construction	Power Block Construction and Dust Suppression	Secondary Treated Water trucked in from the Palmdale WRP	---	65,000 gpd (73 AF/y)
	Solar Field Construction and Dust Suppression	Secondary Treated Water trucked in from the Palmdale WRP	560,000 gpd (627 AF/y)	650,000 gpd (728 AF/y)
	Hydrostatic Testing	Waterworks Regional Recycled Water Pipeline	---	Up to 1,174,116 gallons (3.6 acre-feet)
	Drinking Water[2]	Bottled Water	720 gpd (0.79 AF/y)	1,534 gpd (1.7 AF/y)
Operation	Cooling Water; Boiler Makeup; Maintenance and Landscaping	Tertiary Treated Water from the Waterworks Regional Recycled Water Pipeline	3,045 AF/y (75%)	4,075 AF/y
	Mirror Washing	Tertiary Treated Water from the Waterworks Regional Recycled Water Pipeline	46 AF/y	46 AF/y
	Fire Protection (used as necessary)	Tertiary Treated Water from the Waterworks Regional Recycled Water Pipeline	250,000 gallons (0.8 AF)	250,000 gallons (0.8 AF)
	Drinking and Sanitation	Potable Water from the Los Angeles County Waterworks No. 40	2.2 AFY (amount of the will-serve letter)	3.6 AF/y

Source: Ex. 300, p. 4.9-18.

Notes: (1) Construction water use is based on a 27-month construction schedule. Operations water use assumes the PHPP would operate at 100 percent of the plant's total capacity over the life of the project. (2) Estimated at 2 gallons per day per person.

To meet the estimated construction water demand, an average daily volume of 65,000 gallons per day (73 AF/y) during construction of the power block and an

average of 560,000 gpd during construction of the solar field will be needed. An additional 1,174,116 gallons (3.6 AF) will be required during hydrostatic testing of the PHPP piping and vessels. Based on the evidence, the Palmdale Water Reclamation Plant (WRP) is producing over 10,000 AFY of secondary-treated water. This supply would be more than enough to satisfy the PHPP's construction water needs. Condition of Certification **SOIL&WATER-3** requires the project owner to obtain the necessary construction water supply and has a negotiated and executed agreement with LACSD No. 20 (Palmdale WRP) for the supply of the PHPP's construction water. (Ex. 300, pp. 3.9-18 - 3.9-19.)

The supply of secondary-treated water from the Palmdale WRP must conform to the requirements of the California Code of Regulations Titles 17 and 22. Title 22 requires the California Department of Public Health (DPH) to review and approve the use and disposal of recycled water to ensure public health and safety. One of the primary conditions for the use of recycled water is protection of public health. The current Water Recycling Criteria (22 Cal. Code Regs., §§ 60301 through 60355) require the submission of an engineering report to the RWQCB and DPH and obtain approval from the DPH before recycled water projects are implemented. The engineering report describes the production, distribution, and use of recycled water, and is prepared by a properly qualified California registered engineer experienced in the field of wastewater treatment. The report will verify whether Palmdale WRP's recycled water meets the standards for unrestricted use and whether the plumbing constructed for PHPP is designed for prevention of backflow and cross connection with the potable water supply. Condition of certification **SOIL&WATER-3** ensures compliance with DPH requirements. Condition of Certification **SOIL&WATER-5** requires the project owner to meter the water used for the project. (Ex. 300, p. 3.9-19.)

Waterworks District No. 40 would supply the PHPP operation with potable water at an annual volume of up to 3.6 acre-feet. District No. 40 obtains its potable water from the State Water Project (California Aqueduct), surface water from the Little Rock Reservoir, and groundwater from the AVGB via 36 groundwater wells. Potable water would be supplied to the PHPP by the District No. 40 potable water supply pipeline through a routine service connection. The Los Angeles County Department of Public Works' (LACDWP) Urban Water Management Plan for the Antelope Valley shows that potential impacts to the proposed supply have been evaluated and measures for potential impacts have been identified consistent with the normal water year, single-dry water year, and multiple dry water years planning scenarios. Condition of Certification **SOIL&WATER-4** will ensure that the PHPP's potable water is supplied by a service connection to the District No. 40 potable water supply pipeline. Condition of Certification

SOIL&WATER-5 will ensure that this water connection is metered and its use is consistent with this analysis. (Ex. 300, p. 3.9-19.)

The PHPP primary and backup industrial process water supply source will be tertiary-treated water from the Waterworks regional recycled water pipeline. Use of this water will be in compliance with Water Code section 60306, which requires that any recycled water used in an industrial cooling tower, evaporative condenser, spraying or any mechanism that creates mist must be disinfected tertiary recycled water. The disinfected tertiary water will originate from the Palmdale WRP (District No. 20) and Lancaster WRP (District No. 14). The Palmdale and Lancaster WRPs are part of a partnership of 24 independent special districts that form the LACSD. Both the Palmdale WRP and Lancaster WRP are under RWQCB orders to protect beneficial uses of groundwater. These orders require the WRPs to limit the contributions of salt and nutrients to the groundwater from the WRPs. To provide additional treatment capacity and reduce the potential for adverse impacts to groundwater, the WRPs are now in the process of upgrading their facilities to add activated sludge and secondary and tertiary wastewater treatment processes. This treatment will reduce the nutrient content in the recycled water produced, and provide a municipal and industrial supply for consumptive use that will in turn limit discharge of wastewater to land thus reducing the potential for nutrient and salt loading of the groundwater basin. (Ex. 300, p. 3.9-20.)

Tertiary-treated water will be supplied to Waterworks under a 25-year extendable contract between the Waterworks and Districts No. 14 and No. 20 for an annual total delivery of 13,500 acre-feet. Waterworks plans to resell this water to third parties, including the proposed PHPP. Waterworks and the Applicant have entered into a contract for delivery of recycled water to the PHPP project for the life of the project. This agreement specifies that Waterworks would provide the PHPP with 4,121 AFY under maximum operation conditions and 3,091 AFY while operating at 75 percent capacity. However, the following additional elements must be completed before the PHPP will have a reliable water supply for plant operations:

1. The tertiary treatment systems at the Palmdale and Lancaster WRPs;
2. Revised Lahontan RWQCB's Waste Discharge Requirements (WDRs) for the Palmdale WRP; and
3. The regional recycled water supply pipeline by the Waterworks.

The tertiary-treated water will be delivered by Waterworks through an 8.7-mile, 24-inch diameter pipeline that will be installed underground along existing road right-of-ways. Once delivered to the PHPP, this water will be stored on-site in a raw water tank along with purified water from the PHPP's demineralizer and ZLD systems. The raw water storage tank will have a one million gallon storage capacity and could supply the PHPP with cooling water for up to 4 hours of operation. Water for washing the solar mirrors will come from the demineralized water storage tank, free of detergents, surfactants, or other additives, and will consume approximately 46 acre-feet annually. The mirrors will be washed using a specialized diesel truck equipped with a 4,000-gallon water tank, cab-controlled spray nozzles, and brush trailer. (Ex. 300, pp. 3.9-20 - 3.9-21.)

The PHPP will require a continuous supply of water due to evaporative losses by the PHPP's wet cooling tower, CTGs, ZLD, and routine solar mirror washing activity. Over 95 percent of this evaporative loss will be caused by the PHPP's wet cooling tower heat rejection process. The remaining evaporative water loss will be by the CTGs inlet air fogging system and during the routine washing of the solar mirrors. To conserve water, the PHPP cooling tower water will be reused three to ten times (cycles of concentration) before being rejected as cooling tower blowdown. This blowdown water, concentrated with minerals, will be processed by a cooling tower blowdown clarifier and ZLD to remove the minerals. The processed water will be stored in the raw water storage tank for later reuse. (Ex. 300, p. 3.9-21.)

The ability of Waterworks to supply the PHPP with tertiary-treated water is dependent on the tertiary-treated water production rates of the Palmdale and Lancaster WRPs. As the population grows, and will likely continue to grow, the volume of wastewater processed by the WRPs will likely increase. On average, over the last five years, the annual production of secondary treated wastewater by the Palmdale WRP has been 9,178 acre-feet and 13,666 acre-feet by the Lancaster WRP. Based on the evidence, there is a sufficient volume of wastewater available for tertiary treatment to meet the PHPP water requirement. (Ex. 300, p. 3.9-21.)

Both WRPs are undergoing upgrades that will allow the plants to produce tertiary-treated water. Concurrent with the upgrades is the construction of a regional recycled water pipeline system by the Waterworks. All of the components are expected to be completed no later than 2012, which would allow the PHPP to receive tertiary-treated water in time for the estimated PHPP startup date of 2013. (Ex. 300, p. 3.9-21.)

Based on the evidence, there will be an existing 724 AFY average surplus of recycled water available from the Palmdale and Lancaster WRPs after all existing recycled water supply commitments have been fulfilled, including the 13,500 contracted allotment to Waterworks. Of the 13,500 AFY that the Waterworks is allotted, the PHPP will require 4,121 AFY for plant operations. Based on current recycled water demands, there will be a sufficient volume of tertiary-treated water available from the Waterworks to supply the PHPP's water demand. (Ex. 300, p. 3.9-24.)

Future demands for the recycled water produced by the Palmdale and Lancaster WRPs will likely be accompanied by increased production in recycled water. Upgrades to the Palmdale and Lancaster WRPs expected to be complete by 2012 will provide a tertiary-treatment capacity of 33,627 AFY. These upgrades will allow tertiary treatment of an additional 10,783 AFY beyond the average production volume of the last five years (2004 to 2009). Based on the evidence, there will be sufficient recycled water supply to meet future demands. (Ex. 300, p. 4.9-25.)

However, the groundwater in storage in the AVGB is currently subject to litigation, and some of the many litigants believe that at least a portion of the water reclaimed by the Palmdale and Lancaster WRPs should be used to recharge the groundwater in storage. Wastewater reclaimed by the Palmdale WRP is treated to secondary water quality standards and discharged to an effluent management site (EMS) where it is further treated in oxidation ponds. This water is then used as a supply for orchards, an ornamental tree nursery, and fodder and fiber crops. A portion of the wastewater reclaimed by the Lancaster WRP is treated to tertiary water quality standards and delivered to the Apollo Lakes Regional County Park. The remaining wastewater treated by the Lancaster WRP is delivered as secondary-treated water to Nebeker Ranch or stored in unlined reservoirs, with excess water disinfected and discharged to the receiving waters of Amargosa Creek and the Piute Ponds. This receiving water is effluent dominated and commingles with seasonal storm water. Recycled water discharged to the creek and ponds is done in accordance with a 1981 Letter of Agreement between the California Department of Fish and Game, Edwards AFB, and LACSD District No. 14. (Ex. 300, pp. 4.9-25 - 4.9-26.)

Past land application practices by the Palmdale WRP have caused the groundwater quality in the vicinity of the WRP to be impacted by nitrates. To protect the quality of groundwater, the Lahontan RWQCB issued WDRs, followed

by a Cleanup and Abatement Order and a Cease and Desist Order. The RWQCB has also issued WDRs for the Lancaster WRP. The reuse of wastewater by municipal and industrial users will help to reduce the potential for adverse impacts to the groundwater by salts and nutrients contained in the wastewater. (Ex. 300, p. 4.9-26.)

To remain in compliance with the RWQCB requirements and comply with the statewide policies to put recycled water to beneficial use, the Lancaster and Palmdale WRPs have been seeking municipal and industrial users of their recycled wastewater. District No. 20 developed in September 2005 what is called the 2025 Plan (Final Palmdale Water Reclamation Plant 2025 Facilities Plan and Environmental Impact Report). This plan addresses the issue of managing wastewater for an increasing population, increasing regulatory requirements, and increasing demand for recycled water. District No. 14 developed a similar plan, the 2020 Plan (Final Lancaster Water Reclamation plant 2020 Facilities Plan) in May 2004. This plan addresses means to accommodate increasing wastewater flows and seasonal fluctuations in demand. In addition, a multi-party commitment has been made to develop infrastructure that would allow access by municipal and industrial users to this wastewater. This infrastructure includes SWRCB funding, tertiary wastewater treatment upgrades, and construction of a regional distribution system as part of a 2005 Integrated Regional Water Management Plan. (Ex. 300, p. 4.9-26.)

Based on the evidence, PHPP's proposed use of recycled water purchased from Waterworks is consistent with state law and policy. The PHPP's proposed use of recycled water would contribute towards increasing quality of the groundwater in the AVGB by consuming up 4,122 AFY of this water. While the PHPP will be a new water user and would consume/evaporate the water, the PHPP will efficiently use the recycled water it receives. There will be no wastewater discharged from the PHPP. In addition, a portion of the recycled water used for municipal and industrial purposes will be reclaimed again for further reuse. This is a desirable and efficient use of water. (Ex. 300, p. 4.9-26.)

4. Wastewater

Construction related wastewater will come from hydrostatic testing of the project piping and pressure vessels and from equipment washing. Improper handling or containment of construction wastewater could cause a broad dispersion of contaminants to soil or groundwater. The discharge of any non-hazardous wastewater during construction will be required to comply with regulations for

discharge. Equipment wash water will be transported to an appropriate treatment facility. Hydrostatic test water will be discharged either to District No. 20's sanitary sewer in accordance with the District's Wastewater Ordinance or at a water treatment facility. The water used in the test will be tertiary treated and will be analyzed by a state-certified laboratory to ensure compliance with appropriate LORS as required in Condition of Certification **SOIL&WATER-6**. This condition will also require the PHPP project to notify the Palmdale WRP prior to discharge into the sanitary sewer. Provided the PHPP project complies with District No. 20's Wastewater Ordinance, the Industrial Wastewater Surcharge Rate Ordinance, and Condition of Certification **SOIL&WATER-6**, PHPP's management and disposal of wastewater during construction will not result in any significant impact. (Ex. 300, p. 4.9-28.)

During plant operations, process wastewater will be generated from the circulating water system blowdown, HRSG blowdown, CTG evaporative cooler blowdown, demineralization system wastewater, and chemical feed area and general plant drains. The blowdown water will be processed through the plant's proposed ZLD. Wastewater from the chemical feed area and general plant drains will be processed through an oil/water separator. Both systems would treat and reuse water, thereby minimizing water consumption and eliminating process wastewater discharge. Removal of salts and nutrients from the wastewater stream will help protect and improve the basin's groundwater quality. The ZLD will produce solids and the oil/water separator will produce oil and sludge. The ZLD solids and oil/sludge will be removed off-site to a recycling facility or landfill. No significant impact is expected to be associated with these two waste treatment systems. Condition of Certification **SOIL&WATER-7** ensures appropriate management of the ZLD system and appropriate disposal of the solid residue generated by the ZLD system. Condition of Certification **SOIL&WATER-8** ensures that all wastewater that cannot be recycled and reused on-site will be tested, classified, transported, and disposed of in accordance with all applicable LORS. (Ex. 300, pp. 4.9-28 - 4.9-29.)

The sanitary wastes from sinks, toilets, and other sanitary facilities will be discharged to a sanitary sewer line connected to the Palmdale WRP (District No. 20). This water will be treated and made available as recycled tertiary water in the regional recycled water pipeline system. No significant impacts are expected to be associated with recycling of the sanitary wastewater. Condition of Certification **SOIL&WATER-9** will ensure that the sanitary waste system is installed and operated in accordance with Title 22 and the RWQCB requirements. (Ex. 300, p. 4.9-29.)

5. Water and Wind Erosion

The PHPP project site will be subject to wind and water erosion during construction and operation. Approximately 940,743 cubic yards of cut and 466,612 cubic yards of fill will be generated with 475,000 cubic yards of excess cut soil spread west of the proposed solar field. In addition, nearly all vegetation will be removed during construction for the operation of the PHPP. Soil will not be imported to the PHPP site or exported off-site. The proposed pipeline and transmission line installations are not expected to generate soil that will require offsite disposal.

Conditions of Certification in the **Air Quality** section of this Decision prevent significant impacts from fugitive dust and wind erosion of the soil by requiring dust control to disturbed land during construction. These prevention measures include: limiting vehicle speed to 10 miles per hour during construction; requiring all unpaved roads and disturbed areas in the PHPP and linear construction sites to be watered as frequently as necessary during grading and stabilized thereafter with a non-toxic soil stabilizer or soil weighting agent to comply with the dust mitigation objectives; and establish performance standards for controlling fugitive dust and requirements for response should they be exceeded.

In additional Conditions of Certification **SOIL&WATER-1** and **-2** require the use of BMPs designed to prevent and control soil loss due to wind erosion during project construction and operation. These conditions of certification require the project owner to prepare a final DESCP and construction SWPPP. These plans will specify temporary and permanent BMPs, including the use of soil binders as discussed above and the use of straw mulch, geotextiles, mats, erosion control blankets, silt fences, and BMPs for stockpile management. These plans will incorporate recommendations from the City of Palmdale, County of Los Angeles, California Department of Fish and Game (CDFG), and Lahontan RWQCB, and will include a plan for monitoring and maintenance of the soil erosion BMPs. We find that through the proper application of BMPs, the impact to soil resources from water and wind erosion during construction will be reduced to a level that is less than significant.

a. Stormwater

Several PHPP features contribute to the potential for erosion during construction including the high volume of earth displacement, the long duration for construction, and the properties of the soil on which the PHPP will be built. Construction of the PHPP will change natural drainages, remove natural

vegetation, disturb the soil structure, and add impervious areas to the site. These changes will cause an increase in storm water runoff volume and rate. (Ex. 300, pp. 4.9-15 - 4.9-16.)

In addition, potentially significant water quality impacts could occur during construction, excavation, and grading activities, if contaminated or hazardous soil or other materials used during construction were to contact storm water runoff. Water quality could also be impacted if the storm water drainage pattern concentrates runoff to downstream properties or to areas that are not properly protected with BMPs. Drainage and erosion control measures creating a separate drainage system for the PHPP are proposed. BMPs will be used to control storm water flow and prevent potential storm water impacts. These BMPs include the installation of sediment basins and check dams to control storm water flow in addition to the use of fiber rolls, sand bag barriers, straw bale barriers, and earthen dikes and drainage swales. (Ex. 300, p. 4.9-16.)

During operation of the proposed project, permanent erosion control measures will prevent potential soil related impacts. The PHPP power block will be covered predominantly with gravel and landscaping, which will prevent wind and water erosion and maintain a high degree of the pre-PHPP water infiltration capacity of the soil. The balance of the PHPP power block will be covered by foundations and paving. The mirror fields will be graded, de-vegetated, and maintained by the use of soil weighting or binding agents. Adding impervious areas, removing vegetation, and using soil weighting or bonding agents will decrease storm water infiltration and increase its runoff velocity. However, the PHPP has been designed to retain all storm water run on from a 100-year storm event and manage it using on-site using infiltration basins. (Ex. 300, p. 4.9-16.)

Soil loss due to water erosion during project construction and operation will be prevented and controlled by the use of BMPs required in Conditions of Certification **SOIL&WATER-1** and **-2**. Temporary and permanent BMPs will be specified in a final DESCP and construction SWPPP and will incorporate recommendations from the City of Palmdale, County of Los Angeles, CDFG, and Lahontan RWQCB. These plans will also specify procedures for monitoring and maintenance of the storm water BMPs. We find that the record identifies a reasonable plan and sequence for implementing BMPs in order to avoid significant adverse impacts caused by alteration of the site. Conditions of Certification we adopt in this Decision ensure the proper implementation of these plans.

b. Flooding and Tsunami

Unlined stormwater retention and infiltration basins will be constructed at the PHPP site to retain storm water onsite from a 100-year, 24-hour storm event and allow it to infiltrate into the subsurface. The basins will cover approximately 10.51 acres. Based on calculations provided by the Applicant, the storm water basins will retain and infiltrate storm water for up to 48-hours or less after a storm event and no storm water from storm events up to 100-year storm events will leave the PHPP site. The construction and use of these storm water basins will reduce potential impacts from storm water related flooding to a level that is less than significant. (Ex. 300, p. 4.9-16.)

The PHPP site is too far inland to be affected by tsunami or seiche, and the proposed powerblock is not located within the 100-year floodplain as defined by Federal Emergency Management Agency (FEMA). However, the service utilities and the part of the transmission line route that has been established for the project will cross a 100-year flood plain zone. To mitigate potential impacts, Conditions of Certification **SOIL&WATER-1** and **-2** require BMPs to ensure that the service utilities line and transmission line will not be affected by or exacerbate flooding. (Ex. 300, p. 4.9-16.)

6. Road Paving

The Applicant has proposed to pave roads in the vicinity of PHPP, outside of the proposed project footprint, to generate PM10 emission reduction credits to mitigate impacts to air quality and satisfy state and federal air quality requirements. The Applicant has identified ten existing unpaved road segments located within the City of Palmdale and the surrounding unincorporated areas of Los Angeles County, totaling about 22 miles. The Applicant has indicated that four or five of these will need to be paved in order to obtain the quantity of offsets needed for air quality purposes. (Ex. 301, p. 26.) These road segments are identified and described in detail in the **Traffic and Transportation** section of this Decision.

Construction activities necessary to pave existing unpaved roads typically involve earthwork, placement and compaction of road base material, and laying of final pavement material. In addition, storm water drainage and erosion control measures are implemented to protect traveling vehicles, the roadway, and the surrounding area. Potential impacts to soil and water include: increased erosion due to disturbed soil; discharge of eroded sediments into nearby surface water;

release of hazardous materials from construction equipment and materials; increased storm water runoff flow and possible flooding due to compacting and paving existing permeable surfaces; and possible adverse change to groundwater or surface water quality due to water use. (Ex. 301, p. 26.)

Standard road widths in this vicinity vary from 14 to 20 feet, depending on the street's classification and traffic volumes. A conservative estimate of potential soil disturbance for roadway construction, including shoulders and drainage features, is about 8 acres for each mile of roadway. In other words, paving 10 miles of roadway could result in about 80 acres of soil disturbance during construction. Disturbed soil is more susceptible to erosion from water and wind, and eroded sediments could flow into nearby surface water to degrade water quality. (Ex. 301, p. 26.)

Although the existing unpaved roads contain compacted soil from repeated vehicle use, they are still able to absorb some amount of storm water. Paving will make these surfaces impervious, and in some locations could result in larger impervious areas if widening is required to meet roadway design standards. As a result, storm water runoff flows will intensify. The increased amounts will depend on several factors such as slope and final area, but runoff quantities could increase to four times or even ten times due to the difference in permeability between asphalt and soil. The increased runoff could cause localized flooding or transport eroded sediments and hazardous substances to nearby surface water if not mitigated. (Ex. 301, pp. 26-27.)

Water use during construction is typically needed for dust suppression, soil compaction, drinking, and sanitation. Portable sanitation facilities will also be required. (Ex. 301, p. 27.)

Roadway construction is a routine activity performed by most, if not all, cities and counties throughout California. These local agencies must minimize the impacts mentioned above and comply with the same applicable State and Federal LORS mentioned above. As a result, many of these requirements are integrated into the local LORS. For example, Los Angeles County adopted a storm water and runoff pollution control ordinance, and Palmdale included a Storm Water Management Plan requirement as part of their excavation and grading provisions. Both local agencies require use of Best Management Practices to help avoid and minimize potential impacts to soil and water resources. (Ex. 301, p. 27.)

Conditions of Certification **SOIL&WATER-10** and **-11** require the project owner to comply with these local LORS as well as with conditions requiring the project owner to avoid and minimize potential impacts to soil and water resources through the NPDES and SWPPP.

Intervenor, Center for Biological Diversity (CBD) argues that Energy Commission staff's analysis failed to adequately describe the existing environment of the dirt roads that the Applicant proposes to pave. (CBD Opening Brief, pp. 8-10, 14.) Staff responds by showing that CEQA sets a somewhat lesser standard for reviewing the environmental impacts resulting from mitigation measures. (Staff's Reply Brief, pp. 6-8.) Less detail is necessary when discussing the environmental impacts of a mitigation measure as compared to the project itself. (Cal. Code Regs., tit. 14, § 15126.4(a)(1)(D); *Stevens v. City of Glendale* (1981) 125 Cal. App.3d 986.)

We find that the baseline environment of the proposed road segments has been described in sufficient detail to inform the public and the decision-makers about the potential for the project to result in significant impacts. The exact location and length of each road segment is identified, the existing environment of each road segment and its surrounding land is identified, and the impacts involved with paving roads are described. This information is based on review of documents, maps and first-hand visits to the proposed road segments. (Exs. 56; 146; 301; RT 3/2/11 pp. 274:8-277:3.)

CBD's main complaint with this analysis appears to be that in the absence of jurisdictional delineations of state or federal waters, there is an insufficient description of the baseline environment on which to conduct an analysis. (CBD Opening Brief, pp. 9-10.) None of the parties provided any authority establishing that jurisdictional delineations of state or federal waters are a prerequisite to analyzing impacts or proposed mitigation measures. Applicant provided expert testimony that wetland delineations were not required prior to certification to adequately assess and mitigate impacts from project road paving. (3/2/11 RT 222:13-15; 255:20-25.) CEQA does not mandate that Staff perform a wetlands delineation as part of its analysis, where, as here, Staff had already based its conclusions on substantial evidence in the record and determined that no additional studies were needed. (Ex. 301, p. 12; 3/2/11 RT 276:14-277:3.) CEQA does not mandate that every conceivable study be undertaken. [CEQA Guidelines §§ 15151 and 15204; *Assoc. of Irritated Residents v. County of Madera,* (2003) 107 Cal. App. 4th 1383, 1391 ("CEQA does not require a lead

agency to conduct every recommended test and perform all recommended research to evaluate the impacts of a proposed project.”)].

As discussed above, CEQA does not require exhaustion, but “a sufficient degree of analysis to provide decision-makers with information which enables them to make a decision which intelligently takes account of environmental consequences” (Cal. Code Regs., tit. 14, § 15151.) The soil and water impacts and mitigation analysis is adequate and does not fail for lack of jurisdictional delineations of state or federal waters.

CBD argues that the mitigation measures amount to a deferral of the identification of impacts. (CBD Opening Brief, pp. 7-8.) It is well recognized under CEQA, however, that mitigation measures may incorporate further studies to define the specific parameters of the mitigation when the results of later field studies are used to tailor mitigation to fit actual environmental conditions. [*National Parks & Conserv. Ass’n v. County of Riverside* (1999) *71 Cal. App. 4th 1341, 1361-1362,* 1366 (County appropriately allowed determination about placement of tortoise protection fences along railroad line to be based on further study of migration patterns during operation of project).] Such an approach is particularly appropriate under CEQA when a mitigation measure has been defined but the extent of mitigation that may be required will depend on the results of a later study. (*Riverwatch v. County of San Diego* (1999) 76 Cal. App. 4th 1428, 1447.)

To address uncertainties about the area of impact, Staff relied on worst-case assumptions about the width of road paving construction. (3/2/11 RT 301:7-8.) Under CEQA, when uncertain future events could lead to a range of possible outcomes, environmental review may base its analysis on a reasonable worst-case scenario. (*Planning & Conservation League v. Castaic Lake Water Agency*, (2009) 180 Cal. App. 4th 210, 244.) The Conditions of Certification are similarly conservative because Staff applied the same conditions to the Project Road Paving as were designed for the relatively undisturbed PHPP site and linears. (3/2/11 RT 306:14-307:22.) Staff determined that the proposed Conditions of Certification adequately address potential impacts to wetlands even though the exact acreages that could be subject to disturbance were not identified with a wetlands delineation. (Ex. 301, p. 12; 3/2/11 RT 275:19-22.)

We are satisfied that the Soil and Water Resources analysis describes the potential impacts that could occur in the process of paving roadways and identifies mitigation measures to ensure that these impacts are properly

mitigated. Road paving is a fairly straightforward activity with a defined set of potential impacts. (Ex. 301, pp. 26-27.) Where the paving occurs on dirt roads already in use, as here, such impacts are even more defined and limited. (Ex. 301, pp. 26-28.) Conditions of Certification **SOIL AND WATER-10** and **-11** ensure that any potential impacts to soil and water from road paving are mitigated to less than significant, in combination with Condition of Certification **BIO-23** which ensures that any potential impacts to streambeds are mitigated below the level of significance. (Ex. 301, pp. 14-16.). We find that the PHPP road paving scheme will have no significant impacts on soil and water resources.

7. Cumulative Impacts and Mitigation

Temporary and permanent disturbances associated with construction of the project will cause accelerated wind- and water-induced erosion. However, we conclude that the implementation of proposed mitigation measures within the construction SWPPP and the DESCP ensure that the project's contribution to soil and water resources impacts from water and wind erosion will not be cumulatively considerable.

Construction and operation of the PHPP will require the use of up to 4,125 AFY recycled water. Use of this recycled water would comply with existing regulations and policies and help remove existing nutrient and salt loading to the groundwater basin. The AVGB and groundwater users will benefit by the PHPPs proposed use of recycled water. Therefore, there will be no significant cumulative impacts to the groundwater resources in the AVGB as a result of the PHPP.

8. Public Comment

Josef Yore commented that "in the old days they buried every bit of garbage people had. There was no dump in the Antelope Valley. When I did my research there was [sic] 70 wells. The advisory committee out of Wright-Patterson base only came up with ten. And they claim out of the ten, four were contaminated. (3/2/11 RT 174:24 – 175:3.)

We noted, *supra*, that visual observations were made of debris and unauthorized disposal at various locations at the PHPP site, and removal of this debris was recommended prior to the start of construction. No on-site recognized environmental conditions (RECs) were identified and no additional assessment was recommended in the Phase 1.

According to a 2007 Monitoring Report, the TCE plume mentioned above does not extend to the PHPP site, but remains confined to areas underlying Air Force Plant 42. Groundwater remediation at Plant 42 is ongoing and overseen by the California Department of Toxic Substances Control (DTSC) and the Lahontan Regional Water Quality Control Board (RWQCB).

The **Antelope Valley Groundwater Agreement Association (AGWA**) submitted comments that the PMPD fails to account for the July 13, 2011 Los Angeles Superior Court "Phase III" decision ("Antelope Valley Groundwater Cases" Case No. BC 3235201) declaring that the total safe yield of the groundwater supply from the Antelope Valley Groundwater Basin is 110,000 AFY. AGWA argues that some of the 110,000 AFY of safe yield is comprised of return flows from municipal wastewater, so the PHPP's use of recycled water will consume a portion of these return flows and result in a lower safe yield than that adjudicated by the Court. AGWA protests the PMPD because, in their view, the only way there will be sufficient recycled water supplies for the PHPP is if other existing water users cut back their water use. AGWA argues the Decision fails to address the impacts of the project to other water users in the Basin.

We note that the PMPD was published a month before the Phase III decision, but even if that decision were published while the evidentiary record was still open in this AFC, the Phase III decision would not affect this Decision. The court merely finds that the basin is in overdraft and sets a safe yield to maintain equilibrium between extractions and recharge of groundwater. The court declares that its findings have "no application to other phases, such as prescription or rights of appropriators." Our record acknowledges the overdraft (Ex. 300, p. 4.9-8) but in light of the court's calculation of the safe yield of 110,000 AFY, the PHPP's use of 3.6 AFY of potable groundwater is reasonable and de minimus. The PHPP's direct impact on the Antelope Valley Groundwater Basin is insignificant.

AGWA's claim that the indirect impact to the recharge of the Antelope Valley Groundwater Basin from PHPP's use of recycled water ignores the analysis in evidence. The Lahontan RWQCB issued WDRs, followed by a Cleanup and Abatement Order and a Cease and Desist Order to protect the groundwater quality. The diversion of wastewater from recharge to municipal and industrial uses is required to reduce the potential for adverse impacts to the groundwater by salts and nitrates contained in the wastewater. The PHPP will re-use this water three to ten times before it is rejected as cooling tower blowdown. The court does not quantify the sources of recharge of the basin; however, our record quantifies the available recycled water from the Palmdale and Lancaster WRPs.

The evidence shows that there would be a surplus of recycled water after all existing recycled water supply commitments from the Palmdale and Lancaster WRPs have been fulfilled.

Finally, since we have already found that the PHPP's use of groundwater is de minimus, we similarly find that such use is also not cumulatively considerable. AGWA urges a specific cumulative analysis on the recycled water that will be supplied to the PHPP for its operations and process use. There is no evidence in the record to indicate that there is any demand for recycled water by any of the known or foreseeable future projects in the area. However, the evidence establishes that future demands for the recycled water produced by the Palmdale and Lancaster WRPs will likely be accompanied by increased production in recycled water. Upgrades to the Palmdale and Lancaster WRPs expected to be completed by 2012 will provide a tertiary-treatment capacity of 33,627 AFY. These upgrades will allow tertiary treatment of an additional 10,783 AFY beyond the average production volume of the last five years (2004 to 2009). Accordingly, there will be sufficient recycled water supply to meet future demands. (Ex. 300, p. 4.9-24.) The PHPP will not have a cumulatively considerable impact on recycled water supplies.

FINDINGS OF FACT

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

1. Potential adverse impacts caused by erosion and stormwater flows during construction and operation will 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. The PHPP's proposed use of recycled water is consistent with state law and policy and will contribute towards increasing quality of the groundwater in the AVGB.

4. Recycled water is the most degraded quality water supply reasonably available to the project.

5. The proposed use of recycled water for the project's process water needs will not cause a significant adverse environmental impact or adversely affect current or future users of recycled water.

6. The project will not be located within the 100-year flood plain, and will not exacerbate flood conditions within the vicinity of the project.

7. Soil loss due to water erosion during project construction and operation will be prevented and controlled by the use of BMPs required in Conditions of Certification **SOIL&WATER-1** and **-2**

8. The construction and use of storm water basins will reduce potential impacts from storm water related flooding to a level that is less than significant.

9. The proposed recovery of process wastewater using Zero-Liquid-Discharge technology is consistent with state water use and conservation policies.

10. Conditions of Certification **SOIL AND WATER-10** and **-11** ensure that any potential impacts to soil and water from road paving are mitigated to less than significant, in combination with Condition of Certification **BIO-23** which ensures that any potential impacts to streambeds are mitigated below the level of significance.

11. The PHPP contribution to soil and water resources impacts from water and wind erosion will not be cumulatively considerable.

12. There will be no significant cumulative impacts to the groundwater resources in the AVGB as a result of the PHPP.

CONCLUSION OF LAW

Based on these findings, we find that PHPP will not result in any unmitigated, significant project-specific or cumulative adverse impacts to Soil or Water Resources and will comply with all applicable LORS with implementation of the Conditions of Certification set forth herein.

CONDITIONS OF CERTIFICATION

DRAINAGE EROSION AND SEDIMENTATION CONTROL PLAN

SOIL & WATER-1: Prior to site mobilization, the Palmdale Hybrid Power Project (PHPP) owner shall obtain the Compliance Project Manager's (CPM's) approval for a site specific DESCP that ensures protection of water quality and soil resources of the PHPP site and all linear facilities for both the construction and operation phases of the PHPP. This plan shall address appropriate methods and actions, both temporary and permanent, for the protection of water quality and soil resources, demonstrate no increase in off-site flooding potential, and identify all

monitoring and maintenance activities. The PHPP owner shall complete all necessary engineering plans, reports, and documents necessary for the CPM to conduct a review of the PHPP and provide a written evaluation as to whether the proposed grading, drainage improvements, and flood management activities comply with all requirements presented herein. The plan shall be consistent with the grading and drainage plan condition of certification in the **Facility Design** section of this Final Staff Assessment and shall contain the following elements:

Vicinity Map: A map shall be provided indicating the location of all PHPP elements (including service utilities and the generator transmission line) with depictions of all significant geographic features to include watercourses, washes, irrigation and drainage canals, major utilities, and sensitive areas.

Site Delineation: The site and all PHPP elements (including service utilities and the generator transmission line) shall be delineated showing boundary lines of all construction areas and the location of all existing and proposed structures, underground utilities, roads, and drainage facilities. Adjacent property owners shall be identified on the vicinity map. All maps shall be presented at a legible scale

Drainage: The DESCP shall include the following elements:

a. Topography. Topography for offsite areas is required to define the existing upstream tributary areas to the site and downstream to provide enough definition to map the existing storm water flow and flood hazard. Spot elevations shall be required where relatively flat conditions exist.

b. Proposed Grade. Proposed grade contours shall be shown at a scale appropriate for delineation of onsite ephemeral washes, drainage ditches, and tie-ins to the existing topography.

c. Hydrology. Existing and proposed hydrologic calculations for onsite areas and offsite areas that drain to the site; include maps showing the drainage area boundaries and sizes in acres, topography and typical overland flow directions, and show all existing, interim, and proposed drainage infrastructure and their intended direction of flow.

d. Hydraulics. Provide hydraulic calculations to support the selection and sizing of the onsite drainage network, diversion facilities and Best Management Practices (BMPs).

Watercourses and Critical Areas: The DESCP shall show the location of all onsite and nearby watercourses including washes, irrigation and drainage canals, and drainage ditches, and shall

indicate the proximity of those features to the construction site. Maps shall identify high hazard flood prone areas.

Clearing and Grading: The plan shall provide a delineation of all areas to be cleared of vegetation and areas to be preserved. The plan shall provide elevations, slopes, locations, and extent of all proposed grading as shown by contours, cross-sections, cut/fill depths or other means. The locations of any disposal areas, fills, or other special features shall also be shown. Existing and proposed topography tying in proposed contours with existing topography shall be illustrated. The DESCP shall include a statement of the quantities of material excavated at the site, whether such excavations or fill is temporary or permanent, and the amount of such material to be imported or exported or a statement explaining that there would be no clearing and/or grading conducted for each element of the PHPP. Areas of no disturbance shall be properly identified and delineated on the plan maps.

Soil Wind and Water Erosion Control: The plan shall address exposed soil treatments to be used during construction and operation of the PHPP for both road and non-road surfaces including specifically identifying all chemical based dust palliatives, soil bonding, and weighting agents appropriate for use at the PHPP site that would not cause adverse effects to vegetation; BMPs shall include measures designed to prevent wind and water erosion including application of chemical dust palliatives after rough grading to limit water use. All dust palliatives, soil binders, and weighting agents shall be approved by the CPM prior to use.

Project Schedule: The DESCP shall identify on the topographic site map the location of the site-specific BMPs to be employed during each phase of construction (initial grading, PHPP element construction, and final grading/stabilization). Separate BMP implementation schedules shall be provided for each PHPP element for each phase of construction.

Best Management Practices: The DESCP shall show the location, timing, and maintenance schedule of all erosion- and sediment-control BMPs to be used prior to initial grading, during PHPP element excavation and construction, during final grading/stabilization, and after construction. BMPs shall include measures designed to control dust and stabilize construction access roads and entrances. The maintenance schedule shall include post-construction maintenance of treatment-control BMPs applied to disturbed areas following construction.

Erosion Control Drawings: The erosion-control drawings and narrative shall be designed, stamped and sealed by a professional engineer or erosion-control specialist.

Agency Comments: The DESCP shall include copies of recommendations, conditions, and provisions from the County of Los Angeles, California Department of Fish and Game (CDFG), and Lahontan Regional Water Quality Control Board (RWQCB).

Monitoring Plan: Monitoring activities shall include routine measurement of the volume of accumulated sediment in the onsite drainage ditches, and storm water diversions.

Verification: The DESCP shall be consistent with the grading and drainage plan as required by Condition of Certification **CIVIL-1**, and shall be approved by the chief building official (CBO) and Compliance Project Manager (CPM). In addition, the PHPP owner shall do all of the following:

a. No later than sixty (60) days prior to start of site mobilization, the PHPP owner shall submit a copy of the DESCP to the City of Palmdale, County of Los Angeles, and the RWQCB for review and comment. The CBO and CPM shall consider the comments received from the City of Palmdale, County of Los Angeles, and RWQCB in their approval of the DESCP.
b. During construction, the PHPP owner shall provide a monthly compliance report on the effectiveness of the drainage, erosion, and sediment control measures and the results of monitoring and maintenance activities. Reporting the effectiveness shall include a table listing: (1) each drainage, erosion, and sediment control measure; (2) the monitoring frequency of the drainage, erosion, and sediment control measure; and (3) the maintenance performed, if any, to that measure during the monthly reporting period.
c. Once operational, the PHPP owner shall provide in the annual compliance report information on the results of storm water BMP monitoring and maintenance activities.
d. Provide the CPM with two (2) copies each of all monitoring or other reports required for compliance with Los Angeles County, CDFG, and RWQCB.

CONSTRUCTION – STORM WATER POLLUTION PREVENTION PLAN

SOIL&WATER-2: The project owner shall fulfill the requirements contained in State Water Resources Control Board's *National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities Order No. 2009-0009-DWG, NPDES No. CAS000002* and all subsequent revisions and amendments. The project owner shall develop and implement a construction Storm Water Pollution Prevention Plan (SWPPP) for the construction of the project.

Verification: Thirty (30) days prior to site mobilization, the project owner shall submit the construction SWPPP to the CBO and CPM for approval. A copy of the approved construction SWPPP shall be kept accessible onsite at all times.

WATER SUPPLY – CONSTRUCTION WATER

SOIL&WATER-3: The PHPP's proposed use of secondary-treated water during construction for dust control, and soil compaction shall be secondary-23 recycled water from the Palmdale Water Reclamation Plant (District No. 20) and shall meet the requirements of CCR Title 22, Division 4, Chapter 3 and Title 17, Division 1, Chapter 5. Hydrostatic test water shall be disinfected tertiary treated recycled water from District No. 20 and shall also meet the requirements of CCR Title 22, Division 4, Chapter 3 and Title 17, Division 1, Chapter 5. The project owner shall provide the CPM two (2) copies of the executed agreement between the applicant and the County of Los Angeles Sanitation District No. 20 for the supply of recycled water for PHPP construction. This agreement shall specify all terms and costs for the receipt and use of recycled water by the PHPP. The PHPP shall not use recycled water from District No. 20 for PHPP construction until this agreement is executed.

Verification: No later than sixty (60) days prior to construction, the PHPP owner shall submit two (2) copies of the executed agreement for the supply and onsite use of secondary-23 and tertiary recycled water from District No. 20 for PHPP construction. If construction water is provided by a pipeline connected to the Palmdale WRP, then the PHPP owner shall submit to the CPM two (2) copies of the Engineering Report and Cross Connection inspection report and include all comments from the Lahontan RWQCB and the California Department of Public Health (DPH) prior to the delivery of recycled water from District No. 20.

WATER SUPPLY – OPERATION WATER

SOIL&WATER-4: The project's use of water for PHPP operations shall be tertiary-treated water from the Los Angeles County Waterworks regional supply and shall comply with CCR Title 22, Division 4, Chapter 3 and Title 17, Division 1, Chapter 5.

Verification: No later than sixty (60) days prior to operation, the PHPP owner shall submit the Engineering Report and Cross Connection inspection report to the Lahontan RWQCB, California DPH, and CBO. The PHPP owner shall submit to the CPM two (2) copies of the Engineering Report and Cross Connection inspection report and include all comments from the Lahontan RWQCB and California DPH prior to the delivery of recycled water from the Waterworks.

WATER METERING

SOIL&WATER-5: Prior to the use of potable or recycled water for construction and operation of the PHPP, the project owner shall install and maintain metering devices as part of the water supply and distribution system to monitor and record the volume of potable and recycled water supplied to the PHPP. The metering devices shall be operational for the life of the project.

A semi-annual summary of the PHPP construction daily maximum, monthly average, monthly total, and annual total water use, differentiating between potable and recycled water, shall be submitted to the CPM in the annual compliance report. An annual summary of the PHPP operation daily maximum, monthly average, monthly total, and annual total water use, differentiating between potable and recycled water, shall be submitted to the CPM in the annual compliance report.

The daily and monthly water use shall be reported in gallons per day, and the semi-annual and annual water use shall be reported in acre-feet per year. For calculating the total water use, the term "year" would correspond to the date established for the annual compliance report submittal.

Verification:

1. At least sixty (60) days prior to use of any water source for PHPP construction and operation, the PHPP owner shall submit to the CPM evidence that metering devices have been installed and are operational on the potable and recycled pipelines serving the PHPP construction and operation. The PHPP owner shall provide a report on the servicing, testing, and calibration of the metering devices in the annual compliance report.
2. Beginning six (6) months after the start of construction, the PHPP owner shall prepare a semi-annual summary of the daily maximum, monthly average, monthly total, and annual total amount of water used for construction purposes.
3. Annually, the PHPP owner shall prepare a summary of the daily maximum, monthly average, monthly total, and annual total water use.

HYDROSTATIC TEST WATER DISCHARGE REQUIREMENTS

SOIL&WATER-6: The PHPP owner shall discharge all hydrostatic test water in accordance with the Palmdale NPDES permit. The project owner shall comply with the Sanitation Districts of Los Angeles County (LACSD) Wastewater Ordinance requirements for appropriate management of these discharges.

Verification: Prior to the discharge of hydrostatic test water into the LACSD sewer system, the project owner shall do all of the following:

1. Analyze both carbon and non-carbon steel piping test water in accordance with LACSD specified analyses prior to discharge or disposal of the test water;
2. Submit those analyses together with a tabulated summary of the analytical results and corresponding acceptable limits to the CPM for review and the

LACSD for approval and a copy to the CBO. If discharge to the sewer system is approved by the LACSD, include a copy of the approval letter in the annual compliance report.

3. If discharge of either the carbon or non-carbon steel piping test water to the sewer system is not approved by the LACSD, then submit a copy of the disposal receipt issued by a water treatment plant in the annual compliance report.

ZERO LIQUID DISCHARGE SYSTEM REQUIREMENTS

SOIL&WATER-7: The PHPP owner shall treat all process wastewater streams with a zero liquid discharge (ZLD) system. The PHPP 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 PHPP;

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 PHPP operation and wastewater production shall not exceed the treatment capacity of the ZLD system or result in an industrial wastewater discharge.

Verification: At least sixty (60) days prior to the start of commercial operation, the PHPP owner shall submit to the CPM evidence that the final design of the ZLD system has the approval of the CBO. At least sixty (60) days prior to the start of commercial operation, the PHPP owner shall prepare a ZLD management plan for review and approval by the CPM. The ZLD management plan shall be updated by the PHPP owner and submitted to the CPM for review and approval if a change in water source or infrastructure is needed.

In the annual compliance report, the PHPP owner shall submit a status report on operation of the ZLD system, including dates and length of disruptions, maintenance activities performed, and volumes of interim wastewater streams stored onsite. The annual compliance report shall contain an evaluation of whether the ZLD is being operated within the parameters described in the ZLD management plan. The ZLD management plan shall be updated by the PHPP owner if the CPM has determined it is necessary based on information presented in the Annual Compliance Report.

WASTEWATER COLLECTION SYSTEM REQUIREMENTS

SOIL&WATER-8: The PHPP owner shall recycle and reuse all process wastewater streams to the extent practicable. Prior to transport and disposal of any facility operation wastewaters that are not suitable for treatment and reuse onsite, the PHPP owner shall test and classify the stored wastewater to determine proper management and disposal requirements. The PHPP owner shall ensure that the wastewater is transported and disposed of in accordance with the wastewater's characteristics and classification and all applicable LORS (including any CCR Title 22 Hazardous Waste and Title 23 Waste Discharges to Land requirements).

Verification: In the annual compliance report, the PHPP owner shall provide the CPM with a report of test results of any wastewater that is not suitable for treatment and reuse onsite, the classification of this wastewater, and documentation of the proper management and disposal of this wastewater, including but not limited to non-hazardous and hazardous waste manifest.

SEWER SERVICE CONNECTION

SOIL&WATER-9: Prior to commercial operation, the project owner shall provide the CPM and the County of Los Angeles Sanitation District No. 20 (Palmdale WRP) all information and documentation required to satisfy LACSD No. 20 Wastewater Ordinance, Master Ordinance and Rate and Mean Loadings Ordinance for the discharge of sanitary wastewater into the LACSD No. 20 sewer system. During operation, any monitoring reports provided to LACSD No. 20 shall also be provided to the CPM. The CPM shall be notified of any violations of discharge limits or amounts.

Verification: At least sixty (60) days prior to commercial operation, the project owner shall submit the information and documentation required to satisfy LACSD No. 20 Wastewater Ordinance, Master Ordinance and Rate and Mean Loadings Ordinance for review and comment, and to the CPM and the CBO for review and approval.

During PHPP operation, the project owner shall submit any wastewater quality monitoring reports required by LACSD No. 20 to the CPM in the annual compliance report. The project owner shall submit any notice of violations from

LACSD No. 20 to the CPM within ten (10) days of receipt and fully explain the corrective actions taken in the annual compliance report.

SOIL&WATER-10: Construction General Permit

The project owner shall fulfill the requirements contained in State Water Resources Control Board's *National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities Order No. 2009-0009-DWG, NPDES No. CAS000002* ("Construction General Permit") and all subsequent revisions and amendments. The project owner shall develop and implement a construction Storm Water Pollution Prevention Plan (SWPPP) for the construction of the paved roadways.

Verification: No later than thirty (30) days prior to construction of city/county roadway pavement work, the project owner shall submit to the CPM documentation from the State Water Resources Control Board showing approval to perform work under the Construction General Permit (or documentation that this permit is not required). If an approved construction SWPPP is required, a copy of it shall be kept accessible onsite at all times.

SOIL&WATER-11: Compliance with Local Requirements

The project owner shall comply with the City of Palmdale Municipal Code and the Los Angeles County Code of Ordinances, as applicable, regarding roadway construction.

Verification: The project owner shall ensure compliance with applicable local requirements regarding roadway construction.

1. Pre-Construction: The project owner shall submit a construction packet in accordance with City of Palmdale and Los Angeles County, as applicable, containing the documentation, plans, and fees normally required for roadway construction. No later than thirty (30) days prior to roadway construction, the project owner shall submit to the CPM documentation from City of Palmdale and/or Los Angeles County showing approval to start construction.

2. Post-Construction: No later than sixty (60) days after roadway construction is complete, the project owner shall provide to the CPM documentation from City of Palmdale and/or Los Angeles County that roadway construction has been properly completed. The project owner shall also provide documentation showing the City of Palmdale and/or Los Angeles County will take ownership of the paved roadways and operate and maintain them in accordance with the intent of the mitigation program.

C. CULTURAL RESOURCES

The potential for impacts to cultural resources depends upon whether such resources are present and whether they would actually be encountered during project development and construction activities. Cultural resource materials such as artifacts, structures, or land modifications reflect the history of human development. Certain places that are important to Native Americans or local national/ethnic groups are also considered valuable cultural resources. 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 evidence on cultural resources was undisputed. (Exs. 8; 31; 37; 39; 43; 44; 47; 48; 53; 54; 56; 59; 68; 102; 104; 117; 300; 301.)

The term “cultural resource” is used broadly to include the following categories of resources: buildings, sites, structures, objects, and historic districts. When a cultural resource is determined to be significant, it is eligible for inclusion in the California Register of Historic Resources (CRHR). (Pub. Res. 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. (*See* Pub. Res. 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.

Under the CEQA Guidelines, a resource is generally considered to be historically significant if it meets the criteria for listing in the CRHR. In addition to being at least 50 years old, a resource must meet at least one of the following four criteria: 1) is associated with events that have made a significant contribution to the broad patterns of our history; 2) is associated with the lives of persons significant in our past; 3) embodies the distinctive characteristics of a type, period, or method of construction, or represents the work of a master, or possesses high artistic values; 4) has yielded, or may be likely to yield, information important to history or prehistory. (Pub. Res. Code § 5024.1.) In addition, historical resources must also possess integrity of location, design, setting, materials, workmanship, feeling, and association. [Cal. Code Regs., tit. 14, § 4852(c); Pub. Res. 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.

SUMMARY AND DISCUSSION OF THE EVIDENCE

1. Setting and History

The proposed PHPP site is located at 950 East Avenue M in the northern part of the City of Palmdale. To the west of the City-owned 333-acre project site is Sierra Highway, to the north is East Avenue M, and to the south and east is the military-industrial property known as U. S. Air Force Plant 42. The proposed plant site has been vacant undeveloped desert from at least the early 1900s to the present, and remains so. Most of the proposed project components are located within the City of Palmdale, but the eastern and southern parts of the transmission line and a small part of the reclaimed water pipeline are located in unincorporated Los Angeles County. (Ex. 300, p. 4.3-4.)

Most of the components of the proposed PHPP are in the lower Antelope Valley, in the western Mojave Desert, within the greater Mojave Desert Geomorphic Province of California. The western part of segment 2 of the proposed PHPP transmission line is in the Transverse Ranges Province. The San Gabriel and San Bernardino Mountains border the Mojave Desert Province on the south and west, and the Tehachapi Mountains border it on the northwest. These surrounding mountains have filled the province's low, wide basins with alluvium. The Antelope Valley is bounded by two fault zones, the Garlock Fault running northeast-southwest, and the San Andreas, running southeast-northwest along the northern San Gabriel Mountain foothills. (Ex. 300, p. 4.3-4.)

The proposed PHPP site and its natural gas and water pipelines are on an alluvial plain whose sand and silt deposits are estimated to be 500 feet thick. The project site is generally flat, sloping upward to the southwest, with an elevation ranging from 2,490 to 2,555 feet above mean sea level. Segment 1 of the transmission line is on the same plain, but the western part of segment 2 obliquely crosses the northeastern edge of the San Gabriel Mountains. (Ex. 300, p. 4.3-4.)

Over the past seven decades, Mojave Desert archaeologists have developed and refined a broad sequence of artifact assemblages or complexes that represents the material record of the peoples who once lived in the proposed PHPP project area. During the Terminal Pleistocene Period (prior to 10,000 BC), evidence for a Paleo-Indian occupation in the western Mojave Desert appears in the form of fluted points, generally considered to represent the Clovis complex. Prehistorians believe that during this period highly mobile groups relied heavily

upon resources available in and near lake environments. This pattern of subsistence and settlement has been collectively described as the Western Pluvial Lakes Tradition (WPLT). Evidence for this pattern also occurs throughout the western Great Basin, continuing briefly into the Early Holocene. (Ex. 300, p. 4.3-7 – 4.3-8.)

During the Early Holocene (8,000–6,000 BC), as the climate got warmer and dryer, the Mojave region's lakes began to slowly dry up, and groups had to adapt to the changing environment. The Lake Mojave complex is the pattern characteristic of this period, marked by projectile points of the Lake Mojave and Silver Lake types. The Pinto complex has become the widely accepted cultural complex for the Middle Holocene in this region (6,000–2,000 BC). Artifacts identified with this complex include stemmed, indented-base Pinto series projectile points, probably used as thrusting spears rather than darts. The numbers of ground stone tools dramatically increase during this period, with these implements appearing in almost every Pinto site that archaeologists have identified. (Ex. 300, p. 4.3-8.)

The Gypsum complex appeared during the earliest part of the Late Holocene (2,000 BC–AD 200). During this time, the climate turned wetter and cooler again. Artifactual evidence of ritual activities also occurs—quartz crystals, paint, and rock art. The locations of Gypsum complex sites are arrayed over a more diverse topography and suggest an emphasis on exploitation of areas near streams, with deer, rabbits, and rodents being taken for food. The Rose Spring complex followed the Gypsum complex, appearing in the period AD 200–1100, the time during which the bow and arrow was introduced in the Mojave region. The Medieval Climatic Anomaly—an extended period of relative drought between AD 850 and 1350—occurred in the middle of the Rose Spring complex. Lakes again dried up, and Native American settlement patterns changed as a result, with habitation sites moving from permanent water sources—lakes—to ephemeral ones, such as springs and washes. The greater efficiency of the bow and arrow, in combination with drought, could have overstressed the game populations near the shrinking lakes and motivated this change in settlement pattern. (Ex. 300, pp. 4.3-8 – 4.3-9.)

During Late Prehistoric (AD 1100–1776) period, Mojave populations decreased but several new archaeological complexes appeared that probably represent the prehistoric forebears of the known ethnographic groups of the region. New technologies, such as pottery, also appeared. (Ex. 300, p. 4.3-9.)

The proposed project areas are located within the territories traditionally claimed by four Native American groups, with the plant site, the western end of the transmission line, and the water, natural gas, and sewer pipelines in territory claimed by the Kitanemuk, and the remainder of the transmission line running through the territories claimed by the Vanyume to the northeast, the Serrano to the southeast, and the Tataviam to the southwest. These groups spoke related dialects of the Takic language. Early Spanish visitors to the Mojave region, Lieutenant Pedro Fages and Father Francisco Garcés (on separate expeditions in 1772 and 1776, respectively), considered these groups similar in dress and political organization, as well as language. (Ex. 300, p. 4.3-10.)

The Spanish army came north from Mexico into Alta California as early as 1769 and, with Father Junipero Serra, established a string of Franciscan missions from San Diego northward to Sacramento. Trails and paths across the eastern area of the Antelope Valley had been created by the native peoples and continued to be used by the Spanish explorers. One of these trails that ran between the Great Salt Lake and the Pacific Ocean became known as the “Old Spanish Trail.” This is the trail that Jedediah Strong Smith, the first European-Anglo explorer into the Mojave River region of California, used for travel in the mid-1820s. (Ex. 300, pp. 4.3-12 – 4.3-13.)

Not long after California joined the Union in 1850, Congress directed the U.S. Army to send teams of skilled land surveyors to investigate potential railroad routes, not only to connect the east to the west, but other routes within the western region as well. For two years, from 1853 to 1854, Lt. Robert Stockton Williamson of the U.S. Army Corps of Topographical Engineers and his team surveyed all the potential wagon road and railroad routes on the Pacific Coast between the Columbia River and San Diego. (Ex. 300, p. 4.3-13.)

One of the men traveling from Washington, D.C. with Williamson was Edward Fitzgerald Beale who had been appointed by President Millard Fillmore to be the Superintendent of Indian Affairs for California and Nevada. Beale established Fort Tejon in the rough terrain of the southwestern end of the Tehachapi Mountains, near Lebec, in 1854. The fort became a major stopping point for travelers going between northern and southern California. In later years it also served as a junction for routes heading east into the Mojave Desert region towards Barstow, or southeast towards Palmdale, Harold, and the Cajon Pass. The Old Spanish Trail was now known as the Mormon Road, from its use by missionary groups of the Mormon Church migrating south from Salt Lake City to establish a settlement in San Bernardino. In the 1850s and 1860s, the Antelope

Valley was home to ranchers raising cattle and sheep, to gold, silver, lead, and borax miners, and to small settlements of homesteaders and merchants. (Ex. 300, p. 4.3-13.)

After the Central Pacific and Union Pacific Railroads constructed a transcontinental line to connect the eastern U.S. to the west in 1869, the newly formed Southern Pacific Railroad ran a line from its terminal in Lathrop (south of Sacramento) through the Tehachapi Mountains east to Barstow and then south through the Cajon Pass to the switching station in Colton, in San Bernardino County. Charles Crocker, the president of the Southern Pacific Railroad Company, "drove the last golden spike near present-day Palmdale in the Antelope Valley on September 5, 1876." (Ex. 300, p. 4.3-13.)

The golden spike was placed to mark the meeting of the northern and southern sections of the line that connected Los Angeles to Bakersfield, and thence to the northern San Joaquin Valley. To build the main line south from Bakersfield, the Southern Pacific engineers had designed and built the Tehachapi Loop through the Tehachapi Mountains. From Los Angeles, the Southern Pacific had constructed the 7,000-foot-long San Fernando Tunnel, recognized as the second longest railroad tunnel in the United States. To have the two parts of the main line meet in Palmdale was a great feat of engineering and human labor. (Ex. 300, pp. 4.3-13 – 4.3-14.)

Immigrants from the mid-west and eastern regions of the nation were encouraged to homestead and farm the lower Antelope Valley by the cheap land available under the federal Homestead Act of 1862 and Desert Land Act of 1877, and through private sales promoted by the Southern Pacific Railroad on excess railroad lands. Between the 1880s and early 1890s, homesteaders in the Antelope Valley were successfully growing large crops of wheat, barley, and other grains. Orchards of fruit trees were planted on the cooler, northern slopes of the San Gabriel Mountains above the desert floor. These years proved to be a wet period for southern California. Settlers were falsely led to believe that the wet growing conditions were typical, and that the land could support normal agricultural endeavors. The wet period was followed by severe drought which had a serious impact upon the agricultural and homesteading history of the area. (Ex. 300, p. 4.3-14.)

Farmers and growers in the valley petitioned the County Board of Supervisors for the establishment of irrigation districts under California's Wright Act to save their farms from the drought conditions. In the Antelope Valley between 1890 and

1895, six irrigation districts were established at Littlerock, Manzana, Fairmont, Big Rock, Almondale, and Llano del Rio. The new community of Palmdale created the Palmdale Irrigation District, and an irrigation canal was constructed in 1890 by the Palmdale Irrigation Company to divert water from Little Rock Creek to Palmdale. The approximately 7-mile-long ditch was used to irrigate alfalfa, fruit trees, and other crops. Harold Reservoir (now Palmdale Lake) was constructed by the Antelope Valley Irrigation Company in 1895. A ditch connecting Little Rock Creek to Harold Lake was dug alongside the earlier irrigation canal. (Ex. 300, p. 4.3-14.)

In the 1890s, Fred Eaton of Owens Valley began to promote the construction of an aqueduct that would bring water from the Owens River to the Los Angeles basin. Construction began in 1907 on aqueducts, tunnels, dams, reservoirs, and other irrigation-related features, extending from the Owens Valley, past Mojave, and southward through Elizabeth Lake to the San Fernando Reservoirs. (Ex. 300, p. 4.3-15.)

An outbreak of hoof-and-mouth disease in California in the 1920s caused a curtailment of the beef cattle industry, which, in the Antelope Valley, shifted to the dairy and poultry industry. But all agricultural and livestock industries were affected by drought conditions in the 1920's and 1930's. The lack of rain combined with dependence upon pumped well water in the Antelope Valley caused the water table in the valley to drop so precipitously that it never recovered. Those farmers and ranchers unable to finance digging wells 500–700 feet deep either sold their land for pennies on the dollar, or abandoned it altogether. (Ex. 300, p. 4.3-15.)

In 1940, the U.S. Army Air Corps established the Muroc Bombing and Gunnery Range at Rogers Dry Lake. As early as the 1920's, military and civilian aircraft developers tested aircraft on the lakebeds of Rogers and Rosamond Dry Lakes. The Army sent out an appraiser in 1938 to value the homes, farms, and land that it would begin to buy up in order to create an airbase. By 1940, the Army Air Corps had acquired more than 156,000 acres of land. The base was renamed as Edwards Air Force Base (AFB) in 1949. Following WWII, the federal government began conducting peacetime weapons research on the base. (Ex. 300, p. 4.3-15.)

Besides the activities at Edwards AFB, the military purchased the Palmdale airport, which had been the Palmdale Army Air Corps Field during World War II. The federal government contracted with Lockheed in 1951 to construct a facility

to produce military aircraft on an industrial scale, and the Air Force used the airport for the flight testing of experimental jet aircraft. In 1954, the Air Force took ownership of the site that became known as Air Force Plant 42. Air Force Plant 42 was the birth place of the B1 and B2 bombers, and later, the Space Shuttle aircraft. The work at Air Force Plant 42 was supported by an influx of private contractors that specialized in the aeronautics industry. These included Rockwell Aviation, Grumman Aviation, Lockheed Martin, McDonnell Douglas, and Northrop Aircraft. The community of Palmdale grew as the companies built operations. (Ex. 300, p. 4.3-15.)

2. Cultural Resources

An archaeological records search was conducted at the South Central Coastal Information Center (SCCIC) (part of the California Historical Resources Information System or CHRIS) at California State University, Fullerton. SCCIC staff conducted searches on June 4, 2007, May 27, 2008, June 25, 2008, and June 26, 2008 for the area within a 1.0-mile radius of the proposed plant site and within a 0.25-mile radius of the routes of all proposed linear facilities. SCCIC staff conducted an additional records search in September 26, 2008, to extend the area searched to that within a 0.5-mile radius of the route of the proposed transmission gen-tie, and a further search on February 4, 2009, to cover the area within a 0.25-mile radius of two proposed transmission line route realignments. (Ex. 300, p. 4.3-17.)

The searches were to identify all recorded cultural resources, including previously recorded prehistoric and historical archaeological sites; previously recorded historic standing structures; California Points of Historical Interest; California Historic Landmarks; California State Historic Resources Inventory; resources listed for Los Angeles County in the Office of Historic Preservation's Historic Property Data File; resources listed in the California Register of Historical Resources (CRHR); and resources listed in the National Register of Historic Places (NRHP). To identify any sites or structures older than 45 years, the Applicant also reviewed historic maps, including: Alpine Butte U. S. Geological Survey (USGS) 15' quadrangle, 1945; Lancaster USGS 15' quadrangle, 1933 and 1958; Tujunga USGS 15' quadrangle, 1900 and 1944; and Elizabeth Lake USGS 30' quadrangle, 1941. (Ex. 300, pp. 4.3-17 – 4.3-18.)

On June 17 and 18, and July 21, 2008, the Applicant contacted various public agencies and historical and archaeological societies requesting information regarding historic or other cultural resources within or adjacent to the PHPP, including:

- Los Angeles County Department of Regional Planning;
- City of Palmdale Planning Department;
- Palmdale City Library;
- Antelope Valley Genealogical Society
- Antelope Valley Indian Museum;
- Hi-Desert Genealogical Society;
- West Antelope Valley Historical Society;
- Historical Society of Southern California; and
- City of Lancaster Planning Department.

In response, the Director of Planning for the City of Palmdale Planning Department, provided a copy of a 1993 cultural resources study for the proposed Palmdale Business Park Center Specific Plan project. From the City of Palmdale General Plan (1993), the Applicant also obtained a list of 23 built-environment resources recognized as potentially significant. The list was compiled by the Antelope Valley Historical Society, using only the criterion of age (50 years old in 1993), but the listed resources were not formally evaluated for eligibility for either the NRHP or the CRHR. Also in the City of Palmdale General Plan was a general archaeological sensitivity map, based on topographic zones, reproduced in the AFC. (Ex. 8, fig. 5.4-1.) This indicated that the all of the proposed project components had at least a moderately high sensitivity for archaeological resources, and the southwestern part of the transmission gen-tie route had a high sensitivity. The Applicant received no other responses to its inquires to local agencies and organizations. (Ex. 300. pp. 4.3-18 – 4.3-19.)

The Applicant also contacted Southern California Edison (SCE) on June 26 and 27, 2008, to obtain information on construction dates for the Vincent Substation and the Pearblossom-Vincent 230-kV transmission line (the PHPP proposes to replace the latter in order to install its transmission gen-tie line). On July 10, 2008, SCE provided the date of 1967 for the start of service for the Vincent Substation. (Ex. 300, p. 4.3-19.)

On June 17, 2008, the Applicant asked the Native American Heritage Commission (NAHC) to search its Sacred Lands File for any Native American traditional cultural properties and to send to the Applicant a list of Native Americans who wanted to be informed about new development projects in Los Angeles County. The NAHC responded on June 20, 2008, indicating a negative return from the search of their Sacred Lands File and providing contact

information for eight Native Americans individuals or groups. The Applicant sent letters to these contacts on June 23, 2008, describing the proposed PHPP and requesting information on known cultural resources that could be affected by the project. On July 10, 2008, the Applicant made follow-up telephone calls to these persons:

- Charles Cooke (Chumash, Fernandeño, Tataviam, Kitanemuk);
- Ron Andrade, Director, Los Angeles City/County Native American Indian Commission;
- Beverly Salazar Folkes (Chumash, Tataviam, Fernandeño);
- Delia Dominguez (Kitanemuk & Yowlumne Tejon Indians);
- James Ramos, Chairperson, San Manuel Band of Mission Indians;
- John Valenzuela, Chairperson, San Fernando Band of Mission Indians;
- William Gonzalaes, Cultural/Environmental Department, Fernandeño Tataviam Band of Mission Indians; and
- Randy Guzman-Folkes (Chumash, Fernandeño, Tataviam, Shoshone Paiute, Yaqui). (Ex. 300, p. 4.3-19.)

On July 10, 2008, Beverly Salazar Folkes expressed concern over the potential for the project to encounter Native American burials, even in areas that have previously been developed, stating that previous projects in the surrounding area have found burials in undisturbed soils beneath disturbed soils. She requested that all ground-disturbing activities be monitored. (Ex. 300, p. 4.3-19.)

On October 28, 2008, Energy Commission staff also requested from the NAHC a list of Native Americans interested in development in Los Angeles County, and on November 3, 2008, staff received a list of six contacts from the NAHC, including all of the above individuals and groups except Ron Andrade and James Ramos. On April 1, 2009, Staff sent letters informing the six Native American individuals or groups about the proposed PHPP and requested that they contact Staff if they had any concerns about the project affecting cultural resources. To date, Staff has received no responses. (Ex. 300, pp. 4.3-19 - 4.3-20.)

In April 2009, the Applicant undertook a two-phase literature study to assess the likelihood of the presence of buried prehistoric archaeological deposits in those areas that the proposed project would impact. The first phase considered the geoarchaeology of the southern Antelope Valley region, and the second phase focused on the geomorphology and geoarchaeology of the project areas. The

first phase entailed: 1) identifying and reviewing previous archaeological studies that had data on subsurface deposits; and 2) identifying and reviewing records for known archaeological sites that were likely to contain subsurface deposits; and consulting with the archaeologists most active in investigating prehistory in the project areas. The results of the first phase showed that available data on subsurface archaeological deposits were concentrated in the area north of Palmdale, but were sparse for the project areas. One area of high sensitivity for buried deposits is the foothills above the San Andreas Fault, identified by an archaeologist who excavated sites buried from five to eight feet deep by landslides associated with movement along the fault. (Ex. 300, p. 4.3-20.)

During the first phase, maps of the project areas depicting 1922 and 1970 soils data were prepared and provided to a geomorphologist for use during the second phase. Considering the geoarchaeological results, the geomorphologist generated a five-tiered scale ranking the sensitivity of the soils of the project areas for buried archaeological deposits, based on both cultural and geomorphological factors. The cultural factors included proximity to crucial resources, and the geomorphological factors included the stability of soil surfaces, both with respect to human use and with respect to the beneficial or deleterious effects of erosion or alluvial deposition subsequent to human use. The five rankings of the scale were high, high-to-moderate, moderate, moderate-to-low, and low in sensitivity for buried archaeological deposits. The highest sensitivity soils of the project areas and vicinity were along the routes of the proposed linear facilities, with most of segment 1 of the transmission gen-tie having either a high or high-to-moderate ranking, with parts of the natural gas pipeline and the recycled water pipeline also having high or high-to-moderate ranking, and with parts of segment 2 of the gen-tie having high-to-moderate to moderate ranking. The proposed plant site's ranking was moderate to moderate-to-low. The geomorphologist, however, noted one soil type on the project plant site as possibly representing a terrace landform, which type has a high archaeological sensitivity. He also noted that this identification cannot be positively made on the basis of soil survey data alone. (Ex. 300, p. 4.3-20.)

As a result of the above searches and inquiries, the Applicant identified the following previously known cultural resources, located within or near the proposed project components: 10 prehistoric archaeological sites; 65 historical archaeological sites; 80 built-environment resources; and 0 ethnographic resources. Of these known resources, 18 were located in or near the project areas. Thirteen known archaeological resources (three prehistoric and ten historical archaeological sites) were located in or near the project areas, making

them potentially subject to physical impact. Five known built-environment resources and no ethnographic resources were located in or near the project areas, making them potentially subject to either physical impact or an impact to their integrity of setting or integrity of feeling. **Cultural Resources Table 1** provides summary information on these resources. (Ex. 300, p. 4.3-21.)

CULTURAL RESOURCES Table 1
Known Cultural Resources Located in or Near the Project Areas of the Proposed PHPP Project

Resource Type and Designation	Type of Resource	Project Area
Prehistoric Archaeological Resources		
CA-LAn-805	prehistoric archaeological site: sparse scatter of flaking waste	gen-tie corridor
CA-LAn-878	prehistoric archaeological site: milling stones and flaking waste; midden	gas pipeline
CA-LAN-1332	prehistoric archaeological site: flake, core, and mano	gen-tie corridor
Historic-Period Archaeological Resources		
19-1709	historical archaeological site: remains of stone house foundation and walls and associated refuse deposit; early 20th century	gas pipeline
19-2713	historical archaeological site: refuse deposit	gen-tie corridor
19-2717	historical archaeological site: refuse deposit probably associated with a former house site that was bulldozed	gen-tie corridor
19-2723	historical archaeological site: refuse deposit	plant site
19-2726	historical archaeological site: refuse deposit	plant site
CA-LAn-2772	historical archaeological site: refuse deposit	gas pipeline
CA-LAN-2774	historical archaeological site: refuse deposit	gas pipeline
19-3703	historical archaeological site: refuse deposit	gas or water pipeline
19-3704	historical archaeological site: refuse deposit	gas or water pipeline

Resource Type and Designation	Type of Resource	Project Area
19-3705	historical archaeological site: refuse deposit	gas or water pipeline
Built-Environment Resources		
19-180680	Air Force Plant 42:Building 15(150) (c. 1958) Building 21(145) (c. 1954)	plant site
LAN-1534H	Palmdale Ditch (1918–1919), ditch, bridge, tunnels	gen-tie corridor
19-180638	Southern Pacific Railroad (1876), grade, tracks	gen-tie corridor; gas pipeline
19-187713	Angeles Forest Highway (1930–1940)	gen-tie corridor
19-186876	SCE Eagle Rock-Pardee Transmission Line (1928)	gen-tie corridor

Source: Ex. 300, pp. 4.3-22 – 4.3-24.

Between June 25 and June 29, 2008, the Applicant conducted a pedestrian, archaeological surface survey of: the proposed plant site (plus 200 feet around the site perimeter); the laydown area (plus 200 feet around the perimeter); and 100-foot-wide corridors along the routes of the recycled water pipeline, the natural gas pipeline, the sewer pipeline, and the transmission gen-tie line. The survey entailed walking these areas at 20-meter intervals looking for archaeological remains. The surveyors sought to relocate previously recorded sites and assess their current condition. The surveyors undertook no ground disturbance and collected no artifacts, but took digital photographs of sites and topography. Finally, they recorded all sites and architectural resources over 45 years of age on Department of Parks and Recreation (DPR) series 523 forms. Several factors limited the survey, including conditions that obscured ground visibility, such as paving and vegetation (landscaping), restricted access to private property, and steep terrain along the southern end of the gen-tie route. (Ex. 300, pp. 4.3-23 – 4.3-24.)

Between March 3 and March 5, 2009, the Applicant conducted further pedestrian surface archaeological survey of additional aspects of the proposed gen-tie transmission line: the 22 pulling sites, the 3 staging areas, and two realignments at the beginning and end of segment 2. The Applicant used the same survey methods as were used for previous project-related archaeological survey and noted the same obstacles. Additionally, considerable disturbance of the surveyed

areas, due to power line construction, dirt access roads, off-road vehicle traffic, trash dumping, agriculture, and residential construction, was observed. (Ex. 300, p. 4.3-24.)

As a result of these pedestrian archaeological surveys, the Applicant relocated three previously known historical archaeological sites (19-3703, 19-3704, and 19-3705, all refuse deposits) on the reclaimed water pipeline route and one previously known prehistoric archaeological site (CA-LAn-1332, consisting of a flake, a core, and a mano) in the gen-tie corridor. The Applicant reported that no artifacts remained at the latter site. Two previously known historical archaeological sites (19-2723 and 19-2726), both refuse deposits located near but beyond the plant site boundary, were not field-checked due to restricted access to the adjacent property. Two additional historical archaeological sites (19-2713 and CA-LAn-2774), both refuse deposits, located, respectively, on segment 1 of the transmission line route and on the natural gas pipeline route, could not be relocated during the Applicant's survey. The Applicant concluded that these sites were destroyed by development activities. The Applicant ultimately determined that only three previously known archaeological sites, 19-3703, 19-3704, and 19-3705, could be subject to project impacts. (Ex. 300, p. 4.3-24.)

In addition, in or near the project areas, the Applicant identified no new prehistoric archaeological sites and nine new historical archaeological sites, all of which were refuse deposits, and all of which, with one exception, were located in the gen-tie transmission line corridor. The Applicant recorded these resources but recommended none of them as eligible for the CRHR. After reviewing the information on these sites recorded by the Applicant, Staff agrees that all are ineligible for the CRHR. (Ex. 300, p. 4.3-24.)

With the addition of the nine new archaeological sites the Applicant recorded (PHP-1, PHP-2, PHP-3, PHP-4, PHP-5, PHP-6, PHP-7, PHP-8, and PHP-9) to the 13 known archaeological sites (listed in Cultural Resources Table 1), 22 archaeological sites could be present in or near the project areas. The Applicant's field check on the 13 known sites determined that three (CA-LAn-1332, 19-2713, and CA-LAn-2774) are no longer extant, two (CA-LAn-2723 and CA-LAn-2726) could not be field checked due to access restrictions, and five (CA-LAn-805, CA-LAn-878, 19-1709, 19-2717, and CA-LAn-2772) were identified by the Applicant as not potentially subject to impacts and so were not field checked. (Ex. 300, p. 4.3-24.)

Twelve sites, previously known or newly identified, on or near the project areas, were identified for which recommendations of CRHR eligibility were required. The Applicant recommended none of these resources as eligible for the CRHR. These 12 sites are all historical archaeological sites (consisting of refuse deposits). The three previously known refuse deposits, 19-3703, 19-3704, and 19-3705, were dated by the Applicant as mid-to-late twentieth century and interpreted as representing numerous roadside dumping events. The Applicant recommended each of them as ineligible for the CRHR because each "does not appear to have the potential for buried historic features and deposits that would cause it to be considered a significant resource." Based on the evidence, variation among the nine newly identified refuse deposits, PHP-1, PHP-2, PHP-3, PHP-4, PHP-5, PHP-6, PHP-7, PHP-8, and PHP-9 (most located near a road), exists primarily in the density of the deposit (sparse to dense), in the age range indicated by the artifacts (early-to-mid twentieth century, mid-twentieth century, or mid-to-late twentieth century), and in whether a single dumping episode is evidenced or multiple ones. (Ex. 300, p. 4.3-29.)

The Applicant did not conduct test excavations to determine whether a subsurface component existed at any of the above 12 refuse deposit sites, but indicated that none of these sites appears to have buried historic features or deposits. The Applicant reported no evidence of structural remains at any of these sites, so the Applicant's conclusion that these sites contain no buried deposits is probably correct. Since a randomly dumped, anonymous, and probably looted refuse deposit has a poor likelihood of yielding information important to history (CRHR Criterion 4 that historical archaeological sites typically must meet), CRHR ineligibility for all of these 12 sites is recommended. (Ex. 300, p. 4.3-29.)

The Applicant identified 67 new built-environment resources that met or appeared to meet the CRHR age requirement of 45 years or older. All but seven of these resources were single-family houses, the exceptions being a church, a trailer park, a commercial property, and four other buildings whose use was not determined. The Applicant recorded these resources but recommended none of them as eligible for the CRHR because they were not associated with important historical events or persons (Criteria 1 and 2) or were not distinctive in design, construction, or style (Criterion 3). Energy Commission staff concurred that, based on the evidence, all of these sites are ineligible for the CRHR. (Ex. 300, p. 4.3-30.)

The Applicant ascertained that five previously known, potentially significant, built-environment resources (see **Cultural Resources Table 1**, above) are still

present in and near the project areas. These resources are: (1) Air Force Plant 42 (19-180680) (one building); (2) Palmdale Ditch (LAn-1534H), (3) Southern Pacific Railroad (19-180638); (4) Angeles Forest Highway (19-187713), and (5) Eagle Rock-Pardee transmission line (19-186876). The eligibility of the five built-environment resources is summarized in **Cultural Resources Table 2**. (Ex. 300, pp. 4.3-30 - 4.3-32.)

CULTURAL RESOURCES Table 2
CRHR-Eligible Cultural Resources Potentially Subject to PHPP Impacts

Resource Designation	Resource	CRHR Eligibility	Integrity
19-180680	Air Force Plant 42: Building 15(150) (circa 1958)	NRHP eligible and CRHR Eligible	Yes
LAN-1534H	Palmdale Ditch (1918–1919)	CRHR listed	Yes
19-180638	Southern Pacific Railroad (1876)	NRHP eligible and CRHR Eligible	Yes
19-187713	Angeles Forest Highway (1930–1940)	CRHR eligible	Yes
19-186876	SCE Eagle Rock-Pardee Transmission Line (1928)	NRHP eligible and CRHR Eligible	Yes

Source: Ex. 300, p. 4.3-32.

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. 300, p. 4.3-33.)

Generally speaking, indirect impacts to archaeological resources are those which may result from increased erosion due to site clearance and preparation, or from inadvertent damage or outright vandalism to exposed resource components due to improved accessibility. Similarly, historic structures can suffer indirect impacts

when project construction creates improved accessibility and vandalism or greater weather exposure becomes possible. (*id.*)

The evidence shows all known archaeological sites potentially impacted by the proposed PHPP's construction are not eligible for the CRHR, therefore none of the project's impacts on known archaeological sites would be significant, and no mitigation for those impacts would be required. (Ex. 300, p. 4.3-34.)

Construction, however generally entails the subsurface disturbance of the ground, which can affect unidentified, potentially CRHR-eligible, buried archaeological resources. Consequently, ground disturbance accompanying construction at the proposed PHPP plant site and along the proposed linear facilities has the potential to directly impact archaeological resources, buried in the sediments of the project areas, and unidentified at this time. Conditions of Certification **CUL-1** through **CUL-8** would facilitate the identification and assessment of previously unidentified archaeological resources encountered during construction and mitigate any significant impacts from the project on any newly found resources assessed as CRHR-eligible. These conditions provide for the hiring of a Cultural Resources Specialist and archaeological monitors, for cultural resources awareness training for construction workers, for the archaeological and Native American monitoring of ground-disturbing activities in specified areas, for the recovery of data from discovered CRHR-eligible archaeological deposits, for the writing of a technical archaeological report on all archaeological activities and findings, for the curation of recovered artifacts and other data, and for the cultural resources survey of any borrow or disposal areas the project later needs to use and the appropriate treatment of any CRHR-eligible resources identified in that survey. When properly implemented and enforced, these conditions of certification will reduce any impacts to previously unknown CRHR-eligible cultural resources encountered during construction to a less-than-significant level. Additionally, with the adoption and implementation of these conditions, the PHPP would be consistent with all applicable state and local LORS. (Ex. 300, p. 4.3-34 – 4.3-36.)

Based on the evidence, four of the five built-environment resources that are listed in, eligible for, or potentially eligible for the CRHR would not be significantly impacted by the proposed project. Significant physical impacts on the remaining resource, the Palmdale Ditch, could occur. The Applicant intends to avoid such impacts, but if impacts cannot be avoided and are significant, Condition of Certification **CUL-6** provides a means to mitigate such impacts to a less-than-significant level. (Ex. 300, p. 4.3-37 – 4.3-38.)

No significant ethnographic resources, either previously recorded or newly disclosed in communications with Native Americans, were identified in the vicinity of the project. Consequently, the project would have no direct significant impacts on ethnographic resources. (*id.*)

The record does not disclose any indirect impacts to any identified cultural resources in the impact areas of the proposed project, so no mitigation measures for indirect impacts would be required for any class of cultural resources. (*id.*)

4. Road Paving Impacts

The Applicant has identified ten existing unpaved road segments (totaling about 22 miles), a subset of which they are proposing to improve and pave as part of an effort to receive PM10 emission reduction credits (ERCs) to mitigate for air quality impacts for the PHPP. The Applicant has estimated that four or five of these segments would need to be improved and paved in order to qualify for the necessary quantity of ERCs. The roadwork would need to be designed and constructed to meet Los Angeles County specifications. The construction requirements for converting the existing unpaved roads to paved roads would entail ground disturbances, including but not limited to equipment movement, grading, road widening, and other activities that have the potential to affect cultural resources. (Ex. 301, p. 14.)

With the exception of one segment (segment no. 5), the candidate roadway segments do not occur within the PHPP study area. Therefore, there is currently no site-specific information available for the quantity and/or types of cultural resources that occur within the limits of work necessary to complete the proposed roadway paving activities. However, the PHPP project study area includes a 333-acre plant site, 50-acre laydown area, and more than 65 miles of linear facility corridors. The analyses of these areas and their corresponding buffers provide a substantial sample of the cultural resources that occur within the Palmdale area and provide a reliable indication of the types of cultural resources that could be encountered within the study limits of the candidate road segments. Based on the cultural resources identified from both the CHRIS database search and the recent field inventories that have occurred for the PHPP, the record indicates that there is greater sensitivity in the Palmdale area for historic-era cultural resources than for prehistoric archaeological resources. For instance, among the 71 resources identified from the initial CHRIS database search for the PHPP, only nine (12 percent) were prehistoric, while the remaining were historic-era resources. (Ex. 48, p. 42.) Historic/modern-era trash deposits

comprise the overwhelming majority of cultural resources observed and recorded in and around the Palmdale area; however, other historic-era resources include former homestead sites and built-environment resources, such as the Palmdale Ditch, the California Aqueduct, and the Southern Pacific Railroad. The few prehistoric sites identified in the Palmdale area appear primarily to be comprised of sparse discrete lithic and/or milling tool scatters. (Ex. 48, Attachments 8 and 9; Ex. 301, p. 14.)

It is likely that one or more of the resource types described above could be present within the project limits of the proposed roadway paving work. In order to accurately assess the quantity, type, and significance of cultural resources within each of the candidate road segments, a cultural resources investigation (archaeological and built-environment), involving a background literature review, a field survey/inventory, an evaluation of resource significance, and if necessary, a resolution of project effects (mitigation), will be required. Before such an investigation could occur, detailed information regarding the nature and extent of the proposed roadway paving work and the establishment of well-defined construction limits and corresponding study areas will be necessary. If the Applicant proceeds with the proposed roadway paving work at some or all of the ten candidate road segments, significant impacts to potential CRHR-eligible cultural resources are possible. (Ex. 301, pp. 14-15.)

However, prior to the start of ground disturbance related to road paving, Condition of Certification **CUL-9** requires the project owner to conduct a cultural resources investigation (archaeological and built-environment), including a background literature review, a field survey/inventory, an evaluation of resource significance, and if necessary, mitigation by either data recovery or recordation as provided in Condition of Certification **CUL-7**. We find that implementation of Condition of Certification **CUL-9** will mitigate potential impacts from road paving to a less-than-significant level.

5. Cumulative Impacts

A cumulative impact refers to a proposed project's incremental effects considered over time and together with those of other, nearby, past, present, and reasonably foreseeable future projects whose impacts may compound or increase the incremental effect of the proposed project [Pub. Res. Code, § 21083; Cal. Code Regs., tit. 14, §§ 15064(h), 15065(a)(3), 15130, and 15355].

Cumulative impacts to cultural resources in the PHPP vicinity could occur if any other existing or proposed projects, in conjunction with the proposed PHPP, had or would have impacts on cultural resources that, considered together, would be significant. The previous ground disturbance from prior projects and the ground disturbance related to the future construction of the PHPP and other proposed projects in the vicinity could have a cumulatively considerable effect on subsurface archaeological deposits, both prehistoric and historic. The alteration of the PHPP setting which could be caused by the construction and operation of the proposed PHPP and other proposed projects in the vicinity could be cumulatively considerable, but may or may not result in a significant impact, depending on the integrity of the ambient setting. (Ex. 300, p. 4.3-39.)

The Applicant identified four reasonably foreseeable projects within a three-mile radius around the plant site that could contribute to a cumulatively considerable impact on cultural resources including the Fairway Business Park, Palmdale Transit Village Specific Plan, Amargosa Creek Specific Plan, and the 30th Street West and Avenue K Projects. The Applicant identified no planned projects any closer than 1.3 miles from the proposed PHPP. The construction of other projects in the same vicinity as the proposed PHPP could affect unknown subsurface archaeological deposits (both prehistoric and historic-period). These four planned projects must be considered as contributing to potential cumulative impacts on the cultural resources within this area. Cumulative impacts to cultural resources in the project vicinity could occur if impacts on cultural resources from the proposed PHPP, when added to those of these other four projects, would be cumulatively considerable. (Ex. 300, pp. 4.3-39 – 4.3-40.)

The analysis assumes that cultural resources studies have been completed for these four projects as part of the local lead agency's CEQA review. Consequently, it is also assumed that these studies identified any significant cultural resources and potential project impacts to these cultural resources, and that any impacts would either be avoided or mitigated to a less-than-significant level. (Ex. 300, p. 4.3-40.)

The record has identified cultural resources near the proposed PHPP site, assessed potential PHPP impacts to these cultural resources, and recommended conditions of certification to mitigate any significant impacts to known CRHR-eligible resources so that the construction of the proposed PHPP will not result in any significant impacts to historical resources, as defined in CEQA. The conditions of certification will mitigate any significant impacts to significant archaeological resources discovered during PHPP construction. Proponents of

future projects in the vicinity of PHPP can mitigate impacts to as yet undiscovered CRHR-eligible, subsurface archaeological resources to less-than-significant levels by requiring construction monitoring, evaluation of resources discovered during monitoring, and avoidance or data recovery. Impacts to human remains can be mitigated by following the protocols established by state law in Public Resources Code, section 5097.98. (Ex. 300, p. 4.3-39.)

Since any impacts from the proposed PHPP to significant cultural resources discovered during PHPP construction will be mitigated to a less-than-significant level by the project's compliance with Conditions of Certification **CUL-1** through **CUL-8**, and since similar protocols can be applied to other current and future projects in the area, incremental effects of the proposed PHPP will not be cumulatively considerable, when viewed in conjunction with other projects.

6. Public Comment

No public comment was offered regarding cultural resources in relation to the PHPP.

FINDINGS OF FACT

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

1. Cultural resources exist in the general project area.
2. Construction activities associated with the PHPP project and related facilities present a potential for adverse impacts to cultural resources.
3. The potential for impacts to unknown cultural resources may not be discovered until subsurface soils are exposed during excavation and construction.
4. There are five possible CRHR-eligible cultural resources potentially subject to PHPP impacts.
5. 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.
6. The project owner will provide a cultural resources monitor with authority to halt construction if unknown resources are discovered.
7. The PHPP project is compatible with the historical setting of the area.
8. The potential for cumulative impacts to cultural resources is insignificant.

9. Implementation of Condition of Certification **CUL-9** will mitigate potential impacts from road paving to a less-than-significant level.

CONCLUSIONS OF LAW

1. 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.

2. The Commission therefore concludes that with implementation of the Conditions of Certification below, the project will conform with all applicable laws, ordinances, regulations, and standards relating to cultural resources.

CONDITIONS OF CERTIFICATION

CUL-1 Prior to the start of ground disturbance (includes "preconstruction site mobilization," "construction-related ground disturbance," and "construction-related grading, boring, and trenching," as defined in the General Conditions for this project), the project owner shall obtain the services of a Cultural Resources Specialist (CRS) and one or more alternate CRSs (at the project owner's option).

The CRS shall manage all cultural resources monitoring, mitigation, curation, and reporting activities in accordance with the Conditions of Certification (Conditions). The CRS may elect to obtain the services of Cultural Resources Monitors (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 for listing in the California Register of Historical Resources (CRHR) of any cultural resources that are newly discovered or that may be affected in an unanticipated manner. No ground disturbance shall occur prior to Compliance Project Manager (CPM) approval of the CRS and alternates, unless such activities are specifically approved by the CPM.

Approval of a CRS may be denied or revoked for reasons including but not limited to non-compliance on this or other projects licensed by the Energy Commission. After all ground disturbance is completed and the CRS has fulfilled all responsibilities specified in these cultural resources conditions, the project owner may discharge the CRS, if the CPM approves. With the discharge of the CRS, these cultural resources conditions no longer apply to the activities of this power plant.

CULTURAL RESOURCES SPECIALIST

The project owner shall submit the resumes and qualifications for the CRS, CRS alternates, and all technical specialists to the CPM for review and approval. 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 Title 36, Code of Federal Regulations, part 61 (36 C.F.R., part 61). In addition, the CRS shall have the following additional 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;
2. At least three years of archaeological or historical, as appropriate (per nature of predominant cultural resources on the project site), resource mitigation and field experience in California; and
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 resumes 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 and demonstrate to the satisfaction of the CPM that the CRS/alternate CRS has the appropriate training and experience to implement effectively the Conditions.

CULTURAL RESOURCES MONITORS

CRMs shall have the following qualifications:

1. A B.S. or B.A. degree in anthropology, archaeology, historical archaeology or a related field and one year experience monitoring in California; or
2. An A.S. or A.A. 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 specialist(s), e.g., 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 ground disturbance, 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 proposed new CRS the AFC and all cultural resources documents, field notes, photographs, and other cultural resources materials generated by the project. If there is no alternate CRS in place to conduct the duties of the CRS, a previously approved monitor may serve in place of a CRS so that ground disturbance may continue up to a maximum of 3 days without a CRS. If cultural resources are discovered then ground disturbance will remain halted until there is a CRS or alternate CRS to make a recommendation regarding significance.
3. At least 20 days prior to ground disturbance, the CRS shall provide a letter naming anticipated CRMs for the project and stating that the identified CRMs meet the minimum qualifications for cultural resources monitoring required by this Condition.
4. At least 5 days prior to additional CRMs beginning on-site duties during the project, the CRS shall provide additional letters to the CPM identifying the CRMs and attesting to their qualifications.
5. At least 10 days prior to any technical specialists beginning tasks, the resume(s) of the specialists shall be provided to the CPM for review and approval.
6. At least 10 days prior to the start of ground disturbance, the project owner shall confirm in writing to the CPM that the approved CRS will be available for onsite work and is prepared to implement the cultural resources conditions.

CUL-2 Prior to the start of ground disturbance, if the CRS has not previously worked on the project, the project owner shall provide the CRS with copies of the AFC, data responses, confidential cultural resources reports, all supplements, and the Energy Commission's Final Staff Assessment (FSA) for the project. The project owner shall also provide the CRS and the CPM with maps and drawings showing the footprints of the power plant, all linear facility routes, all access roads, and all laydown areas. Maps shall include the appropriate USGS quadrangles and a map at an appropriate scale (e.g., 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 map submittals and, in consultation with the CRS, approve those that are

appropriate for use in cultural resources planning activities. No ground disturbance shall occur prior to CPM approval of maps and drawings, unless such activities are specifically approved by the CPM.

If construction of the project would proceed in phases, maps and drawings not previously provided shall be provided to the CRS and CPM prior to the start of each phase. Written notice identifying the proposed schedule of each project phase shall be provided to the CRS and CPM.

Weekly, until ground disturbance is completed, the project construction manager shall provide to the CRS and CPM a schedule of project activities for the following week, including the identification of area(s) where ground disturbance will occur during that week.

The project owner shall notify the CRS and CPM of any changes to the scheduling of the construction phases.

Verification:

1. At least 40 days prior to the start of ground disturbance, the project owner shall provide the AFC, data responses, confidential cultural resources documents, all supplements, and the Energy Commission FSA 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. At least 15 days prior to the start of ground disturbance, if there are changes to any construction-related footprint, the project owner shall provide revised maps and drawings for the changes to the CRS and CPM.
3. At least 15 days prior to the start of each phase of a phased project, the project owner shall submit the appropriate maps and drawings, if not previously provided, to the CRS and CPM.
4. Weekly, during ground disturbance, a current schedule of anticipated project activity shall be provided to the CRS and CPM by letter, e-mail, or fax.
5. Within 5 days of changing the scheduling of phases of a phased project, the project owner shall provide written notice of the changes to the CRS and CPM.

CUL-3 Prior to the start of ground disturbance, the project owner shall submit the Cultural Resources Monitoring and Mitigation Plan (CRMMP), as prepared by or under the direction of the CRS, to the CPM for review and approval. The CRMMP shall follow the content and organization of the draft model CRMMP, provided by the CPM, and the authors' name(s) 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 CRM, and

the project owner's on-site construction manager. No ground disturbance shall occur prior to CPM approval of the CRMMP, unless such activities are specifically approved by the CPM.

The CRMMP shall include, but not be limited to, the following elements and measures:

1. The following statement included in the Introduction: "Any discussion, summary, or paraphrasing of the Conditions of Certification 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."

2. 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/disposal, and curation policies as related to the research questions formulated in the research design. The research design will specify that the preferred treatment strategy for any buried archaeological deposits is avoidance. A mitigation plan shall be prepared for any CRHR-eligible (as determined by the CPM) resource, impacts to which cannot be avoided. A prescriptive treatment plan may be included in the CRMMP for limited data types.

3. Specification of the implementation sequence and the estimated time frames needed to accomplish all construction-related tasks during the ground disturbance and post-ground–disturbance 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 ground disturbance, 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 ground disturbance and how long they would be needed to protect the resources from construction-related effects.

7. A statement that all encountered cultural resources over 50 years old shall be recorded on Department of Parks and Recreation (DPR) 523 forms 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 will pay all curation fees for artifacts recovered and for related documentation produced during cultural resources investigations conducted for the project. The project owner shall identify three possible curation facilities that could accept cultural resources materials resulting from project activities.

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 ground disturbance and cannot be treated prescriptively.

10. A statement demonstrating when and how the project owner will comply with Health and Human Safety Code 7050.5(b) and Public Resources Code 5097.98(b) and (e).

11. A description of the contents, format, and review and approval process of the final Cultural Resource Report (CRR), which shall be prepared according to ARMR guidelines.

Verification:

1. Upon approval of the CRS proposed by the project owner, the CPM will provide to the project owner an electronic copy of the draft model CRMMP for the CRS.

2. At least 30 days prior to the start of ground disturbance, the project owner shall submit the CRMMP to the CPM for review and approval.

3. At least 30 days prior to the start of ground disturbance, in a letter to the CPM, the project owner shall agree to pay curation fees for any materials generated or collected as a result of the archaeological investigations (survey, testing, data recovery).

4. Within 90 days after completion of ground disturbance (including landscaping), if cultural materials requiring curation were generated or collected, the project owner shall provide to the CPM a copy of an agreement with, or other written commitment from, a curation facility that meets the standards stated in the California State Historical Resources

Commission's *Guidelines for the Curation of Archaeological Collections*, to accept the cultural materials from this project. Any agreements concerning curation will be retained and available for audit for the life of the project.

CUL-4 The project owner shall submit the final Cultural Resources Report (CRR) to the CPM for approval. The final CRR shall be written by or under the direction of the CRS and shall be provided in the ARMR format. The final CRR shall report on all field activities including dates, times and locations, results, samplings, and analyses. All survey reports, Department of Parks and Recreation (DPR) forms, data recovery reports, and any additional research reports not previously submitted to the California Historical Resource Information System (CHRIS) and the State Historic Preservation Officer (SHPO) shall be included as appendices to the final CRR.

If the project owner requests a suspension of ground disturbance and/or 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/extension request. The draft CRR shall be retained at the project site in a secure facility until ground disturbance and/or 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 30 days after requesting a suspension of construction activities, the project owner shall submit a draft CRR to the CPM for review and approval.
2. Within 90 days after completion of ground disturbance (including landscaping), the project owner shall submit the final 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.
3. Within 10 days after CPM approval of the CRR, the project owner shall provide documentation to the CPM confirming that copies of the final CRR have been provided to the SHPO, the CHRIS, the curating institution, if archaeological materials were collected, and to the Tribal Chairpersons of any Native American groups requesting copies of construction-related reports.

CUL-5 Prior to and for the duration of ground disturbance, the project owner shall provide Worker Environmental Awareness Program (WEAP) training to all new workers within their first week of employment at the project site, along the linear facilities routes, and at laydown areas, roads, and other ancillary areas. 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 may be discontinued when ground disturbance is completed or suspended, but must be resumed when ground disturbance, such as landscaping, resumes.

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. A discussion of what such artifacts may look like when partially buried, or wholly buried and then freshly exposed;
4. A discussion of what prehistoric and historical archaeological deposits look like at the surface and when exposed during construction, and the range of variation in the appearance of such deposits;
5. Instruction that the CRS, alternate CRS, and CRMs have the authority to halt ground disturbance 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;
6. 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;
7. An informational brochure that identifies reporting procedures in the event of a discovery;
8. An acknowledgement form signed by each worker indicating that they have received the training; and
9. A sticker that shall be placed on hard hats indicating that environmental training has been completed.
10. No ground disturbance shall occur prior to implementation of the WEAP program, unless such activities are specifically approved by the CPM.

Verification:

1. At least 30 days prior to the beginning of ground disturbance, the CRS shall provide the training program draft text and graphics and the informational brochure to the CPM for review and approval.
2. At least 15 days prior to the beginning of ground disturbance, the CPM will provide to the project owner a WEAP Training Acknowledgement form for each WEAP-trained worker to sign.

3. Monthly, until ground disturbance is completed, the project owner shall provide in the Monthly Compliance Report (MCR) the WEAP Training Acknowledgement forms of workers 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 full time all construction-related ground disturbance along the linear facilities routes, at laydown areas, roads, and other ancillary areas, and on those parts of the project site that the geoarchaeological report identified as representing a terrace landform (having a high archaeological sensitivity) to ensure there are no impacts to undiscovered resources and to ensure that known resources are not impacted in an unanticipated manner, including the Palmdale Ditch.

The project owner shall ensure that no damage to the Palmdale Ditch occurs during project construction. If the Palmdale Ditch is damaged in any way, including but not limited to disturbance of the masonry of the bridge and culverts, disturbance of the earthen profile or course, or disturbance of the tunnel mouth, the project owner shall submit to the CPM a plan for the recordation of the impacted parts of the ditch or features by an architectural historian who meets the U.S. Secretary of the Interior's Professional Qualifications Standards, as published in Title 36, Code of Federal Regulations, part 61 (36 C.F.R., part 61). The recordation shall meet the standards of the Historic American Engineering Record.

Full-time archaeological monitoring for this project shall be the archaeological monitoring of the earth-removing activities in the areas specified in the first paragraph of this condition, for as long as the activities are ongoing. Where excavation equipment is actively removing dirt and hauling the excavated material farther than fifty feet from the location of active excavation, full-time archaeological monitoring shall require at least two monitors per excavation area. In this circumstance, one monitor shall observe the location of active excavation and a second monitor shall inspect the dumped material. For excavation areas where the excavated material is dumped no farther than fifty feet from the location of active excavation, one monitor shall both observe the location of active excavation and inspect the dumped material.

A Native American monitor shall be obtained to monitor ground disturbance in areas where Native American artifacts are discovered. Contact lists of interested 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. If efforts to obtain the services of a qualified Native American monitor are unsuccessful, the project owner shall immediately inform the CPM. The

CPM will either identify potential monitors or will allow ground disturbance to proceed without a Native American monitor.

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

On forms provided by the CPM, CRMs shall keep a daily log of any monitoring and other cultural resources activities and any instances of non-compliance with the Conditions and/or applicable LORS. Copies of the daily monitoring logs shall be provided by the CRS to the CPM, if requested by the CPM. From these logs, the CRS shall compile a monthly monitoring summary report to be included in the MCR. 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 the project's cultural resources-related activities, unless reducing or ending daily reporting is requested by the CRS and approved by the CPM.

In the event that the CRS believes 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 CRS, at his or her discretion, or at the request of the CPM, may informally discuss cultural resources monitoring and mitigation activities with Energy Commission technical staff.

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

Upon becoming aware of any incidents of non-compliance with the Conditions and/or applicable LORS, the CRS and/or the project owner shall notify the CPM by telephone or e-mail within 24 hours. 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.

Verification:

1. At least 30 days prior to the start of ground disturbance, the CPM will provide to the CRS an electronic copy of a form to be used as a daily monitoring log.

2. Monthly, while monitoring is on-going, the project owner shall include in each MCR a copy of the monthly summary report of cultural resources-related monitoring prepared by the CRS and shall attach any new DPR 523A forms completed for finds treated prescriptively, as specified in the CRMMP.

3. Immediately upon a CRM recognizing that PHPP construction will impact the Palmdale Ditch or any associated features in an unanticipated and adverse manner, the project owner shall submit to the CPM for review and approval a plan for the recordation of the impacted parts of the ditch or features. The plan shall be prepared by an architectural historian who meets the U.S. Secretary of the Interior's Professional Qualifications Standards, as published in Title 36, Code of Federal Regulations, part 61 (36 C.F.R., part 61). The recordation shall be conducted by such a qualified architectural historian and shall meet the standards of the Historic American Engineering Record.

4. At least 24 hours prior to implementing a proposed change in monitoring level, the project owner shall submit to the CPM, for review and approval, a letter or e-mail (or some other form of communication acceptable to the CPM) detailing the CRS's justification for changing the monitoring level.

5. Daily, as long as no cultural resources are found, the CRS shall provide a statement that "no cultural resources over 50 years of age were discovered" to the CPM as an e-mail or in some other form of communication acceptable to the CPM.

6. At least 24 hours prior to reducing or ending daily reporting, the project owner shall submit to the CPM, for review and approval, a letter or e-mail (or some other form of communication acceptable to the CPM) detailing the CRS's justification for reducing or ending daily reporting.

7. No later than 30 days following the discovery of any Native American cultural materials, the project owner shall submit to the CPM copies of the information transmittal letters sent to the Chairpersons of the Native American tribes or groups who requested the information. Additionally, the project owner shall submit to the CPM copies of letters of transmittal for all subsequent responses to Native American requests for notification, consultation, and reports and records.

8. Within 15 days of receiving them, the project owner shall submit to the CPM copies of any comments or information provided by Native Americans in response to the project owner's transmittals of information.

CUL-7 The project owner shall grant authority to halt ground disturbance 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 a cultural resource over 50 years of age is found (or if younger, determined exceptionally significant by the CPM), or impacts to such a resource can be anticipated, ground disturbance shall be

halted or redirected in the immediate vicinity of the discovery sufficient to ensure that the resource is protected from further impacts. If the discovery includes human remains, the project owner shall comply with the requirements of Health and Human Safety Code 7050.5(b) and (c). Monitoring and daily reporting as provided in these conditions shall continue during the project's ground-disturbing activities elsewhere. The halting or redirection of ground disturbance shall remain in effect until the CRS has visited the discovery, and all of the following have occurred:

1. The CRS has notified the project owner, and the CPM has been notified within 24 hours of the discovery, or by Monday morning if the cultural resources discovery occurs between 8:00 AM on Friday and 8:00 AM on Sunday morning, including a description of the discovery (or changes in character or attributes), the action taken (i.e., work stoppage or redirection), a recommendation of CRHR eligibility, and recommendations for data recovery from any cultural resources discoveries, whether or not a determination of CRHR eligibility has been made.
2. If the discovery would be of interest to Native Americans, the CRS has notified all Native American groups that expressed a desire to be notified in the event of such a discovery.
3. The CRS has completed field notes, measurements, and photography for a DPR 523 "Primary" form. Unless the find can be treated prescriptively, as specified in the CRMMP, the "Description" entry of the DPR 523 "Primary" form shall include a recommendation on the CRHR eligibility of the discovery. The project owner shall submit completed forms to the CPM.
4. The CRS, the project owner, and the CPM have conferred, and the CPM has concurred with the recommended eligibility of the discovery and 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 ground disturbance, 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 ground disturbance 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 AM on Friday and 8:00 AM on Sunday morning.
2. Within 48 hours of the discovery of a resource of interest to Native Americans, the project owner shall ensure that the CRS notifies all Native

American groups that expressed a desire to be notified in the event of such a discovery.

3. Unless the discovery can be treated prescriptively, as specified in the CRMMP, completed DPR 523 forms for resources newly discovered during ground disturbance 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 the CRS decides is more appropriate for the subject cultural resource.

CUL-8 If fill soils must be acquired from a non-commercial borrow site or disposed of to a non-commercial disposal site, unless less-than-five-year-old surveys of these sites for archaeological resources are documented to and approved by the CPM, the CRS shall survey the borrow and/or disposal site/s for cultural resources and record on DPR 523 forms any that are identified. When the survey is completed, the CRS shall convey the results and recommendations for further action to the project owner and the CPM, who will determine what, if any, further action is required. If the CPM determines that significant archaeological resources that cannot be avoided are present at the borrow site, other Conditions shall apply. The CRS shall report on the methods and results of these surveys in the final CRR.

Verification:

1. As soon as the project owner knows that a non-commercial borrow site and/or disposal site will be used, he/she shall notify the CRS and CPM and provide documentation of previous archaeological survey, if any, dating within the past five years, for CPM approval.

2. In the absence of documentation of recent archaeological survey, at least 30 days prior to any soil borrow or disposal activities on the non-commercial borrow and/or disposal sites, the CRS shall survey the site/s for archaeological resources. The CRS shall notify the project owner and the CPM of the results of the cultural resources survey, with recommendations, if any, for further action.

CUL-9 Prior to the initiation of any ground disturbance related to the paving of any City of Palmdale and/or Los Angeles County road segments to Los Angeles County standards, in accordance with AQ-SC19, the project owner shall have the CRS provide the following:

1. A literature search meeting the specifications in Energy Commission Siting Regulations, Appendix B, (g) (2) (B) (2007 version); the project owner shall provide the required copies of forms and maps to the CPM;

2. A pedestrian archaeological field survey and a “windshield” built-environment survey meeting the specifications in Energy Commission Siting Regulations, Appendix B ,(g) (2) (C) (2007 version), and completion of Department of Parks and Recreation

523 forms for all identified resources; no technical report is required, but the project owner shall provide to the CPM the forms and map(s) specified in Energy Commission Siting Regulations, Appendix B, (g) (2) (C) (iii) and Appendix B, (g) (2) (C) (iv) (2007 version); and

3. A letter report conveying to the CPM the results of the survey and CRHR-eligibility recommendations for all cultural resources on which the paving activities may have impacts.

If the CPM determines that historical resources that cannot be avoided would be impacted by road paving, the project owner shall mitigate these impacts by means of data recovery (as provided in **CUL-7** [clause 4 and verification 3] for archaeological resources) or recordation determined in consultation by the CRS and CPM (for built-environment or ethnographic resources). No road paving shall occur prior to the CPM determining that the significance of impacts to historical resources, if any, has been reduced to less than significant, unless such activities are specifically approved by the CPM.

If road paving is done episodically, the project owner shall have the CRS carry out the steps above for each episode.

The CRS shall report on the methods and results of all surveys conducted under this condition in the final CRR.

Verification:

1. At least 90 days prior to the start of road paving related to obtaining ERCs, the project owner shall direct the CRS to carry out the steps outlined in this Condition.
2. At least 10 days prior to the start of any cultural resources field survey, the project owner shall notify the CPM when and where the survey will be carried out.
3. No later than 30 days after a cultural resources survey under this condition has been completed, the project owner shall provide all required information and a letter report to the CPM, along with a proposed start date for the paving.
4. No later than 90 days prior to the proposed start date for any road paving under this condition, the project owner shall submit to the CPM a data recovery or recordation plan for any CRHR-eligible (as determined by the CPM) resources significantly impacted by the road paving.
5. No later than 60 days prior to the proposed start date for any road paving, the project owner shall implement the CPM-approved data recovery and/or recordation plans (if any).
6. Information regarding the methods and results of all surveys conducted, as required by this condition of certification, shall be included in the final CRR for this project.

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 mineralogical resources are present. Geologic hazards include ground movement which could result from faulting, seismicity, liquefaction, dynamic compaction, hydrocompaction, subsidence, expansive soils, landslides, tsunamis, and seiches. The analysis in the record also examines geological and paleontological resources which could be affected by the project including whether minerals, fossilized remains, or trace remnants of prehistoric plants or animals are present. The parties did not dispute any matters in this topic. (Exs. 9; 24; 138; 13; 32; 36; 38; 56; 76; 124; 44; 137; 300; 301).

SUMMARY AND DISCUSSION OF THE EVIDENCE

The proposed Palmdale Hybrid Power Plant (PHPP) site is located in Antelope Valley, an enclosed drainage basin in the western edge of the Mojave Desert Geomorphic Province. The proposed PHPP site and both alternative transmission line alignments are located near the western boundary of the Mojave Desert Geomorphic Province where it terminates against the San Andreas Fault. The western edge of the Antelope Valley is sharply delineated by the northwest-southeast trending San Andreas fault system, beyond which rise mountains of the Transverse Ranges geomorphic province including the San Gabriel Range and Sierra Pelona. (Ex. 300, pp. 5.2-4 - 5.2-5.)

The Mojave segment of the San Andreas fault zone is the closest major active fault, and is classified by the California Division of Mines and Geology as a Type A fault, or a fault with displacement of greater than 5 mm/year. The San Andreas fault system is a major transform fault along the Pacific plate/North American Plate boundary. The San Andreas has multiple traces in a fault zone approximately 1 to 2 miles wide no closer than 5.5 miles southwest of the PHPP site, and in close proximity to the southern ends of the transmission line and natural gas pipeline linears. (Ex. 300, p. 5.2-5.)

The San Andreas Rift Zone, which includes multiple traces within the most active fault zone and within the City of Palmdale, also includes outlier faults to the northeast and southwest of the main fault zone. Several faults parallel to the main rift zone, including the Cemetery fault, are mapped near the southern

terminus of the natural gas supply linear near Avenue S East and 10th Street East. The Llano fault system, a series of northwest-southeast trending faults within a 2-mile-square area, is located near the Pearblossom substation at the southeast corner of the transmission line system. (Ex. 300, p. 5.2-5.)

1. Site Conditions

The PHPP site lies in the alluvial plain of Antelope Valley, in a broad area mapped as Quaternary alluvium consisting of gravel, sand, and silt. The site has a gentle (1 percent) gradient towards the north-northwest. Overall, Antelope Valley slopes gently about 20 miles north to Rosamond Lake, a playa lake. Several gently-sloped drainages (cross slopes of 2 to 5 percent, overall relief of 10 to 15 feet relative to adjacent ridges) traverse the site from southwest to northeast. (Ex. 300, p. 5.2-5.)

The project site is underlain by Quaternary alluvium consisting of poorly-graded sand with silt to silty sand which, based on laboratory testing, vary from about 4 to 26 percent non-plastic to low plasticity fines. Minor sandy silt layers are present in the soil profile based on the boring logs, although no grain size distribution tests were performed on these materials. Soils are estimated to be loose to medium dense to 10 to 15 feet depth based on penetration resistance, and are medium dense to dense below that depth. Ground water was not encountered in borings as deep as 76.5 feet, and the ground water table is reported to be approximately 400 feet below ground surface based on nearby wells. (Ex. 300, p. 5.2-6.)

2. Geology Analysis

Both Staff and Applicant included in their respective testimony and analyses a list of the laws, ordinances, regulations, and standards pertaining to geologic and paleontological resources which apply to the Project. The California Building Standards Code (CBSC) and CBC (2007) provide geotechnical and geological investigation and design guidelines, which engineers must follow when designing a facility. As a result, the criteria used to assess the significance of a geologic hazard include evaluating each hazard's potential impact on the design and construction of the proposed facility. (Ex. 300, p. 5.2-8.)

A preliminary geotechnical investigation was conducted on the plant site by Applicant's consultant in 2008. The report indicated that deposits from the ground surface to depths as great as 26 feet exhibit moderate to high potential for hydrocollapse. Eleven collapse tests were performed, where the vertical

confining pressure was increased to 2,000 pounds per square foot, and then water was introduced to saturate the samples. Eight samples under the power block area to a depth of 11 feet exhibited collapse of 1.6 to 6 percent, and three samples under the solar collector area to a depth of 26 feet exhibited collapse of 1.6 to 4.1 percent upon saturation. (Ex. 300, p. 5.2-6.)

The record contains analyses of direct and indirect impacts from the Project determined that ground shaking, foundation settlement and/or hydrocollapse settlement represent the main geologic hazards at this site. Some potential for liquefaction, fault rupture, and landslides has been identified along the alignment proposed for the transmission line. The evidence establishes that although the project is currently in the preliminary stage, these potential hazards can be effectively mitigated through facility design by incorporating the recommendations contained in the Applicant's final project-specific geotechnical report. As required in Condition of Certification **GEO-1**, the preliminary geotechnical report for the site must be updated as a project-specific geotechnical report. The requirements of the proposed **Facility Design** Conditions of Certification **GEN-1, GEN-5,** and **CIVIL-1** in the **Facility Design** section of this Decision will also aid in mitigating these impacts to a less than significant level. We also require detailed assessment of geologic hazards along project linears in Conditions of Certification **GEO-2** through **GEO-5** as part of the project's final design. (Ex. 300, p. 5.2-9.)

No viable geologic or mineralogic resources are known to exist within 3 miles of the proposed PHPP plant site or about one-half mile of project linears. No important paleontological resources were observed on or within a one-mile radius of the proposed PHPP site or along the off-site linears except for the southern portion of the electrical transmission line. However, at least five fossil bearing stratigraphic units are known to underlie the proposed PHPP site and/or its linear alignments. The Natural History Museum of Los Angeles County considers the most recent latest Pleistocene to Holocene unconsolidated alluvial deposits, which form much of the natural site surface, to hold little potential for preservation of significant fossil remains. However, the evidence shows that the potential for significant fossil deposits increases with depth within the most recent alluvial deposits. In addition to Quaternary younger alluvial deposits, the proposed PHPP site and linear alignments, particularly the southern portion of the proposed electrical transmission line, are underlain by Pleistocene Older alluvium deposits including the Nadeau Gravel and Harold Formation, Pliocene Anaverde Formation, Late Miocene Punchbowl Formation, and Oligocene to Early Miocene Vasquez Formation. Of these, all but the Vasquez Formation have yielded

significant vertebrate fossils, in other areas, and are therefore considered to have a high paleontological resource potential. (Ex. 300, p. 5.2-9.)

The evidence includes analysis of project risks due to faulting and seismicity, noting that the project site is located within an active seismic area. The Alquist-Priolo Act of 1973 and subsequent California state law (Tit.14 Cal Code Regs., § 3603) require that all occupied structures be set back 50 feet or more from the surface trace of an active fault. Based on the evidence, no active faults have been documented within the PHPP power plant site, therefore setbacks from occupied structures will not be required. Energy Commission staff reviewed the CDMG publication *Fault Activity Map of California and Adjacent Areas with Locations and Ages of Recent Volcanic Eruptions* and Alquist-Priolo Special Studies Zone mapping and reports and verified no active faults are shown on published maps as crossing the proposed PHPP power plant site. (Exs. 1, p. 5.5-10; 300, p. 5.2-10.)

The south end of the proposed gas pipeline follows 10th Street East and would intersect the very west edge of the Alquist-Priolo zone for the Cemetery fault. The alignment enters the broad Alquist-Priolo zone for the San Andreas fault system at the intersection of 10th Street East and East Avenue S, closely approaching some unnamed splays of the main San Andreas Rift Zone. The alignment exits the San Andreas zone only a few hundred feet east, along East Avenue S. (Ex. 300, pp. 5.2-10 - 5.2-11.)

There are no California State regulations or national standards that prohibit utilities, natural gas, or transmission lines from crossing faults. The City of Palmdale's General Plan requires restricting location of utility lines, whether above or below ground, within an appropriate distance from active fault traces, as determined by geotechnical investigation and approved by the City. Additional geologic investigation of potential fault rupture hazards crossing the natural gas pipeline is necessary and we require it in Condition of Certification **GEO-2**. This condition also requires safety mechanisms to shut off the gas supply if the pipe ruptures, per **Facility Design** Conditions of Certification **GEN-1** and **MECH-1**. While there are no state regulations or national guidelines that recommend natural gas lines be set back from active faults, prudent engineering dictates avoiding fault crossings where practical. Often the crossing is unavoidable or the need to obtain easements is the overriding factor determining utility alignment. (Ex. 300, p. 5.2-11.)

The electric transmission line crosses the San Andreas fault zone in the southern segment of the alignment. The Alquist-Priolo map shows the transmission line

crossing at least one trace of the Llano fault in the vicinity of the Pearblossom substation within 500 feet east of 116th Street East. The Alquist-Priolo map shows the approximate transmission line route crosses approximately 6 fault traces in a mile-long area where it crosses the San Andreas Rift Zone. The evidence indicates that, since the electrical facility may be a critical facility for post-earthquake recovery, the transmission line towers should not be sited directly on the active fault traces. This is required in Condition of Certification **GEO-3**. The record indicates that if the towers are not damaged, typical slack in transmission lines is probably enough to accommodate the likely 19 to 20 feet of fault offset during a local earthquake on the San Andreas fault segments crossed by the transmission lines. (Ex. 300, 5.2-11.)

The evidence also addresses the impact on the project of various geologic conditions including liquefaction, lateral spreading, hydrocompaction, and dynamic compaction.

a. Liquefaction

Liquefaction is a condition where a cohesionless soil may lose shear strength because of sudden increase in pore water pressure caused by an earthquake. Ground water under the project site and most areas of project linears is sufficiently deep that liquefaction is not possible. The seismic hazards zones map for the Lancaster East, Littlerock, Palmdale, and Pacifico Mountain quadrangles where transmission line linear facilities are located indicates the transmission lines cross areas "*…where historic occurrence of liquefaction or local geological, geotechnical, and ground water conditions indicate a potential for permanent ground displacement such that mitigation as defined in Public Resources Code Section 2693(c) would be required*." (Ex. 300, p. 5.2-11.) However, no geotechnical investigation has been performed for the linears in these areas. Further analysis for the final design may reveal whether some areas of liquefaction potential may be eliminated because local ground water is considerably deeper than the typical depth of liquefiable materials or whether other potential liquefaction hazards may be avoided by spanning select areas with the transmission towers. Therefore, we have adopted Condition of Certification **GEO-4** to ensure that the proper investigation is performed and additional measures identified, if necessary, as part of the final design. (Ex. 300, pp. 5.2-11 - 5.2-12.)

b. Lateral spreading

Lateral spreading can occur within liquefiable beds during seismic events. The evidence shows that there is no potential for lateral spreading on the project site, but lateral spreading and its impact on electric transmission line facilities needs to be determined with the liquefaction assessment. Condition of Certification **GEO-4** ensures that the proper investigation is performed and additional measures identified, if necessary, as part of the final design. (Ex. 300, pp. 5.2-11 - 5.2-12.)

c. Hydrocompaction

Hydrocompaction is generally limited to young soils that were deposited rapidly in a saturated state, most commonly by a flash flood. The soils dry quickly, leaving an unconsolidated, low density deposit with a high percentage of voids. Foundations built on these types of compressible materials can settle excessively. The evidence indicates that moderately collapsible soil is present from the ground surface to depths of as much as 26 feet. The proposed mitigation method involves limited depth of over-excavation of soils under foundations and replacement with compacted fill or use of deep foundations. Any necessary mitigation measures for the effects of hydrocompaction of site soils must be addressed as required in the final project-specific geotechnical report, per CBC requirements and Condition of Certification **GEO-1** and **Facility Design** Conditions of Certification **GEN-1**, **GEN-5** and **CIVIL-1**. (Ex. 300, p. 5.2-12.)

d. Dynamic compaction

Dynamic compaction can occur when relatively unconsolidated granular soils experience vibration associated with seismic events. The vibration causes a decrease in soil volume. The decrease in volume can result in settlement of overlying structural improvements. Geotechnical investigation of the project site indicates the site surface consists of 10 to 15 feet of loose to medium dense granular alluvium which is underlain by generally medium dense to dense granular soils below 10 to 15 feet depth. The evidence shows that the possible occurrence of dynamic compaction of site native and fill soils during an earthquake is not addressed in the preliminary geotechnical report. This must therefore be addressed in the final project geotechnical report, per Condition of Certification **GEO-1**. (Ex. 300, pp. 5.2-12 - 5.2-13.)

e. Landslides

The PHPP site slopes gently to the south-southwest at a gradient of approximately 1 percent. The gradual slope of the site coupled with the absence of topographically high ground within or immediately upgradient from the site suggest it is not susceptible to landslide activity. The final transmission tower sites, however, must be investigated to assure they are not located in a potential landslide area. We require this in Condition of Certification **GEO-5**. (Ex. 300, p. 5.2-13.)

f. Alternative Transmission Line Route 4

Some potential for liquefaction, fault rupture, and landslides has been identified along Staff's proposed alternative alignment Route 4, as well as along the proposed transmission line. The undisputed evidence establishes that these potential hazards can be effectively mitigated through facility design by incorporating recommendations contained in a project-specific geotechnical report. As required in Condition of Certification **GEO-1**, the preliminary geotechnical report for the site should be updated as a project-specific geotechnical report. The requirements of the proposed **Facility Design** Conditions of Certification **GEN-1, GEN-5,** and **CIVIL-1** in the **Facility Design** section of this Decision also aid in mitigating these impacts to a less than significant level. Detailed assessment of geologic hazards along project linear facilities is required in Conditions of Certification **GEO-2** through **GEO-5**. If the project owner opts to construct Staff's proposed alternative alignment Route 4, we will impose Condition of Certification **GEO-2A,** which will reduce potential impacts to below significance. (Ex. 300, Appendix A, p. A-227.)

3. Paleontology Analysis

The assessment of paleontological resources by the parties was based on a comprehensive literature review, museum records search and fieldwork at the plant site and along the routes of the Project's linear facilities. The work of Applicant and Staff evaluated applicable LORS, evaluated potential Project-related impacts on identified paleontological resources, and recommended Conditions to mitigate potential impacts. (Ex. 300, pp. 5.2-13 - 5.2-14.)

Based on the evidence, no viable geologic or mineralogic resources (including oil or gas fields) are known to exist within the proposed PHPP construction site or linear routes, although historic high-grade aggregate pits are present in the site vicinity. The potential to impact significant paleontological resources in older

Quaternary (older Pleistocene) sediments, especially in deeper excavations, is considered to be high. Construction of the proposed PHPP will include grading, excavation, and utility trenching. The probability of encountering paleontological resources is considered to be generally high in excavations which penetrate through the recent alluvium and encounter older Quaternary alluvium. The potential for encountering fossils will increase with the depth of cut. Locations where project linears would cross known outcrops of Miocene through latest Pleistocene strata are also considered to have a high potential to encounter significant fossil deposits. (Ex. 300, p. 5.2-14.)

Conditions of Certification **PAL-1** through **PAL-7** are designed to mitigate any paleontological resource impacts to a less than significant level. Essentially, these conditions require a worker education program in conjunction with monitoring of earthwork activities by qualified professional paleontologists (paleontological resource specialist; PRS). Earthwork is halted any time potential fossils are recognized by either the paleontologist or the worker. When properly implemented, the conditions of certification yield a net gain to the science of paleontology since fossils that would not otherwise have been discovered can be collected, identified, studied, and properly curated. A paleontological resource specialist is retained for the project by the applicant to produce a monitoring and mitigation plan, conduct the worker training, and provide the on site monitoring. During the monitoring, the PRS can and often does petition the CEC for a change in the monitoring protocol. Most commonly, this is a request for lesser monitoring after sufficient monitoring has been performed to ascertain that there is little chance of finding significant fossils. In other cases, the PRS can propose increased monitoring due to unexpected fossil discoveries or in response to repeated out-of-compliance incidents by the earthwork contractor. (Ex. 300, p. 5.2-14).

The project owner will be able to comply with applicable LORS, provided that the proposed Conditions of Certification are followed. The design and construction of the project should have no adverse impacts upon geologic, mineralogical, and paleontological resources. We will ensure compliance with applicable LORS through adoption of the proposed Conditions of Certification, listed below.

4. Road Paving

The record contains an analysis of the proposal to pave some or all the roads identified to generate the appropriate tonnage of PM10 ERCs, as reflected in data response #103 (Ex. 56). The existing roads exhibit a disturbed surface and

because the value of paleontological resources is associated with their discovery within a specific geologic host unit, the surface of these areas hold little promise for production of scientifically significant fossil remains. In addition, no viable geologic or mineral resources are known to exist in the area. Finally, potential impacts from geologic hazards on the proposed paved roads remain the same as currently exist for the unpaved roads. As a result, we conclude that road paving will not result in any impacts to geologic, mineral and paleontologic resources, and there are no additional geologic hazards that require mitigation. Therefore, no additional conditions of certification are required for road paving.

5. Cumulative Impacts and Mitigation

The PHPP project site is situated in an active geologic environment. Strong ground shaking potential must be mitigated through foundation and structural design as required by the CBC (2007). Soils that may be subject to excessive settlement due to hydrocollapse or dynamic compaction, must be mitigated in accordance with the design-level geotechnical investigation as required by the CBC (2007), and proposed Conditions of Certification **GEO-1**, and **GEN-1, GEN-5, and CIVIL-1** under **Facility Design**. No paleontological resources have been documented in the general area of the project site, but units with high potential for paleonotological materials and recorded paleontological resources are present along the southern leg of the transmission line alignment. The potential impacts to paleontological resources due to construction activities will be mitigated as required by proposed Conditions of Certification **PAL-1** through **PAL-7**.

The record shows that the potential for significant adverse cumulative impacts to the proposed project from geologic hazards except ground shaking and hydrocompaction, during the project's design life is low, and that the potential for cumulative impacts to geologic and mineralogic resources is very low. The potential to impact paleontological resources is high and could be cumulative with impacts from other construction projects.

The record establishes that the project can be designed and constructed to minimize the effects of geologic hazards at the site so impacts to scientifically significant vertebrate and invertebrate fossils encountered during construction will be mitigated to levels of less than significant. We find that there are no cumulatively considerable impacts to geologic or paleontological resources arising from the PHPP.

6. Public Comment

No public comment was offered regarding Geology and Paleontology.

FINDINGS OF FACT

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

1. The project is in its preliminary design phase.

2. The project is located in a seismically active area.

3. The project will be designed to withstand earthquake shaking in accordance with the requirements for Seismic Zone 4 established in the California Building Code.

4. Ground shaking, foundation settlement, and/or hydrocollapse re the main geologic hazards at the site.

5. Each of the geologic hazards mentioned above may be adequately mitigated through appropriate engineering practices.

6. No significant geologic or mineralogical resources have been discovered in the immediate project area as a result of recent surveys.

7. Although there are no known paleontological resources on the site, such resources are likely to be discovered during project construction.

8. Road paving will not result in any impacts to geologic, mineral and paleontological resources.

9. There are no cumulatively considerable impacts arising from the PHPP.

10. The Conditions of Certification ensure that activities associated with construction and operation of the project will cause no significant adverse impacts to geological or paleontological resources.

CONCLUSION OF LAW

We therefore conclude that the project will not cause any significant adverse direct, indirect, or cumulative impacts to geological, mineralogical, or paleontological resources and that with implementation of the Conditions of

Certification below, the project will conform to all applicable laws, ordinances, regulations, and standards.

CONDITIONS OF CERTIFICATION

GEO-1 A project-specific geotechnical report shall be prepared by review of detailed project foundation plans and requirements, and updating the preliminary geotechnical report for the project.

Verification: The design-level geotechnical investigation report for the proposed PHPP site shall be submitted to the CPM at least 60 days prior to start of plant construction.

GEO-2 Additional fault investigation shall be performed for the southern end of the natural gas pipeline, in conjunction with City of Palmdale approval, in accordance with City of Palmdale General Plan S1.1.7, which requires that utility locations be limited in areas with exposure to faulting, and based on the City of Palmdale General Plan faulting hazards map (Figure LU-4). If the natural gas pipeline crosses the San Andreas fault or any of its splays (Cemetery fault), or if it would be in danger of rupture from intense ground shaking, design shall include appropriate safety features. This shall include a mechanism, such as automatic pressure-sensitive shut-off valves, to cut gas supply in event of pipe rupture.

Verification: A fault investigation report for the southern end of the proposed natural gas line shall be submitted to the CPM at least 60 days prior to start of pipeline construction. Recommendations for further mitigation, beyond automatic shut-off valves, shall be included, as appropriate.

GEO-2A Additional fault investigation shall be performed for the southern end of the natural gas pipeline and transmission line Alternative Route 4 (if selected), in conjunction with city of Palmdale approval, in accordance with city of Palmdale General Plan S1.1.7, which requires that utility locations be limited in areas with exposure to faulting, and based on the City of Palmdale General Plan faulting hazards map (Figure LU-4). If the natural gas pipeline or underground transmission line cross the San Andreas fault or any of its splays (Cemetery fault), or if it would be in danger of rupture from intense ground shaking, design shall include appropriate safety features. This shall include a mechanism, such as automatic pressure-sensitive shut-off valves, to cut gas supply in event of pipe rupture.

Verification: A fault investigation report for the southern end of the proposed natural gas line and transmission line Alternative Route 4 (if selected) shall be submitted to the CPM at least 60 days prior to start of trenching. Recommendations for further mitigation, beyond automatic shut-off valves, shall be included, as appropriate.

GEO-3 Additional fault investigation shall be performed for the southern end of electric transmission line where it crosses the Llano fault Alquist-Priolo Zone and the San Andreas Fault Alquist-Priolo zone. This investigation shall include sufficient geologic mapping and/or fault trenching to verify that towers would not be directly impacted by fault rupture.

Verification: A fault investigation report for the southern end of the proposed transmission line shall be submitted to the CPM at least 60 days prior to start of transmission line construction. Recommendations for further mitigation, beyond avoiding founding transmission towers directly on fault traces, shall be included, as appropriate.

GEO-4 Additional geotechnical investigation shall be performed for the electric transmission line where it crosses areas of projected liquefaction hazards per the Seismic Hazard Reduction Act. This geotechnical investigation shall be prepared and provided to the City of Palmdale as per the General Plan Safety Element Policy S1.1.1.

Verification: The design-level geotechnical investigation report for the proposed transmission line shall be submitted to the CPM at least 60 days prior to start of transmission line construction.

GEO-5 Additional geologic or geotechnical investigation shall be performed along the southern alignment between the San Andreas Fault and the Vincent substation, to evaluate and mitigate the risk of landslide failure affecting the transmission line towers.

Verification: The design-level engineering geological or geotechnical investigation report for the proposed transmission line shall be submitted to the CPM at least 60 days prior to start of transmission line construction.

PAL-1 The project owner shall provide the Compliance Project Manager (CPM) with the resume and qualifications of its Paleontological Resource Specialist (PRS) for review and approval. If the approved PRS is replaced prior to completion of project mitigation and submittal of the Paleontological Resources Report, the project owner shall obtain CPM approval of the replacement PRS. The project owner shall keep resumes on file for 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 (PRMs) shall have the equivalent of the following qualifications:

- BS or BA degree in geology or paleontology and one year of experience monitoring in California; or
- AS or AA in geology, paleontology, or biology and four years' experience monitoring in California; or
- Enrollment in upper division classes pursuing a degree in the fields of geology or paleontology and two years of monitoring experience in California.

Verification: (1) At least 60 days prior to the start of ground disturbance, the project owner shall submit a resume and statement of availability of its designated PRS for on-site work.

(2) At least 20 days prior to ground disturbance, the PRS or project owner shall provide a letter with resumes naming anticipated monitors for the project, 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's 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 lay down areas, and all related facilities. Maps shall identify all areas of the project where ground disturbance is anticipated. If the PRS requests enlargements or strip maps for linear facility routes, the project owner shall provide copies to the PRS and CPM. The site grading plan and 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 be

at a scale between 1 inch = 40 feet and 1 inch = 100 feet range. If the footprint of the project or its linear facilities change, the project owner shall provide maps and drawings reflecting those changes to the PRS and CPM.

If construction of the project proceeds 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. Before work commences 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 the following week, and until ground disturbance is completed.

Verification: (1) At least 30 days prior to the start of ground disturbance, the project owner shall provide the maps and drawings to the PRS and CPM.

(2) If there are changes to the footprint of the project, revised maps and drawings shall be provided to the PRS and CPM at least 15 days prior to the start of ground disturbance.

(3) If there are changes to the scheduling of the construction phases, the project owner shall submit a letter to the CPM within 5 days of identifying the changes.

PAL-3 The project owner shall ensure that the PRS prepares, and the project owner submits to the CPM for review and approval, a 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 the basis of discussion when 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 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 of where the monitoring of project construction activities is deemed necessary, and a proposed plan for monitoring and sampling;
6. A discussion of 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 meet the Society of Vertebrate Paleontology's standards and requirements for the curation of paleontological resources;
9. Identification of the institution that has agreed to receive 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 activities involving ground disturbance, the project owner and the PRS shall prepare and conduct weekly CPM-approved training for the following workers: project managers, construction supervisors, foremen and general workers involved with or who operate ground-disturbing equipment or tools. Workers shall not excavate in sensitive units prior to receiving CPM-approved worker training. Worker training

shall consist of training based on a CPM-approved video script or other presentation materials. Following initial training, a CPM-approved video, other approved training presentation, 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 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 possibility of encountering paleontological resources in the field, the sensitivity and importance of these resources, and legal obligations to preserve and protect those 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/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 for workers to follow.

(2) At least 30 days prior to ground disturbance, the project owner shall submit the training program presentation/materials to the CPM for approval if the project owner is planning to use a presentation format other than a video for for interim training or a script if a video is to be used for 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 other approved presentation format) 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 potential 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 from the accepted schedule 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 will be 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) keep a daily monitoring log 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 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 event where construction has been halted because of a paleontological find.

The project owner shall ensure that the PRS prepares a summary of monitoring and other paleontological activities placed in the monthly compliance reports. 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 other activities. A section of the report shall include the geologic units or subunits encountered, descriptions of samplings 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 or 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 project construction.

Verification: The project owner shall maintain in his/her 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 project completion and approval of the CPM-approved paleontological resource report (see **PAL-7**). The project owner shall be responsible for paying 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 submit it 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 PRR under confidential cover to the CPM.

Certification of Completion
Worker Environmental Awareness Program
Palmdale Hybrid Power Plant (08-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
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Cultural Trainer: _____ Signature:_____ Date: ___/___/____

PaleoTrainer: _____ Signature:_____ Date: ___/___/____

Biological Trainer: _____Signature:_____ Date:___/___/_____

VIII. 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 three main issues: (1) whether the project is consistent with local land use plans, ordinances, and policies; (2) whether the project is compatible with existing and planned land uses; and (3) whether the project converts important Farmlands to non-agricultural uses. The evidence in Land Use was undisputed. (Exs. 5; 11; 44; 47; 53; 56; 58; 87; 102; 120; 123; 133; 128; 300; 301.)

SUMMARY AND DISCUSSION OF THE EVIDENCE

1. Project Description

The Palmdale Hybrid Power Project (PHPP) would be located on a 333-acre site that is currently vacant and undeveloped, and is part of a 613.4-acre property owned by the city of Palmdale. In February 2009, the city approved a general plan amendment, zone change, and tentative parcel map for the entire 613.4-acre city-owned property, including the 333-acre PHPP site. As a result, according to Resolution PC-2009-008, the entire city-owned site is intended for the PHPP and for other future industrial uses. Part of the resolution and ordinance state that the proposed discretionary actions are in the public's best interests as they would result in the development of the PHPP and the generation of electricity through the use of both natural gas and solar power. Existing land uses immediately adjacent to the proposed PHPP site include:

- **North:** Undeveloped land and heavy industrial uses;
- **East**: Air Force Plant 42 (Plant 42);
- **South:** Plant 42; and
- **West:** Undeveloped land owned by the city of Palmdale and water storage tanks that will be used for the potable water pipeline. (See **Land Use Figure 1,** aerial view of site with artist's rendition of project.) (Ex. 300 p. 4.5-4.)

The area immediately surrounding the project site is dominated by industrial development with several scattered residences north of the project site. The closest residence is in the city of Lancaster located approximately 1,500 feet northwest of the closest boundary of the project site. Other sensitive receptors include the Lancaster Adult Day Center, which is approximately 1,800 feet northwest of the closest boundary of the project site. Plant 42 surrounds the south and east boundaries of the project site and is operated by Lockheed, Rockwell International, Northrop, and Nero; a portion is leased to the LA/Palmdale Regional Airport. Plant 42 site is over 6,600 acres and supports facilities for production, engineering, final assembly, and flight testing of high performance aircraft, as well as commercial operations. (Exs 1; 300, p. 4.5-4.)

The power plant site, construction laydown area, natural gas pipeline, potable water line, and access road corridor are located within the city of Palmdale. The transmission line will traverse both the city of Palmdale and areas of unincorporated Los Angeles County. The 230-kV transmission line will be constructed in two segments within new and existing ROW. Segment 1 will be 23.7 miles, and will start from the PHPP site and end at SCE's Pearblossom Substation. The majority of this route, approximately 18.2 miles, will be within the city of Palmdale, while the remaining 5.5 miles will be within unincorporated Los Angeles County lands. Segment 2 will be 11.9 miles of double-circuit 230-kV transmission line entirely within unincorporated Los Angeles County. This segment will parallel SCE transmission lines in an existing ROW. Pull sites and a 0.5-acre construction laydown site will be a temporary land disturbance south of Segment 2.

(Exs. 5; 300, pp. 4.5-5 - 4.5-6.)

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Land Use Figure 1 - Palmdale Hybrid Power Project
Plant Site with Simulated Project Facilities

Source: Ex. 300, Project Description (Figure 2)

2. Construction and Operation Impacts

The power plant site (including power block and on-site roads) has a General Plan designation of industrial (IND) and is zoned M-2 (General Industrial). The northern portion of Segment 1 of the 230-kV transmission line will traverse Light Industrial and Planned Industrial land use designations from the City of Palmdale's General Plan. The City's zoning designations for this area are Light Industrial (M-1), General Industrial (M-2), and Planned Industrial (M-4). The southern portion of Segment 1 and all of Segment 2 will traverse areas designated as R-Non Urban and Public and Semi-public by Los Angeles County's General Plan; zoning designations include the Light Agricultural Zone (A-1), Heavy Agricultural Zone (A-2), Open Space (O-S), and Resort and Recreation Zone (R-R). Los Angeles County does not participate in the Williamson Act program; therefore the project will not be subject to the restrictions of a Williamson Act contract. (Ex. 300, pp. 4.5-7 - 4.5-9.)

The project owner may choose between two alternative transmission line routes: Applicant's proposed transmission line route and Staff's Alternative Route 4. Construction of the Applicant's proposed transmission line will be the only component of the project that could result in the conversion of Prime Farmland and/or Unique Farmland. The transmission line easement will traverse approximately 12 acres of Prime Farmland. In addition, stub roads will be needed, which will result in the conversion of approximately 2.6 acres of Prime Farmland. Based on the anticipated amount of ground disturbance, agricultural operations near the transmission ROW, stub roads and pull sites will be disturbed and agricultural activities will have to cease. To address this construction-related impact, we adopt **Condition of Certification LAND-1**, which requires the Applicant to coordinate with landowners to minimize disruption during construction. We find that implementation of this condition will reduce impacts below significance. (Ex. 300, p. 4.5-10.)

Staff's Alternative Route 4 is fully described in the **Alternatives** section of this Decision. Alternative Route 4 would include 6.75 miles of underground transmission line. In general, existing land use uses that would be traversed by and adjacent to this alternative route would be undeveloped and industrial land, with dense areas of commercial, residential development within the city of Palmdale. (Ex. 300, Appendix A, p. A-133.)

Alternative Route 4 is located on land defined as "Other Land" and "Urban and Built-Up Land." Therefore, construction of the transmission line would not result

in the conversion of Prime Farmland and/or Unique Farmland. In addition, this alternative would not traverse land within an agricultural zoning designation or under Williamson Act contracts. Existing land uses along this route include undeveloped land, industrial, commercial, residential and mixed-use development. The line would be adjacent to residential development along portions of 10th Street East. However, the majority of this alternative route would parallel existing transmission line corridors or electric distribution line rights-of-way. Therefore, the line would not physically conflict with existing land uses and would not result in the division or disruption of an established community. Given the existing industrial and utility development, this alternative would be compatible with the surrounding land uses. Therefore, we find the line would be a compatible land use. (Ex. 300, Appendix A, pp. A-140 – A-141.)

The power plant facilities would be located entirely on land owned or controlled by the city of Palmdale, with access to the parking and laydown areas from existing public roadways. The transmission line route will traverse land that is vacant and undeveloped land with some agricultural production. The utility pipelines (gas, water and wastewater) will be placed in existing road ROWs. The project, transmission line, and utility lines will not present a new physical barrier within the community. Based on evidence in the record, we find that the project will not physically divide an established community. (Ex. 300, pp. 4.5-10 - 4.5-12.)

As part of the certification process, the Energy Commission must determine whether a facility complies with all applicable state, regional, and local LORS. [Pub. Res. Code, § 25523(d)(1).] The Energy Commission must either find that a project conforms to all applicable LORS or make specific findings that a project's approval is justified even where the project is not in conformity with all applicable LORS. (Pub. Res. Code, § 25525.) Any conditions recommended by an agency are considered for inclusion in the conditions of certification for the project.

Based on evidence in the record we find that the PHPP will be consistent with City of Palmdale and County of Los Angeles land use LORS with the implementation of **Conditions of Certification LAND-2** and **LAND-3**. Approval of the transmission line and the natural gas pipeline within the jurisdiction of the city of Palmdale will require compliance with **Condition of Certification LAND-2,** which we adopt as part of this Decision. This Condition requires Site Plan Review, as requested by the City of Palmdale. In addition, the County of Los Angeles' Department of Parks and Recreation commented that the transmission line easement in Segment 1 will be in the same location as the Avenue S

Connector Trail (#147), and is requesting a minimum of a 12-foot-wide trail easement. We adopt **Condition of Certification LAND-3**, which requires a trail easement, as requested by the county. We find that implementation of **Condition of Certification LAND-3** will avoid conflicts with the county's connector trail and the county's Antelope Valley Trails Master Plan. (Ex. 300, pp. 4.5-12 - 4.5-29.)

A proposed siting location may be considered inappropriate if a new source of pollution or hazard is located within close proximity to a sensitive receptor. From a land use perspective, sensitive receptor sites are those locations where people who will be more adversely affected by pollutants, toxins, noise, dust, or other project-related consequence or activity are likely to live or gather. (Ex. 300, p. 4.5-32.)

The area surrounding the power plant is primarily dominated by industrial uses. The closest residence is located approximately 1,500 feet (0.28 mile) to the northwest of the closest PHPP site boundary. Several residential properties are scattered amongst the industrial uses surrounding the project site. In addition, the Lancaster Adult Day Center is located approximately 1,800 feet (0.34 mile) northwest of the closest boundary of the PHPP site. No other sensitive receptors (childcare facilities, schools, hospitals, libraries, or churches) were identified within a 1-mile radius of the project site. Existing land uses within one mile of the project site and 0.25 mile of the linear ROWs (natural gas pipeline, transmission line, potable water line, and access road) include: Single-Family to Medium Residential, Commercial, Industrial, Public Facilities And Institutions, and Airport facilities. Land within a 0.25-mile radius of the recycled water pipeline is primarily used for residential uses and open space (golf courses and related facilities). The nearest sensitive receptors to the natural gas pipeline are residences located directly along the natural gas pipeline on East Avenue S and 10th Street East, and also north of the natural gas and reclaimed water supply pipelines along East Avenue M. In addition, small portions of Segment 1 of the transmission line will be east of residences along East Avenue Q and 120th Street East. (Ex. 300, pp. 4.5-32 - 4.5-33.)

Given the existing permitted uses surrounding the project, and the fact that with implementation of Conditions of Certification **LAND-2** and **LAND-3** the PHPP and associated facilities will be consistent with local LORS, the project will not be considered an incompatible land use with the surrounding and nearby uses, including sensitive receptors. (Ex. 300, p. 4.5-33.)

Also, as discussed in more detail in the **Hazardous Materials** section of this Decision, the natural gas pipeline must be designed, constructed, and operated to meet CPUC and USDOT safety standards and regulations. The safety requirements for gas-fired power plant pipeline construction contained in existing LORS are sufficient to ensure that the risk of pipeline failure from the newly installed natural gas pipeline will be less than significant. (Ex. 300, p. 4.5-33.)

From a land use perspective, the evidence discloses no significant impacts regarding land use compatibility; therefore the siting of the PHPP site at the location will be compatible with nearby surrounding sensitive receptors. The **Hazardous Materials Management, Noise, Public Health, Traffic and Transportation,** and **Visual Resources** sections of this Decision provide detailed analyses of the noise, public health hazards or nuisance and adverse traffic or visual impacts on surrounding sensitive receptors such as residential uses. For a discussion of air quality impacts on sensitive receptors, see the **Air Quality** section of this Decision. (Ex. 300, p. 4.5-33.)

3. Road Paving

The Applicant has proposed to pave segments of 10 existing unpaved roads within the city of Palmdale and in areas of unincorporated Los Angeles County. These segments are more fully described in the **Traffic and Transportation** section of this Decision. Nine of the road segments are existing unpaved roads within a street grid, which indicates that they have already been included as a part of the regional road plan. The record contains a review of the applicable LORS documents to determine if any specific LORS are applicable to the road paving activities, and any potential for these activities to have any significant adverse land use-related impacts. (Ex. 301, p. 22.)

The uncontested evidence establishes that the road paving proposal will not conflict with any applicable land use LORS. It will not result in a significant conversion of Important Farmland to non-agricultural use or conflict with existing agricultural zoning or Williamson Act contracts. The road paving proposal is compatible with existing land uses since the paving will occur on existing unpaved roads already in use. Also, the road paving will not divide the physical arrangement of an established community; although, construction activities may cause short-term and temporary physical disruptions to existing communities along the proposed roads. We find these construction impacts to be less than significant. We find that the PHPP's road paving proposal has no significant land use-related impacts. (Ex. 301, p. 22.)

4. 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. (Ex. 300, p. 4.5-36.)

The construction and operation of the PHPP project will be consistent with adopted local plans and ordinances and will represent a land use consistent with adjacent commercial and industrial developments. The power plant will not make a significant contribution to regional impacts related to new development and growth; and potential cumulative impacts associated with the transmission line will be mitigated with implementation of Condition of Certification **LAND-2.** We find that the project in combination with past, present, and reasonably foreseeable projects in the area will not be cumulatively considerable. Therefore, the project's cumulative land use impacts will be less than significant. (Ex. 300, p. 4.5-36.)

5. Public Comment

The Los Angeles County Department of Regional Planning, the Department of Parks and Recreation, the County Sanitation Districts of Los Angeles County, and the Applicant (i.e., the City of Palmdale) submitted comments on the land use assessment for the project prior to the publication of the Final Staff Assessment (Ex. 300) All of the comments were considered in the land use assessment and changes were incorporated to address all comments.

No other public comment was received on the subject of land use in relation to the PHPP.

FINDINGS OF FACT

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

1. The existing zoning of the PHPP site and vicinity is compatible with the proposed use.
2. The PHPP will not result in a significant conversion of Farmland to non-agricultural use or conflict with existing agricultural zoning or Williamson Act contracts.

3. The project will not disrupt or divide the physical arrangement of an established community.

4. Condition of Certification **LAND-1** will reduce disruption of agricultural activities due to construction of the transmission lines below significance.

5. With implementation of Conditions of Certification **LAND-2 and LAND-3** the project is consistent with the City of Palmdale and the County of Los Angeles' existing land use plans and zoning ordinances.

6. The project will not preclude or unduly restrict existing or planned land uses.

7. We find that the PHPP's road paving proposal has no significant land use-related impacts.

8. The project's cumulative land use impacts will be less than significant.

CONCLUSION OF LAW

We therefore conclude that the PHPP will not create significant direct, indirect, or cumulative impacts related to land use and will comply with applicable laws, ordinances, regulations, and standards.

CONDITIONS OF CERTIFICATION

LAND-1 The project owner shall coordinate with property owners of farmland that is actively in production within the proposed transmission line right-of-way. The purpose of this coordination is to: (1) schedule construction activities at a location and time when damage to agricultural operations would be minimized, to the extent practicable; and (2) ensure that any areas damaged or disturbed by construction are restored to a condition that closely approximates conditions that existed prior to construction-related disturbance, to the extent practicable.

This includes avoiding construction during peak planting, growing, and harvest seasons, if feasible, based on transmission line outage limitations. If damage or destruction occurs, the applicant shall perform restoration activities on the disturbed area in order to return the area to a condition that closely approximates conditions that existed prior to construction-related disturbance. This could include activities such as soil preparation, regrading, and reseeding.

Verification: The project owner shall document coordination efforts with affected agricultural landowners, and shall submit this documentation to the CPM at least 30 calendar days prior to the start of construction activities on the affected agricultural parcels. In addition, the project owner shall document any

plans for restoration activities prior to construction and document any actual restoration activities it conducts post completion of the restoration. The project owner shall submit the documentation of restoration plans to the CPM at least 30 calendar days prior to the start of construction activities on the affected agricultural parcels. The project owner shall submit the documentation of the actual restoration activities that occurred to the CPM no later than 30 calendar days after the completion of construction activities on the affected agricultural parcels.

LAND-2 The project owner shall ensure that the proposed transmission line and natural gas pipeline will be constructed and operated in compliance with the city of Palmdale's Zoning Ordinance, Chapter 2, Article 21 (Site Plan Review). The project owner shall submit a Site Plan Review to the city of Palmdale in sufficient time for review and comment, and to the Compliance Project Manager (CPM) for review and approval prior to the start of transmission line construction. The Site Plan Review shall be in compliance with the review process set forth by Chapter 2, Article 21 (Site Plan Review) of the city's Zoning Ordinance in order to ensure that the physical plans for the project are compatible with neighboring developments, are appropriate for the site, and achieve the highest level of design that is feasible for the project.

Verification: At least 90 calendar days prior to the start of construction of the transmission line and natural gas pipeline, including any demolition, grading, trenching, or site remediation, the project owner shall submit the site plan to the City of Palmdale for review and comment and to the CPM for review and approval. The project owner shall also provide the CPM with a copy of the transmittal letter to the City of Palmdale.

At least 30 calendar days prior to the start of construction, the project owner shall provide copies of any revisions to the site plan received from the City of Palmdale, along with any changes to the proposed site plan, to the CPM for review and approval.

LAND-3 The project owner shall dedicate an easement within, or adjacent to, the PHPP transmission line corridor for the Avenue S Connector Trail as required by Los Angeles County's Antelope Valley Trails Master Plan and as requested by Los Angeles County's Department of Parks and Recreation. The easement to be dedicated by the project owner shall be a minimum of a 12-foot wide trail easement from the western edge of parcel #AIN39011005 to the eastern edge of parcel #AIN3039006021.

Verification: The project owner shall coordinate the dedication of a portion of the PHPP transmission line corridor to the county of Los Angeles for development of the Avenue S Connector Trail easement as approved by the Compliance Project Manager (CPM) within 180 days of the start of construction. The project owner shall provide documentation to the CPM that the dedication of

the trail easement has been executed based on mutually agreed upon provisions between the project owner and the Los Angeles County's Department of Parks and Recreation, while ensuring safety and security of trail users. The documentation also shall guarantee that the easement would be located in the area specified by the county (a 12-foot wide trail easement from the western edge of parcel #AIN39011005 to the eastern edge of parcel #AIN3039006021). The project owner shall provide to the CPM updates in the Annual Compliance Report on the status of easement dedication.

B. TRAFFIC AND TRANSPORTATION

This section addresses the extent to which the Palmdale Hybrid Power Plant (PHPP) 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. The evidence on **Traffic and Transportation** was undisputed (Exs. 17; 39; 46; 102; 139; 27; 100; 122; 56; 127; 110; 114; 121; 146; 300; 301.)

SUMMARY AND DISCUSSION OF THE EVIDENCE

1. Location

The PHPP site is located within the City of Palmdale and in the Antelope Valley region of Southern California. Surrounding land uses include United States Air Force Plant 42, vacant land and other industrial uses. The PHPP site is readily accessible via the Antelope Valley Freeway (State Route 14 or SR-14). PHPP would be approximately one mile east of the Antelope Valley Freeway along Avenue M (Columbia Way). Other regional and local roadways serving the site include State Routes (SR) 138 and 58, East Avenue M, and Sierra Highway. Avenue M provides access to the project site. The centerline for Avenue M, near the project, provides the boundary between the cities of Palmdale and Lancaster. Both jurisdictions are responsible for maintaining or improving their half of Avenue M and traffic signalization. **Traffic and Transportation Figure 1, Regional Transportation System,** following, shows the region surrounding the project site. (Ex. 300, p. 4.10-2.)

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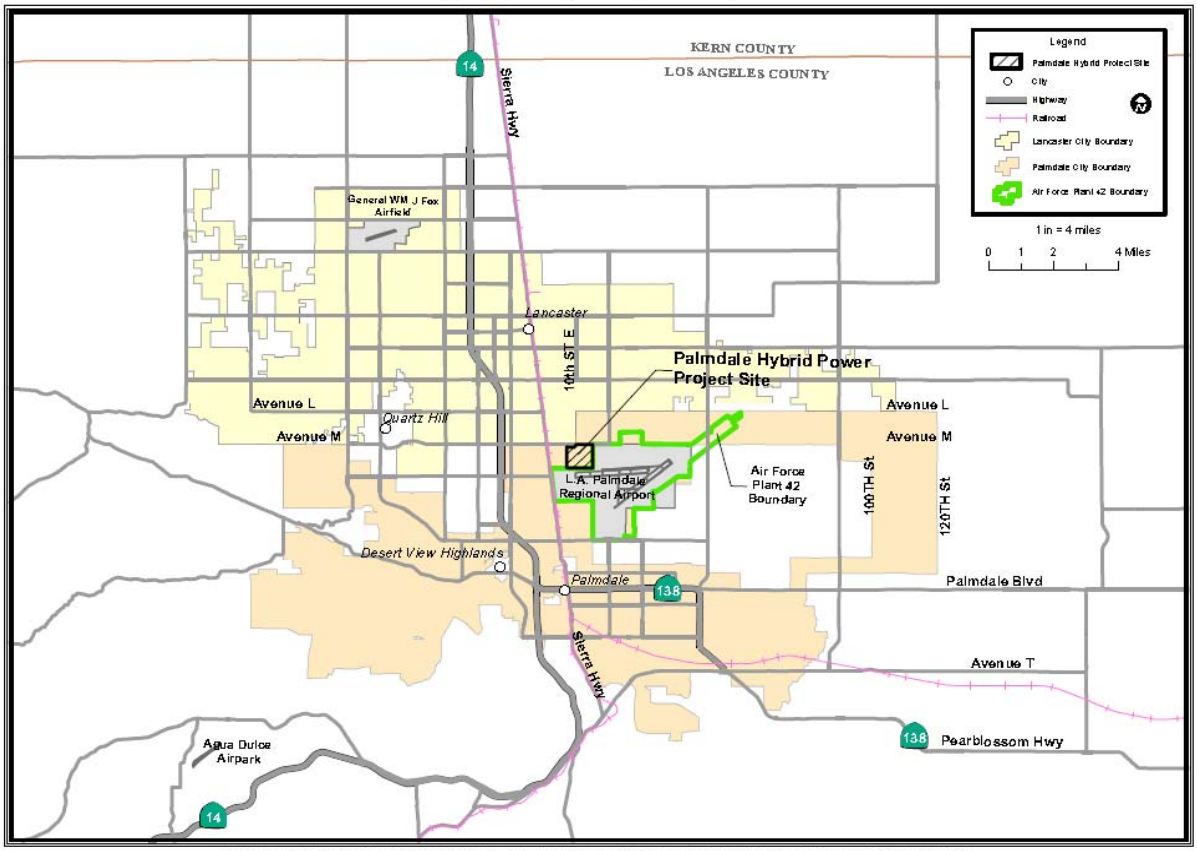
TRAFFIC AND TRANSPORTATION - FIGURE 1
Palmdale Hybrid Power Project - Regional Transportation Network



CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION
SOURCE: Tele Atlas & City of Palmdale, City of Lancaster

2. Regional Roadway Network

The regional roadway network is comprised of state and local roads. There are no interstate highways within the proposed project's vicinity. Regional access to the PHPP site would most likely occur via SR-14 then east on Avenue M. Antelope Valley Freeway is the primary north-south regional roadway corridor. SR-138, approximately four miles south of the proposed project site, and SR-58, approximately 25 miles north of the proposed project site, are the primary east-west regional roadway corridors. Sierra Highway, formerly the primary north-south regional serving roadway remains an important transportation corridor serving the Antelope Valley and is maintained by the City of Palmdale (within the city limits). Avenue M, a.k.a. Columbia Way, is the primary and most immediate connection to the proposed project site from the SR-14 and Sierra Highway. (Ex. 300, p. 4.10-3.)

3. Airports

PHPP is located adjacent to and northwest of United States Air Force (USAF) Plant 42. Plant 42 Runway 7/25, is located approximately 3,000 feet south of the power plant's proposed power block. Runway 4/22 is located approximately 10,000 feet south of the proposed project. Runway 7 air traffic uses a recommended left turn traffic pattern but in case of an aborted landing the aircraft would be routed to the north and circle back to the runway. Runway 25 observes a recommended right turn traffic pattern. In addition, when aircraft perform a closed (touch and go) pattern on Runway 25, or in case of an aborted landing, aircraft are directed to the north and circle back to the runway. Aircraft using Runway 4 fly a right-hand traffic pattern and Runway 22 traffic use a left-hand pattern. (Ex. 300, pp. 4.10-7 – 4.10-8.)

The US Air Force prepared the Air Installation Compatible Use Zone Study (AICUZ) for Plant 42 in 2002. Flight information contained in the AICUZ is consistent with the information on the AirNav.com web-site. The AICUZ program is contained in Air Force Instruction bulletin 32-7063 which implements the Department of Defense Instruction 4165.57. Its scope encompasses the area within the decibel noise level (DNL) 65 dB and greater noise exposure area. The purpose is to complement local government planning efforts and to prevent impacts associated with incompatible land uses. (Ex. 300, p. 4.10-8.)

According to the AICUZ, runway 4/22 is generally oriented east-west and runway 7/25 is oriented in a northeast-southwest direction. Both runways are about 12,000 feet in length and 150 feet wide. Traffic patterns are flown at an altitude of approximately 1,500 feet above ground level (AGL) for military aircraft to 2,000 feet AGL for civilian aircraft. Arrival and departure altitudes vary depending on the direction and speed of prevailing winds. Flight patterns are oriented to the southeast of Runway 04/22 and north of Runway 07/25. (Ex. 300, pp. 4.10-8 – 4.10-9.)

The PHPP site is not in established FAA clear zones or accident potential zones. Clear zones and accident potential zones are areas beyond the ends of runways and along approach and departure paths determined by the Department of Defense to have greater potential for aircraft accidents. (Ex. 300, p. 4.10-9.)

Other airports within the vicinity of U.S. Air Force Plant 42 include:

- USAF Fox Airfield, 10 miles northwest of Plant 42;
- Edwards Air Force Base (AFB) restricted zone, 10 miles north of Plant 42;

- Brian Ranch Airport, a private use airport located 18 miles east of Palmdale;
- Gray Butte Field Airport, a private use airport located 25 miles east of Palmdale; and
- Nichols Farms, a private use airport located 7 miles northeast of Palmdale. (Ex. 300, p. 4.10-9.)

4. Railroads

Union Pacific Railroad (UPRR) operates a mainline that extends northerly from Los Angeles to Mojave through Santa Clarita and the Antelope Valley. In Southern California, Union Pacific serves major automobile distribution centers. Union Pacific trains carry extensive varieties of import-export traffic through its Intermodal Container Transfer Facility near the Los Angeles and Long Beach harbors. The railroad also moves chemicals and manufactured goods, as well as fruits, vegetables and canned goods. From Mojave the UPRR connects with an east-west railroad corridor that serves Las Vegas, Nevada, and Fresno. UPRR mainline is the only railway with immediate access to the subject site as it is located along Sierra Highway one-quarter mile to the west of the subject site. The Avenue M crossing is an at-grade. UPRR provides active warning devices at this juncture to control cross railroad traffic. (Ex. 300, p. 4.10-7.)

5. Bicycle and Pedestrian Access

A Class I bike path is located adjacent to Sierra Highway. It is a regional serving bike and multi-purpose trail. Class I bike paths are located in a separate right-of-way and are for the exclusive use of bicycles and pedestrians with minimal cross flow by motor vehicles. Sidewalks are not typically considered Class I facilities. (Ex. 300, p. 4.10-7.)

According to the City's Bikeway and Multi-Purpose Trail Plan, Avenue M is designated as a Class II master planned route. Class II bike paths are typically striped or separated routes along major corridors. Currently Avenue M is neither striped nor separated for a Class II bike path. (Ex. 300, p. 4.10-7.)

6. Public Transportation

Public bus transportation is provided by Antelope Valley Transit Authority, (AVTA). There are two bus routes located in the vicinity of the proposed plant site. These routes are AVTA local routes 1 and 4 and stops are provided at Avenue M at 10th Street West for Route 1 and Avenue M at Sierra Highway for

Route 4. Route 1 serves the Palmdale transfer center and Route 4 serves the Lancaster transfer center where riders can commute to various points within the Antelope Valley. For workers commuting to and from the Los Angeles region, AVTA provides express service from its transfer center in Palmdale. The City of Palmdale School District and the Antelope Valley School Transportation Agency operate school bus routes in the area. School bus routes include Avenue L, Avenue M, 10th Street East, and Sierra Highway. (Ex. 300, p. 4.10-7.)

7. Direct/Indirect Impacts and Mitigation

Level of Service (LOS) measurements are used to evaluating a project's potential impact on the local transportation system. 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. (Ex. 300, p. 4.10-5.)

a. Construction Traffic

Construction of the PHPP is anticipated to occur over 27 months and have a work force of 767 workers during the peak construction month. During the peak construction month it is anticipated that under the worst-case scenario there will be 1,534 one-way commuter trips per day, 767 in-bound and 767 out-bound. **Traffic and Transportation Table 1** shows the proposed construction traffic trip distribution and existing and 2011 projected roadway segment average daily traffic (ADT).

Traffic and Transportation Table 1 shows background traffic volumes for SR-14 and projects 536 construction related traffic trips on SR-14 south of Avenue M. Peak construction is likely to occur during 2011 or later. **Traffic and Transportation Table 1** shows that construction related traffic would not cause traffic volumes to exceed the design capacity of SR-14 or Avenue M. As noted earlier, Avenue M (accessed by SR-14 or Sierra Highway) would be the most direct route to the PHPP site. The evidence forecasts that Avenue M would incur 1,534 peak construction related trips. This represents about a 4 percent increase to the overall traffic volume capacity for this road (36,000 per day). Some construction workforce traffic could use other routes, such as Sierra Highway, because the worker trip might originate in Palmdale or Lancaster. Sierra Highway currently operates at 83 percent of capacity (25,000 ADT). (Ex. 300, p. 4.10-10.)

Traffic and Transportation Table 1
Project Construction and 2011 Roadway Segment Characteristics

Roadway Segment	Roadway Classification/ Lanes	Projected Construction Traffic	Existing ADT	Capacity	2011 Estimated ADT	Capacity
SR-14 South of Ave M	Arterial/6	536	99,000	132,000	126,675	132,000
Ave M Sierra Hwy To 10th St W	Arterial/4	1534	21,800	36,000	26,500	36,000
Ave M 10th St to 20th St	Arterial/4	1534	14,010	36,000	17,950	36,000

ADT = Average daily traffic
Source: Ex. 300, p. 4.10-11**.**

As shown in **Traffic and Transportation Table 2**, below, some intersections would operate at unacceptable LOS with or without peak construction project traffic. With the addition of the PHPP project's 2011 peak construction related traffic, the LOS of three additional intersection segments would deteriorate in the a.m. or p.m. peak hours.

According to the City of Lancaster General Plan, Plan for Physical Mobility, and the City of Palmdale General Plan Circulation Element, the minimum acceptable LOS during peak hour traffic is LOS D. The 767 projected construction related traffic round-trips would reduce three intersections to unacceptable LOS. Project-induced impacts that reduce intersections to below acceptable LOS are considered significant.

Traffic and Transportation Table 2
Intersection Level of Service 2011
No Project and 2011 Peak Hour Construction

Intersection	Direction	AM Peak Hour LOS		PM Peak Hour LOS	
		2011 No-Project	2011 Peak Workforce	2011 No-Project	2011 Peak Workforce
SR-14 SB/ E. Ave. M	East/ North	F	F	F	F
SR-14 SB/ E. Ave. M	West/ South	B	F	F	F
SR-14 NB/ E. Ave. M	West/ South	F	F	F	F
SR-14 NB/ E. Ave. M	East/ North	F	F	C	F
Sierra Highway/ E. Ave. M	East/ West	D	D	D	D/E

Source: Ex. 300, p. 4.10-12.

The Applicant states that the maximum number of project-induced truck trips would occur during foundation construction and would not coincide with peak month construction workforce trips. Construction is anticipated to generate an average of 15 daily one-way truck trips. According to the *Highway Capacity Manual* guidelines, a typical 18-wheel truck equals three passenger cars or passenger car equivalent (PCE) of three cars to one truck. If the project generates 15 truck trips (average) per day during the peak construction workforce month, it would add approximately 45 one-way trips. (Ex. 300, p. 4.10-12.)

Condition of Certification **TRANS-1** will reduce the project's impacts on local roads to a less than significant level by: requiring construction workers to avoid using SR-14 on and off ramps to East Avenue M and the intersection of Sierra Highway and East Avenue M during peak traffic periods; limiting heavy equipment and building materials to off peak periods (9:30 a.m. to 3:30 p.m.); and developing traffic diversion plans to ensure access during temporary lane/road closures. (Ex. 300, p. 4.10-12.)

The use of oversize vehicles during construction can create a hazard to the public by limiting motorist views on roadways and by the obstruction of space. Based on the evidence, project construction and operation would involve the transport of equipment and materials that exceed roadway load or size limits and will require special permits to be obtained through state and local regulatory agencies. The expected type of oversized equipment and materials for project construction includes generators, heat recovery steam generator modules, and

main transformers. Transport of equipment and materials may require the use of truck and trailer with multiple axles via public roadways. (Ex. 300, p. 4.10-12.)

California Vehicle Code and California Streets and Highway Code requirements note that if State highways are used by oversized truck and trailer with multiple axles, the mover is required to obtain a permit from Caltrans, and use trailing warning vehicles or police control. For the proposed project to be in compliance with LORS pertaining to overweight and oversize vehicles, Condition of Certification **TRANS-3** requires that all project-related overweight and oversize vehicles used on public roadways during construction and operations comply with Caltrans and other agency regulations pertaining to overweight and oversize vehicles. (Ex. 300, pp. 4.10-12 – 4.10-13.)

Construction of the power plant would require the use and installation of heavy equipment and associated systems and structures. Consequently, encroachment onto public roads may result in damage by vehicles and equipment to public roads within the project area. In addition, the use of oversize and overweight vehicles during project construction can create a hazard to the public by damaging roads. Condition of Certification **TRANS-5** requires that any road damaged by project construction be repaired to its original condition. This would ensure that any damage to local roadways would not be a safety hazard to motorists. (Ex. 300, p. 4.10-13.)

The construction of the power plant and transmission facilities could involve road closures or detours, construction vehicle interface with normal traffic flows other than at intersections and other similar construction and traffic flow interaction. Impacts associated with hazards and public safety induced by construction vehicles will be minimized by Condition of Certification **TRANS-1**, which requires the preparation of a construction traffic control plan that will include the use of flagging, flag men, signage and covering open trenches. In addition, the traffic control plan will divert construction-related traffic away from residential areas to the maximum extent feasible. (Ex. 300, pp. 4.10-13 – 4.10-14.)

As noted previously, Avenue M is designated as a Class II master planned bicycle route. Class II bicycle routes are constructed with roadway improvements. The Applicant does not propose to improve Avenue M and given the fact that during peak construction of the project average daily traffic would only increase by 4 percent, road improvements related to bicycle routes are not necessary. Condition of Certification **TRANS-**1 ensures pedestrian and bicycle safety from construction vehicle travel routes and any construction-related temporary travel lane closures or disruptions. (Ex. 300, p. 4.10-14.)

Based on the evidence, project construction will involve a combination of rail and truck transport. UPRR has railway sidings within the vicinity of the proposed project site. Materials, including hazardous materials, and equipment could be shipped by rail to the nearest available siding and then be trucked the remainder of the way to the proposed site. The Applicant intends to use one of the railway sidings for delivery of oversized equipment and, if railways are used, the equipment would be transported from the railroad siding to the construction site via multi-axle trucks. A rail siding, serving Plant 42, is located immediately south of the proposed plant site.

In the event of an emergency at the PHPP site during construction, emergency vehicles would likely use Avenue M to the project site. A main access drive and at least one additional emergency access would provide standard acceptable emergency access to the proposed project (*see* proposed Condition of Certification **TRANS-6**). For additional discussion of emergency services serving the facility, refer to the **Hazardous Materials Management,** and **Worker Safety** and **Fire Protection** section in this Decision.

The construction/installation of linear facilities for the PHPP could have impacts on local roadways. An 8.7-mile and 20-inch natural gas pipeline would be installed in an existing right-of-way (ROW). It would begin at a Southern California Gas facility on Avenue S and traverse north along 10th Street East, west along Lockheed Way, north along Sierra Highway, east along Avenue M to 10th Street East, and south along the project's east boundary to the power block. The City of Palmdale would install a 7.4-mile and 14-inch water pipeline in a joint trench with the natural gas pipeline. The water line would travel along the same route as the natural gas pipeline but would begin at the City's wastewater treatment plant and traverse east along Avenue P to 10th Street East. The PHPP would require the installation of a one-mile long six-inch diameter wastewater disposal line in 10th Street East ROW to connect to an existing 12-inch sewer line at Avenue L. (Ex. 300, pp. 4.10-14 – 4.10-15.)

The project owner may choose between two alternative transmission line routes: Applicant's proposed transmission line route and Staff's Alternative Route 4. Both routes are fully described in the **Alternatives** section of this Decision.

Applicant's proposed transmission line route transmission line will extend 35.6 miles and consist of two segments. The first segment will begin at the PHPP on-site switchyard and extend approximately 23.7 miles through new and existing ROW to a Southern California Edison (SCE) substation near Pearblossom

Highway in Pearblossom, CA. The second segment will be approximately 11.9 miles and would extend from the Pearblossom Substation to the Vincent substation. Within the vicinity of the proposed project site, the transmission lines will be erected along existing roads, however, large portions of the transmission line will be erected where easements or rights-of-way must be obtained.

Alternative Route 4 (underground-overhead) would generally parallel the north/south alignments of either Division Street or Sierra Highway/10th Street E. According to the city of Palmdale Circulation Plan, Division Street is identified as a major arterial (north/south) serving primarily local Palmdale traffic. Sierra Highway is also designated a major arterial that passes through Palmdale and Lancaster, as well as points north and south of both cities. Condition of Certification **TRANS-1** ensures that construction and installation of all PHPP linears will not have a significant traffic and transportation impact on local roadways. (Ex. 300, p. 4.10-15, Appendix A, p. A-176.)

b. Operation Traffic

PHPP operations will require a staff of approximately 36 employees working 24 hours, seven days per week. The estimated project operations will generate 2-3 truck trips per day. The number of operations-related and maintenance-related traffic associated with the project is considered to be minimal and insignificant when added to major movements on regional and local serving roadways as well as at intersections studied within the project's vicinity. Therefore, based on the evidence the PHPP project operations will have a less than significant impact on study area roadways' or intersections' LOS. Consequently, no operations-related mitigation measures are required. (Ex. 300, p. 4.10-15.)

A Plume Traffic Impact Modeling Analysis was performed to evaluate ground-fogging plumes on the transportation system within the vicinity of the project. Ground level fogging is generated by atmospheric conditions that can create a visible plume with the potential to affect roadways and airport ground operations. Predicted ground level fogging would occur no more than 5 hours per year beyond the proposed project's property line at 15th Street East and no more than one hour a year at East Avenue M. These plumes will not have a significant traffic impact on the affected roads. (Ex. 300, p. 4.10-18.)

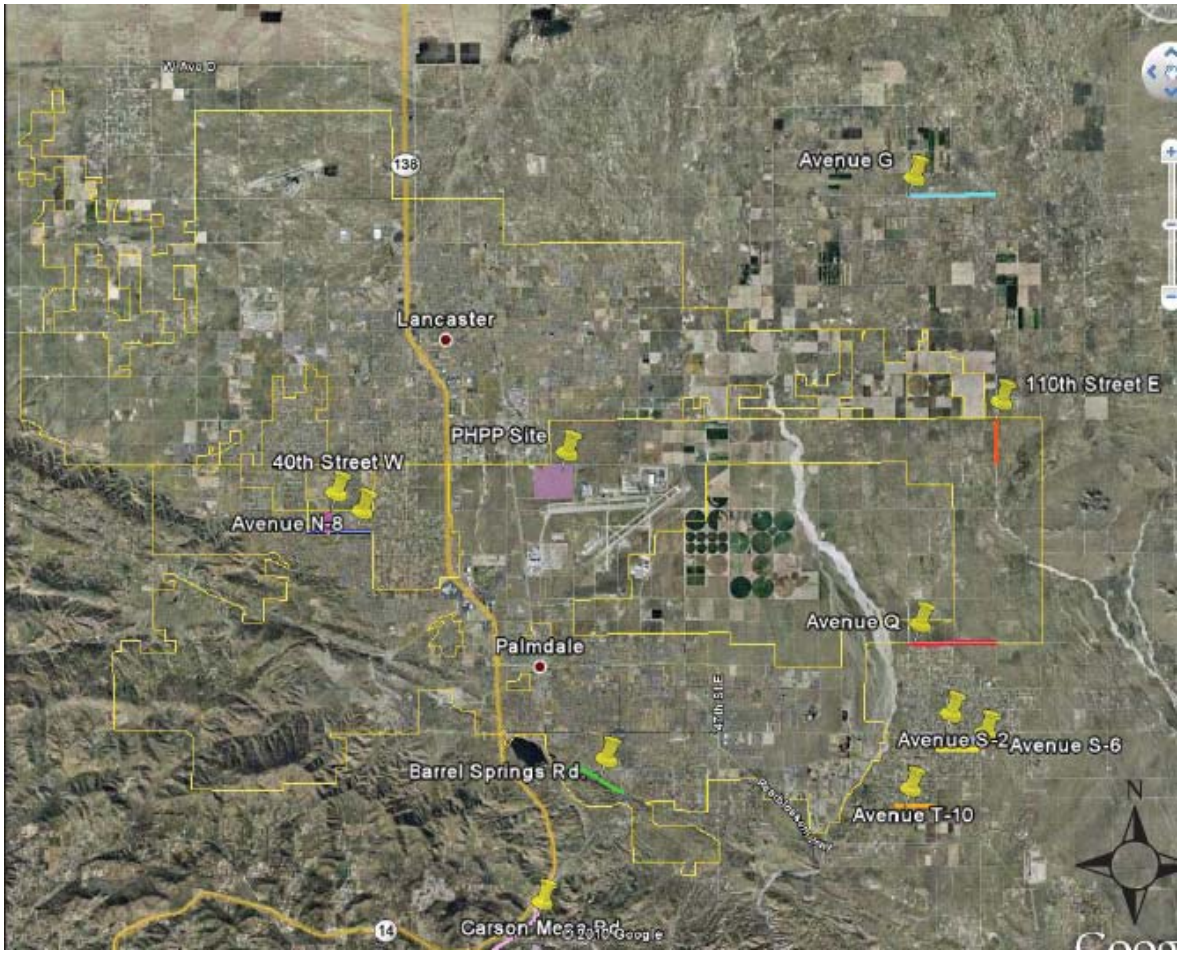
c. Road Paving and Ancillary Improvements

The Applicant has proposed to pave segments of roads in the vicinity of the PHPP to reduce PM 10 emissions that would offset project emissions. In general, road-paving activities can involve temporary lane or road closures, encroachment on public or private rights-of-way, and construction signage and flag personnel. In most power plant siting cases road paving or other alterations (gravel) is usually done for on-site access, installation of water or gas lines, or repair of construction related damage to roadways.

The Conditions of Certification, below, include a traffic control plan that requires a project owner to work with the appropriate city or county to ensure that all ministerial permits and approvals are acquired so that PHPP will not have a significant impact on local roads. (Ex. 301, p. 29.)

For each road section **see Traffic and Transportation Figure 2**, the City of Palmdale, in consultation with L.A. County, where appropriate, will determine if additional underground infrastructure such as water, wastewater, and storm drainage is needed. Subsequent to excavation, installation of infrastructure, and road base preparation, roadway sections will be widened and paved according to the specifications for each roadway type. City of Palmdale staff will make a future determination regarding the acquisition of ROW needed and the inclusion of beautification/safety features including landscaping and street lighting. (Ex. 301, p. 29.)

Traffic and Transportation – Figure 2
Palmdale Hybrid Power Project - Potential Road Segments for Paving



(Ex. 301, Figure 1.)

In the generally accepted streets hierarchy, freeways carry the highest volume and are the widest road type; local streets and rural lanes are usually the narrowest, and carry the lowest traffic volumes, other street types fall somewhere in between the two extremes. The three street types that are involved with the proposed Palmdale roadway paving are secondary arterial, local interior street and rural county road. All road sections being considered for paving are shown in **Traffic and Transportation Table 3**. The labeled street segments shown in the figure correspond to the segments listed in the table. (Ex. 301, p. 29.)

Traffic and Transportation Table 3
Road Segments Considered for Paving (PM10 Reduction)

Street Segment	From	To	Jurisdiction	Street Type	Segment Length (Mi.)	ROW Req.	Segment Footprint (Acre)
Ave. B	90th Street W	30th Street W	L.A. County	County Road	Approx. 6.0	40 Ft.	29.1
Ave. S-2	96th Street E	106th Street E	L.A. County	County Road	Approx. 1.0	40 Ft.	4.85
110th Street E	Ave. L	Columbia Way/ Avenue M	City of Palmdale	Secondary Arterial	Approx. 1.0	92 Ft.	11.15
40th Street W	Ave. N	Ave N-8	L.A. County	County Road	Approx. 0.5	40 Ft.	1.94
Ave. Q	90th Street E	110th Street E	City of Palmdale	Secondary Arterial	Approx. 2.0	92 Ft.	22.3
Ave. S-6	96th Street E	106th Street E	L.A. County	County Road	Approx. 1.0	40 Ft.	4.85
Ave. T-10	87th Street E	96th Street E	L.A. County	County Road	Approx. 1.0	40 Ft.	4.85
Ave. N-8	Bolz Ranch Road	30th Street W	City of Palmdale	Local Interior St.	Approx. 1.5	60 Ft.	10.91
Ave. G	90th Street E	120th Street E	L.A. County	County Road	Approx. 3.0	40 Ft.	9.70
Carson Mesa Road	El Sastre	Vincent View Road	L.A. County	County Road.	Approx. 1.85	40 Ft.	8.24

(Ex. 301, p. 30.)

Secondary Arterial

A secondary arterial roadway is typically designed to deliver traffic from lower volume local streets to higher volume major arterials. They can also provide access directly to collectors, and may serve destination uses such as local mixed-use shopping and other commercial uses, as well as industrial users. The City of Palmdale Circulation Plan identifies the following roads as secondary arterials, portions or all of which are proposed to be paved to meet PM10 reduction targets. (Ex. 301, p. 30.)

110TH Street E

This unpaved roadway is located in the northeast quadrant of the City of Palmdale. Surrounding land use designations are overwhelmingly industrial and planned industrial; the bulk of land directly adjacent to the roadway on both the east and west sides is currently undeveloped. Traffic counts can be expected to be similar to those identified for 90th Street E (designated a major arterial), which is in the same vicinity, near the intersection with Avenue M. Traffic counts are in the range of 3,057 to 3,165 ADT, as of April, 2006. (Ex. 301, p. 30.)

According to the Circulation Plan, this secondary arterial would have an anticipated overall ROW width of 92-feet, with two 25-foot travel lanes (if bike lanes are included, each lane would be expanded to 29-feet), an 18-foot median, and two 8-foot shoulders. (Ex. 301, p. 30.)

Avenue Q

This unpaved roadway is located in the southeast quadrant of the City of Palmdale. Avenue Q constitutes the boundary limit line between the City of Palmdale and Los Angeles County. Surrounding land use designations are overwhelmingly industrial and planned industrial; the bulk of land directly adjacent to the roadway on both the east and west sides is currently undeveloped. Traffic counts can be expected to be similar to those identified for Avenue M east of 90th Street E, also in the industrial area. Traffic counts are in the range of 3,057 to 3,165 ADT, as of April 2006. This secondary arterial would also have an anticipated overall ROW width of 92-feet, with two 25-foot travel lanes, an 18-foot median, and two 8-foot shoulders. (Ex. 301, p. 31.)

<u>Local Interior Street</u>

Local streets typically carry lower traffic volumes at the neighborhood level and provide a link to collectors, which eventually provide access to arterials and thoroughfares carrying traffic to other parts of the city. (Ex. 301, p. 31.)

Avenue N-8

Avenue N-8 is located in the west central portion of the City of Palmdale and constitutes the boundary limit line between city and county. Avenue N-8 west of Bolz Ranch Road (located in the city) is paved, while the segment east of Bolz Ranch Road is unpaved dirt. Land use to the south consists of a developed specific plan with golf course/residential (city). Uses to north consist of large lot residential (county) with a macro-grid street pattern. Traffic counts west of Bolz Ranch Road are 607ADT, measured in November, 2007. Levels of traffic on the section of Avenue N-8 east of the intersection are expected to be in this range.

Portions of Avenue N-8 in the city are currently developed to the local interior street standard, with an approximate overall ROW of 60-feet; the extension of Avenue N-8 should follow this pattern of development, in accordance with the City of Palmdale Circulation Plan. (Ex. 301, p. 31.)

County Roads

Rural county roadways typically carry lower volume traffic between places, and also provide a link to other higher volume streets, which eventually provide access to regional arterials, and/or highways. (Ex. 301, p. 32.)

Avenue B

Avenue B is located roughly one-half mile west of Highway 138, approximately three miles north of the City of Lancaster in unincorporated Los Angeles County. Avenue B is currently a dirt lane surrounded by predominately undeveloped scrub lands. Los Angeles County rural roadway standards will be applied if Avenue B were to be paved. The road will have a maximum ROW of 40-feet, with two 12-foot travel lanes and two eight-foot shoulders. (Ex. 301, p. 32.)

Avenue S-2, Avenue S-6, and Avenue T-10

These three unpaved roadways are part of a large-lot residential development in unincorporated Los Angeles County. The rural county enclave is located south and east of the existing Palmdale city limits. Los Angeles County rural roadway standards would be applied if these roadways were to be paved. Thus, the roads would have a maximum ROW of 40-feet, with two 12-foot travel lanes and two eight-foot shoulders. (Ex. 301, p. 32.)

40th Street W

This unpaved roadway is located in an unincorporated peninsula west of the City of Palmdale. The land use pattern is a large lot residential Los Angeles County development. Across the intersection with Avenue N-8, at the southern end of 40th Street W is land in the City of Palmdale (golf course/residential). Traffic counts can be expected to be similar to those identified for 45th Street W, with a similar zoning and development pattern. Traffic counts are 4,295 ADT, as of May 2004. This county road will also have an anticipated overall ROW width of 40-feet (two-lane rural road). (Ex. 301, p. 32.)

Avenue G

Avenue G is located approximately 11 miles east of Highway 138, and approximately three and one-half miles north of the City of Lancaster in unincorporated Los Angeles County. Avenue G is currently a dirt lane

surrounded by predominately undeveloped scrub lands. Rural county roadway standards would be applied if Avenue B were to be paved, and the road would have a maximum ROW of 40-feet, with two 12-foot travel lanes and two eight foot shoulders. (Ex. 301, p. 32.)

Carson Mesa Road

Carson Mesa Road is located in Los Angeles County approximately two and one-half miles south and west of the City of Palmdale. The unpaved county road runs parallel to Highway 14 and carries rural residential traffic, and can also serve as an alternative route to the paved highway. Surrounding land uses consist mostly of undeveloped low rolling hills, with some scattered residences. Rural county roadway standards would likely be applied if Carson Mesa Road were to be paved. The road would have a maximum ROW of 40-feet, with two 12-foot travel lanes and two eight foot shoulders, with the possible addition of eight-foot bike lanes. (Ex. 301, p. 33.)

Condition of Certification **TRANS-1** regarding the preparation and implementation of a construction traffic control plan requires all road paving activities to comply with engineering design standards for road development pursuant to guidelines mandated by the Public Works Departments of the City of Palmdale and the County of Los Angeles as appropriate. We find that the proposed road paving activities will not have a significant traffic and transportation impact on the applicable roads.

8. Hazardous Materials Transport

Transportation of hazardous materials to and from the site will be conducted in accordance with all applicable LORS. The California Vehicle Code and California Streets and Highway Code require permits for hazardous materials shipment and handling including quantities, routes and operator training and qualifications. It is anticipated that project construction would generate approximately 15 one-way truck trips per day with a maximum of 50 truck trips per day. During project operations, it is anticipated that approximately 68 truck trips per month would be generated by the project, with an average between two and three truck trips per day. Solid waste disposal shipments would account for approximately 45 of the anticipated truck trips and the remainder being deliveries of materials and supplies. Approximately 15 of the remaining 23 truck trips would be deliveries of hazardous materials, 14 of which would be aqueous ammonia. For a discussion of the potential impacts related to hazardous materials please see the **Hazardous Materials Management** section in this Decision. Because the project

would require the delivery of hazardous materials, Condition of Certification **TRANS-7** will require that the project owner obtain the necessary permits from Caltrans and the cities of Lancaster and Palmdale for the delivery of hazardous materials on public roadways. (Ex. 300, p. 4.10-13.)

9. Air Traffic

Plant 42 is adjacent to the proposed project site. Runway 7/25 is located 3,000 feet south of the proposed project and Runway 4/22 is located 10,000 feet south of the proposed project. The evidence shows that arrival and departure air traffic using Runway 7/25 would not fly over the proposed project given the current traffic pattern. A departure from Runway 4/22 could fly over the western part of the project but pilots could fly further west until reaching the end of the runway before turning north towards Edwards Air Force Base. This delay of turn would not bring the aircraft over any residential area. Most of the aircraft at Plant 42 use Runway 7/25 and are engaged in practice landings and take-offs commonly referred to as “touch-and-gos.” (Ex. 300, pp. 4.10-15 – 4.10-16.)

The FAA requires that anyone proposing to construct or alter any navigable airspace within 20,000 lineal feet of a public use (or military) airport which exceeds a 100:1 vertical surface from any point on the runway of an airport, with at least one runway more than 3,200 feet long, must file a 7460-1 form (Notice of Construction/Alteration of Navigable Airspace) with the FAA for determination of a potential aviation hazard. Given the proximity of Plant 42 to the PHPP site and its two long runways, any structure over 30 feet tall would penetrate Plant 42’s navigable airspace. Therefore, the Applicant must file the 7460-1 form for each applicable structure. Using the 100:1 vertical ratio designated by the FAA, the evidence shows that there are several project structures that will exceed the 30 feet above ground level (AGL) threshold: These include the two heat recovery steam generator stacks (HRSGs) (145 feet tall), some of the transmission towers (94 feet or taller), the ten-cell cooling tower (50 feet tall), one clarified water storage tank (35 feet tall), and one crystallizer (55 feet tall). In addition, a tall construction crane will most likely be used to construct the HRSGs and other tall structures. (Ex. 300, p. 4.10-16.)

All of these structures will require the PHPP Applicant to submit 7460-1 forms to the FAA and the subsequent Determinations of No Hazard to Navigable Airspace must be obtained. The record contains only the No Hazard Determinations for the two HRSGs. Condition of Certification **TRANS-2** will require the project owner to acquire FAA Determinations of No Hazard for all project structures over 30

feet tall. Nevertheless, the record suggests that the project structures that exceed the 30-foot threshold will not be a hazard to air navigation at the Plant 42 because most aircraft do not fly over the project site, and those aircraft in the traffic pattern are at least 1,500 feet AGL, which would be well above any project structure. (Ex. 300, p. 4.10-16.)

The PHPP will generate thermal plumes from two HRSG stacks and the ten-cell cooling tower. Forecasts in evidence indicate that turbine and cooling tower plumes at or exceeding the 4.3 meters per second (m/s) threshold could extend to about 990 feet and 875 feet AGL, respectively. The FAA has recommended that aircraft do not fly over plume-generating industrial sites at less than 1,000 feet AGL. A recent modification to the FAA's Aeronautical Information Manual advises pilots to avoid flight in the vicinity of thermal plumes. The HRSGs and cooling tower are located close to the runways and within the traffic pattern but arriving or departing aircraft would not fly over them. Therefore, the turbulence caused by these thermal plumes would not affect aircraft using Plant 42. The record indicates that Plant 42 representatives do not foresee negative impacts from either the cooling tower or HRSG exhausts. (Ex. 300, pp. 4.10-16 – 4.10-17.)

As discussed in the **Visual Resources** section of this Decision, visible plumes from the gas turbine/HRSG exhaust stacks are predicted to occur less than 20 percent of seasonal daylight clear hours and would occur very infrequently when operating without duct firing. Duct firing is much more likely to occur during high summer demand periods rather than during the periods that are more favorable for gas turbine/HRSG exhaust plume formation (i.e. very cold). Cooling tower plumes will occur much more frequently and the dimensions at the 20 percentile frequency of the seasonal daylight clear hours are predicted to be 70 meters (231 feet) long, 189 meters (622 feet) tall, and 62 meters (203 feet) wide. (Ex. 300, p. 4.10-17.)

Visible plumes from the cooling towers could be significantly greater than 20 percent given the plant design and the incorporation of several conservative operating assumptions, and assuming year-round full load operation with a 100 percent capacity factor (although 80 percent capacity is more likely). Using a worst case scenario of the PHPP operating at full load with solar/no duct firing, the 5 percent plume dimensions are predicted to be 232 meters (762 feet) long, 467 meters (1,532 feet) tall, and 117 meters (384 feet) wide.

These are significant plume dimensions that would reach traffic pattern altitude and would be very noticeable to pilots using Plant 42. (Ex. 300, p. 4.10-17.)

For comparison, the 50 percentile plume dimensions are expected to be 20 meters (66 feet) long, 40 meters (133 feet) tall, and 41 meters (133 feet) wide. The evidence shows that pilots would be able to observe and avoid direct overflight or penetration of any predicted plume without deviating significantly from existing traffic patterns, and could maintain visual contact with the runways at Plant 42. This evidence is based on the worst case plume height barely penetrating traffic pattern altitude (1,500 feet AGL), the traffic pattern is farther out than where the plumes would rise and is wide enough to allow pilots to avoid flying through or above the tallest plume, and therefore visual contact with the runways would be maintained. As noted earlier, Plant 42 representatives do not anticipate negative impacts from project plumes. (Ex. 300, p. 4.10-17.)

One additional factor involves the relationship between plume formation and behavior and the frequency of calm winds (less than three meters per second [m/s]) and cool temperatures (30° to 60°F). In general, plumes form, increase in size, and maintain their integrity as they rise from a HRSG stack or a cooling tower cell when temperatures are cool and the wind is calm. When winds are greater than three m/s and temperatures are greater than 60°F, plumes are less likely to form and/or are blown horizontally and dissipate quickly into the air. In addition, relative humidity is comparatively low in the Palmdale area for most of the year which further limits the formation of plumes. Therefore, cooling tower plumes with dimensions as large as or larger than those noted above occur predominately in the winter and would be expected to occur very infrequently outside of the analyzed seasonal (November through April) period. The PHPP visible plumes will not significantly affect local aircraft operations and the modeling analysis does not predict that the runways/taxiways of the airport would experience plume fogging. Nevertheless, Condition of Certification **TRANS-4** requires the project owner to cooperate with the FAA and the Plant 42 Commander to implement a number of measures to advise pilots to avoid direct overflight of the project. These could include: 1) requesting a FAA Notice to Airmen (NOTAM) be issued advising pilots of the location of the PHPP; 2) amending navigational charts (i.e. Jeppguide Airport Directory, Western Region), the Los Angeles VFR Terminal Chart, and the Plant 42 Airport Facility Directory to include a symbol representing the PHPP; 3) provide Plant 42 control tower operators verbal and written notice before the PHPP commences operation; and

4) install obstruction lighting and marking on each project exhaust stack and both ends of the cooling tower, and additional lighting at each corner of the project. (Ex. 300, pp. 4.10-17 – 4.10-18.)

The evidence indicates that some concern was raised over the possibility of glare from the solar array having an adverse impact on the vision of pilots using the airport. Pilots flying to and from Air Force Plant 42 use two runways, Runway 4/22 and Runway 7/25. Pilots using Runway 4/22 would be approximately 1.7 statute miles (approximately 9,000 feet) from the PHPP's parabolic mirrors. Consequently, pilots' exposure to glint and glare will be minimal. The greater danger for exposure to glint and glare would occur for pilots using Runway 7/25. At its closest point, the PHPP is located approximately 2,000 feet from the runway. With its substantial array of parabolic mirrors, the PHPP could pose a significant source of glint and glare to pilots operating aircraft to and from Air Force Plant 42. (Ex. 300, pp. 4.10-18 – 4.10-20.)

Conditions of Certification **TRANS-8** and **-9** are designed to reduce glint and glare impacts to a less than significant level and to provide a complaint resolution process should a glint and/or glare incident occur. **TRANS-8** requires the project owner to provide a plan which includes measures to be taken to reduce glint and glare to the maximum extent possible. These measures include ensuring mirrors are brought out of stow position before sunrise, are aligned to catch the first rays of the morning sun, and are then returned to stow position after sunset. **TRANS-8** ensures mirrors are continuously monitored for malfunctions and requires that mirrors remain properly aligned with the sun and minimize reflections from bellow shields. **TRANS-8** requires the PHPP project owner establishes and maintains a communication link with Plant 42 control tower to ensure that the mirrors positioning will not interfere with critical flight operation. The PHPP project owner must establish procedures to avoid glare while intentionally moving individual collectors off-axis to "dump" power during periods of high insolation.

TRANS-9 requires the project owner to develop and implement a process for documenting, investigating, evaluating, and resolving all project-related glare complaints. This will involve the project owner working with the Commander of Plant 42, or his or her representative, to set up a communication link to alert both parties about complaints involving PHPP related glint or glare. **TRANS-9** requires an investigation into each complaint and contact with the Commander within 24 hours to report on actions taken to resolve the complaint. Once the complaint has been resolved, the Commander or his or her representative must submit a report

to the CPM describing specific details of the complaint, the results of glare reduction efforts, and a signed statement that the glare problem is resolved.

Conditions of Certification **TRANS-8** and **-9** will reduce impacts to a less than significant level and will provide a complaint resolution process should a glint and/or glare incident occur. (Ex. 300, pp. 4.10-18 – 4.10-20.)

Finally, Intervenor, **Desert Citizens Against Pollution**, offered Exhibit 502 which was the reporter's transcript containing aviation evidence in the *Eastshore Energy Center Project* (06-AFC-6) Evidentiary Hearing. However, there was no reference to Exhibit 502 at the evidentiary hearing, apart from argument over its admission, and no mention of it whatsoever in any brief. Thus, it appears that whatever purpose the proponent of Exhibit 502 initially intended, has been abandoned.

10. Cumulative Impacts and Mitigation

There is no evidence in the record of any other development in the local area that could combine with the PHPP to produce cumulative traffic or transportation impacts. (Ex. 300, pp. 4.10-21 – 4.10-22.)

11. Public Comment

A memorandum from the Air Force Plant 42 Commander to the City of Palmdale dated July 16, 2010 raised the issue that under some circumstances glint and glare (reflections) could occur from PHPP structures. An internal body within the U.S. Air Force will investigate the potential for reflections through some type of modeling/simulation. The letter stated that…"at this time all other known concerns have in fact been resolved…" A second memorandum from the Commander to staff dated August 30, 2010 raised additional concerns regarding glint and glare that were analyzed in the Blythe Solar Power Project. The memorandum recommended several permit conditions be implemented to reduce the potential for glint and glare to impact flight operations at Plant 42. Conditions of Certification **TRANS-8** and **-9** include the recommended conditions.

FINDINGS OF FACT

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. With the Conditions of Certification we adopt in this Decision, the project would not impact aviation safety.

3. Condition of Certification **TRANS-1** would require the project owner to prepare and implement a traffic control plan.

4. To date, the FAA has issued a Determination of No Hazard for the two HRSGs. Condition of Certification **TRANS-2** would require the project owner to acquire FAA Determinations of No Hazard for all project structures over 30 feet tall.

5. **TRANS-3** would require that all project-related overweight and oversize vehicles used on public roadways during construction and operations comply with Caltrans and other agency regulations pertaining to overweight and oversize vehicles.

6. Condition of Certification **TRANS-4** would require the project owner to work with the FAA and the Plant 42 Commander to implement a number of measures that would advise pilots to avoid direct overflight of the project so as not to be affected by thermal plumes.

7. Condition of Certification **TRANS-5** requires that any road damaged by project construction would be repaired to original condition. This will ensure that any damage to a local roadway will not be a safety hazard to motorists.

8. A main access drive and at least one additional emergency access would provide standard acceptable emergency access to the proposed project in accordance with Condition of Certification **TRANS-6**.

9. The proposed road paving activities will not have a significant **Traffic and Transportation** impact on the applicable roads.

10. Condition of Certification **TRANS-7** would require that the project owner obtain the necessary permits from Caltrans and the cities of Lancaster and Palmdale for the delivery of hazardous materials on public roadways.

11. Conditions of Certification **TRANS-8** and **-9** would reduce impacts to a less than significant level and would provide a complaint resolution process should a glint and/or glare incident occur.

12. There would be no significant direct or cumulative **Traffic and Transportation** impacts and therefore no environmental justice issues.

CONCLUSIONS OF LAW

1. 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.

2. The Commission further concludes that implementation of the Conditions of Certification, below, and the mitigation measures described in the evidentiary record, will ensure that the PHPP conforms with all applicable laws, ordinances, regulations, and standards relating to traffic and transportation.

CONDITIONS OF CERTIFICATION

TRANS-1 The project owner shall prepare and implement a construction traffic control plan. The traffic control plan must include but not be limited to the following issues:

- Schedule construction activities such that traffic will arrive and depart from the power plant site during non-peak traffic hours to the extent practicable taking into consideration Condition **AQ-SC-6**. During the months of October through March when such scheduling may not be feasible, prepare and distribute a map showing acceptable access routes to the plant site that avoid the SR-14 / Avenue M interchange during peak hours, such as SR-14 to Avenue L east to Sierra Highway south on Sierra Highway to Avenue M and east to the PHPP site;
- Make improvements to East Avenue M (e.g. turn and acceleration/deceleration lanes) consistent with existing project access features to allow for safe arrival/departure to/from the project site;
- Limit heavy equipment and building materials deliveries to between 9:30 a.m. and 3:30 p.m., per Palmdale General Plan Circulation Element, to minimize impacts and route truck traffic around residential development;
- Provide signing, lighting, and traffic control device placement during construction impacting regional and local roadways;
- Ensure construction traffic avoids using the SR-14 on and off-

ramps to East Avenue M during peak morning and afternoon traffic periods;

- Traffic diversion plans (in coordination with the cities of Palmdale and Lancaster) to ensure access during temporary lane/road closures;
- Ensure access for emergency vehicles to the project site;
- Ensure pedestrian and bicycle safety from construction vehicle travel routes and any construction-related temporary travel lane closures or disruptions;
- Temporary closure of travel lanes or disruptions to street segments and intersections during reconductoring activities or any other utility tie- ins;
- Establish a parking plan for workers, construction vehicles, and trucks during transmission line and pipeline construction;
- Installation of the natural gas pipeline and water line to occur during nonpeak hours;
- Use flagging, flag men, signage and cover open trenches when needed; and
- All road paving activities shall comply with engineering design standards for road development pursuant to guidelines mandated by the Public Works Departments of the City of Palmdale and the County of Los Angeles as appropriate.

Verification: At least 90 days prior to the start of site mobilization, the project owner shall submit a traffic control plan that outlines each component above to Caltrans and the cities of Palmdale and Lancaster Planning Departments for review and comment and to the CPM for review and approval. The project owner shall provide the CPM with any comments from Caltrans and the cities of Palmdale and Lancaster**.**

TRANS-2 The project owner shall obtain Determinations of No Hazard to Navigable Airspace from the FAA for U.S. Air Force Plant 42 regarding the project's transmission towers, cooling tower, clarified water tank, crystallizer, and construction crane that would penetrate the Plant's airspace.

Verification: At least 90 days prior to the construction,, the project owner shall provide the CPM copies of the FAA Determinations of No Hazard to Navigable Airspace regarding the project structures identified above and the project owner must comply with specific recommendations contained in the FAA determinations.

TRANS-3 The project owner shall comply with Caltrans and other relevant jurisdictions' limitations on vehicle sizes and weights used during construction and operation. In addition, the project owner or its contractor shall obtain necessary transportation permits from Caltrans and all relevant jurisdictions for roadway use.

Verification: The project owner shall retain copies of these permits and supporting documentation in its compliance file for at least six months after the start of commercial operation.

TRANS-4 Pilot Notification and Awareness

The project owner shall initiate the following actions to ensure pilots are aware of the project location and potential hazards to aviation:

a) Submit a letter to the FAA requesting a Notice to Airmen (NOTAM) be issued advising pilots of the location of the PHPP and recommending avoidance of overflight of the project site below 1,500 feet AGL. The letter shall also request that the NOTAM be maintained in active status until all navigational charts and Airport Facility Directories (AFDs) have been updated.

b) Submit a letter to the FAA requesting a power plant depiction symbol be placed at the PHPP site location on the Los Angeles Sectional Chart with a notice to "avoid overflight below 1,500 feet AGL".

c) Submit a request to and coordinate with the USAF Plant Commander to add a new remark to the Automated Surface Observing System (ASOS) identifying the location of the PHPP and advising pilots to avoid direct overflight below 1,500 feet AGL as they approach or depart the airport.

d) Request that TRACON (SOCAL) and/or the Los Angeles Air Traffic Control Center submit aerodrome remarks describing the location of the PHPP plant and advising against direct overflight below 1,500 feet AGL to:

   1) FAA AeroNav Services, formerly the FAA National Aeronautical Charting Office (Airport/Facility Directory)

   2) Jeppesen Sanderson Inc. (JeppGuide Airport Directory, Western Region)

   3) Airguide Publications (Flight Guide, Western States)

e) Install one, non-blinking red aviation obstruction light on each of the project's two, 145-foot tall HRSG stacks, both ends of the 48-foot tall cooling tower, and at each corner of the power block area.

Verification: Within 30 days following the start of construction, the project owner shall submit draft language for the letters of request to the FAA (including SOCAL TRACON) and Air Force Plant 42 to the CPM for review and approval.

At least 60 days prior to the start of operations, the project owner shall submit the required letters of request to the FAA and request that TRACON (SOCAL) submit aerodrome remarks to the listed agencies. The project owner shall submit copies of these requests to the CPM. A copy of any resulting correspondence shall be submitted to the CPM within 10 days of receipt.

If the project owner does not receive a response from any of the above agencies within 45 days of the request (or by 15 days prior to the start of operations) the project owner shall follow up with a letter to the respective agency/ies to confirm implementation of the request. A copy of any resulting correspondence shall be submitted to the CPM within 10 days of receipt.

The project owner shall contact the CPM within 72 hours if notified that any or all of the requested notices cannot be implemented.[1] Should this occur, the project owner shall appeal such a determination, consistent with any established appeal process and in consultation with the CPM. A final decision from the jurisdictional agency denying the request, as a result of the appeal process, shall release the project owner from any additional action related to that request and shall be deemed compliance with that portion of this Condition of Certification.

TRANS-5 The project owner shall repair any damage to roadways affected by construction activity along with the primary roadways identified in the traffic control plan for construction related traffic to the road's pre-project construction condition.

Verification: At least 90 days prior to the start of site mobilization, the project owner shall photograph, videotape, or digitally record images of the roadways that will be affected by any underground utility connection construction and heavy construction traffic. The project owner shall provide the CPM, CBO and the City of Palmdale and Lancaster with a copy of the images for the roadway segments under its jurisdiction. Also prior to start of construction, the project owner shall notify the cities about the schedule for project construction. The purpose of this notification is to postpone any planned roadway resurfacing and/or improvement projects until after the project construction has taken place and to coordinate construction-related activities associated with other projects.

Within 30 days prior to the commencement of project operations, the project owner shall meet with the CBO and the cities of Palmdale and Lancaster to determine the actions necessary and schedule the repair of identified sections of public roadways and restore the ROW to original or as near-original condition as

[1] The Energy Commission does not have the authority to compel issuance of a NOTAM or require the FAA or Byron Airport to publish the location of or remarks regarding the project in any aviation chart or guide, or add that information to the Byron Airport ASOS.

possible. Following completion of any road improvements, the project owner shall provide to the CPM and CBO comment letters from the cities of Palmdale and Lancaster stating whether the work completed within public rights-of-way meets city standards. If the CPM and CBO determine that additional work is needed to meet city standards, the CPM will direct the project owner to complete the additional work.

TRANS-6 The project owner shall provide emergency access that complies with the City of Palmdale General Plan Circulation Element and requirements of the Los Angeles County Fire Department.

Verification: At least 90 days prior to the start of construction, the project owner shall provide plans to the Los Angeles County Fire Department and Palmdale Public Works Department for review and comment, and the CPM and CBO for review and approval, which demonstrate that emergency access will be provided in compliance with City of Palmdale and Los Angeles County Fire Department standards. The project owner shall provide the CPM with any comment letters received from the City of Palmdale and/or Los Angeles County Fire Department. Adequate emergency access shall be provided prior to the start of project operations.

TRANS-7 The project owner shall ensure that all necessary permits and/or licenses are secured from the U.S. Department of Transportation, California Highway Patrol, Caltrans and the cities of Palmdale and Lancaster for the transport of hazardous materials.

Verification: The project owner shall retain copies of these permits and supporting documentation in its compliance file for at least six months after the start of commercial operation.

TRANS-8 Prior to the start of construction, the project owner shall provide a plan to the CPM and the Air Force Plant 42 Commander identifying all reasonable measures the project owner will take to minimize the creation of glint and glare on Air Force Plant 42 airfield traffic including, but not limited to, the following:

1. Ensure the mirrors are (1) brought out of stowage before sunrise and are aligned to catch the first rays of the morning sun; and (2) returned to stow position after sunset. Ensure mirrors are continuously monitored for malfunctions and remain properly aligned with the sun. Acquire appropriate equipment and establish procedures for a timely repositioning of inoperative or malfunctioning mirrors to minimize the probability of glint or glare exposure. Procedures shall address the mirror trajectory path to a stowage position, or in the event that stowage is not possible, an alternate trajectory to a neutral positioning with respect to glare. Mirror repositioning due to a mirror alignment malfunction shall be

accomplished as soon as practical to minimize glint or glare exposure.

2. Minimize reflections from bellows shields by using a non-reflective or diffuse material or coating (for example, paint) for the shields.

3. Ensure PHPP operator establishes and maintains a communication link with Air Force Plant 42 control tower to ensure that mirrors are positioned so as not to interfere with critical flight operations.

4. Establish procedures to avoid glare when intentionally moving individual collectors off-axis to “dump” power incident on the heat collection elements during periods of high insolation.

The plant operator shall develop and implement a plan to address events in which mirror modules need to be rotated off-axis, such as an event in which it is necessary to dump power. The mirrors’ rotational trajectory and final positioning shall ensure the safe movement and positioning of the mirror modules with respect to operational flight patterns to minimize the occurrence and impact of glint or glare events.

In addition, this plan shall include specific provisions for tracking and compiling data involving any and all mirror malfunctions. This data shall include the (1) date, time and location of offending mirror or mirrors; (2) specific adjustments made to correct each mirror or mirrors; (3) date and time specific adjustments were evaluated for effectiveness; and (4) effectiveness of each adjustment. That information shall be included in the monthly compliance reports during construction and in the semi-annual compliance reports during operation. This information will be used to ensure that the offending mirrors are quickly adjusted, thereby having a minimum impact on flight operations. In addition, this information will provide data for the plant operator to use in monitoring mirror operations and preventing malfunctions.

Verification: Within 30 days prior to the start of construction, the project owner shall submit the required plan to the Air Force Plant 42 Commander for comment and to the CPM for review and approval. The project owner shall also notify the CPM when the required modifications have been made and are available for inspection.

In addition, the project owner shall include in the monthly compliance reports all data concerning malfunctions of any mirrors during construction and initial start-up operation of the plant and in the semi-annual compliance reports during regular operation.

TRANS-9 Throughout the construction and operation of the project, the project owner shall work with the Air Force Plant 42 Commander or his or her designated representative to develop and implement a process for documenting, investigating, evaluating, and resolving all project-related glare complaints.

The project owner or authorized agent shall:

1. Work with the Commander, Air Force Plant 42 or his or her designated representative to develop a procedure for quickly resolving complaints. The process shall include a means for immediately alerting through telephone or other means the project owner of a glint and glare complaint as well as a Complaint Resolution Form (below), or functionally equivalent procedure acceptable to the CPM, Commander, Air Force Plant 42, and the project owner to document and respond to each complaint.
2. Investigate each complaint and contact the Commander, Air Force Plant 42, or his or her designated representative within 24 hours to report on actions to be taken to resolve complaint.
3. If glint or glare is project-related, project owner shall take all feasible measures to reduce glint and glare at its source within 24 hours or will notify the Commander as soon as possible when such measures can be completed.
4. As soon as the complaint has been resolved to the satisfaction of the Commander, Air Force Plant 42, or his or her designated representative, submit to the CPM a report in which the complaint as well as the actions taken to resolve the complaint are documented. The report shall include (1) specific details of the complaint as well as (2) information about the final results of glare reduction efforts; and (3) a signed statement by Commander, Air Force Plant 42, or his or her designated representative, in which the complainant states that the glare problem is resolved to his or her satisfaction.

Verification: Thirty days prior to the start of mirror installation, the project owner shall provide copies of the glare resolution form to the Commander, Air Force Plant 42 or his or her designated representative. This form shall include the name and telephone number of the project owner's designated representative authorized to take action to resolve complaints of glint and glare. Within five business days of receiving a glare complaint, the project owner shall

file the Glare Complaint Resolution Form in which he or she has documented the resolution of the complaint with the CPM and the Commander, Air Force Plant 42 or his or her designated representative. If the mitigation required to resolve a complaint is not completed within three business days from the date the complaint is received, the project owner shall submit an updated glare resolution form to the CPM and the Air Force Plant 42 Commander or his or her designated representative when the mitigation is implemented along with the items indicated in item number 4, above.

C. SOCIOECONOMICS

This 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 Palmdale Hybrid Power Plant (PHPP) project. 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. The evidence on socioeconomics was undisputed, except for the issue of growth inducing impacts. (Ex. 15; 39; 44; 123; 50; 128; 300; 301.)

SUMMARY AND DISCUSSION OF THE EVIDENCE

1. Demographics, Services and Finances

The PHPP plant site is located in the City of Palmdale, Los Angeles County, California, on the southwestern edge of Antelope Valley of the Mojave Desert. The PHPP plant site would be located within approximately 333-acres of currently undeveloped land in the north-eastern part of the City of Palmdale, approximately 60 miles north of downtown Los Angeles. The proposed plant site of 333-acres would be a part of an approximately 600-acre site, owned by the City of Palmdale. The PHPP would be bounded by the Sierra Highway to the west, East Ave M to the north, and U.S. Air Force Plant 42 on the south and east. All project facilities with the exception of parts of the transmission lines and reclaimed water pipeline are located within the City of Palmdale. (Ex. 300, p. 4.8-2.)

Population centers located within the county of Los Angeles include the City of Lancaster and the unincorporated communities of Quartz Hill to the north; Lake Los Angeles to the east, Acton to the south; and Leona Valley to the west. The nearest sizeable cities to the project site include Santa Clarita (25 miles west), Adelanto (39 miles east), Victorville (40 miles east), Hesperia (41 miles east) and Apple Valley (44 miles east), all of which are located in San Bernardino County. The nearest residential area is located approximately one mile north of the plant site. (Ex. 300, p. 4.8-2.)

The evidence indicates that the construction of the PHPP will result in the influx of temporary workers to the area during the 27-month construction period. There would be an average of approximately 367 daily construction workers. Laborers would consist of craftspeople and supervisory, support, and construction management personnel on-site during construction. The peak construction labor force of 767 total daily construction workers would occur during the 12th month of construction. (Ex. 300, p. 4.8-8.)

The PHPP would require 36 full-time employees; most workers are expected to commute to the project site from communities in Los Angeles, San Bernardino and Kern Counties. (Ex. 300, p. 4.8-8.)

Given the large labor force within two hours commuting time of the project, potential employees are not expected to relocate to the immediate project area. There is more than adequate local availability of construction and operation workforce within the Los Angeles, San Bernardino, and Kern County Metropolitan Statistical Area (MSA) to serve the direct PHPP construction and operation labor need. The evidence establishes that the construction and operation workforce will not induce substantial growth or concentration of population, and the PHPP will not encourage people to permanently move into the area. The PHPP will have no direct or indirect impact on population growth in a new area. (Ex. 300, p. 4.8-8.)

The U.S. Census Bureau Census 2000 data on housing showed that there were approximately 3,339,763 housing units in Los Angeles County and 39,988 housing units in the City of Palmdale. Housing units include; single-family, multi-family, and mobile home residences. There are approximately 14 hotels/motels in Palmdale and 20 motels/hotels in Lancaster with approximately 2,970 rooms available to accommodate workers who may choose to commute to the project site on a workweek basis. (Ex. 300, p. 3.4-8.)

Because of the large labor force within commuting distance of the project, it is likely that the majority of construction workers will commute to the project daily from their existing residences. No new housing construction will be required. Based on the evidence, the construction and operation workforce will not have a significant adverse impact on housing within the immediate project area and the regional areas of Los Angeles, San Bernardino and Kern counties, and will not displace existing housing or necessitate construction of replacement housing elsewhere. (Ex. 300, p. 4.8-8.)

The capital costs for the PHPP are approximately $615 to 715 million; of this, construction materials and supplies are estimated at approximately $59 million. The total construction payroll is estimated at $106 million. (Ex. 300, p. 4.8-13.)

The total sales tax estimated during construction is expected to be $ 4.9 million. The estimated annual property taxes are expected to be $685,000 to $797,000. (Ex. 300, p. 4.8-13.)

Socioeconomics Table 1 provides a summary of the economic effects of the PHPP.

Socioeconomics Table 1 - Noteworthy Public Benefits

Fiscal Benefits	
Estimated annual property taxes	Los Angeles County tax rate of 1.115433 percent would create annual property tax revenues estimated at $685,000 to $797,000.
State and local sales taxes: Construction	$4.9 million
State and local sales taxes: Operation	$310,000 would be generated annually or approximately $9.3 million for the nominal 30-year operating life of the project.
School Impact Fee	Exempt
Non-Fiscal Benefits	
Total capital costs	$615 to 715 million
Construction payroll	$106 million
Annual Operations and Maintenance	
Construction materials and supplies	$59 million
Operations and maintenance supplies	$3.7 million
Direct, Indirect, and Induced Benefits	
Estimated Direct	
Construction	367 jobs (average per month for 27 months)
Operation	36 full-time positions
Estimated Indirect	
Construction Jobs	937
Construction Income	$142,000,000
Operation Jobs	64 workers
Operation Income	N/A
Estimated Induced	
Construction Jobs	1,018
Construction Income	$134,000,000
Operation Jobs	59 workers
Operation Income	N/A

(Ex. 300, p. 4.8-13.)

The analysis contained in the record characterizes the increase in employment and the increase in sales tax and generation of secondary jobs and income. The evidence further establishes that since the workforce will likely commute to the project, neither the construction nor the operation workers will place an undue stress upon available housing. Similarly, the evidence shows that existing educational, police, medical, and emergency services will not be adversely impacted. (Ex. 300, pp. 4.8-9 - 4.8-11.)

2. Road Paving Impacts

Applicant has proposed to pave roads in the vicinity of the PHPP to generate PM10 emission reduction credits (ERCs) to mitigate impacts to air quality and satisfy state and federal air quality requirements. The Applicant originally identified ten existing unpaved road segments, totaling approximately 22 miles. Four or five road segments will need to be paved in order to obtain the quantity of offsets needed for air quality purposes. (Ex. 301, p. 25.)

CBD asserts that the PHPP "may have significant growth inducing impacts, "because the project road paving "will foster growth in the surrounding environment". (CBD Opening Brief, p. 14.) However, CBD offered no factual basis for its assertions regarding growth inducing impacts. CBD's expert witness offered an unsupported conclusion that the Project Road Paving may induce growth but did not provide any facts or analysis to support his assertion. (Ex. 402, pp. 2-3.) CBD's expert acknowledged that he was not familiar with development patterns in the area surrounding the proposed project road paving. (3/2/11 RT 108:8 - 110:2.) Accordingly, we give very little weight to such a conclusion in the absence of a foundation showing technical expertise or familiarity with the subject unpaved roads.

CEQA requires a general discussion about "the ways in which the proposed project" may cause population growth or construction of housing. (See *Napa Citizens for Honest Gov't v. Napa County Bd. Of Supervisors,* (2001) 91 Cal. App. 4th 342.)

For the road segments identified as Nos. 2, 4, 6, 8 and 9, Project Road Paving would be completed in low-density, previously developed residential areas with little potential for new expansion or growth. (3/2/11 RT 53:14-54:11, 221:25-222:2, 248:14-15, 252:18-20; Exs. 146; 301.) The applicable land use development and zoning standards do not support a significant amount of new growth. (3/2/11 RT 240:8-241:3; 248:11-21.) The project road paving will not

introduce new urban infrastructure to previously underserved areas that would support or encourage a higher intensity of development. (*Id.*)

Applicant's expert concluded that the Project Road Paving would not increase traffic or cause an adverse traffic impact. (3/2/11 RT 240:1-6.) In particular, the record shows that road segments Nos. 2, 6 and 8 are located within subdivided residential areas where alternate streets are already paved. (3/2/11 RT 240:8-10.) There is no reason to expect drivers to divert from one of the existing paved roads to the newly paved roads because the newly paved road would not establish or facilitate a throughway that would promote traffic. (3/2/11 RT 240:10-12.) The same analysis is applicable to road segment No. 4 because paving a short distance of the road would not provide a preferable route that would divert existing traffic. (3/2/11 RT 240:12-15.) Traffic is expected to continue to be local traffic going to adjacent properties. (3/2/11 RT 240:15-17.) For road segment No. 9, traffic volumes on proximate roads are limited and there is no reason for traffic to divert to a newly paved road. (3/2/11 RT 240:21-23.)

Based on its review of the evidence in the record, Commission staff determined that the Project Road Paving would not induce growth. (3/2/11 RT 268:21-25; 269:1-18; 272:16-17; 273:12-13.) All of the proposed roads are existing unpaved roads that provide access to existing nearby land uses. (3/2/11 RT 272:16-22.) The road segments are part of an existing roadway grid system and are included within the local and regional planning activities of the affected jurisdictions. (Ex. 301, p. 22; 3/2/11 RT 268:22-269:19.) Staff's analysis showed that paving the proposed existing road segments will not expand the road system into previously underserved areas and will not induce growth. (3/2/11 RT 268:22-25; 269:1; 272:16-17.) We find that paving those unpaved roads identified in the record will not result in substantial growth inducing impacts.

Road paving would create a small number of jobs and would contribute to the local benefits due to the spending of workers paving the roads. The evidence establishes that road paving will not result in any significant impacts to Socioeconomics. Therefore, no additional Conditions of Certification are required. (Ex. 301, p. 25.)

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.)
In a socioeconomic analysis, cumulative impacts could occur when more than one project in the same area has an overlapping construction schedule, thus creating a demand for workers that cannot be met locally. An increased demand for labor could result in an influx of non-local workers and their dependents, resulting in a strain on housing, schools, parks and recreation, law enforcement and emergency services.

As shown in **Socioeconomics Table 2**, the total construction labor force by MSA for the region is more than sufficient to accommodate the labor needs for construction of power generation facilities and other large industrial projects. Because of the robust local and regional construction labor force, an influx of non-local workers and their dependents to the project area is unlikely. Therefore, significant and adverse impacts on housing, schools, parks and recreation, law enforcement, and emergency services are not expected. Furthermore, construction or operation of the PHPP will not contribute to any significant adverse cumulative socioeconomic impacts.

Socioeconomics Table 2
Occupational Employment Projections by MSA

Construction and Extraction Occupations for Selected MSAs	Average Annual Employment for 2006	Average Annual Employment for 2016
Los Angeles – Long Beach - Glendale County MSA	174,940	187,580
San Bernardino – Riverside – Ontario MSA	137,160	155,250
Kern County MSA	27,690	31,410

Source: Ex. 300, p. 4.8-11

4. Environmental Justice

Section 65040.12 (e) of the Government Code 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 addition, federal guidelines encourage governmental agencies to incorporate environmental justice principles in the environmental review of this project.

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 record contains a demographic screening conducted in accordance with information contained in two documents: *Environmental Justice: Guidance Under the National Environmental Policy Act* (Council on Environmental Quality, 1997) and *Final Guidance for Incorporating Environmental Justice Concerns in EPA's NEPA Compliance Analyses* (National Council on Environmental Quality, 1998). The purpose of the demographic screening is to determine whether there exists a minority or low-income population within the potentially affected area. Minority populations exist, for purposes of an environmental justice analysis, 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; or
- One or more U.S. Census blocks in the affected area have a minority population greater than 50 percent.

Minority individuals, for present purposes, are those who are members of the following population groups: American Indian or Alaskan Native; Asian or Pacific Islander; Black, not of Hispanic origin; or Hispanic. The below poverty-level-population was also based on the 2000 U.S. Census. (Ex. 300, pp. 4.8-2 - 4.8-3.)

For the PHPP, the minority population within the six-mile radius of the proposed site is 100,297 persons or about 52.26 percent of the total population. Year 2000 U.S. Census block group data within a six-mile radius of the project site shows the below-poverty-level population is approximately 21.1 percent. Poverty status excludes institutionalized people, people in military quarters, people in college dormitories, and unrelated individuals under 15 years old. (Ex. 300, pp. 4.8-2 - 4.8-3.)

In light of our finding that all PHPP significant impacts are mitigated below significance, we find the PHPP will not cause or contribute to disproportionate impacts upon minority or low income populations.

5. Public Comment

R. Lyle Talbot from Desert Citizens Against Pollution commented that "demographics and the studies they've done prior to this project proposal, they used the figures from the 2000 Census. We've since reached another decade, and I think we should go back and look at the 2010 Census to see about the demographics and the environmental justice issues with minority and population and underemployed populations in the area north and east of the project in East Lancaster." (3/2/11 RT 178:16 –23.)

The guidelines require reliance on the U.S. Census. It is unfortunate that the evidentiary record closed before the 2010 Census results were published, but according to the 2010 U.S. Census website, the 2010 U.S. Census information will be provided to the public beginning in February 2011 and continuing to June of 2013.[1]

Ron Miller, a representative with the Los Angeles/Orange County Building and Construction Trades which represents 140,000 building men and women, craftsman in Los Angeles and Orange County commented that there are roughly 3,000 craftsmen and women that live in Palmdale and the Antelope Valley. Currently the building trades as a whole has about 40 percent unemployment across the trades. When this project begins construction it will create up to 700 good paying middle class jobs for highly skilled craftsmen and women. This will in turn benefit the economy of Palmdale and the Antelope Valley. We support this project. (3/2/11 RT 202:5 –25).

[1] (See **http://www.census.gov/population/www/cen2010/glance/index.html**)

Steve Chisolm, a resident of the City of Palmdale and a member of the International Brotherhood of Electrical Workers, Local 11 in Los Angeles commented that they have over 7,800 members. And out of that 7,800 they have presently 500 that have gone through a 40 hour hands-on solar installation school that is recognized by the federal government. They are willing and able and ready professionals trained to help the City of Palmdale install a power house. (3/2/11 RT 203:3 –12).

Emmett Murrell: My concern is very simple. It's not a concern that we build this plant. I think it's almost essential that we do it. If we look all throughout the country, small and large municipalities are decaying from the inside out. If we look at the educational system you can see the huge number of youngsters that are not graduating. They're either going to camp, coming out, or they've become a blight and -- and a terrible drain on the economy of every municipality, not the two warring factions that have now. What I'm really concerned with is that we don't stop long enough to realize we have a very rare opportunity to put together a plan that other municipalities never get, and that plan is to put a portion of whatever is determined for employment aside for the benefit of what's going to eventually destroy us, as well as other municipalities, if creative measures are not taken. (3/2/11 RT 196:24 – 197:15).

Jim McGuire. I represent Ironworkers, Local 433 and 416, 9,000 hardworking construction members in the L.A./Orange County area. Here in the Antelope Valley, Lancaster, Palmdale, we represent about 1,200 workers. The people that will be employed in this plant in its construction, manufacture and maintenance are the people that pay taxes in this valley. Also, the apprentices that will have a chance to gain a career and a trade, and not only those apprentices but the apprentices yet to be hired and trained in this facility. We -- we very much strongly stand and approve this, and thank you very much. (3/2/11 RT 201:15 – 202:1).

FINDINGS OF FACT

Based on the persuasive weight of the evidence, we find as follows:

1. The PHPP will draw primarily upon the local labor force from Los Angeles, Riverside and Kern Counties 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 project is not likely to have a significant adverse effect upon local employment, housing, schools, medical resources, or fire and police protection.
4. The project will have a construction payroll of approximately $106 million.
5. PHPP will result in local direct, indirect, and induced benefits – both fiscal and non-fiscal.
6. The project will likely result in generation of secondary jobs and income and increased revenue from sales taxes due to construction activities.
7. Construction and operation of the project will not result in any direct, indirect, or cumulative adverse socioeconomic impacts.
8. Paving the roads identified in the record will not result in substantial growth inducing impacts.
9. Road paving will not result in any significant impacts to Socioeconomics.
10. The analysis of record has been performed in conformity with Federal environmental justice guidelines.
11. Minority populations exist within a six mile radius of the site; however, the PHPP will not cause or contribute to disproportionate impacts upon minority or low income groups.
12. Siting of the PHPP, and the analysis thereof, are consistent with the principles underlying environmental justice.
13. The PHPP's contribution to cumulative impacts, in conjunction with the impacts from other reasonably foreseeable projects, is adequately addressed in the evidence of record and in appropriate portions of this Decision.

CONCLUSION OF LAW

We therefore conclude that the project construction and operation activities will create some degree of benefit to the local area and will conform to principles of environmental justice. No Conditions of Certification are required for this topic because no significant adverse socioeconomics impacts will occur as a result of construction and operation of the PHPP.

D. 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 Palmdale Hybrid Power Plant (PHPP) project'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. The evidence on noise and vibration was undisputed. (Exs. 12; 128; 300.)

SUMMARY AND DISCUSSION OF THE EVIDENCE

1. Setting

The PHPP would be constructed on 333-acres in a currently vacant, undeveloped industrial area in the northernmost portion of the City of Palmdale in Los Angeles County. The site is bounded on the north by E Avenue M; across this thoroughfare lies a portion of the City of Lancaster. To the north of the site, land is zoned Heavy Industrial (City of Lancaster) or Industrial (City of Palmdale); to the west, land is zoned Light Industry, Office, Business Park and Commercial. Air Force Plant 42 lies to the south and east of the site. (Ex. 300, pp. 4.6-5 - 4.6-6.)

The nearest land zoned residential lies in the City of Lancaster, one mile north of E Avenue M. The nearest existing sensitive noise receptors are homes in a residential neighborhood approximately 600 feet north of Avenue L and east of 10th Street, over 1.5 miles from the center of the PHPP plant site. In addition, ten residential structures (numbered R1 through R10), some apparently abandoned, lie in the industrial zone north of the site; the nearest of these is located approximately three-fourths of a mile northwest of the center of the PHPP power block and approximately one-fourth of a mile north of the plant site. Other noise sensitive receptors include hotels on the west side of Sierra Highway and north of E Avenue M, and the Lancaster Adult Day Center (numbered R11) on the northeast corner of E Avenue M and 4th Street, approximately one mile from the center of the power block and one-third of a mile from the northwest corner of the site boundary. (Ex. 300, p. 4.6-6.)

Existing noise sources in the area are vehicle noise on Sierra Highway and Avenue M, aircraft noise at Air Force Plant 42, rail traffic on the Union Pacific Railroad line west of the site, and industrial and commercial activity to the west and north of the project site. (Ex. 300, p. 4.6-6.)

In order to establish a baseline for the comparison of predicted project noise to existing ambient noise, the Applicant has presented the results of an ambient noise survey. The survey was performed on May 29 through May 30, 2007. The noise survey monitored existing noise levels at the following locations:

- Measurement Location 1 (ML 1): 42104 6th Street East, Lancaster. This lies in a residential neighborhood to the northwest of the project site, near the residence referred to as R2. This location represents the nearest residential receptor to the project site;
- Measurement Location 2: West of the project site, and 85 feet east of the Union Pacific Railroad line;
- Measurement Location 3: Southeast corner of the project site; and
- Measurement Location 4: East side of the project site. (Ex. 300, p. 4.6-6.)

NOISE Table 2 summarizes these ambient noise measurements:

NOISE Table 1
Summary of Measured Ambient Noise Levels

Measurement Location	Measured Noise Levels, dBA			
	L_{eq} – Daytime[1]	L_{eq} – Nighttime[2]	L_{90} – Nighttime[3]	CNEL
1 – 42104 6th Street East, Lancaster (R2*)	59	55	39	63
2 – West of project site	67	65	40	74
3 – Southeast corner of site	62	45	34	62
4 – East side of site	62	49	35	62

Source: Ex. 300, p. 4.6-7
* Numbering of residential receptors: see below, and COP 2008a, AFC Table 5.8-12.
[1] Staff calculations of average of 15 daytime hours.
[2] Staff calculations of average of nine nighttime hours.
[3] Staff calculations of average of four consecutive quietest hours of the nighttime (Locations 1 & 2, 11 p.m. to 3 a.m.; Locations 3 & 4, 10 p.m. to 2 a.m.)

2. Construction Impacts and Mitigation

Construction noise is usually considered to be a temporary phenomenon. Construction of PHPP is expected to take 27 months, which is fairly typical of other combined-cycle power plants with respect to schedule, equipment used, and other types of activities. (Ex. 300, p. 4.6-7.)

The construction of an industrial facility like a power plant is typically noisier than allowable under usual noise ordinances. In order to allow the construction of new facilities, construction noise during certain hours of the day is commonly exempted from local ordinance restrictions.

The City of Palmdale General Plan Noise Element requires measures to reduce noise levels to no more than 65 dBA CNEL, and refers to the City of Palmdale Municipal Code. Section 8.28.030 of the Municipal Code restricts construction work within 500 feet of any residence, hotel, motel, or recreational vehicle park to the hours between 6:30 a.m. and 8:00 p.m., Monday through Saturday. (Ex. 300, p. 4.6-7.)

The City of Lancaster General Plan Noise Element establishes a maximum exterior noise level in residential land uses of 65 dBA CNEL and limits construction activities to the hours between sunrise and 8:00 p.m. Subchapter 8.24.040 of the City of Lancaster Municipal Code limits construction within 500 feet of an occupied dwelling, apartment, hotel, mobile home or other place of residence to the hours between 7:00 a.m. and 8:00 p.m., Monday through Saturday. (Ex. 300, p. 4.6-7.)

The Applicant commits to limiting construction to the hours of 6:00 a.m. and 6:00 p.m., Monday through Friday. Since the project lies more than 500 feet from any occupied residence, this schedule would comply with applicable LORS. We find that this will provide adequate mitigation of construction noise, and adopt Condition of Certification **NOISE-6** to ensure that these hours of construction are adhered to.

To evaluate construction noise impacts, the analysis in the record compares the projected noise levels to ambient noise levels. Since construction noise typically varies continually with time, it is most appropriately measured by, and compared to, the L_{eq} (energy average) metric.

As described above, aggregate construction noise can be expected to reach levels of 45 dBA L_{eq} at the residence at ML 1. Comparing projected noise levels to the ambient noise levels at Measurement Location ML 1 (see **Noise Table 2**, below) shows an increase during daytime and during nighttime of zero dBA. Construction noise will thus be inaudible, even at night, when people are sleeping. No impacts will result.

Noise Table 2
Predicted Power Plant Construction Noise Impacts

Measurement Location	Average Construction Noise Level (dBA L_{eq})	Measured Existing Ambient (dBA L_{eq})	Cumulative (dBA L_{eq})	Change (dBA)
1 - Nearest residence, R2	45	59 daytime	59 daytime	+0 daytime
		55 nighttime	55 nighttime	+0 nighttime

Source: Ex. 300, p. 4.6-8.

Condition of Certification **NOISE-6** restricts noisy construction to between 6:00 a.m. and 6:00 p.m. In the event that actual construction noise should annoy nearby residents, we adopt Conditions of Certification **NOISE-1** and **NOISE-2**, which establish notification and noise complaint procedures requiring the applicant to resolve any problems caused by noise from the project.

Regardless of which transmission line route is selected, whether Alternative Route 4 or the Applicant's proposed route, construction of the transmission lines for the project will be temporary and are expected to result in an insignificant noise impact if constructed in accordance with the Conditions of Certification **NOISE-1**, **NOISE-2**, and **NOISE-6**. (Ex. 300, Appendix A, p. A-166).

3. Linear Facilities

New off-site linear facilities would consist of the following: a one-mile long potable water pipeline; a one-mile long sanitary wastewater pipeline; a 7.4-mile long reclaimed water supply pipeline; an 8.7-mile long natural gas supply pipeline; and an electrical transmission interconnection line approximately 36 miles long or approximately 12 miles long depending on the option chosen by the project owner. (Ex. 300, pp. 4.6-8 - 4.6-9.)

Construction of linears moves along rapidly, so no area is exposed to noise for more than a few days. Limiting noisy construction to daytime hours should provide adequate mitigation of these impacts. Compliance with this restriction is ensured by Condition of Certification **NOISE-6**.

4. Pile Driving

The record contains no evidence that pile driving would be necessary for construction of the PHPP.

5. Steam Blows

Typically, the loudest noise encountered during construction, inherent in building any project that includes a steam turbine, is created by the steam blows. After erection and assembly of the feed water and steam systems, the piping and tubing comprising the steam path has accumulated dirt, rust, scale, and construction debris such as weld spatter, dropped welding rods, and the like. If the plant were started up without thoroughly cleaning out these systems, all this debris would find its way into the steam turbine and quickly destroy the machine.

In order to prevent this, before the steam system is connected to the turbine, the steam line is temporarily routed to the atmosphere. Traditionally, high pressure steam is then raised in the heat recovery steam generator, or a temporary boiler, and is allowed to escape to the atmosphere through the steam piping. This flushing action, referred to as a “high pressure steam blow,” is quite effective at cleaning out the steam system. A series of short steam blows, lasting two or three minutes each, is performed several times daily over a period of two or three weeks. At the end of this procedure, the steam lines are connected to the steam turbine, which is then ready for operation. Alternatively, high-pressure compressed air can be substituted for steam.

High-pressure steam blows, if unsilenced, can typically produce noise levels as high as 129 dBA at a distance of 50 feet. The Applicant proposes to install a silencer on the steam blow piping; this would reduce noise levels to 92 dBA at 50 feet. This, in turn, would yield less than 55 dBA at residence R2, the nearest residential receptor (see **Noise Table 3**, below). This is less than the ambient noise level of 59 dBA, and would likely be unnoticeable. Further, limiting steam blows to daytime hours will remove any potential for significant impacts. (Ex. 300, p. 4.6-9.)

Noise Table 3
Steam Blow Noise Impacts

Receptor	High-Pressure Steam Blow Noise Level (silenced) (dBA L_{eq})	Daytime Ambient Noise Level (dBA L_{eq})[1]	Cumulative Level (dBA L_{eq})	Change (dBA)
R2	55	59	60	+1

[1] See **Noise Table 2**, above.
Source: Ex. 300, p. 4.6-9.

In order to ensure that steam blow noise does not produce significant adverse impacts, we adopt Condition of Certification **NOISE-7**. (Ex. 300, p 4.6-10.)

6. Vibration

The only construction operation likely to produce vibration that could be perceived off-site would be pile driving. As discussed above, pile driving should not be required for construction of the PHPP. Therefore, there will be no significant impacts from construction vibration.

7. Worker Effects

The Applicant has acknowledged the need to protect construction workers from noise hazards and has recognized applicable LORS that would protect construction workers. To ensure that construction workers are, in fact, adequately protected, we adopt Condition of Certification **NOISE-3**. (Ex. 300, p. 4.6-10.)

8. Operation Impacts and Mitigation

The primary noise sources of the PHPP include the combustion turbine generators (CTG) air intakes and exhaust ducts, heat recovery steam generators and their exhaust stacks, steam turbine generator (STG), evaporative cooling tower, air compressors and electrical transformers, and various pumps and fans. (Ex. 300, p. 4.6-10.)

The record describes appropriate noise mitigation measures to limit noise impacts from project operation. Such measures include: CTG inlet air silencers with acoustically lined elbows; CTG and STG sound-attenuated enclosures; CTG

exhaust diffuser and duct acoustical barriers; and the location of natural gas compressors in an acoustical enclosure. (Ex. 300, p. 4.6-10.)

The record contains noise modeling to determine the project's noise impacts on sensitive receptors. Project operating noise at Measurement Location ML 1 (the nearest noise-sensitive residences, northwest of the project site) is predicted to be approximately 40 dBA L_{eq} or 47 dBA CNEL. This figure complies with both the City of Palmdale General Plan Noise Element and the City of Lancaster General Plan Noise Element guideline of 65 dBA CNEL.

Power plant noise is unique. Essentially, a power plant operates as a steady, continuous, broadband noise source, unlike the intermittent sounds that make up the majority of the noise environment. Power plant noise therefore contributes to, and becomes part of, the background noise level, or the sound heard when most intermittent noises cease. In most cases, a power plant will be intended to operate around the clock for much of the year. We evaluate project noise emissions by comparing them to the nighttime ambient background level; this assumes that the potential for annoyance from power plant noise is greatest at night when residents are trying to sleep. Nighttime ambient noise levels are typically lower than daytime levels; differences of 5 to 10 dBA are common. Power plant noise levels at ML 1 are predicted to reach 40 dBA L_{eq} and 47 dBA CNEL. (Ex. 300, p. 4.6-11.)

To evaluate noise impacts on residences, the analysis in evidence compares project noise to the average of the four quietest consecutive nighttime hours. At Measurement Location ML 1, representing the nearest sensitive receptors, this is the span from 11:00 p.m. to 3:00 a.m. This value is 39 dBA L_{90}. When projected plant noise is added to the ambient value, the cumulative level is 4 dBA above the ambient value. This increase is barely noticeable and is below the range considered a potentially significant adverse impact. To ensure this noise level is not further exceeded, we impose Condition of Certification **NOISE-4**. (Ex. 300, pp. 4.6-11 - 4.6-12.)

One possible source of annoyance could be strong tonal noises. Tonal noises are individual sounds (such as pure tones) that, while not louder than permissible levels, stand out in sound quality. The record contains plans to avoid the creation of annoying tonal (pure tone) noises by balancing the noise emissions of various power plant features in the plant's design. To ensure that tonal noises do not cause annoyance, we adopt Condition of Certification **NOISE-4**. (Ex. 300, p. 4.6-12.)

All water and gas piping would lie underground and 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 therefore be inaudible to any receptors. (Ex. 300, p. 4.6-12.)

Vibration from an operating power plant could be transmitted by two chief means; through the ground (ground borne vibration) and through the air (airborne vibration).

The operating components of a combined-cycle power plant consist of high-speed gas and steam turbine generators, compressors, and various pumps. All of this equipment must be carefully balanced in order to operate, and permanent vibration sensors are attached to the turbines and generators. The evidence shows that based on experience with numerous previous projects with similar equipment, ground borne vibration from the PHPP would be undetectable by any likely receptor. (Ex. 300, p. 4.6-12.)

Airborne vibration, or low frequency noise, can rattle windows and objects on shelves and the walls of lightweight structures. The evidence shows that airborne vibration impacts from a plant like PHPP are typically imperceptible 1,000 feet from the plant. This project's chief source of airborne vibration would be the gas turbines' exhaust. In this type of power plant, however, the exhaust must pass through the heat recovery steam generators (HRSG) before reaching the atmosphere. HRSGs act as efficient mufflers; this makes it highly unlikely that the PHPP would cause perceptible airborne vibration. (Ex. 300, pp. 4.6-12 - 4.6-13.)

9. Worker Effects

The Applicant acknowledges the need to protect plant operating and maintenance workers from noise hazards, and has committed to comply with applicable LORS. 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. To ensure that plant operation and maintenance workers are, in fact, adequately protected, we adopt Condition of Certification **NOISE-5**.

10. Cumulative Impacts and Mitigation

Section 15130 of the CEQA Guidelines (Cal. Code Regs., tit. 14) requires a discussion of cumulative environmental impacts. 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 the discussion reflect the severity of the impacts and the likelihood of their occurrence, but need not provide as much detail as the discussion of the impacts attributable to the project alone.

The record has identified four projects in the vicinity of the PHPP, but the evidence indicates that, due to their distance from the PHPP site, none would likely pose a potential for cumulative noise impacts. All parties agree, and thus we conclude that there is no likelihood of cumulative significant noise impacts. (Ex. 300, p. 4.6-13.)

11. Public Comment

No public comment was received regarding noise and vibration.

FINDINGS OF FACT

Based on the evidence, we find as follows:

1. Noise associated with construction activities at the project will be temporary in nature, limited in duration, 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.
3. The project owner will implement measures to protect workers from injury due to excessive noise levels.
4. The project will not create ground or airborne vibrations which cause significant off-site impacts.

CONCLUSION OF LAW

We therefore conclude that with implementation of the following Conditions of Certification the project will comply with the applicable laws, ordinances, regulations, and standards relating to 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 one-half mile of the site and one-quarter 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-mentioned 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-mentioned 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 PHPP, 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 solely to plant operation to exceed an average of 40 dBA L_{eq} measured at Measurement Location ML 1, near the residence identified as R2 in **Noise and Vibration Figure 2**. 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 85 percent or greater of rated capacity, the project owner shall conduct a community noise survey at Measurement Location ML 1 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 Measurement Location ML 1 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 85 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 85 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:

Monday through Friday: 6:00 a.m. to 6:00 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 If a high-pressure steam blow is employed, the project owner shall equip steam blow piping with a temporary silencer that quiets the noise of steam blows to no greater than 92 dBA measured at a distance of 50 feet. The project owner shall conduct steam blows only during the hours of 8:00 a.m. to 5:00 p.m.

Verification: At least 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.

EXHIBIT 1 - NOISE COMPLAINT RESOLUTION FORM

Palmdale Hybrid Power Project (08-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 three feet from noise source _____dBA Date: _____ Initial noise levels at complainant's property: _____dBA Date: _____ Final noise levels at three 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).

E. VISUAL RESOURCES

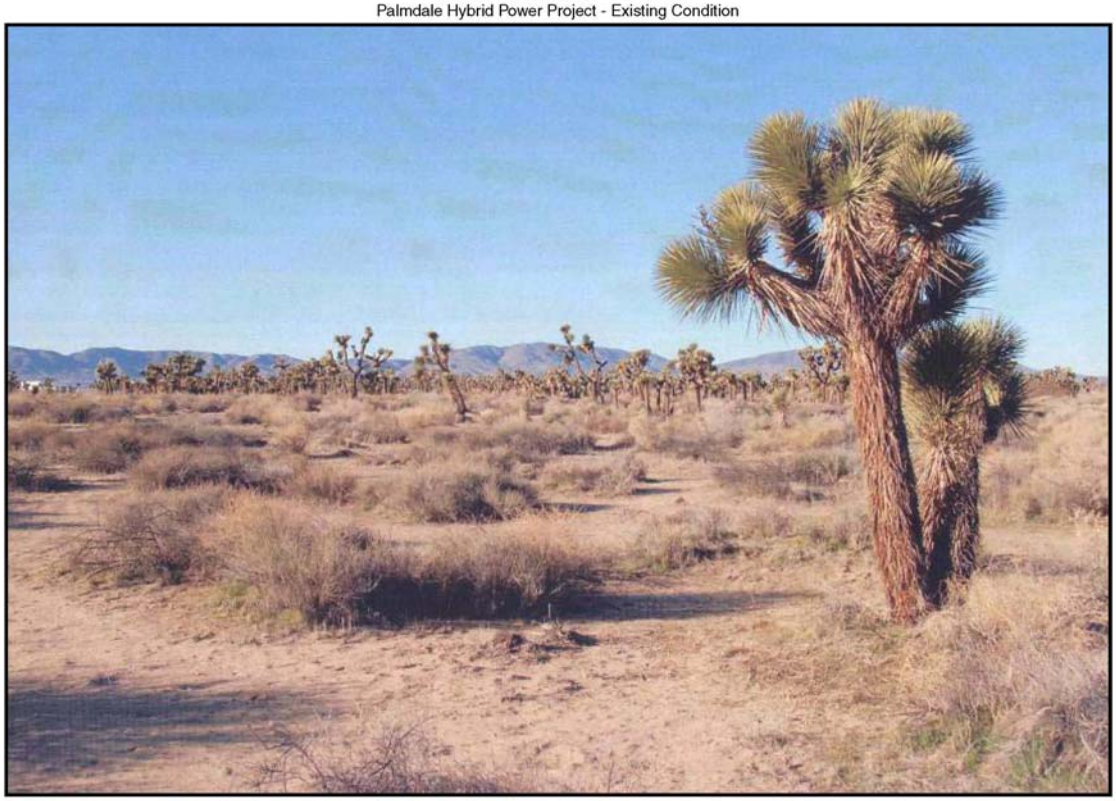
Visual resources are the features of the landscape that contribute to the visual character or quality of the environment. CEQA requires an examination of a project's visual impacts in order to determine whether the project has the potential to cause substantial degradation to the existing visual character of the site and its surroundings, substantially affect a scenic vista or damage scenic resources, or create a new source of substantial light or glare affecting day or nighttime views in the area. (Cal. Code Regs., tit. 14, § 15382, Appendix G.) The evidence on Visual Resources was undisputed. (Exs. 19; 39; 44; 46; 75; 89; 102; 135; 19; 53; 56; 62; 64; 121; 300; 306.)

Key Observation Points (KOPs) represent the most critical locations from which the project will 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 from low to high using the eight factors: visual quality, viewer concern, visibility, number of viewers, duration of view, contrast, dominance, and view blockage. (Ex. 300, p. 4.12-4.)

SUMMARY AND DISCUSSION OF THE EVIDENCE

The Palmdale Hybrid Power Plant (PHPP) would be built just north of the Air Force Plant 42 in the City of Palmdale, in northern Los Angeles County. The site lies approximately two miles east of State Route (SR) 14, approximately 0.5 miles east of Sierra Highway and the Sierra Bike Trail, and adjacent to the south side of East Avenue M. The proposed project would be constructed on an approximately 333-acre site in a northern portion of the City of Palmdale. The project site currently consists primarily of undisturbed land and does contain a significant number of Joshua Trees, which the City of Palmdale considers an important natural resource. **Visual Resources Figure 1** depicts a view of the existing condition of the PHPP site. (Ex. 300, p. 4.12-2.)

VISUAL RESOURCES - FIGURE 1
Palmdale Hybrid Power Project - Existing Condition



VISUAL RESOURCES

CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION
SOURCE: AFC Figure 2-2

A notable landscape feature in the regional project setting is the San Gabriel Mountains, which are approximately eight miles to the south. The nearest residence with views of the project's power block, which would contain the facility's largest structures and equipment, is located on Palermo Road approximately two miles to the southwest. Motorists and cyclists on Sierra Highway and motorists on East Avenue M would have the closest view of the project. (Ex. 300, p. 4.12-2.)

Primary equipment for the 570 MW generating facility would include two natural gas-fired combustion turbine-generators, two heat recovery steam generators (HRSGs), one steam turbine-generator (STG) located on 25-acres in the power block, and 250 acres of parabolic solar-thermal collectors in the solar field with associated heat transfer equipment. The most publicly visible components for the PHPP would include: two 145-foot tall HRSG stacks, one 59-foot tall cooling tower (ten cell), two 70-foot tall inlet air filters, and a 70-foot tall STG enclosure. The PHPP is designed to use solar technology to generate a portion of the project's output (10 percent of peak power or 57 MW). During the construction

period, the power plant site and an adjacent 50-acre parcel to the west would be used for parking and construction laydown. (Ex. 300, pp. 4.12-2 – 4.12-3.)

Linear facilities will include:

- A 35.6-mile transmission line route divided into two segments and ends approximately 11 miles south of the plant site at Southern California Edison's Victor Substation in an unincorporated portion of Los Angeles County. Transmission pole heights range from 100 to 135 feet.
- Three underground pipelines are proposed as part of the project:
  - 8.7 mile natural gas pipeline
  - 7.4 mile reclaimed water pipeline
  - 1 mile sanitary wastewater line.

(Ex. 300, pp. 4.12-2 - 4.12-3.)

Visual Resources Figure 2 shows the location of all of the project facilities. The figure also depicts the KOPs used as the basis for this analysis.

1. Direct/Indirect Impacts and Mitigation

   a. Construction Impacts

Construction activities for the project would occur during an approximate 27-month period. Activities on the power plant site would include grading over the 333-acre site and installation of plant facilities, prefabricated buildings, and parabolic solar-thermal collectors. Construction materials, heavy equipment, cranes, trucks, modular offices, and parked vehicles would be publicly visible on the construction laydown areas. The construction site activities would be unobstructed, because of the largely undeveloped and vacant land surrounding the project site and the proximity of Sierra Highway and East Avenue M.
(Ex. 300, p. 4.12-6.)

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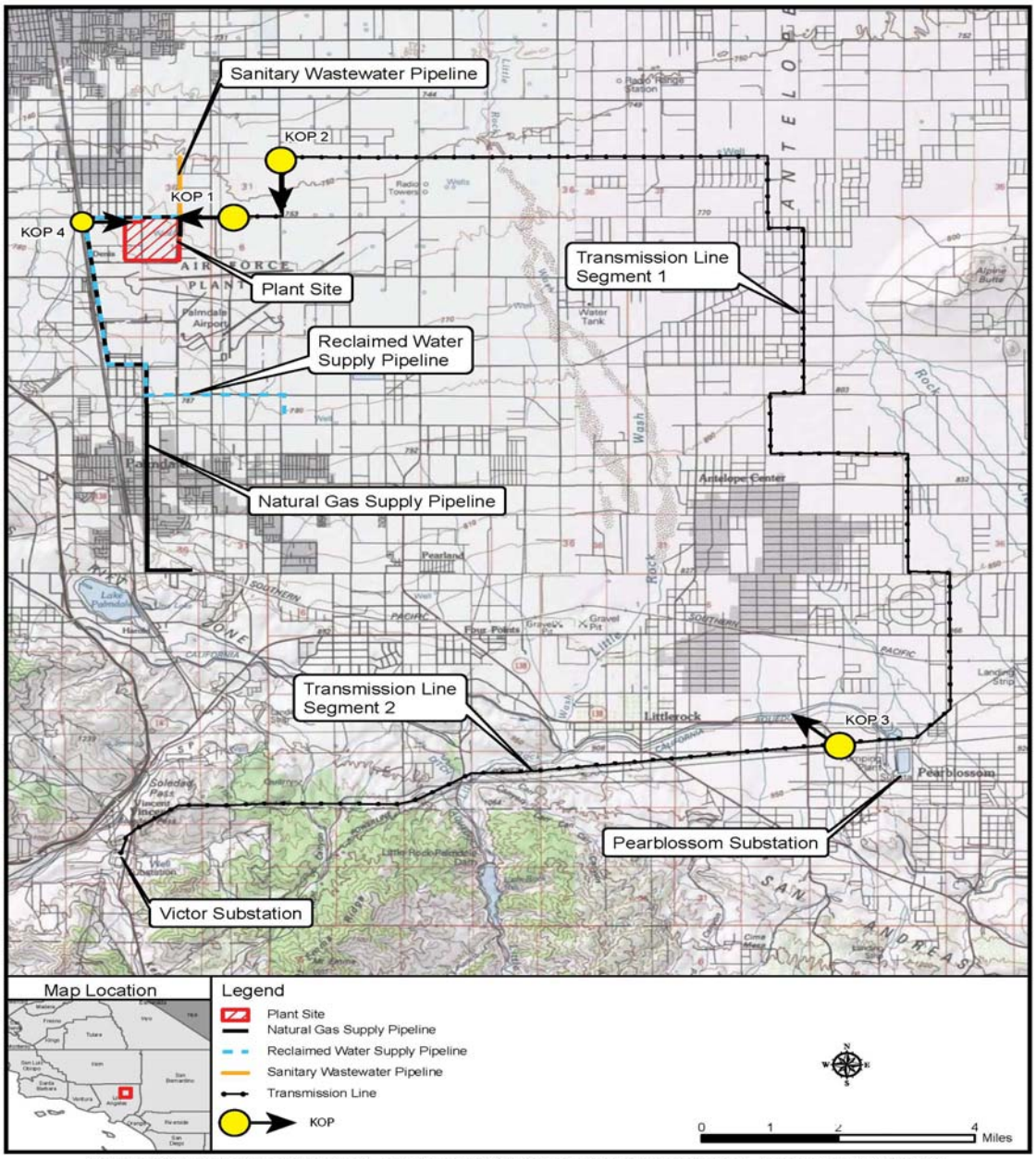
VISUAL RESOURCES - FIGURE 2
Palmdale Hybrid Power Project - Project Site and Key Observation Points



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SOURCE: AFC Figure 5.15-3

VISUAL RECOURCES

Motorists on East Avenue M currently see a desert landscape with Joshua trees and other vegetation at the proposed site. Motorists are used to a relatively benign and pastoral desert setting. Construction activity would attract motorist's attention and substantially degrade the view from this KOP. Therefore, construction of the PHPP would be a significant impact to the existing viewshed.

We adopt Condition of Certification **VIS-1** that requires the Applicant to reduce the visibility of construction activities through screening. With implementation of this condition, we find that visual impacts associated with project construction activities would be less than significant. (Ex. 300, p. 4.12-6.)

During the construction and installation of the two alternative transmission line routes and associated structures, construction materials, equipment, trucks, and vehicles will be visible from nearby areas along the linear facility routes, but only for a short duration. From the use of drilling augers for the transmission poles, setting the poles and pouring of concrete, and stringing of the transmission conductor, the anticipated timeframe at each juncture is approximately one week. Because of the constant movement of crews from one pole to another, the viewer exposure, and viewer sensitivity is low. We find that visual changes associated with construction of the transmission lines would be minor and temporary, and therefore visual impacts would be less than significant. (Ex. 300, p. 4.12-6.)

During underground transmission line and pipeline construction, the ground surface along the proposed alignments would be temporarily disrupted by the presence of construction equipment, excavated piles of dirt, concrete and pavement, and construction personnel and vehicles. Each pipeline segment would be constructed and installed within a few days, before proceeding to the next segment installation. After construction, the ground surfaces would be restored. We find that the restored ground surfaces and buried pipelines would not create a change to the existing visual condition of the project area. (Ex. 300, p. 4.12-6.)

b. Operation Impacts

Visual Resources Figure 2, above, shows the locations of the four KOPs selected for visual analysis. These KOPS include: KOP 1 – Looking West from the North Lane of East Avenue M; KOP 2 – Looking south on 30th Street toward East Avenue M and PHPP site; KOP 3 – Looking Northwest from Pearlblossom Highway Toward the Proposed Transmission Line Route Crossing the Highway; and KOP 4 – Looking East Toward PHPP Site Near the Intersection of Sierra Highway and East Avenue M. (Ex. 300 p. 4.12-4.)

KOPs are used to represent a location(s) from which to conduct detailed analyses of the proposed project and to obtain existing condition photographs and prepare visual simulations. KOPs are selected to be representative of the most critical viewshed locations from which the project would be seen. Because

it is not feasible to analyze all the views in which a proposed project would be seen, it is necessary to select KOPs that would most clearly display the visual effects of the proposed project. (Ex. 300 p. 4.12-4.)

Before considering individual KOPs, we consider generally whether the project will substantially affect a scenic vista or damage scenic resources, or create a new source of substantial light or glare affecting day or night-time views in the area [Cal. Code Regs., tit. 14, Appendix G, §§ I, subds. (a), (b) and (d)]. (Ex. 300, p. 4.12-5.) Based on evidence in the record, there are no scenic vistas in the viewsheds of the selected KOPs though there are moderately scenic views of the San Gabriel Mountains visible from KOPs 1, 2, and 4. The visual impacts to these effects were determined to be less than significant as described in the discussion of KOPs below. (Ex. 300, p. 4.12-5.)

In the KOP 1 viewshed (see **Visual Resources Figures 1 and 3A**) there are numerous Joshua trees visible which the City of Palmdale and Commission staff consider as scenic resources. Based on Staff's reconnaissance of the surrounding area, a review of the inventory of the Joshua trees and California Junipers report prepared for the City of Palmdale, and after discussions with Energy Commission biological resources staff, Staff believe mitigation involving transplanting Joshua trees and other vegetation is needed for this project. This mitigation would apply to the south side of East M Avenue along the northern border of the project, and on the west side of Site 1 Road along the east side of the project. This mitigation would screen industrial structures and provide a more natural view from KOP 1. We adopt Condition of Certification **VIS-5** and find that with of this mitigation, the project's impact on scenic resources would be less than significant. (Ex. 300, p. 4.12-5.)

The visual resources assessment concluded that the project could have significant glint/glare impacts for viewers at KOP 1. The glint/glare would be caused by the movement of solar arrays in and out of stow position. We adopt Conditions of Certification **TRANS-7** and **8**, to reduce glint/glare impacts to less-than-significant levels. (Ex. 300, p. 4.12-15.)

Project lighting will be restricted to areas required for safety, security, and operation of the plant. Lighting will also be directed on-site, and would be shielded from public view. To minimize potential lighting impacts, Conditions of Certification **VIS-3 and VIS-4** have been identified to limit lighting during construction and operation of the plant as well as require a Lighting Mitigation Plan. Project lighting will also include non-blinking red aviation obstruction lights

on tall structures to address aviation safety. We find that with implementation of the Conditions of Certification, project night lighting impacts will be reduced to a less-than-significant level. (Ex. 400, p. C.12-2.)

The evidence establishes that PHPP will not have a substantial adverse effect on a scenic vista, nor will it substantially damage scenic resources, nor will it create a new source of substantial light or glare, which will adversely affect day or nighttime views in the area. By KOP, the discussion below addresses how the proposed project would affect visual sensitivity and visual change in the project area. [Cal. Code Regs., tit. 14, Appendix G, § I, subd. (c).]

KOP 1 – Looking West from the North Lane of East Avenue M

Visual Resources Figures 3A depicts the existing conditions of the project site from KOP 1. The major elements in this view are the four-lane street, expanse of flat, open desert lands south of East Avenue M with numerous Joshua trees and other vegetation in the mid-ground view, and the San Gabriel Mountains and sky in the background. The transmission lines and towers are a noticeable feature. The overall visual sensitivity for a motorist is considered moderate from KOP 1. The record indicates that a high number of vehicles use Sierra Highway and East Avenue M to travel to military facilities in the area. However, because of the travel speed (55-miles per hour) the view duration was estimated at 10 to 20 seconds. Staff determined that visual sensitivity was moderate based on moderate visual quality, moderate viewer concern, and moderately low overall viewer exposure. (Ex. 300, p. 4.12-7.)

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VISUAL RESOURCES - FIGURE 3A

Palmdale Hybrid Power Project - KOP1 - Looking West on East M Street - PHPP Site is South (left) of the Street and Behind the Stop Light

Existing Condition

VISUAL RESOURCES

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SOURCE: CEC Staff Photo

Visual Resources Figure 3B shows a change in the existing view and shows a slated fence, re-planted Joshua trees, and other desert vegetation replanted from the project site, and the upper portion of the solar arrays in the north field area. The project would be noticeable from KOP 1 with the vertical form and line of the solar arrays that would differ from the existing view. Without landscaping, the degree of contrast introduced by the project's structures would be moderately high. (Ex. 400, p. 4.12-8.)

VISUAL RESOURCES - FIGURE 3B
Palmdale Hybrid Power Project - KOP1 - Looking West on East M Street - PHPP Site is South (left) of the Street and Behind the Stop Light
Simulated Condition

VISUAL RESOURCES

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SOURCE: CEC Staff Photo

The project would introduce publicly visible industrial structures that would cause a moderate degree of view disruption and blockage. The overall visual change would be moderate due to the moderately high contrast, co-dominance, and moderate blockage. Given the moderate visual sensitivity of the viewer, the moderate degree of visual change would be adverse but less than significant. The record indicates that the PHPP would not substantially degrade the existing view shed at KOP 1. (Ex. 400, p. 4.12-8.)

The City of Palmdale Municipal Code Section 14.04 requires the protection and preservation of vegetation, particularly Joshua trees. We adopt Condition of Certification **VIS-5,** which would require landscaping (transplanting existing Joshua trees and other desert vegetation) within the 30-foot setback area. As shown in **Visual Resources Figure 3B**, landscaping would block the view of some solar arrays, further reducing the less than significant visual impacts at KOP 1. (Ex. 300, p. 4.12-8.)

KOP 2 – Looking South on 30th Street toward East Avenue M and PHPP Site

VISUAL RESOURCES - FIGURE 4A

Palmdale Hybrid Power Project - KOP2 - Looking South on 30th Street Toward East M Street - Existing Condition

VISUAL RESOURCES

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SOURCE: CEC Staff Photo

Visual Resources Figures 4A depicts the view from KOP 2, which is located about 2.25 miles northeast of the PHPP on the west side of 30th Street. The view represents the view south-bound motorists would see when using this street. The visual quality of the KOP 2 viewshed is considered to be moderate due to the combination of natural and industrial features. Given the flat landscape and wide-open viewshed, the natural and industrial features in this view are highly visible. (Ex. 300, p. 4.12-9.)

The estimated number of motorists (2,900 average annual daily traffic) using 30th street is considered to be moderate. Staff estimated a 10- to 20-second view duration of the project site for motorists and cyclists traveling north or south in the KOP 2 viewshed. Overall, view exposure and sensitivity for motorists and cyclists from this KOP would be moderately low. (Ex. 300, p. 4.12-9.)

VISUAL RESOURCES - FIGURE 4B
Palmdale Hybrid Power Project - KOP2 - Looking South on 30th Street Toward East M Street - Simulated Condition

VISUAL RESOURCES

CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION
SOURCE: CEC Staff Photo

Visual Resources Figures 4B displays one difference from Figure 4A; the transmission line and towers. The new transmission lines would be located adjacent to an existing transmission corridor and would be consistent with the current lines and forms so the contrast would be low. The new structures would be subordinate to existing features in this viewshed. The simulation shows the proposed steel poles would be a non-reflective grayish color and would have a minor color contrast with the sky compared to the existing dark brown wooden poles. The degree of view disruption or blockage introduced by the new transmission lines and poles is low. The Applicant has noted that the color and non-reflected surface of the transmission line structures would reduce their visual contrast with the background view. (Ex. 300 p. 4.12-9.)

The overall visual change to the view from KOP 2 would be low due to the low contrast, subordinate dominance, and low blockage. Given the moderately low visual sensitivity of the viewer and the low degree of visual change, we find the project's impact would be less than significant with implementation of Condition of Certification **VIS-2,** which we adopt as part of this Decision. (Ex. 300 p. 4.12-9.)

KOP 3 – Looking Northwest from Pearlblossom Highway Toward the Proposed Transmission Line Route Crossing the Highway

KOP 3 (**Visual Resources Figure 5A**) is located approximately 12 miles southeast of the project on the north side of Pearlblossom Highway. This KOP represents the view motorists have when traveling on this highway. The view from KOP 3 includes a view of the four-lane highway and flat desert land with transmission lines and towers in the fore and middle ground. Background views include flat desert land and sky. The visual quality of the KOP 3 viewshed is considered moderately low due to the industrial character of transmission lines and towers. Viewer concern is considered moderately low because motorists (estimated at 28,600 average daily) are accustomed to the existing viewshed and the view duration would be quick (moderately low) for motorists traveling at 55 miles per hour. Overall viewer exposure is moderately high because the flat landscape and wide-open view shed allows the natural and industrial features to be highly visible. However, overall visual sensitivity for motorists would be considered moderate due to moderately low visual quality, moderately low viewer concern, and moderately high overall viewer exposure. (Ex. 300, pp. 4.12-9 - 4.12-10.)

VISUAL RESOURCES - FIGURE 5A

Palmdale Hybrid Power Project - View from KOP-3 Looking North Along Pearlblossom Highway - Existing Condition

VISUAL RESOURCES

CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION

SOURCE: Applicants Visual Resource Consultant

Visual Resources Figure 5B presents a photo simulation in the KOP 3 viewshed of the proposed project's transmission line and poles after the completion of construction. The project would be noticeable from the KOP 3 location. The introduced forms and lines would be consistent with the existing transmission lines and poles in the area with a similar size and scale. The degree of contrast introduced by the project's structures is considered low when compared to the natural and industrial features in the KOP viewshed. The project structures would occupy a small portion of the total field-of-view of KOP 3 and would appear subordinate when compared to other elements in the KOP. The degree of view disruption and blockage introduced by the structures is low. With implementation of Condition of Certification **VIS-2**, that requires surface treatment of project structures and buildings, the overall visual change associated with KOP 3 would be low. Therefore, we find that given the moderate visual sensitivity of the viewer and the low degree of visual change, the project's visual impact at KOP 3 would be less than significant with implementation of Condition of Certification **VIS-2**. In addition, this Condition requires the project owner to work with the City of Palmdale to ensure that all applicable standards are met to protect the scenic quality of this section of Pearlblossom Highway. (Ex. 300 p. 4.12-10.)

VISUAL RESOURCES - FIGURE 5B

Palmdale Hybrid Power Project - View from KOP-3 Looking North Along Pearlblossom Highway - Simulated Condition

VISUAL RESOURCES

CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION

SOURCE: Supplemental Filing - July 16, 2009

KOP 4 – Looking East Toward PHPP Site Near the Intersection of Sierra Highway and East Avenue M

KOP 4 (**Visual Resources Figure 6A**) is located just west of the Union Pacific railroad tracks and just south of East Avenue M near the intersection with Sierra Highway. The project site is located approximately 0.5 miles east of this KOP. KOP 4 represents the view of the motorists that use this portion of East Avenue M. A similar view could also be experienced by cyclists using the Sierra Bike Trail. This KOP is the only one of the four KOPs where viewers would see cooling tower plumes. (Ex. 300, p. 4.12-11.)

VISUAL RESOURCES - FIGURE 6A
Palmdale Hybrid Power Project - View from KOP-4 Looking East Toward PHPP Site Near East Avenue M - Existing Condition

VISUAL RESOURCES

CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION
SOURCE: AFC Figure 5.15-5a

The view from KOP 4 towards the proposed project includes a view of the railroad tracks and disturbed desert landscape in the foreground. A portion of East Avenue M, flat desert land with transmission lines and towers and a round water tank are in the middle ground. Background views include flat desert land, industrial buildings, transmission lines and towers, mountains and sky. The visual quality of the KOP 4 view shed is considered moderate due to the combination of industrial and natural features. Viewer concern is moderately low because motorists (21,800 average annual daily) are accustomed to the existing

viewshed with U.S. Air Force Plant 42 industrial structures. The view from KOP 4 for cyclists using the Sierra Bike trail would be roughly the same as described above. However, the duration of view would be considerably longer since cyclists are not moving as fast as motorists. The overall visual sensitivity for motorists using the Highway at KOP 4 would be considered moderate based on moderate visual quality, moderately low viewer concern, and moderately high overall viewer exposure. The overall visual sensitivity for cyclists would be moderately low based on the moderate visual quality, moderately low viewer concern, and moderate viewer exposure. (Ex. 300, p. 4.12-11.)

Visual Resources Figure 6B presents a photo simulation of the proposed project's structures and 20th percentile plume during project operation. The project would be noticeable from the KOP 4 location with the vertical form and line of project structures that would differ from the existing industrial buildings. However, the solar array component would block the view of the lower portion of the existing industrial buildings and PHPP structures. The degree of contrast introduced by the project's structures in the simulation is considered moderately high when compared to the natural and industrial features in the KOP viewshed because the structures appear bright white. However, the Applicant noted in the Visual Resources section of the AFC (Exhibit 19) that the neutral color and non-reflective surface of project structures will reduce their visual contrast with the surrounding area. (Ex. 300, p. 4.12-12.)

Although the project would introduce publicly visible structures to the KOP view shed the degree of view disruption and blockage introduced by the structures is low. The duration of view for motorists traveling at 65 miles per hour on this section of the highway would be moderately low. The duration of view for cyclists would be longer particularly for those using the northern rest area (See **Visual Resources Figure 7**). (Ex. 300, p. 4.12-12.)

For KOP 4, the overall visual change would be moderately low. We adopt Condition of Certification **VIS-2** that requires painting and texturing/finishing and find that with implementation of this measure the visual impacts of PHPP structures are less than significant. With a moderately low to moderate visual sensitivity, subordinate dominance, and low blockage, the PHPP would not substantially degrade the existing viewshed at KOP 4. (Ex. 300 p. 4.12-12.)

VISUAL RESOURCES - FIGURE 6B
Palmdale Hybrid Power Project - View from KOP-4 Looking East Toward PHPP Site Near East M Avenue With Project Structures and 20th Percentile Plume - Simulated Condition

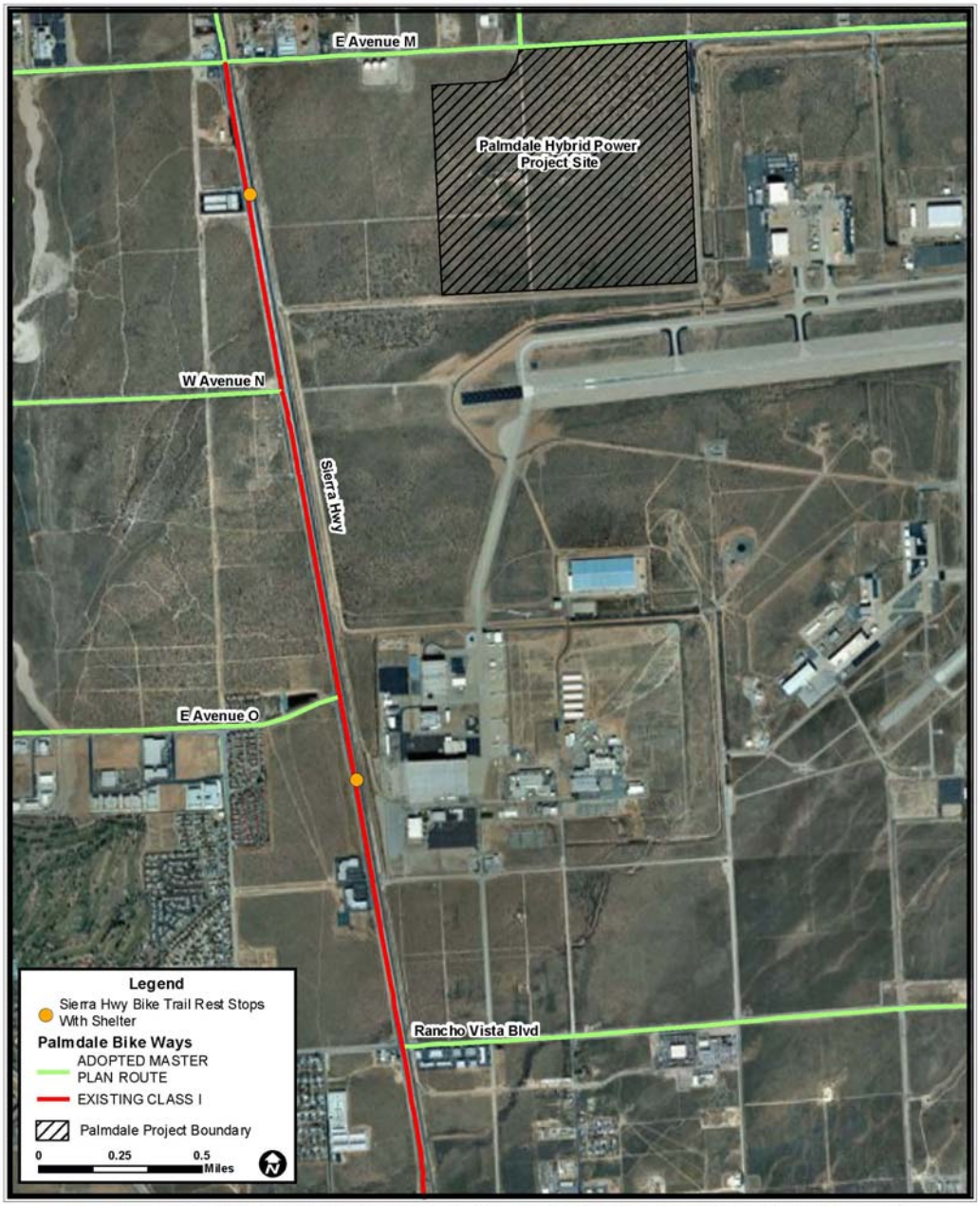
VISUAL RESOURCES

CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION
SOURCE: PSA Supplemental Figure 5.15-5c

Publicly Visible Water Vapor Plumes

The proposed PHPP includes a 570 MW gas-fired power plant that would include two 145-foot tall combustion exhaust stacks and a ten-cell mechanical-draft cooling tower. Under certain weather conditions, visible water vapor plumes would emanate from the exhaust stacks and cooling tower. Because water vapor plumes are generally associated with heavy industrial land uses, they could be regarded negatively by sensitive observers and as such could have an adverse effect on visual resources. The severity of the impacts depends on several factors: duration, physical size of the plumes, viewer sensitivity, distance from plume, visual quality of the existing viewshed, and whether any scenic landscape features would be blocked by the plumes. (Ex. 300, p. 4.12-12.)

VISUAL RESOURCES - FIGURE 7
Palmdale Hybrid Power Project - Sierra Bike Trail



CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION
SOURCE: City of Palmdale - ESRI - California Energy Commission

VISUAL RESOURCES

Staff used the Combustion Stack Visible Plume (CSVP) model and a three-year meteorological data set to calculate the frequencies and sizes of the PHPP cooling tower plumes. Staff selected a worst-case operating profile of full load, no duct firing, and no solar operation for seasonal hours up to 10 a.m. daily with full load solar and duct firing occurring the rest of the day. For this worst-case operating profile, visible water vapor plumes from the project's cooling towers are

predicted to occur 49.21 percent of the seasonal (November through April) clear hours (daylight, no rain/fog, high visual contrast). (Ex. 300, p. 4.12-13 and Appendix VR-3.)

Because the cooling tower plume frequency exceeds Staff's 20 percent threshold, plume dimensions were calculated to assess the visual impact of the expected plume in terms of contrast, scale, and view disruption. Staff considers the 20th percentile plume to be the reasonable worst-case plume dimensions on which to base its visual impact analysis. The 20th percentile plume is the smallest of the plumes that are predicted to occur zero to 20 percent of the time. 80 percent of the time the dimensions of the clear hour plumes would be smaller than the 20th percentile plume dimensions. A one percentile clear hour plume would be extremely large (physical size) and very noticeable to a wide area but it occurs very infrequently. This assumes that the plant will run 100 percent of the time but it is likely that it would operate at 80 percent or less so the plume dimensions would be smaller. (Ex. 300, p. 4.12-13; Appendix VR-3.)

The original 20th percentile plume dimensions from the proposed ten-cell cooling towers were estimated at approximately 574 feet high, 161 feet wide, and 225 feet long. Based on the PSA workshop, Staff revised the plume modeling analysis (Ex. 300, Appendix VR-3) and the revised plume dimensions are larger than earlier calculations (622 feet high, 203 feet wide, and 231 feet long).

The plume depicted in the simulation in **Visual Resources Figure 6B** is a reasonable representation of the size of the predicted plume. The 20th percentile plume dimensions for the project's cooling tower plumes would interject a new form in the viewshed and the degree of contrast with the background sky would be moderately high. It would be co-dominant when compared to other elements in the view from KOP 4. Viewer exposure for motorists would be high but view disruption and blockage would be moderately low. Viewer exposure for cyclists would be moderate and view disruption and blockage would be moderately low. Overall visual change would be moderate. In the context of the moderately low to moderate visual sensitivity, we find that the introduction of the PHPP 20th percentile plume would not substantially degrade the existing viewshed. (Ex. 300, pp. 4.12-13 – 4.12-14.)

Visible plumes from the exhaust stacks are predicted to occur very infrequently when operating under full load, without duct firing or solar operation. The predicted visible plume frequencies increase significantly when operating with peak duct firing or operating with solar and duct firing. If the facility were to only

operate at full duct firing load, the plume frequency would be predicted to occur greater than 20 percent of seasonal daylight clear hours. However, Staff has modeled the HRSG exhaust plumes and has found that it is not reasonable to assume operation at this level year round. Therefore, we find that the gas turbine/HRSG exhausts will have a plume frequency of less than 20 percent of seasonal clear hours, and would therefore result in less than significant visual impacts. (Ex. 300, p. 4.12-14.)

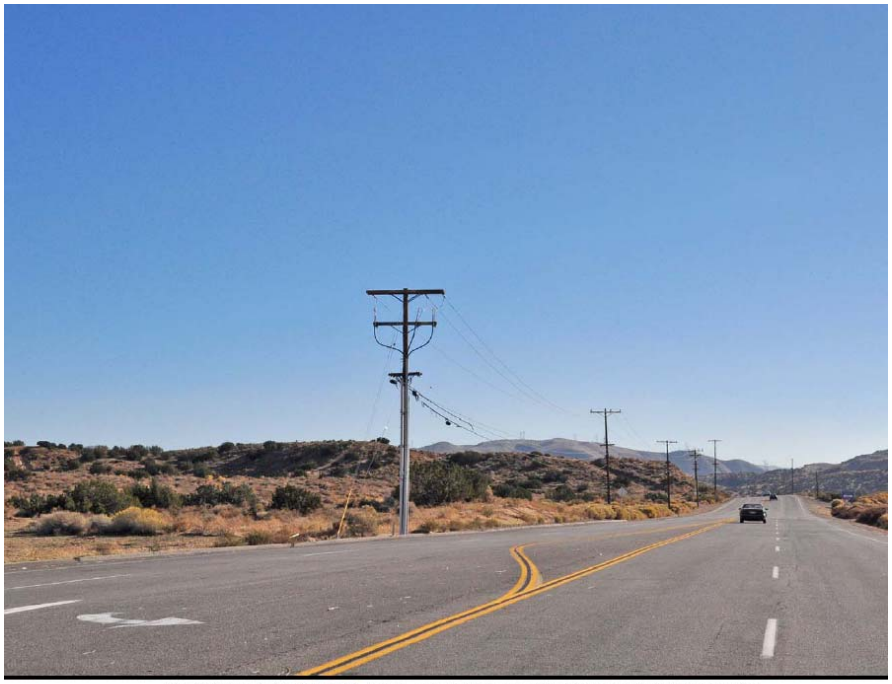
Alternative Route 4 - Partial Underground Transmission Line

Alternative Route 4 would consist of 6.75 miles of underground transmission line that would parallel East Avenue M to the west from the PHPP to the intersection with Sierra Highway. The line would proceed south on either the east or west side of Sierra Highway. It would transition to an overhead line at East Avenue S and would continue south until crossing over the intersection of Sierra Highway and Pearblossom Highway and would proceed southeast to the Vincent Substation. The above ground portion of the transmission line route would be about six miles. (Ex. 300, Appendix A, p. A-190.)

Alternative Route 4 - Partial Underground Transmission Line

KOP-Alt Trans Rte 4 – Looking South on Sierra Highway just south of the intersection with East Avenue S- Existing Conditions.

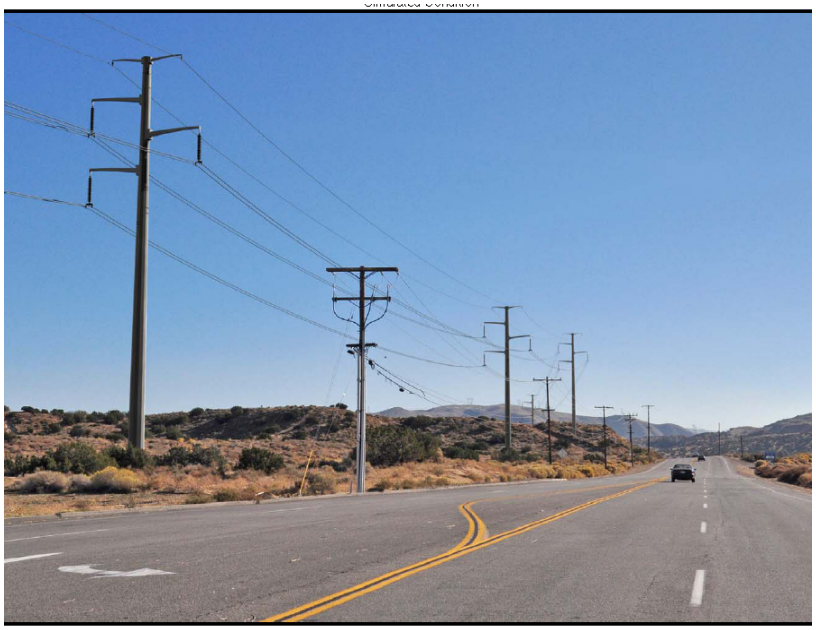
Visual Resources Figure 8A



CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION
SOURCE: Photo by Energy Commission Staff, Dec. 2010

KOP-Alt Trans Rte 4 (**Visual Resources Figure 8A**) was chosen to represent views by travelers driving south on Sierra Highway, approximately 5.5 miles southwest of the PHPP.

KOP-Alt Trans Rte 4 Simulation
Visual Resources Figure 8B



CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION
SOURCE: Simulation by Energy Commission Staff, Dec. 2010

Visual Sensitivity

The major elements in this view are Sierra Highway in the center of the view, flat desert land, telephone poles and lines in the foreground, Sierra Highway desert foothills in the midground, and San Gabriel Mountains and sky are in the background. The KOP-Alt Trans Rte 4 viewshed does not include a scenic resource or vista, and this section of Sierra Highway is not a state or local scenic highway. The visual quality of the KOP viewshed is considered to be moderate due to the combination of natural and industrial features. The estimated level of viewer concern towards preserving the existing KOP-Alt Trans Rte 4 viewshed is considered to be moderate. Given the wide-open viewshed, the natural and industrial features in this view are highly visible. (Ex. 300, Appendix A, p. A-191.)

The estimated number of motorists (6,600 average annual daily traffic) using Sierra Highway is considered to be moderately high. Staff visited the project site and estimated the duration of view for motorists and cyclists traveling north or south in the KOP-Alt Trans Rte 4 viewshed to an exposure of the project site is on the order of 5 to 10 seconds, which is considered to be low. Overall, view exposure for motorists from this KOP is considered moderately high. The overall

visual sensitivity for a motorist would be considered moderate from the KOP location. This assessment is the result of moderate visual quality, moderate viewer concern, and moderately high overall viewer exposure. (Ex. 300, Appendix A, p. A-191.)

Visual Change

The KOP-Alt Trans Rte 4 simulation (**Visual Resources Figure 8B**) displays one difference between the existing photo and the simulation; the new transmission line and towers that would be above ground for the remainder of this alternative route. The new transmission lines would be located adjacent to existing transmission lines in the left fore and mid-ground view and would be consistent with the current lines and forms of the existing towers and lines, though they would be larger and the contrast would be moderate. The new structures would be co-dominant with existing features in this viewshed. The simulation shows the proposed steel poles would be a non-reflective grayish color and would have a minor color contrast with the sky compared to the existing dark brown wooden poles. The degree of view disruption or blockage introduced by the new transmission lines and poles is moderately low. The Applicant has noted that the color and non-reflected surface of the transmission line structures would reduce their visual contrast with the background view. (Ex. 300, Appendix A, pp. A-191-A-192.)

The overall visual change to the view from KOP 1 would be moderate due to the moderate contrast, codominance, and low blockage. Given the moderate visual sensitivity of the viewer and the moderate degree of visual change, the project's impact would be less than significant with the mitigation contained in Condition of Certification **VIS-2**. This will reduce the likelihood that the transmission towers and lines would be a source of glare that could adversely affect daytime views from KOP-Alt Trans Rte 4. (Ex. 300, Appendix A, p. A-192.)

2. Project Lighting

During construction and operation, the project has the potential to generate offsite lighting impacts to surrounding properties and public viewing areas. Existing evening light is very low due to the open desert landscape, and sparse housing in the vicinity of the project site. The AFC states project lighting at the facility will be restricted to areas required for safety, security, and operation and lighting will be directed onsite and shielded from public view. We adopt Condition of Certification **VIS-3,** which limits lighting during construction, and

Condition of Certification **VIS-4**, which limits lighting during operation and requires submittal of a Lighting Mitigation Plan. With implementation of Applicant-proposed measures and Conditions of Certification **VIS-3** and **VIS-4**, we find that the PHPP would not result in a substantial new source of light that could adversely affect existing nighttime views. (Ex. 300, p. 4.12-14.)

Because the PHPP site is adjacent to the U.S. Air Force Plant 42, Staff recommended the installation of one, non-blinking red aviation obstruction light on each of the project's two 145-foot tall HRSG stacks, both ends of the 48-foot cooling tower, and at each corner of the power block area. The red aviation warning lights would be visible to varying degrees to travelers on Sierra Highway and East Avenue M. With the except of the aviation safety lights, all project lighting would include hoods/shields, would be directed downward or toward the area to be illuminated, and would be kept off when not in use (to the extent feasible) to minimize illumination of the night sky and impacts to surrounding properties and public viewing areas (see Condition of Certification **VIS-3** and **-4**). Therefore, considering the overall visual sensitivity of KOP 1 through KOP 4 viewsheds (moderately low to moderate), we find that the illumination from the relatively few, unshielded, aviation warning lights would not adversely affect nighttime views. (Ex. 300, pp. 4.12-14 – 4.12-15.)

3. Project Glare

The solar field comprises many parallel rows of solar collectors, normally aligned on a north-south horizontal axis. The height of the solar array support structures are approximately nine feet in height with the array system approximately 20 feet in height. Each solar collector has a linear parabolic-shaped reflector that focuses the sun's direct beam radiation on a linear receiver located at the focus of the parabola. The Applicant believes the collectors track the sun from east to west during the day to ensure that the sun's energy is continuously focused on the linear receiver and would not produce any significant glare. However, Staff believes that there could be significant glint/glare impacts for viewers (motorists) at KOP 1 caused by the solar array movements in and out of stow position, when they are purposely misaligned, or during the middle of winter when (end loss) glare could be emitted out of the north end of each array toward East Avenue M. We adopt Conditions of Certification **TRANS-7** and **TRANS-8**, which would mitigate the potential for glint and glare to a less than significant level. (Ex. 300, p. 4.12-15.)

Visual Resources Figures 4B and **5B** show the use of a surface treatment consisting of a neutral grayish color with a flat finish on the transmission line and poles. As described by the Applicant, this finish would limit excessive glare. We adopt Condition of Certification **VIS-2,** which requires submittal of a surface treatment plan for the power plant structures and electric transmission line poles. (Ex. 300, p. 4.12-15.)

4. Road Paving

Road paving activities can be seen by local residents or motorists who live or work near the roadways designated to be paved for PM10 ERCs. These visual impacts are temporary in nature (several days) as work crews pave one section of road and move on. In this case, the road segments are located in rural areas within the City of Palmdale or in unincorporated Los Angeles County. The roads are lightly traveled in sparsely populated areas and several are fairly short in length. Therefore, we find that visual impacts from the proposed road paving activities will be less than significant and do not warrant visual resources mitigation. (Ex. 306, p. 32.)

5. Cumulative Impacts and Mitigation

Section 15355 of the CEQA Guidelines (14 Cal. Code Regs.) defines a cumulative impact as the result of a combination of projects 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 significance of a cumulative visual impact would depend on the degree to which (1) the viewshed is altered; (2) views of a scenic resource are impaired or obstructed; or (3) visual quality is diminished. (Ex. 300, p. 4.12-15.)

The proposed PHPP would be built within the city limits of Palmdale, within an expanse of open space. There is no identified scenic resource or vista in the KOP 1, KOP 2, KOP 3, or KOP 4 viewsheds that would be disrupted if the project were constructed. (Ex. 300, p. 4.12-16.)

Project-related nighttime light and daytime glare impacts of the PHPP would be mitigated to a level that would be less than significant, although existing light and glare levels in the vicinity of the project would increase cumulatively as a result of the project and existing land uses. We find that with implementation of Conditions of Certification, the project's light and glare impacts in combination

with the impacts of existing projects would not be cumulatively considerable. (Ex. 300, p. 4.12-16.)

The PHPP would introduce publicly visible structures (KOPs 1 through 3) and vapor plume (KOP 4) that are industrial in nature to an area that currently has large-scale military structures and transmission lines and towers. The City of Palmdale has slated this area for future growth in the City's general plan and one small commercial project (gas station) is planed within a two mile radius of the PHPP. We find that the incremental effect of the project would not be cumulatively considerable when combined with the effects of past, present and reasonably foreseeable projects. (Ex. 300, p. 4.12-16.)

Staff has reviewed Census 2000 information (maps) that shows a minority population greater than 50 percent within a six-mile radius of the proposed power plant. **Socioeconomics Figure 1** shows that an identified minority population may potentially have a limited exposure to the project's publicly visible structures. These structures would be surface treated to help soften their visual presence (see Condition of Certification **VIS-1**), and lighting will be minimized as to not illuminate the sky and minimize the illumination of the project from the immediate vicinity (see Conditions of Certification **VIS-3** and **VIS-4**). We find that all significant direct or cumulative impacts specific to visual resources resulting from the construction or operation of the project will be mitigated. Further, we find the proposed project would not introduce a significant adverse visual resources impact related to environmental justice. (Ex. 300, p. 4.12-16.)

6. LORS compliance

County of Los Angeles General Plan Chapter VI – Scenic Resources

The County plan recognizes that the coastline, mountain vistas, and other scenic feature of the region are a significant resource for County residents and businesses. Based on the evidence in the record, we find that the project would not significantly impact mountain vistas and other scenic features of the region.

City of Palmdale General Plan Environmental Resources Policy ER 1.2.2 Implementation Program G

The plan designates several roadways, including the Pearlblossom Highway, as designated scenic highways. We find that with implementation of Condition of

Certification **VIS-1** (Construction Screening) the project is consistent with this plan.

City of Palmdale Municipal Code Section 1.4.04

The municipal code requires protection and preservation of vegetation, particularly Joshua trees. We find that with implementation of Condition of Certification **VIS-5**, the project is consistent with the code. (Ex. 300, p. 4.12-17, **Visual ResourcesTable 2**.)

7. Public Comment

No public comment was offered on Visual Resources.

FINDINGS OF FACT

Based on the evidence of record, we find and conclude as follows:

1. Construction will occur over approximately 27 months.

2. The project's temporary construction activities' impact on visual resources will be mitigated to a less than significant impact with the effective implementation of Condition of Certification **VIS-1**.

3. The power plant site does not use or have frontage on a segment of road designated as a State Scenic Highway. However, the transmission line will cross Pearblossom Highway, which is a designated Scenic Highway by the city of Palmdale.

4. With implementation of Conditions of Certification, the proposed PHPP including the associated linear facilities would generate a less than significant new source of light or glare to nighttime or daytime views.

5. There is no identified scenic vista on the project site or in the vicinity of the project site that the proposed project will substantially damage.

6. Condition of Certification **VIS-2** will require painting of structures in colors selected to blend with the background characteristic landscape.

7. The project's potential impacts on visual resources were analyzed from four identified key observation points (KOP) at different locations surrounding the project site.

8. With implementation of Conditions of Certification **VIS-1** through **VIS-5**, the PHPP will not result in a significant visual impact from any of the KOPs.

9. Visual impacts from the proposed road paving activities will be less than significant.

10. The PHPP's visible water vapor plumes would not substantially degrade the existing visual setting. The 20th percentile plumes dimensions are substantial but would not block significant portions of the sky and the mountain range in the backdrop.

11. The proposed project's publicly visible project structures may potentially be seen by an identified minority population of greater than 50 percent. Staff has determined that all significant direct impacts specific to visual resources resulting from the operation of the project will be mitigated, and there are no significant cumulative impacts. Therefore, the proposed project does not introduce a significant visual resource related to environmental justice issues.

CONCLUSIONS OF LAW

1. Implementation of the following Conditions of Certification will result in the project causing no significant direct or indirect impacts to visual resources.

2. The project will comply with all applicable laws, ordinances, regulations and standards regarding project design, architecture, landscaping, signage, and other requirements related to Visual Resources.

CONDITIONS OF CERTIFICATION

CONSTRUCTION SCREENING

VIS-1 The project owner shall reduce the visibility of construction equipment, materials, and activities at the project site and as appropriate at any staging and material and equipment storage areas with temporary screening such as fabric attached to fencing or berms prior to the start of ground disturbance. Screening shall be of an appropriate height, design, opacity, and color for each specific location, as determined by the CPM.

The project owner shall submit to the CPM for review and approval a specific screening plan whose proper implementation will satisfy these requirements. The project owner shall provide a sample (at least 3" x 5") of the proposed screening material with the plan.

Verification: At least 30 days prior to the start of site mobilization, the project owner shall submit the screening plan to the CPM for review and approval. The screening shall be installed during the site mobilization phase. The project owner shall notify the CPM when installation is completed. The project owner shall provide the CPM with electronic color photographs after installing screening at the power plant site and at staging, material and equipment storage areas showing the effectiveness of the screening.

SURFACE TREATMENT OF PROJECT STRUCTURES AND BUILDINGS

VIS-2 The project owner shall also color and finish the surfaces of all non-mirror project structures and buildings visible to the public to ensure that they: (1) minimize visual intrusion and contrast by blending with the landscape; (2) minimize glare; and (3) comply with local design policies and ordinances including special design standards for project development within a scenic highway viewshed pursuant to the city of Palmdale General Plan's Environmental Resources Policy. 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 a Surface Treatment Plan to the Compliance Project Manager (CPM) for review and approval. The treatment plan shall include:

A. A description of the overall rationale for the proposed surface treatment, including the selection of the proposed color(s) and finishes;

B. A list of each major project structure, building, tank, pipe, and wall; 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;

C. One set of color brochures or color chips showing each proposed color and finish;

D The construction of the transmission line and towers near Pearlblossom Highway shall implement special design standards (i.e. height limits) pursuant to the city of Palmdale General Plan's Environmental Resources;

E. In the event that color treatments or textures differ substantially from what was proposed by the Applicant in the AFC or in subsequent submittals, one set of 11” x 17” color photo simulations at life size scale of the proposed treatment for project structures, including structures treated during manufacture, from the Key Observation Points;

F. A specific schedule for completing the treatment; and

G. A procedure to ensure proper treatment maintenance for the life of the project.

The project owner shall not request vendor treatment of any buildings or structures during their manufacture, or perform final field treatment on any buildings or structures, until the project owner has received Surface Treatment Plan approval by the CPM.

Verification: At least 90 days prior to specifying vendor color(s) and finish(es) for structures or buildings to be surface treated during manufacture, the project owner shall submit the proposed Surface Treatment Plan to the CPM for review and approval and simultaneously to the City of Palmdale Planning Department for review and comment. The project owner shall provide the CPM with the City’s comments at least 30 days prior to the estimated date of providing paint specification to vendors.

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 Surface Treatment Plan must be submitted to the CPM for review and approval.

Within 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 the Key Observation Points.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) maintenance activities that occurred during the reporting year; and c) the schedule of maintenance activities for the next year.

CONSTRUCTION LIGHTING

VIS-3 The project owner shall ensure that lighting for construction of the power plant is used in a manner that minimizes potential night lighting impacts, as follows:

A. All lighting shall be of minimum necessary brightness consistent with worker safety and security;

B. All fixed position lighting shall be shielded/hooded, and directed downward and toward the area to be illuminated to prevent

direct illumination of the night sky and obtrusive spill light beyond the boundaries of the power plant site or the site of construction of ancillary facilities, including any security related boundaries;

C. Wherever feasible and safe and not needed for security, lighting shall be kept off when not in use; and

D. Complaints concerning adverse lighting impacts will be promptly addressed and mitigated.

Verification: Within seven days after the first use of construction lighting, the project owner shall notify the CPM that the lighting is ready for inspection. If the CPM requires modifications to the lighting, the project owner shall implement the necessary modifications within 15 days of the CPM's request and notify the CPM that the modifications have been completed.

Within 10 days of receiving a lighting complaint, the project owner shall provide the CPM with a complaint resolution form report as specified in the Compliance General Conditions including a proposal to resolve the complaint, and a schedule for implementation. The project owner shall notify the CPM within 10 days after completing implementation of the proposal. A copy of the complaint resolution form report shall be included in the subsequent Monthly Compliance Report following complaint resolution.

PERMANENT EXTERIOR LIGHTING

VIS-4 To the extent feasible, consistent with safety and security considerations and commercial availability, 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) lighting complies with local policies and ordinances.

The project owner shall submit to the CPM for review and approval and simultaneously to the City of Palmdale Department of Public Works and Planning, Development Services Division for review and comment a Lighting Mitigation Plan that includes the following:

A. A process for addressing and mitigating complaints received about potential lighting impacts;

B. Lighting shall incorporate commercially available fixture hoods/shielding, with light directed downward or toward the area to be illuminated;

C. Light fixtures shall not cause obtrusive spill light beyond the project boundary;

D. All lighting shall be of minimum necessary brightness consistent with operational safety and security; and

E. 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 determine the required documentation for 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 City of Palmdale Department of Public Works and Planning, Development Services Division for review and comment a Lighting Mitigation Plan. The project owner shall provide the City'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 installed and is ready for inspection. If after inspection the CPM notifies the project owner that modifications to the lighting are needed, within 30 days of receiving that notification the project owner shall implement the modifications and notify the CPM that the modifications have been completed and are ready for inspection.

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

LANDSCAPING

VIS-5 The project owner shall provide landscaping within the 30 foot setback area between the fence line and East Avenue M/Site 1 Road. The landscaping should be consistent with the conceptual Joshua Tree and Native Desert Vegetation Preservation Chapter 14.04 of the Palmdale Municipal Code (shown on **VISUAL RESOURCES Figure 3B**). The landscaping shall also comply with the city of Palmdale municipal code requirements stipulated in section 18-60.140 (Landscape Development). The project owner shall maintain the landscaping for the life of the project, including providing any needed irrigation, removing debris on an annual or semi-annual basis, and replacing dead or dying vegetation.

The project owner shall submit simultaneously to the City of Palmdale Planning Department for review and comment and to the CPM for review and approval, a landscaping plan whose proper implementation will satisfy these requirements.

The project owner shall not implement the plan until the project owner receives approval of the plan from the CPM. The planting must be completed by the start of commercial operation, and the planting must occur during the optimal planting season.

Verification: Prior to commercial operation and at least 90 days prior to installing the landscaping, the project owner shall submit the Landscaping Plan to the CPM for review and approval and simultaneously to City of Palmdale Planning Division for review and comment. The project owner shall provide the City's comments (if any) 30 days prior to the installation of the landscaping.

If the CPM determines that the plan requires revision, the project owner shall provide to the CPM and city of Palmdale Planning Division a plan with the specified revision(s) for review and approval by the CPM before the plan is implemented.

The project owner shall simultaneously notify the CPM and city of Palmdale Planning Division within seven days after completing installation of the landscaping and 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: *Laws, Ordinances, Regulations, and Standards*

Appendix B: *Exhibit List*

Appendix C: *Proof of Service List*

APPENDICES

Air Quality

Applicable LORS	Description
Federal	***U.S. Environmental Protection Agency***
CAAA of 1990, 40 CFR 50	National Ambient Air Quality Standards (NAAQS).
CAA Sec. 171-193, 42 USC 7501,40 CFR 51	New Source Review (NSR) – Requires NSR permit for new stationary sources. This requirement is addressed through AVAQMD Regulation XIII, Rule 1302.
40 CFR 52.21	Prevention of Significant Deterioration (PSD) – Requires dispersion modeling to demonstrate no violation of NAAQS or PSD increments, for pollutants that attain the NAAQS. A PSD permit is required because the PHPP would be a new major stationary source under the federal definitions of these terms in the PSD rules. PHPP is considered to be a new major stationary source since the criteria pollutant potential to emit (PTE) would exceed the PSD major source threshold for the fossil fuel-fired steam-electric plant category, which is 100 tons per year for any PSD criteria pollutant (NO_2, CO, PM10, and SO_2). The PSD program in the Antelope Valley is administered by the U.S. EPA.
40 CFR 60, Subpart KKKK	Standards of Performance for Stationary Combustion Turbines, New Source Performance Standard (NSPS). Replaces NSPS Subparts Da and GG for the modified combustion turbines and new duct burners with heat recovery steam generators. Requires the proposed combined cycle units to achieve 15 ppm NOx and achieve fuel sulfur standards.
40 CFR 60, Subpart Dc	Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units. Requires monitoring of the natural gas fuel source for the proposed auxiliary boiler.
40 CFR 60, Subpart IIII	Standards of Performance for Stationary Compression Ignition Internal Combustion Engines. Requires the new emergency fire water pump engine to achieve: 3.0 grams per horsepower-hour (g/bhp-hr) of non-methane hydrocarbons and NOx (NMHC+NOx) and 0.15 g/bhp-hr PM, which are levels equivalent to U.S. EPA Tier 3 standards. The existing diesel-fired standby generator engine would not be subject to Subpart IIII.
40 CFR 70, CAA Sec 401, 42 USC 7651	Federal Title V Operating Permit Program. Consolidates federally-enforceable operating limits. Application required within one year following start of operation. This program is within the jurisdiction of the AVAQMD with U.S. EPA oversight [AVAQMD Regulation XXX, Rule 1303].
40 CFR 72, CAA Sec 401 42 USC 7651	Title IV Acid Rain – Applicable to electrical generating units greater than 25 MW. Requires Title IV permit and compliance with acid rain provisions, implemented through the Title V program. This program is within the jurisdiction of the AVAQMD with U.S. EPA oversight
State	***California Air Resources Board and Energy Commission***
Health and Safety Code (HSC) Section 40910-40930	Permitting of source needs to be consistent with approved clean air plan. The AVAQMD New Source Review (NSR) program is consistent with regional air quality management plans.

Air Quality

Applicable LORS	Description
California Health & Safety Code Section 41700	Public Nuisance Provisions – Outlaws the discharge of air contaminants that cause nuisance, injury, detriment, or annoyance.
California Code of Regulations for Off-Road Diesel-Fueled Fleets (13 CCR §2449, et seq.)	General Requirements for In-Use Off-Road Diesel-Fueled Fleets – Requires owners and operators of in-use (existing) off-road diesel equipment and vehicles to begin reporting fleet characteristics to CARB in 2009 and meet fleet emissions targets for diesel particulate matter and NOx in 2010.
Airborne Toxic Control Measure for Idling (ATCM, 13 CCR §2485)	ATCM to Limit Diesel-Fueled Commercial Motor Vehicle Idling – Generally prohibits idling longer than five minutes for diesel-fueled commercial motor vehicles.
Local	***Antelope Valley Air Quality Management District***
Regulation II – Permits	**Rule 212 –** Standards For Approving Permits. Establishes baseline criteria for approving permits by the AVAQMD for certain projects. In accordance with these criteria, the proposed project accomplishes all required notices and emission limits required through the FDOC and complying with stringent emission limitations set forth on permits. **Rule 218 -** Stack Monitoring. Requires certain facilities to install and maintain stack monitoring systems. The proposed project will be required to install and maintain stack monitoring systems by permit condition. **Rule 225 –** Federal Operating Permit. Requirements requires certain facilities to obtain federal operating permits. The proposed project will be required to submit an application for a federal operating permit within twelve months of the commencement of operations.
Regulation IV - Prohibitions	**Rule 401 –** Visible Emissions. Limits visible emissions opacity to less than 20% (or Ringelmann No. 1). During start up, visible emissions may exceed 20% opacity. However, emissions of this opacity are not expected to last three minutes or longer. In normal operating mode, visible emissions are not expected to exceed 20% opacity. **Rule 402 –** Nuisance. Prohibits facility emissions that cause a public nuisance. The proposed turbine power train exhaust is not expected to generate a public nuisance due to the sole use of pipeline-quality natural gas as a fuel. In addition, due to the location of the proposed project, no nuisance complaints are expected. **Rule 403 –** Fugitive Dust. Specifies requirements for controlling fugitive dust. The proposed project does not include any significant sources of fugitive dust emissions during operation so the proposed project is not expected to violate Rule 403. **Rule 404 –** Particulate Matter Concentration. Specifies standards of emissions for particulate matter concentrations. The sole use of

Applicable LORS	Description
	pipeline-quality natural gas as a fuel will keep proposed project emission levels in compliance with Rule 404. **Rule 405 –** Solid Particulate Matter Limits particulate matter emissions from fuel combustion on a mass per unit combusted basis. The sole use of pipeline-quality natural gas as a fuel will keep proposed project emission levels in compliance with Rule 405. **Rule 408 –** Circumvention. Prohibits hidden or secondary rule violations. The proposed project is not expected to violate Rule 408. **Rule 409 –** Combustion Contaminants. Limits total particulate emissions on a density basis. The sole use of pipeline-quality natural gas a fuel will keep proposed project emission levels in compliance with Rule 409. **Rule 430 –** Breakdown Provisions. Requires the reporting of breakdowns and excess emissions. The proposed project will be required to comply with Rule 430 by permit condition. **Rule 431.1, 431.2 and 431.3 –** Sulfur Content in Fuels. Limits sulfur content in gaseous, liquid and solid fuels. The sole use of pipeline-quality natural gas a fuel will keep the proposed project in compliance with Rule 431. **Rule 476 -** Steam Generating Equipment. Limits NOx and particulate matter from steam boilers, including the auxiliary boiler, and specifies monitoring and recordkeeping for such equipment. The proposed project will have specific permit conditions requiring compliance with these provisions.
Regulation XI - Source Specific Standards	**Rule 1113 -** Architectural Coatings. Limits VOC content of applied architectural coatings. The proposed project will be required to use compliant coatings by permit condition. **Rule 1134 -** Emissions of Oxides of Nitrogen from Stationary Gas Turbines. Limits NOx emissions from combined-cycle turbines and specifies monitoring and recordkeeping for such equipment. The proposed project will have specific permit conditions requiring compliance with these provisions. **Rule 1135 -** Emissions of Oxides of Nitrogen from Electric Power Generating Systems. This rule is only applicable to units existing in 1991 which are owned by specific utilities or their successors. Since PHPP will be constructed after 1991 and is not owned by any entity listed in the rule, this rule is not applicable to PHPP. **Rule 1146 -** Emissions of Oxides of Nitrogen from Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters. This rule does not apply to boilers used to generate electricity, but would apply to the HTF heater. The proposed project will meet the requirements of this rule by implementing BACT levels. The proposed project will have specific permit conditions requiring compliance with these provisions.
Regulation XIII – New Source Review	**Rule 1300 –** General. Ensures that Prevention of Significant Deterioration (PSD) requirements apply to all projects. The proposed project has submitted an application to the USEPA for a PSD permit that regulates PHPP emissions of NO_2, CO and PM2.5,

Applicable LORS	Description
	complying with Rule 1300. **Rule 1302 –** Procedure. Requires certification of compliance with the Federal Clean Air Act, applicable implementation plans, and all applicable AVAQMD rules and regulations. The Authority to Construct application package for the proposed project includes sufficient documentation to comply with Rule 1302(D)(5)(b)(iii). Permit conditions for the proposed project will require compliance with Rule 1302(D)(5)(b)(iv). **Rule 1303 –** Requirements. Requires BACT and offsets for selected large new sources. Permit conditions will limit the emissions from the proposed project to a level which has been defined as BACT for the proposed project, bringing the proposed project into compliance with Rule 1302(A). Prior to the commencement of construction the proposed project shall have obtained sufficient offsets to comply with Rule 1303(B)(1). **Rule 1305 –** Emissions Offsets. Provides the procedures and formulas to determine the eligibility, calculations and use of offsets required pursuant to the provisions of District Rile 1303 (B). Fugitive Emissions, as defined in Rule 1301 (HH), must be included when calculating the base quantity of offsets as required by Rule 1305.
Regulation XXX – Federal Operating Permits	**Regulation XII** contains requirements for sources which must have a federal operating permit and an acid rain permit. The proposed project will be required to submit applications for a federal operating permit and an acid rain permit. The federal operating permit application is required to be submitted within one year after the PHPP commences operation. An acid rain permit application is required by 40 CFR Part 72 to be submitted at least 24 months prior to the date when the affected unit commences commercial operation.
Maximum Achievable Control Technology Standards	Health & Safety Code §39658(b)(1) states that when USEPA adopts a standard for a toxic air contaminant pursuant to §112 of the Federal Clean Air Act (42 USC §7412), such standard becomes the Airborne Toxic Control Measure (ATCM) for the toxic air contaminant. Once an ATCM has been adopted it becomes enforceable by the AVAQMD 120 days after adoption or implementation (Health & Safety Code §39666(d)). USEPA has not to date adopted a Maximum Achievable Control Technology (MACT) standard that is applicable to the proposed project. Should USEPA adopt an applicable MACT standard in the future, the AVAQMD will be required to enforce said MACT as an ATCM on the proposed project. MACT is also required for each major source of toxic air contaminants. However, PHPP will not emit more than ten tons per year of any individual toxic air contaminant, and will not collectively emit more than 25 tons per year of all toxic air contaminants, so MACT is not required.

Alternatives

Applicable LORS	Description
State	
California Environmental Quality Act (CEQA)	The Energy Commission is required by agency regulations to examine the "feasibility of available site and facility alternatives to the applicant's proposal which substantially lessen the significant adverse impacts of the proposal on the environment." (Cal. Code Regs., tit. 20, § 1765). The "Guidelines for Implementation of the California Environmental Quality Act," Title 14, California Code of Regulations, section 15126.6(a), requires an evaluation of the comparative merits of "a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project." In addition, the analysis must address the "no project" alternative. [Cal. Code Regs., tit. 14, § 15126.6, subd. (e).] The analysis should identify and compare the impacts of the various alternatives, but analysis of alternatives need not be in as much detail as the analysis of the proposed project. The range of alternatives is governed by the "rule of reason," which requires consideration only of those alternatives necessary to permit informed decision making and public participation. CEQA states that an environmental document does not have to consider an alternative if its effect cannot be reasonably ascertained and if its implementation is remote and speculative. (Cal. Code Regs., tit. 14, § 15126.6, subd. (f)(3).) However, if the range of alternatives is defined too narrowly, the analysis may be inadequate. (City of Santee v. County of San Diego (4th District 1989) 214 Cal. App.3d 1438.)
Warren-Alquist Act	The Warren-Alquist Act provides clarification as to when it may not be reasonable to require an applicant to analyze alternative sites for a project. An alternative site analysis is not required as part of an AFC when a *natural gas-fired thermal power plant* is (1) proposed for development at an existing industrial site, and (2) "the project has a strong relationship to the existing industrial site and therefore it is reasonable not to analyze alternative sites for the project." [Pub, Res. Code § 25540.6, subd. (b).]

Biological Resources

Applicable LORS	Description
Federal	
Federal Endangered Species Act (Title 16, United States Code, section 1531 et seq., and Title 50, Code of Federal Regulations, part 17.1 et seq.)	Designates and provides for protection of threatened and endangered plant and animal species and their critical habitat. "Take" of a federally-listed species is prohibited without an incidental take permit, which may be obtained through Section 7 consultation (between federal agencies) or a Section 10 Habitat Conservation Plan.
Migratory Bird Treaty (Title 16, United States Code, sections 703 through 711)	Makes it unlawful to take or possess any migratory nongame bird (or any part of such migratory nongame bird) as designated in the Migratory Bird Treaty Act unless permitted by regulation (e.g., duck hunting).
Bald and Golden Eagle Protection Act (Title 16, United States Code section 668)	Provides for the protection of the bald eagle and the golden eagle by prohibiting, except under certain specified conditions, the take, possession, and commerce of such birds. The 1972 amendments increased penalties for violating provisions of the act or regulations issued pursuant thereto and strengthened other enforcement measures. Rewards are provided for information leading to arrest and conviction for violation of the act.
State	
California Endangered Species Act of 1984 (Fish and Game Code, sections 2050 through 2098)	Protects California's rare, threatened, and endangered species. "Take" of a state-listed species is prohibited without an Incidental Take Permit.
California Code of Regulations (Title 14, sections 670.2 and 670.5)	Lists the plants and animals of California that are declared rare, threatened, or endangered.
Fully Protected Species (Fish and Game Code, sections 3511, 4700, 5050, and 5515)	Designates certain species as fully protected and prohibits the take of such species or their habitat unless for scientific purposes (see also California Code of Regulations, Title 14, section 670.7).
Nest or Eggs (Fish and Game Code section 3503)	Protects California's birds by making it unlawful to take, possess, or needlessly destroy the nest or eggs of any bird.
Migratory Birds (Fish and Game Code section 3513)	Protects California's migratory birds by making it unlawful to take or possess any migratory nongame bird as designated in the Migratory Bird Treaty Act or any part of such migratory nongame birds.
Significant Natural Areas (Fish and Game Code section 1930 et seq.)	Designates certain areas such as refuges, natural sloughs, riparian areas, and vernal pools as significant wildlife habitat.

Applicable LORS	Description
California Environmental Quality Act (CEQA), CEQA Guidelines section 15380	CEQA defines rare species more broadly than the definitions for species listed under the state and federal Endangered Species Acts. Under section 15830, species not protected through state or federal listing but nonetheless demonstrable as “endangered” or “rare” under CEQA should also receive consideration in environmental analyses. Included in this category are many plants considered rare by the California Native Plant Society (CNPS) and some animals on the CDFG’s Special Animals List.
Streambed Alteration Agreement (Fish and Game Code sections 1600 et seq.)	Regulates activities that may divert, obstruct, or change the natural flow or the bed, channel, or bank of any river, stream, or lake in California designated by CDFG in which there is at any time an existing fish or wildlife resource or from which these resources derive benefit. Impacts to vegetation and wildlife resulting from disturbances to waterways are also reviewed and regulated during the permitting process.
Water Quality Control Plan for the Lahontan Region (Basin Plan)	The Basin Plan establishes water quality objectives that protect the beneficial uses of surface water and groundwater in the Region. The Basin Plan describes implementation plans and other control measures designed to ensure compliance with statewide plans and policies and provide comprehensive water quality planning. Beneficial uses for minor surface water bodies of the Koehn Hydrologic Area include wildlife habitat.
California Native Plant Protection Act of 1977 (Fish and Game Code section 1900 et seq.)	Designates state rare, threatened, and endangered plants.
California Desert Native Plants Act of 1981 (Food and Agricultural Code section 80001 et seq. and California Fish and Game Code sections 1925-1926)	Protects non-listed California desert native plants from unlawful harvesting on both public and private lands in Imperial, Inyo, Kern, Los Angeles, Mono, Riverside, San Bernardino, and San Diego counties. Unless issued a valid permit, wood receipt, tag, and seal by the commissioner or sheriff, harvesting, transporting, selling, or possessing specific desert plants is prohibited.
Local	

Applicable LORS	Description
Antelope Valley Areawide General Plan.	This plan requires the minimizing disruption and degradation of the environment, integrating land uses with natural environmental systems, instituting measures to mitigate the impacts of environmental hazards, and prohibiting expansion of urban uses into areas of rare and endangered species. It promotes the designation of significant plant and wildlife habitats as Significant Ecological Areas (SEAs), preservation of biotic diversity in the valley by designating rare and unique plant and animal SEAs and the measures for their protection, and adding new SEAs when appropriate. If projects have the potential to impact biotic resources, a biological assessment will be required. This plan requires the establishment of an open space network and prohibits the harvesting of Joshua trees or juniper trees for fuel or for their relocation out of its normal habitats. Management plans will be developed for MIS (Management Indicator Species) in cooperation with CDFG, standing dead trees will be maintained at reasonable density providing nesting habitat for raptors and other predators; interim management plans will be created when actual recovery plans do not exist.
City of Palmdale General Plan	The City of Palmdale General Plan (1993) sets forth goals to preserve and protect biological resources, including: (1) preserve significant natural and man-made open space areas; (2) protect significant ecological resources and ecosystems, including, but not limited to, sensitive flora and fauna habitat areas; (3) preserve designated natural hillsides and ridgelines in the Planning Area, to maintain the aesthetic character of the Antelope Valley; (4) protect the quality and quantity of local water resources; and (5) promote the attainment of state and federal air quality standards. Biological resources are addressed in the City's General Plan Goal ER2, which calls for protecting "…significant ecological resources and ecosystems, including, but not limited to, sensitive flora and fauna habitat areas." Significant Ecological Areas are identified at Big Rock Wash, Little Rock Wash, Ritter Ridge, Portal Ridge and Alpine Butte. Biological surveys are required for any new development in these areas, and significant environmental resources are required to be considered and preserved to the extent feasible. The plan also calls for the preservation of natural drainage courses and riparian areas containing significant concentrations of ecological resources, as well as significant Joshua tree woodlands. The City will require biological assessments and reports for projects in known or suspected natural habitat areas prior to Project approval. These reports will be used to establish significant natural habitat areas and ecologically sensitive zones to prevent disturbance and degradation of these areas. Recommended mitigation measures as identified in the reports will be required to be implemented as development occurs.

Applicable LORS	Description
County of Los Angeles Significant Ecological Areas	Significant Ecological Areas are specified by the CLAGP as "ecologically important land and water systems that are valuable as plant or animal communities, often important to the preservation of threatened and endangered species, and conservation of biological diversity within the County." There are a total of 31 existing and proposed SEAs within Los Angeles County and a total of 11 within 10 miles of the project. Only the Little Rock Wash and Kentucky Springs SEA overlaps the Project area. Little Rock Wash SEA is spanned by the transmission line in two locations. (County of Los Angeles, 2007a).
City of Palmdale Native Desert Vegetation Ordinance	The City has adopted Ordinance No. 952, referred to as the Native Desert Vegetation Ordinance. This ordinance is designed to preserve a number of specimen-quality juniper (*Juniperus californica*) and Joshua trees (*Yucca brevifolia*) that add to community identity, and to encourage the use of native vegetation in new development landscaping. All landscaping for new developments must conform to the requirements set forth in the Native Desert Vegetation Ordinance

Compliance with Laws, Ordinances, Regulations, and Standards

Applicable LORS	Description	Rationale for Compliance
Federal		
Federal Endangered Species Act (Title 16, United States Code, section 1531 et seq., and Title 50, Code of Federal Regulations, part 17.1 et seq.)	Designates and provides for protection of threatened and endangered plant and animal species and their critical habitat. "Take" of a federally-listed species is prohibited without an incidental take permit, which may be obtained through Section 7 consultation (between federal agencies) or a Section 10 Habitat Conservation Plan.	The project is not expected to result in take of listed species and a federal Biological Opinion would not be required. Staff's proposed Conditions of Certification **BIO-1** through **BIO-9**, **BIO-12**, **BIO-13**, and **BIO-14** include measures to minimize or avoid the potential for take of the federally listed arroyo toad and desert tortoise.
Migratory Bird Treaty (Title 16, United States Code, sections 703 through 711)	Makes it unlawful to take or possess any migratory nongame bird (or any part of such migratory nongame bird) as designated in the Migratory Bird Treaty Act unless permitted by regulation (e.g., duck hunting).	Staff's proposed Condition of Certification **BIO-15** includes preconstruction nest surveys, no-disturbance buffers around active nests, and monitoring of nests to minimize impacts to nesting birds covered under the Migratory Bird Treaty Act.

Applicable LORS	Description	Rationale for Compliance
Bald and Golden Eagle Protection Act (Title 16, United States Code section 668)	Provides for the protection of the bald eagle and the golden eagle by prohibiting, except under certain specified conditions, the take, possession, and commerce of such birds. The 1972 amendments increased penalties for violating provisions of the act or regulations issued pursuant thereto and strengthened other enforcement measures. Rewards are provided for information leading to arrest and conviction for violation of the act.	Staff's proposed Condition of Certification **BIO-15** includes preconstruction nest surveys, no-disturbance buffers around active nests, and monitoring of nests to minimize impacts to nesting birds including bald and golden eagles. In addition, staffs Condition of Certification **BIO-24** require the development of an avian and bat protection plan.
State		
California Endangered Species Act of 1984 (Fish and Game Code, sections 2050 through 2098)	Protects California's rare, threatened, and endangered species. "Take" of a state-listed species is prohibited without an Incidental Take Permit.	Staff's proposed Conditions of Certification **BIO-1** through **BIO-9**, **BIO-13**, **BIO-14**, **BIO-16**, **BIO-17**, **BIO-19**, and **BIO-20** would ensure that the project is not likely to jeopardize the continued existence of desert tortoise, Swainson's hawk, or Mohave ground squirrel or result in the degradation of occupied habitat for any state-listed species.
California Code of Regulations (Title 14, sections 670.2 and 670.5)	Lists the plants and animals of California that are declared rare, threatened, or endangered.	Analysis of potential project impacts to rare, threatened, or endangered species is provided above, and conditions of certification are proposed that would minimize impacts to these species.
Fully Protected Species (Fish and Game Code, sections 3511, 4700, 5050, and 5515)	Designates certain species as fully protected and prohibits the take of such species or their habitat unless for scientific purposes (see also California Code of Regulations, Title 14, section 670.7).	Golden eagle, bald eagle, California condor, and white-tailed kite are species designated as fully protected that have the potential to occur in the project area. However, staff's proposed Condition of Certification **BIO-15** and **BIO-24** includes preconstruction nest surveys, no-disturbance buffers around active nests, monitoring of nests to minimize impacts to nesting birds including fully protected species, and requires the development of an avian and bat protection plan.

Applicable LORS	Description	Rationale for Compliance
Nest or Eggs (Fish and Game Code section 3503)	Protects California's birds by making it unlawful to take, possess, or needlessly destroy the nest or eggs of any bird.	Staff's proposed Condition of Certification **BIO-15** includes preconstruction nest surveys, no-disturbance buffers around active nests, and monitoring of nests to minimize impacts to nesting birds. Staff's proposed Condition of Certification **BIO-6** includes a Worker Environmental Awareness Program to educate workers about compliance with environmental regulations, including Fish and Game Code section 3503.
Migratory Birds (Fish and Game Code section 3513)	Protects California's migratory birds by making it unlawful to take or possess any migratory nongame bird as designated in the Migratory Bird Treaty Act or any part of such migratory nongame birds.	Staff's proposed Condition of Certification **BIO-15** includes preconstruction nest surveys, no-disturbance buffers around active nests, and monitoring of nests to minimize impacts to nesting birds. Staff's proposed Condition of Certification **BIO-6** includes a Worker Environmental Awareness Program to educate workers about compliance with environmental regulations, including Fish and Game Code section 3513.
Significant Natural Areas (Fish and Game Code section 1930 et seq.)	Designates certain areas such as refuges, natural sloughs, riparian areas, and vernal pools as significant wildlife habitat.	Staff's proposed Condition of Certification **BIO-23** includes measures to minimize and avoid impacts to riparian habitat.
California Environmental Quality Act (CEQA), CEQA Guidelines section 15380	CEQA defines rare species more broadly than the definitions for species listed under the state and federal Endangered Species Acts. Under section 15830, species not protected through state or federal listing but nonetheless demonstrable as "endangered" or "rare" under CEQA should also receive consideration in environmental analyses. Included in this category are many plants considered rare by the California Native Plant Society (CNPS) and some animals on the CDFG's Special Animals List.	Implementation of staff's proposed Conditions of Certification **BIO-1** through **BIO-25** would ensure that the project would be in compliance with CEQA.

Applicable LORS	Description	Rationale for Compliance
Streambed Alteration Agreement (Fish and Game Code sections 1600 et seq.)	Regulates activities that may divert, obstruct, or change the natural flow or the bed, channel, or bank of any river, stream, or lake in California designated by CDFG in which there is at any time an existing fish or wildlife resource or from which these resources derive benefit. Impacts to vegetation and wildlife resulting from disturbances to waterways are also reviewed and regulated during the permitting process.	Staff's proposed Condition of Certification **BIO-23** includes measures to minimize and avoid impacts to jurisdictional waters of the state.
Water Quality Control Plan for the Lahontan Region (Basin Plan)	The Basin Plan establishes water quality objectives that protect the beneficial uses of surface water and groundwater in the Region. The Basin Plan describes implementation plans and other control measures designed to ensure compliance with statewide plans and policies and provide comprehensive water quality planning. Beneficial uses for minor surface water bodies of the Koehn Hydrologic Area include wildlife habitat.	Staff's proposed Condition of Certification **BIO-23** includes measures to minimize and avoid impacts to jurisdictional waters of the state.
California Native Plant Protection Act of 1977 (Fish and Game Code section 1900 et seq.)	Designates state rare, threatened, and endangered plants.	Staff's proposed Conditions of Certification **BIO-10** and **BIO-11** include restoration and compensation for impacts to native plant communities, special-status plant surveys, and a Sensitive Plant Protection Plan to minimize impacts to special-status plants.
California Desert Native Plants Act of 1981 (Food and Agricultural Code section 80001 et seq. and California Fish and Game Code sections 1925-1926)	Protects non-listed California desert native plants from unlawful harvesting on both public and private lands in Imperial, Inyo, Kern, Los Angeles, Mono, Riverside, San Bernardino, and San Diego counties. Unless issued a valid permit, wood receipt, tag, and seal by the commissioner or sheriff, harvesting, transporting, selling, or possessing specific desert plants is prohibited.	Staff's proposed Conditions of Certification **BIO-1** through **BIO-10**, and **BIO-20** include measures to minimize and mitigate potential impacts to Joshua Trees and/or cacti.

Applicable LORS	Description	Rationale for Compliance
Local		
Antelope Valley Areawide General Plan.	This plan requires the minimizing disruption and degradation of the environment, integrating land uses with natural environmental systems, instituting measures to mitigate the impacts of environmental hazards, and prohibiting expansion of urban uses into areas of rare and endangered species. It promotes the designation of significant plant and wildlife habitats as Significant Ecological Areas (SEAs), preservation of biotic diversity in the valley by designating rare and unique plant and animal SEAs and the measures for their protection, and adding new SEAs when appropriate. If projects have the potential to impact biotic resources, a biological assessment will be required. This plan requires the establishment of an open space network and prohibits the harvesting of Joshua trees or juniper trees for fuel or for their relocation out of its normal habitats. Management plans will be developed for MIS (Management Indicator Species) in cooperation with CDFG, standing dead trees will be maintained at reasonable density providing nesting habitat for raptors and other predators; interim management plans will be created when actual recovery plans do not exist.	Implementation of staff's proposed Conditions of Certification **BIO-1** through **BIO-25** would ensure that the project remains in compliance with the Antelope Valley Areawide General Plan.
City of Palmdale General Plan	The City of Palmdale General Plan (1993) sets forth goals to preserve and protect biological resources, including: (1) preserve significant natural and man-made open space areas; (2) protect significant ecological resources and ecosystems, including, but not limited to, sensitive flora and fauna habitat areas; (3) preserve designated natural hillsides and ridgelines in the Planning Area, to maintain the aesthetic character of the Antelope Valley; (4) protect the quality and quantity of local water resources; and (5) promote the attainment of state and federal air quality standards.	Implementation of staff's proposed Conditions of Certification **BIO-1** through **BIO-25** would ensure that the project remains in compliance with the City of Palmdale General Plan.

Applicable LORS	Description	Rationale for Compliance
	Biological resources are addressed in the City's General Plan Goal ER2, which calls for protecting "…significant ecological resources and ecosystems, including, but not limited to, sensitive flora and fauna habitat areas." Significant Ecological Areas are identified at Big Rock Wash, Little Rock Wash, Ritter Ridge, Portal Ridge and Alpine Butte. Biological surveys are required for any new development in these areas, and significant environmental resources are required to be considered and preserved to the extent feasible. The plan also calls for the preservation of natural drainage courses and riparian areas containing significant concentrations of ecological resources, as well as significant Joshua tree woodlands. The City will require biological assessments and reports for projects in known or suspected natural habitat areas prior to Project approval. These reports will be used to establish significant natural habitat areas and ecologically sensitive zones to prevent disturbance and degradation of these areas. Recommended mitigation measures as identified in the reports will be required to be implemented as development occurs.	
County of Los Angeles Significant Ecological Areas	Significant Ecological Areas are specified by the CLAGP as "ecologically important land and water systems that are valuable as plant or animal communities, often important to the preservation of threatened and endangered species, and conservation of biological diversity within the County." There are a total of 31 existing and proposed SEAs within Los Angeles County and a total of 11 within 10 miles of the project. Only the Little Rock Wash and Kentucky Springs SEA overlaps the project area. Little Rock Wash SEA is spanned by the transmission line in two locations. (County of Los Angeles, 2007a).	Staff has included conditions of certification to reduce impacts to biological resources that occur in these areas. Staff's proposed Conditions of Certification **BIO-1** through **BIO-25** include measures to minimize or avoid the potential to conflict with polices protecting ecologically important land and water systems within the County.

Applicable LORS	Description	Rationale for Compliance
City of Palmdale Native Desert Vegetation Ordinance	The City has adopted Ordinance No. 952, referred to as the Native Desert Vegetation Ordinance. This ordinance is designed to preserve a number of specimen-quality juniper (*Juniperus californica*) and Joshua trees (*Yucca brevifolia*) that add to community identity, and to encourage the use of native vegetation in new development landscaping. All landscaping for new developments must conform to the requirements set forth in the Native Desert Vegetation Ordinance	Staff's proposed Conditions of Certification **BIO-1** through **BIO-10**, and **BIO-20** include measures to minimize and mitigate potential impacts to Joshua Trees and/or cacti.

Cultural Resources

Applicable LORS	Description
State	
Public Resources Code 5097.98(b) and (e)	Requires a landowner on whose property Native American human remains are found to limit further development activity in the vicinity until he/she confers with the Native American Heritage Commission-identified Most Likely Descendents (MLDs) to consider treatment options. In the absence of MLDs or of a treatment acceptable to all parties, the landowner is required to reinter the remains elsewhere on the property in a location not subject to further disturbance.
California Health and Safety Code, Section 7050.5	Makes it a misdemeanor to disturb or remove human remains found outside a cemetery. This code also requires a project owner to halt construction if human remains are discovered and to contact the county coroner.
Local	
County of Los Angeles General Plan (Los Angeles County 2008)	• Policy C/OS 12.2: Support the preservation and rehabilitation of historic buildings. • Policy C/OS 12.3: Ensure proper notification procedures to Native American tribes in accordance with Senate Bill 18 (2004). • Policy C/OS 12.4:
City of Palmdale General Plan (City of Palmdale 1993)	GOAL ER7: Protect historical and culturally significant resources which contribute to the community's sense of history. Objective ER7.1: Promote the identification and preservation of historic structures, historic sites, archaeological sites, and paleontological resources in the City. • Policy ER7.1.1: Identify and recognize historic landmarks from Palmdale's past. • Policy ER7.1.3: Require that new development protect significant historic, paleontological, or archaeological resources, or provide for other appropriate mitigation. • Policy ER7.1.5: When human remains, suspected to be of Native American origin are discovered, cooperate with the Native American Heritage Commission and any local Native American groups to determine the most appropriate disposition of the human remains and any associated grave goods. • Policy ER7.1.8: Discourage historic landmark properties from being altered in such a manner as to significantly reduce their cultural value to the community. (General Plan Amendment 04-01, adopted by City Council April 14, 2004.)

Facility Design

Applicable LORS	Description
Federal	
	Title 29 Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health standards
State	
	2007 California Building Standards Code (CBSC) (also known as Title 24, California Code of Regulations)
Local	
	City of Palmdale regulations and ordinances; Los Angeles County regulations and ordinances
General	
	• American National Standards Institute (ANSI) • American Society of Mechanical Engineers (ASME) • American Welding Society (AWS) • American Society for Testing and Materials (ASTM)

Geology and Paleontology

Applicable LORS	Description
Federal	
	The proposed PHPP is not located on federal land. There are no federal LORS for geologic hazards and resources for this site.
State	
California Building Code (2007)	The CBC (2007) includes a series of standards that are used in project investigation, design, and construction (including grading and erosion control). The CBC has adopted provisions in the International Building Code (ICC 2006).
Alquist-Priolo Earthquake Fault Zoning Act, Public Resources Code (PRC), section 2621–2630	Mitigates against surface fault rupture of known active faults beneath occupied structures. Requires disclosure to potential buyers of existing real estate and a 50-foot setback for new occupied buildings.
The Seismic Hazards Mapping Act, PRC section 2690–2699	Areas are identified that are subject to the effects of strong ground shaking, such as liquefaction, landslides, tsunamis, and seiches. Seismic Hazards Maps have been prepared by California Geological Survey (CGS) for the project area.
The Seismic Hazards Mapping Act, PRC section 2693	Areas mapped as zones of required investigation for liquefaction, would require mitigation according to PRC 2693(c). “Mitigation" means those measures that are consistent with established practice and that will reduce seismic risk to acceptable levels.
PRC, Chapter 1.7, sections 5097.5 and 30244	Regulates removal of paleontological resources from state lands, defines unauthorized removal of fossil resources as a misdemeanor, and requires mitigation of disturbed sites.
Warren-Alquist Act, PRC, sections 25527 and 25550.5(i)	The Warren-Alquist Act requires the Energy Commission to “give the greatest consideration to the need for protecting areas of critical environmental concern, including, but not limited to, unique and irreplaceable scientific, scenic, and educational wildlife habitats; unique historical, archaeological, and cultural sites…” With respect to paleontologic resources, the Energy Commission relies on guidelines from the Society for Vertebrate Paleontology (SVP), indicated below.
California Environmental Quality Act (CEQA), PRC sections 15000 et seq., Appendix G	Mandates that public and private entities identify the potential impacts on the environment during proposed activities. Appendix G outlines the requirements for compliance with CEQA and provides a definition of significant impacts on a fossil site.

Applicable LORS	Description
Society for Vertebrate Paleontology (SVP 1995)	The “Measures for Assessment and Mitigation of Adverse Impacts to Non-Renewable Paleontological Resources: Standard Procedures” is a set of procedures and standards for assessing and mitigating impacts to vertebrate paleontological resources. The measures were adopted in October 1995 by the SVP, a national organization of professional scientists.
Local	
City of Palmdale General Plan – Safety Element	Geotechnical reports must be provided for projects located within the Seismic Hazard Zones shown on the latest California Department of Conservation Seismic Hazard Zones Map, to the State Division of Mines and Geology (Policy S1.1.1).
City of Palmdale General Plan – Safety Element	Location of utility lines, whether above or below ground, should be restricted within an appropriate distance from active fault traces, as determined by geotechnical investigation and approved by the City. (Policy S1.1.7).
City of Palmdale General Plan	City staff shall require that new developments protect significant historic, paleontological, or archaeological resources, or provide for other appropriate mitigation (Policy ER7.1.3).

Greenhouse Gas

Applicable LORS	Description
Federal	
40 Code of Federal Regulations (CFR) Parts 51, 52, 70 and 71	This rule "tailors" GHG emissions to PSD and Title V permitting applicability criteria.
40 CFR Part 98	This rule requires mandatory reporting of GHG emissions for facilities that emit more than 25,000 metric tons of CO_2 equivalent emissions per year.
State	
California Global Warming Solutions Act of 2006, AB 32 (Stats. 2006; Chapter 488; Health and Safety Code sections 38500 et seq.)	This act requires the California Air Resource Board (ARB) to enact standards that will reduce GHG emission to 1990 levels. Electricity production facilities will be regulated by the ARB.
California Code of Regulations, tit. 17, Subchapter 10, Article 2, sections 95100 et. seq.	These ARB regulations implement mandatory GHG emissions reporting as part of the California Global Warming Solutions Act of 2006 (Stats. 2006; Chapter 488; Health and Safety Code sections 38500 et seq.)
Title 20, California Code of Regulations, section 2900 et seq.; CPUC Decision D0701039 in proceeding R0604009	The regulations prohibit utilities from entering into long-term contracts with any base load facility that does not meet a greenhouse gas emission standard of 0.5 metric tonnes carbon dioxide per megawatt-hour (0.5 $MTCO_2$/MWh) or 1,100 pounds carbon dioxide per megawatt-hour (1,100 lbs CO_2/MWh)

Hazardous Materials Management

Applicable LORS	Description
Federal	
The Superfund Amendments and Reauthorization Act of 1986 (42 USC §9601 et seq.)	Contains the Emergency Planning and Community Right To Know Act (also known as SARA Title III).
The Clean Air Act (CAA) of 1990 (42 USC 7401 et seq. as amended)	Establishes a nationwide emergency planning and response program, and imposes reporting requirements for businesses that store, handle, or produce significant quantities of extremely hazardous materials.
The CAA Section on Risk Management Plans (42 USC §112(r)	Requires states to implement a comprehensive system to inform local agencies and the public when a significant quantity of such materials is stored or handled at a facility. The requirements of both SARA Title III and the CAA are reflected in the California Health and Safety Code, section 25531, et seq.
49 CFR 172.800	Requires that the suppliers of hazardous materials prepare and implement security plans in accordance with U.S. Department of Transportation (DOT) regulations.
49 CFR Part 1572, Subparts A and B	Requires that suppliers of hazardous materials ensure that their hazardous material drivers comply with personnel background security checks.
The Clean Water Act (CWA) (40 CFR 112)	Aims to prevent the discharge or threat of discharge of oil into navigable waters or adjoining shorelines. Requires a written spill prevention, control, and countermeasures (SPCC) plan to be prepared for facilities that store oil that could leak into navigable waters.
Title 49, Code of Federal Regulations, Part 190	Outlines gas pipeline safety program procedures.
Title 49, Code of Federal Regulations, Part 191	Addresses the transportation of natural and other gases by pipeline. Requires preparation of annual reports, incident reports, and safety-related condition reports. Also requires operators of pipeline systems to notify the U.S. Department of Transportation DOT) of any reportable incident by telephone and submit a follow-up written report within 30 days.
Title 49, Code of Federal Regulations, Part 192	Addresses transportation of natural and other gases by pipeline: Requires minimum federal safety standards, specifies minimum safety requirements for pipelines, and includes material selection, design requirements, and corrosion protection. The safety requirements for pipeline construction vary according to the population density and land use that characterize the surrounding

	land. This part also contains regulations governing pipeline construction, which must be followed for Class 2 and Class 3 pipelines, and requirements for preparing a pipeline integrity management program.
6 CFR Part 27	The CFATS (Chemical Facility Anti-Terrorism Standard) regulation of the U.S. Department of Homeland Security (DHS) that requires facilities that use or store certain hazardous materials to submit information to the DHS so that a vulnerability assessment can be conducted to determine what certain specified security measures shall be implemented.
State	
California Health and Safety Code, section 25531 to 25543.4	The California Accidental Release Program (Cal-ARP) requires the preparation of a Risk Management Plan (RMP) and Off-site Consequence Analysis (OCA) and submittal to the local Certified Unified Program Authority (CUPA) for approval.
Title 8, California Code of Regulations, Section 5189	Requires facility owners to develop and implement effective safety management plans to ensure that large quantities of hazardous materials are handled safely. While these requirements primarily provide for the protection of workers, they also indirectly improve public safety and are coordinated with the RMP process.
Title 8, California Code of Regulations, Section 5189 Process Safety Management	Sets forth requirements for design, construction, and operation of the vessels and equipment used to store and transfer ammonia. These sections generally codify the requirements of several industry codes including the American Society for Material Engineering (ASME) Pressure Vessel Code, the American National Standards Institute (ANSI) K61.1, and the National Boiler and Pressure Vessel Inspection Code. These codes apply to anhydrous ammonia but are also used to design storage facilities for aqueous ammonia. It also requires facility owners to develop and implement effective process safety management plans when toxic, reactive, flammable, or explosive chemicals are maintained on site in quantities that exceed regulatory thresholds.
California Health and Safety Code, Section 41700	Requires that “No person shall discharge from any source whatsoever such quantities of air contaminants or other material which causes injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause injury or damage to business or property.”
California Safe Drinking Water and Toxic Enforcement Act (Proposition 65)	Prevents certain chemicals that cause cancer and reproductive toxicity from being discharged into sources of drinking water.
California HSC Sections 25270 through 25270.13	Requires the preparation of a Spill Prevention, Control, and Countermeasures (SPCC) Plan if 10,000 gallons or more of petroleum is stored on-site. The above regulations would also require the immediate

	reporting of a spill or release of 42 gallons or more to the California Office of Emergency Services and the Certified Unified Program Authority (CUPA).
Local	
California Fire Code, Title 8 City of Palmdale Code Section 8.04.400	Adopts the California Fire Code, 2007 Edition, into City of Palmdale regulations. The Los Angeles County Fire Department, Health Hazardous Materials Division acts as the Certified Unified Program Authority (CUPA), and is responsible for reviewing RMPs and Hazardous Materials Business Plans. With regard to seismic safety issues, the proposed PHPP site is located in Seismic Risk Zone 4. The construction and design of buildings and vessels storing hazardous materials will meet the seismic requirements of the California Building Code (COP 2008a, section 5.6.3.3).

Land Use

Applicable LORS	Description
Federal	
Air Installation Compatible Use Zone (AICUZ) Study – Air Force Plant 42 (AICUZ, 2002)	This study is an update to the 1990 Production Flight Test Installation for the U.S. Air Force Plant 42. The update presents and documents changes to the AICUZ amendment for the period 1991-2001 and is based on the 2001 aircraft operations condition, which includes anticipated future operations and aircraft maintenance activity. Specifically, the study provides noise contours and compatible use guidelines for land areas surrounding the installation, and promotes compatible land development in areas subject to aircraft noise and accident potential. As the cities of Palmdale and Lancaster and Los Angeles County prepare and modify land use development plans, recommendations from this study should be included in the planning process to prevent incompatible land uses that may compromise the ability of Plant 42 to fulfill its mission.
State	
	None
Local	
City of Palmdale General Plan (City of Palmdale 1993)	The City of Palmdale is located in the High Desert region of Los Angeles County, and is one of two incorporated cities and several unincorporated communities within the Antelope Valley. Issues on growth patterns and community goals are addressed in all elements of the General Plan. In particular, the Land Use Element establishes long-term objectives, goals and policies for addressing the significant issues facing the community through a variety of land use planning strategies.
City of Palmdale Zoning Ordinance (City of Palmdale 1994)	The Palmdale Zoning Ordinance provides for the creation of zones in the incorporated area of the City of Palmdale and prescribes area requirements, classes of uses and standards of development for buildings, structures, improvements and premises.
County of Los Angeles General Plan (LAC 1980)	This plan is a tool for initiating and responding to change and provides a framework for coordinating short and long range actions designed to meet the needs of the public. It also sets forth guidelines for how the county should allocate resources over the next few decades.
Antelope Valley Areawide General Plan, 1986 (LAC 1986)	In conjunction with the other Chapters and Elements of the County of Los Angeles General Plan, this plan is a coordinated statement of public policy by the county of Los Angeles for use in making important public decisions relating to the future of the Antelope Valley. The role of this plan is to assist in this evaluation process and to identify desirable goals and objectives for the area.

County of Los Angeles – County Code, Title 22 Planning and Zoning (LAC 2009a)	The Los Angeles County Code is a compilation of the county's general ordinances. Title 22 of the County Code is the zoning ordinance which establishes zones for specific land uses and includes area requirements, provisions for density of land occupancy, and the proper grouping of the various land uses within the unincorporated area of the county.
County of Los Angeles, Antelope Valley Trails Master Plan (adopted in 2007)	The intent of the Antelope Valley Trails Master Plan is to provide a framework for allowing the Department of Parks and Recreation to require easements for trails. The Department worked with community trail groups to identify regular trail alignments, and based on this effort, they mapped the best trails that would provide connectivity between city and county trails (LAC 2010b).

Land Use Project Compliance with Adopted Applicable Land Use LORS

<table>
<tr><th>Applicable LORS</th><th>Description of Applicable LORS</th><th>Consistent?</th><th>Basis for Consistency</th></tr>
<tr><td>Federal</td><td></td><td></td><td></td></tr>
<tr><td><u>Air Installation Compatible Use Zone (AICUZ) Study – Air Force Plant 42</u></td><td>4.6.2 Land-Use Compatibility Guidelines
Below are excerpts from Table 4.3 – Land Use Compatibility Guidelines

<table>
<tr><th rowspan="2">Land Use</th><th colspan="2">Accident Potential Zone</th></tr>
<tr><th>APZ I</th><th>APZ II</th></tr>
<tr><td>Utilities</td><td>Y[4]</td><td>Y</td></tr>
</table>

Y (Yes) - Land use and related structures are compatible without restriction
Y[4] (Yes with restrictions)
Note 4. No passenger terminals and no major above ground transmission lines in APZ I</td><td>Yes</td><td>Based on Figure 4.8 (Clear Zones and Accident Potential Zones) of the AICUZ Study, proposed underground utility lines, including the natural gas pipeline and reclaimed water supply pipeline, would traverse APZ I and APZ II along Sierra Highway and 10th Street E. As noted in Table 4.3 (Land Use Compatibility Guidelines), APZ I allows utilities with restrictions. These restrictions include passenger terminals and major above ground transmission lines. As such, the proposed underground utility components would not conflict with these restrictions. The APZ II allows utilities without restrictions.
The proposed transmission line would traverse an area within the APZ II along E Avenue L, which would be allowed without restrictions.
Therefore, the proposed underground utilities and transmission line would be consistent with the land use compatibility guidelines set forth by the AICUZ Study.</td></tr>
<tr><td></td><td>5.5.1 – Runway 07 Approach Clear Zones and Accident Potential Zones
This section describes the existing land uses within the Clear Zone and the APZ I and APZ II zones of Runway 07.</td><td>Yes</td><td>The proposed natural gas pipeline and reclaimed water supply pipeline would traverse Runway 07 APZ II along Sierra Highway. As noted in Table 4.3 (Land Use Compatibility Guidelines), APZ II allows utilities without restrictions. Therefore, the proposed pipelines would be compatible with this zone.</td></tr>
<tr><td></td><td>5.5.2 – Runway 25 Approach Clear Zones and Accident Potential Zones
This section describes the existing land uses within the Clear Zone and the APZ I and APZ II zones of Runway 25.</td><td>Yes</td><td>The proposed project and the linear components would not traverse the Runway 25 Clear Zone or APZs.</td></tr>
</table>

Applicable LORS	Description of Applicable LORS	Consistent?	Basis for Consistency
	5.5.3 – Runway 04 Approach Clear Zones and Accident Potential Zones This section describes the existing land uses within the Clear Zone and the APZ I and APZ II zones of Runway 04.	Yes	The proposed natural gas pipeline and reclaimed water supply pipeline would traverse Runway 04 APZ I and APZ II along 10th Street E. As noted in Table 4.3 (Land Use Compatibility Guidelines), APZ I allows utilities with restrictions, but the proposed utility components would not conflict with the restrictions; and APZ II allows utilities without restrictions. Therefore, the proposed pipelines would be compatible with this zone.
	5.5.4 – Runway 22 Approach Clear Zones and Accident Potential Zones This section describes the existing land uses within the Clear Zone and the APZ I and APZ II zones of Runway 22.	Yes	The proposed transmission line would traverse an area within the Runway 22 APZ II along E Avenue L, which would be allowed without restrictions as noted in the Land Use Compatibility Guidelines. Therefore, the proposed underground utilities and transmission line would be compatible with this zone.
State	None		
Local			
City of Palmdale General Plan – Land Use Element	**Policy L5.1.1:** On the Land Use Map, establish designations to meet the City's long-term industrial and manufacturing needs, as follows: **3. Industrial:** The Industrial (IND) designation is intended to permit a variety of industrial uses, including the manufacturing and assembly of products and goods, warehousing, distribution, and similar uses. Some limited commercial uses which are incidental to and supportive of the primary industrial uses may also be permitted. This designation permits the most intensive types of manufacturing and industrial uses, subject to the height, coverage and development regulations of the underlying zone	Yes	It should be noted that the proposed project applicant is the city of Palmdale. On February 19, 2009, the Palmdale City Council approved resolutions for a general plan amendment (GPA), a zone change, and a tentative parcel map for the 613.4-acre city-owned site. On April 1, 2009, the City Council passed Ordinance No. 1373 approving the zone change and thereby amending the official zoning map. As a result, the general plan and zoning designations for the entire city-owned site, including the proposed 333-acre power plant site, are now Industrial (IND) and M-2 (General Industrial), respectively. The city of Palmdale implemented the GPA and zone change specifically to allow for the development of the proposed PHPP. As such, staff assumes that the city finds the IND and M-2 designations to be appropriate for siting of a power plant such as the proposed project. Therefore, the proposed power plant site would be consistent with the IND land use designation.

Applicable LORS	Description of Applicable LORS	Consistent?	Basis for Consistency
	district. The Industrial designation is appropriate in areas having or planned to have adequate sewer, water, transportation, drainage, utilities and public services available to meet anticipated needs of this type of development. Where possible, industrial designations should be separated from residential areas by natural or manmade barriers, such as major arterials, utility easements, drainage courses or railroad rights-of-way. Adequate land use and design standards to mitigate impacts from intense uses in this designation will be addressed through the zone districts and design review process. Maximum floor area ratio within this designation is 0.5.		
	Goal L2: Adopt land use and development policies which encourage growth and diversification of the City's economic base. **Objective L2.1:** Promote creation and retention of businesses within the City, to increase employment opportunities within the Antelope Valley. **Policy L2.1.7:** Support new technologies which may result in increased business opportunities within the City.	Yes	The following are comments provided by the city regarding the proposed project's consistency with the city's General Plan: "The proposed PHPP and related transmission lines will promote creation of business in the City by increasing short-term construction employment opportunities and increased construction material demands. The project will also result in long-term employment opportunities for operations and maintenance functions. The project also incorporates new power generating technologies and a solar power generating component that will likely result in increased business opportunities within the City. The General Plan also promotes the use and development of renewable alternative energy such as the proposed solar power component of the use." (City of Palmdale 2010) Based on the city's comments, the proposed PHPP would be consistent with these LORS.

Applicable LORS	Description of Applicable LORS	Consistent?	Basis for Consistency
City of Palmdale General Plan – Public Services Element	**Policy PS1.6.2** Coordinate installation of utility line placement with street construction where possible, to minimize cost. **Policy PSI.6.3:** Through the development review process, protect existing utility easements and require dedication of additional easements where needed.	Yes with implementation of the Condition of Certification **LAND-2**	According to the city of Palmdale (i.e., the applicant), a Site Plan Review would be required for approval of the proposed transmission line (PHPP 2010). As such, staff recommends Condition of Certification **LAND-2**, which requires a Site Plan Review, thereby ensuring that placement and installation of the transmission line, as well as the natural gas pipeline, would be in compliance with these LORS.
City of Palmdale General Plan – Community Design Element	**Objective CD 10.1:** In reviewing site design of projects within industrially-designated areas, consideration should be given to the location and setting of the project with respect to site visibility, adjacent uses and designations, abutting roadways, and other similar factors, to ensure that development requirements are appropriate for the vicinity and the intended use.	Yes	As noted in the consistency determination for the city's Land Use Element above, the city considers the proposed PHPP as an opportunity to create short- and long-term construction employment, which would contribute to the expansion of the city's employment and economic base. In addition, the city's PSA comments also stated that with the existing industrial development in the surrounding area, the facility site and transmission lines have been sited in locations that are compatible with the adjacent land uses (City of Palmdale, 2010). Based on the city's comments, the proposed PHPP would be consistent with these LORS.
	GOAL CD 10: Facilitate creation and expansion of industrial uses within the City to accommodate manufacturing, distribution, and complementary office and support uses in order to expand the City's employment and economic base and improve the jobs/housing balance, while ensuring that such areas are compatible with adjacent uses and minimizing adverse impacts on more restrictive use districts.		

Applicable LORS	Description of Applicable LORS	Consistent?	Basis for Consistency
City of Palmdale Zoning Ordinance	**ARTICLE 41 SINGLE FAMILY RESIDENTIAL (ZONE R-1)** **Section 41.05 Uses Permitted Subject to Site Plan Review Approval** The following uses shall require approval pursuant to the provisions of Chapter 2, Article 21 (Site Plan Review).E. Utility facilities, building and equipment, including but not limited to water, natural gas, and sewage facilities, but excluding sewage pump stations or treatment plants and major communication facility.	Yes with implementation of the Condition of Certification **LAND-2**	The proposed natural gas pipeline would traverse the R-1 zone for approximately 0.4 mile along East Avenue S and 10th Street East. A 20-inch pipeline would be installed underground in an existing street ROW. The surrounding area mostly consists of commercial development with some residential development. Zone R-1 permits the siting of utilities such as natural gas facilities based on approval of a Site Plan Review. The **Hazardous Materials Management** analysis discusses the design standards for the pipeline as required by the California Public Utilities Commission (CPUC) and the U.S. Department of Transportation (USDOT) Pipeline and Hazardous Materials Safety Administration. The CPUC, the DOT, and the U.S. Chemical Safety Board are currently reviewing the safety and maintenance programs for existing natural gas pipelines and may make additional recommendations or requirements in the near future. However, until they do, hazardous materials staff concludes that existing LORS are sufficient to ensure that a less than significant risk of pipeline failure would exist with a newly installed natural gas pipeline. Nonetheless, land use staff recommends Condition of Certification **LAND-2** to ensure that the city's Site Plan Review is included in the siting of the natural gas pipeline, as it would include a comprehensive review process to ensure pipeline integrity, and siting and installation of the pipeline in appropriate locations. In addition, the implementation of Condition of Certification **LAND-2** would ensure that the siting of the proposed natural gas pipeline is consistent with this portion of the city's zoning ordinance. Also as a general practice, for all power plants under its jurisdiction, the Energy Commission requires that the designs, locations and specifications (plans) of natural gas pipelines be reviewed and approved by a qualified California building official (CBO) and the CBO's fire protection consultant, and that the pipelines be physically inspected by a special safety inspector approved by the CBO, to ensure compliance with the latest code requirements and safety practices. This work entails a comprehensive review process that includes, for example, performing full radiography tests (special inspection) on each weld and witnessing the pneumatic/hydrostatic pressure tests (generally at 2.5 times the working pressure, typically using a non-hazardous gas such as air or using water) to ensure pipeline integrity. The inspection process also includes an

Applicable LORS	Description of Applicable LORS	Consistent?	Basis for Consistency
			effective process for ensuring that all gas pipelines are corrosion-resistant and are tested for continuity of protective coatings. In addition to installing the normally recommended number of manual and automatic gas flow shutoff valves, the Energy Commission-licensed power plants must provide, at strategic locations, excess manual/automatic, and remotely-controlled shutoff valves. Please see the **Hazardous Materials Management** section of this Staff Assessment for a detailed discussion of federal and State LORS applicable to the siting of high-pressure natural gas pipelines.
	ARTICLE 42 MEDIUM RESIDENTIAL (ZONE R-2) **Section 42.05 Uses Permitted Subject to Site Plan Review Approval** The following uses shall require approval pursuant to the provisions of Chapter 2, Article 21 (Site Plan Review). F. Utility facilities, building and equipment, including but not limited to water, natural gas, and sewage facilities, but excluding sewage pump stations or treatment plants and major communication facility.	Yes with implementation of the Condition of Certification **LAND-2**	The proposed natural gas pipeline would traverse the R-2 zone for approximately 0.6 mile. A 20-inch pipeline would be installed underground in an existing street ROW. The surrounding area mostly consists of commercial development with some residential development. Zone R-2 permits siting of utilities such as natural gas facilities based on approval of a Site Plan Review. Staff recommends Condition of Certification **LAND-2** to ensure that the city's Site Plan Review is included in the siting of the natural gas pipeline. With implementation of **LAND-2**, the proposed project would be consistent with the requirements of this zone. Also, please refer to the discussion above regarding the analysis of the natural gas pipeline in the **Hazardous Materials Management** section of this Staff Assessment.
	ARTICLE 53 GENERAL COMMERCIAL (ZONE C-3) **Section 53.05 Uses Permitted Subject to Site Plan Review Approval** **D. Public, quasi-public and institutional uses of a scale compatible and consistent with the intent of the C-3 zone, including:** 11. Utility facilities, buildings and	Yes with implementation of the Condition of Certification **LAND-2**	The proposed natural gas pipeline would traverse the C-3 zone for approximately 0.1 mile. A 20-inch pipeline would be installed underground in an existing street ROW. The surrounding area mostly consists of commercial development with some residential development. Zone C-3 permits utility facilities based on approval of a Site Plan Review. Staff recommends Condition of Certification **LAND-2** to ensure that the city's Site Plan Review is included in the siting of the natural gas pipeline. With implementation of **LAND-2**, the proposed project would be consistent with the requirements of this zone. Also, please refer to the

Applicable LORS	Description of Applicable LORS	Consistent?	Basis for Consistency
	equipment, excluding sewage pumping stations and treatment plants and major communication facility.		discussion above regarding the analysis of the natural gas pipeline in the **Hazardous Materials Management** section of this Staff Assessment.
	ARTICLE 55 SERVICE COMMERCIAL ZONE (C-5) **Section 55.05 Uses Permitted Subject to Site Plan Review Approval** **D. Public, quasi-public and institutional uses:** 9. Utility facilities, excluding major communication facility. (Zoning Ordinance Amendment 97-3, adopted by City Council September 10, 1997.)	Yes with implementation of the Condition of Certification **LAND-2**	Based on AFC Figure 5.7-3a, it appears that the proposed natural gas pipeline would traverse or border zone C-5. However, AFC Table 5.7-3b does not include an approximate length for the gas pipeline within the C-5 district. As such, assuming that the gas pipeline would traverse zone C-5, it would require a Site Plan Review. Staff recommends Condition of Certification **LAND-2** to ensure that the city's Site Plan Review is included in the siting of the natural gas pipeline. With implementation of **LAND-2**, the proposed project would be consistent with the requirements of this zone. Also, please refer to the discussion above regarding the analysis of the natural gas pipeline in the **Hazardous Materials Management** section of this Staff Assessment.
	ARTICLE 61 LIGHT INDUSTRIAL (ZONE M-1) **Section 61.05 Uses Permitted Subject to Site Plan Review Approval** **11. Public, quasi-public and institutional uses:** k. Utility facilities, excluding major communication facilities. (Zoning Ordinance Amendment 97-3, adopted by City Council September 10, 1997.)	Yes for water and wastewater pipelines Yes with implementation of COC **LAND-2** for the proposed transmission line and natural gas pipeline	The proposed sanitary wastewater pipeline would traverse the M-1 zone for approximately 0.1 mile. The wastewater pipeline would be consistent with this zone, because it would be sited underground and any associated impacts would be temporary; and, as stated in the **Facility Design** section of this document, the pipeline would be constructed to accepted industry standards. Therefore, upon completion of construction, the wastewater pipeline would not result in any LORS inconsistencies. The proposed natural gas pipeline would traverse the M-1 zone for approximately 0.5 mile, and a portion of the transmission line would cross this zone classification. According to the city of Palmdale, a Site Plan Review would be required for approval of the proposed transmission line (PHPP 2010). As such, staff recommends Condition of Certification **LAND-2**, which would require a Site Plan Review, thereby ensuring a comprehensive review process by the city, and that placement and installation of the transmission line and natural gas pipeline would be consistent with the M-1 zone. Also, please refer to the discussion above regarding the analysis of the

Applicable LORS	Description of Applicable LORS	Consistent?	Basis for Consistency
			natural gas pipeline in the **Hazardous Materials Management** section of this Staff Assessment.
	ARTICLE 62 GENERAL INDUSTRIAL (ZONE M-2) **Section 62.01** **Intent and Purpose** The General Industrial (M-2) Zone is established to create, preserve and enhance areas for a full range of manufacturing, fabrication, assembly, warehousing, and distribution uses associated with heavy industrial land uses. Outdoor operations and storage are permitted, provided that such areas are generally screened from public rights-of-way. Commercial and businesses uses which are supportive to industrial activities, or which serve daily needs of employees in the vicinity, are also allowed. The zone is intended to create an environment in which industrial and allied uses may be conducted with a minimum of land use conflicts, through exclusion of residential and general retail uses. **62.05 Uses Permitted Subject to Site Plan Review Approval** **12. Public, quasi-public and institutional uses:** k. Utility facility, excluding major communication facilities.	Yes for the proposed PHPP site and water pipeline Yes with implementation of COC **LAND-2** for the proposed transmission line and natural gas pipeline	The proposed project site has an M-2 zoning designation. As described above under the IND General Plan Land Use designation for the site, the city of Palmdale implemented the GPA and zone change specifically to allow for the development of the proposed PHPP. As such, staff assumes the city would find the IND and M-2 designations appropriate for siting of a power plant such as the proposed project. Therefore, staff concludes the proposed power plant site would be consistent with the M-2 zoning designation. The proposed reclaimed water supply pipeline would traverse the M-2 zone for approximately 0.7 mile, the proposed sanitary wastewater pipeline would traverse the M-2 zone for approximately 0.7 mile, the proposed natural gas pipeline would traverse the M-2 zone for approximately 0.6 mile, and the proposed transmission line would traverse the M-2 zone for approximately 0.3 mile. The surrounding area mostly consists of commercial and industrial development with some residential development. Zone M-2 permits utility facilities, such as gas and water pipelines based on approval of a Site Plan Review. The Energy Commission's review of the proposed project includes a site plan review. Staff concludes that the water and wastewater pipelines would be consistent with this zone because they would be sited underground and any associated impacts would be temporary; and, as stated in the **Facility Design** section of this document, the pipeline would be constructed to accepted industry standards. Therefore, upon completion of construction, the water and wastewater pipeline would not result in any LORS inconsistencies. Staff finds that these linear facilities would be consistent with the M-2 zone. According to the city of Palmdale, i.e., the applicant, a Site Plan Review would be required for approval of the proposed transmission line (PHPP 2010). As such, staff recommends Condition of Certification **LAND-2**,

Applicable LORS	Description of Applicable LORS	Consistent?	Basis for Consistency
			which would require a Site Plan Review, thereby ensuring that placement and installation of the transmission line would be in consistent with the M-2 zone. Condition of Certification **LAND-2** would also apply to the natural gas pipeline to ensure that the city's Site Plan Review is included in the siting of the natural gas pipeline. With implementation of **LAND-2**, the proposed project would be consistent with the requirements of this zone. Also, please refer to the discussion above regarding the analysis of the natural gas pipeline in the **Hazardous Materials Management** section of this Staff Assessment.
	ARTICLE 63 AIRPORT INDUSTRIAL (ZONE M-3) **Section 63.05 Uses Permitted Subject to Site Plan Review Approval** **F. Public, quasi-public and institutional uses, including:** 5. Utility facilities, including substations, excluding major communication facilities.	Yes for the proposed water pipeline Yes with implementation of COC **LAND-2** for the proposed natural gas pipeline	The proposed reclaimed water supply pipeline would traverse the M-3 zone for approximately 0.6 mile. The water pipeline would be consistent with this zone because it would be sited underground and any associated impacts would be temporary; and, as stated in the **Facility Design** section of this document, the pipeline would be constructed to accepted industry standards. Therefore, upon completion of construction, the water pipeline would not result in any LORS inconsistencies. Staff finds that these linear facilities would be consistent with the M-2 zone. The proposed natural gas pipeline would traverse the M-3 zone for approximately 0.6 mile. Staff recommends Condition of Certification **LAND-2**, which would ensure that the city's Site Plan Review is included in the siting of the natural gas pipeline. With implementation of **LAND-2**, the proposed project would be consistent with the requirements of this zone. Also, please refer to the discussion above regarding the analysis of the natural gas pipeline in the **Hazardous Materials Management** section of this Staff Assessment.
	ARTICLE 64 PLANNED INDUSTRIAL (ZONE M-4) **Section 64.06 Uses Permitted Subject to Site Plan Review Approval**	Yes with implementation of COC **LAND-**	The proposed natural gas line would traverse the M-4 zone for approximately 0.2 mile, and the proposed transmission line would traverse the M-4 zone for approximately 6.3 miles. According to this ordinance, uses subject to Site Plan Review also require a Master Plan,

Applicable LORS	Description of Applicable LORS	Consistent?	Basis for Consistency
	In conjunction with an approved Master Plan pursuant to Section 64.03, the following uses are permitted in the M-4 zone subject to Site Plan Review approval… **K. Public, quasi-public and institutional uses, including**: 7. Utility facilities, buildings and equipment, excluding sewage pumping stations and treatment plants, and major communication facilities. (Zoning Ordinance Amendment 97-3, adopted by City Council September 10, 1997.)	**2**	which may take one of the following forms: a Specific Plan or a Planned Development, pursuant to Chapter 2, Article 28, a comprehensive Conditional Use Permit, pursuant to Chapter 2, Article 22, or an area plan or other comprehensive development program determined by the Planning Director to meet the intent of the M-4 zone (City of Palmdale, 1994). Transmission lines are not specifically identified as a use permitted subject to site plan approval and a portion of the transmission line would cross the M-4 zone classification However, according to the city of Palmdale, i.e., the applicant, a Site Plan Review would be required for approval of the proposed transmission line (PHPP 2010). As such, staff recommends Condition of Certification **LAND-2**, which would require a Site Plan Review, thereby ensuring that placement and installation of the transmission line and natural gas pipeline would be consistent with the M-4 zone, and would ensure Site Plan Review by the city. With implementation of **LAND-2**, the proposed project would be consistent with the requirements of this zone. Also, please refer to the discussion above regarding the analysis of the natural gas pipeline in the **Hazardous Materials Management** section of this Staff Assessment.
	ARTICLE 71 PUBLIC FACILITIES (ZONE PF) **Section 71.05 Uses Permitted Subject to Site Plan Review Approval** B. Public, quasi-public and institutional uses, including: 12. Utility corridors.	Yes for the proposed water and wastewater pipelines Yes with implementation of COC **LAND-2** for the proposed natural gas pipeline	The proposed natural gas pipeline would traverse the PF zone for approximately 0.4 mile, the proposed reclaimed water supply pipeline would traverse the PF zone for 0.2 mile, and the proposed water pipeline would traverse the PF zone for <0.1 mile. The water and wastewater pipelines would be consistent with this zone because they would be sited underground and any associated impacts would be temporary; and, as stated in the **Facility Design** section of this document, the pipeline would be constructed to accepted industry standards. Therefore, upon completion of construction, the water pipelines would not result in any LORS inconsistencies. The proposed natural gas pipeline would traverse the PF zone for approximately 0.4 mile. Staff recommends Condition of Certification **LAND-2**, which would ensure that the city's Site Plan Review is included in the siting and installation of the natural gas pipeline. With implementation of **LAND-2**, the proposed project would be consistent

Applicable LORS	Description of Applicable LORS	Consistent?	Basis for Consistency
	ARTICLE 73 MIXED USE OVERLAY (MX) ZONE **Section 73.05 Uses Permitted Subject to Site Plan Review Approval** A. All uses permitted subject to Site Plan Review approval within the underlying zone(s) to which this overlay is attached shall also be permitted within the MX Overlay Zone subject to Site Plan Review approval.	Yes with implementation of COC **LAND-2** for the proposed natural gas pipeline	with the requirements of this zone. Also, please refer to the discussion above regarding the analysis of the natural gas pipeline in the **Hazardous Materials Management** section of this Staff Assessment. The proposed natural gas line would traverse the CD-MX zone for approximately 0.1 mile. This is an overlay zone for Downtown Commercial (C-D) zone, and consistency is based on the underlying zone. As such, refer to the consistency analysis for the C-D zone, below.
	ARTICLE 75 DOWNTOWN COMMERCIAL (ZONE C-D) **Section 75.01 Intent and Purpose** The Downtown Commercial (C-D) Zone is established to implement the policies and design guidelines described in the Downtown Revitalization Plan. The downtown Commercial Zone is intended to create a pedestrian friendly environment which encourages people to stay and shop, dine and socialize in downtown Palmdale. The pedestrian zone between the street curb line and the entry facades of adjacent buildings should create a series of layers and a variety of visually interesting features that encourage visitors to explore and circulate in and around the retail venues.	Yes with implementation of COC **LAND-2** for the proposed natural gas pipeline	The proposed natural gas line would traverse the C-D zone for approximately 0.1 mile. Although this zone does not specifically state that the use of utility facilities is permitted, the commercial zones noted above (C-3, C-5) do allow utility facilities with Site Plan Review approval. Staff recommends Condition of Certification **LAND-2**, which would ensure that the city's Site Plan Review is included in the siting and installation of the natural gas pipeline. With implementation of **LAND-2**, the proposed project would be consistent with the requirements of this zone. Also, please refer to the discussion above regarding the analysis of the natural gas pipeline in the **Hazardous Materials Management** section of this Staff Assessment.

Applicable LORS	Description of Applicable LORS	Consistent?	Basis for Consistency
Los Angeles County General Plan 1980	Land Use Policy Map The countywide Land Use Policy Map depicts nine generalized land use classifications, each of which is intended to describe the dominant use characteristics within the area covered. 7. Public and Semi-Public Facilities Major existing and proposed public and semi-public uses depicted on the Map include airports and other major transportation facilities, solid and liquid waste disposal sites, utilities, public buildings, public and private educational institutions, religious institutions, hospitals, detention facilities and fairgrounds. This classification provides for the continued operation, expansion and construction of new facilities, as necessary, to serve current and future County residents.	Yes	Segment 1 would connect to the Pearblossom Substation via a proposed 230-kV transmission line that would be constructed in a new utility easement. Segment 2 would connect the Pearblossom Substation to the Vincent Substation via a new 230-kV transmission line that would be constructed within an existing SCE transmission line corridor. Because transmission lines are not specifically listed in the Los Angeles County General Plan as a permitted use, staff sought the county's interpretation of its general plan. The county's comments on the PSA are as follows: "Please be advised that there is no requirement within the County's Zoning Ordinance that would require those portions of the proposed transmission line located within the Unincorporated areas of the project to receive an approved Conditional Use Permit. The County's Zoning Ordinance does not regulate such projects (LAC 2010a). Therefore, the proposed project would not be inconsistent with this zone.
	8. Non-Urban Public and semi-public uses typically located in non-urban environs include solid and liquid waste disposal sites, utility and communications installations, schools and other public facilities necessary to serve the needs of non-urban populations. Most major existing facilities of this type, however, are shown within the Public and semi-public and Open Space land use classifications.	Yes	The majority of Segments 1 and 2 of the proposed transmission line within Los Angeles County would traverse the Non-Urban land use designation. Because transmission lines are not specifically listed as a permitted use, staff sought the county's interpretation of its general plan. According to the county's comments on the PSA, the county's Zoning Ordinance does not regulate such projects and does not require a conditional use permit (LAC 2010a). Therefore, the proposed project would not be inconsistent with this zone.

Applicable LORS	Description of Applicable LORS	Consistent?	Basis for Consistency
Antelope Valley Area Plan 1986	b. Non-residential Uses in Non-urban Areas Non-residential uses requiring, or appropriate for, remote locations may be allowed in Non-urban areas in keeping with the following general guidelines: Subject to compliance with the General conditions for Development, (Section D of this Chapter) non-residential uses can include: (c) Public and semi-public uses typically located in non-urban environs, such as solid and liquid waste disposal sites, utility and community installations, and schools and other public facilities necessary to serve Non-urban populations.	Yes	The majority of Segments 1 and 2 of the proposed transmission line within Los Angeles County would traverse the Non-Urban land use designation. Because transmission lines are not specifically listed as a permitted use, staff sought the county's interpretation of the Antelope Valley Area Plan. According to the county's comments on the PSA, the county's Zoning Ordinance does not regulate such projects and does not require a conditional use permit (LAC 2010a). Therefore, the proposed project would not be inconsistent with this plan.
	D. General Conditions for Development 3. Non-residential uses in non-urban areas a. Location (1.) The proposed use should be located and designed so as not to conflict with established community land use and circulation patterns.	Yes	In the discussion below regarding the proposed project's consistency with the Los Angeles County Zoning Ordinance, siting of the proposed transmission line within the county's A-2 zone would require a Conditional Use Permit, but for the exclusive authority of the Energy Commission to license the project. Because transmission lines are not specifically listed as a use, staff sought the county's interpretation of the Antelope Valley Area Plan. According to the county's comments on the PSA, the county's Zoning Ordinance does not regulate such projects and does not require a conditional use permit (LAC 2010a). Therefore, the proposed project would not be inconsistent with this plan.
Los Angeles County Zoning Code, Title 22 Planning and Zoning	**Part 2 A-1 LIGHT AGRICULTURAL ZONE** **22.24.070 Permitted uses.** **22.24.100 Uses subject to permits.**	Yes	Portions of Segments 1 and 2 of the proposed transmission line would traverse unincorporated Los Angeles County lands within the Light Agricultural Zone (A-1) and Heavy Agricultural Zone (A-2) designation. The provisions of both the A-1 and A-2 zone designations allow for the development of electric substations and generating plants with issuance

Applicable LORS	Description of Applicable LORS	Consistent?	Basis for Consistency
	Property in Zone A-1 may be used for: A. The following uses, provided a conditional use permit has first been obtained as provided in Part 1 of Chapter 22.56, and while such permit is in full force and effect in conformity with the conditions of such permit for: — Electric distribution substations and electric transmission substations, including microwave facilities used in conjunction with either. **Part 3 A-2 HEAVY AGRICULTURAL ZONE** **22.24.120 Permitted uses.** **22.24.150 Uses subject to permits.** Property in Zone A-2 may be used for: A. The following uses, provided a conditional use permit has first been obtained as provided in Part 1 of Chapter 22.56, and while such permit is in full force and effect in conformity with the conditions of such permit for: -- Electric distribution substations, electric transmission substations and generating plants, including microwave facilities used in conjunction with any one thereof.		of a Conditional Use Permit (CUP) by Los Angeles County, but do not specifically allow for siting of high voltage transmission lines. Because transmission lines are not specifically listed, staff sought the county's interpretation of its zoning code. According to the county's comments on the PSA, the county's Zoning Ordinance does not regulate such projects and does not require a conditional use permit (LAC 2010a). Therefore, the proposed project would not be inconsistent with this zone.
	Part 5 R-R RESORT AND RECREATION ZONE **22.40.190 Permitted uses.**	Yes	Segments 1 and 2 of the proposed transmission line would traverse this zone designation within unincorporated Los Angeles County. Because transmission lines are not specifically listed, staff sought the county's interpretation of its zoning code. According to the county's comments on

Applicable LORS	Description of Applicable LORS	Consistent?	Basis for Consistency
	22.40.220 Uses subject to permits. Premises in Zone R-R may be used for: A. The following uses, provided a conditional use permit has first been obtained as provided in Part 1 of Chapter 22.56, and while such permit is in full force and effect in conformity with the conditions of such permit for: -- Electric distribution substations and electric transmission substations and generating plants, including microwave facilities used in conjunction with any one thereof.		the PSA, the county's Zoning Ordinance does not regulate such projects and does not require a conditional use permit (LAC 2010a). Therefore, the proposed project would not be inconsistent with this zone.
	Part 2 M-1 LIGHT MANUFACTURING ZONE **22.32.040 Permitted uses.** Premises in Zone M-1 may be used for: A. Any use listed as a permitted use in either Sections 22.24.070 (Zone A-1) or 22.28.230 (Zone C-M), subject to the limitations and conditions set forth therein.	Yes	Portions of the proposed transmission line traverse the M-1 zone. Uses permitted within the M-1 zone are the same as those for the A-1 zone. Because transmission lines are not specifically listed, staff sought the county's interpretation of its zoning code. According to the county's comments on the PSA, the County's Zoning Ordinance does not regulate such projects and does not require a conditional use permit (LAC 2010a). Therefore, the proposed project would not be inconsistent with this zone.
	22.44.126 Acton Community Standards District. A. Intent and Purpose. The Acton Community Standards District is established to protect and enhance the rural, equestrian and agricultural character of the community and its	Yes	Approximately 1.5 miles of the end of Segment 2 of the proposed transmission line would be located within the Acton Community Standards District (CSD) (PHPP 2008b). As such, according to Los Angeles County's online GIS mapping, this portion of Segment 2 would traverse an area zoned for light agriculture (A-1) within the CSD. This portion of the proposed transmission line would be constructed within the existing SCE transmission line corridor. Because transmission lines are not specifically listed, staff sought the county's interpretation of its zoning

Applicable LORS	Description of Applicable LORS	Consistent?	Basis for Consistency
	sensitive features including significant ecological areas, floodplains, hillsides, National Forest, archaeological resources, multipurpose trail system, and Western heritage architectural theme. The standards are intended to ensure reasonable access to public riding and hiking trails, and to minimize the need for installation of infrastructure such as sewers, streetlights, concrete sidewalks and concrete flood control systems that would alter the community's character, while providing for adequate drainage and other community safety features.		code within the CSD. According to the county's comments on the PSA, the County's Zoning Ordinance does not regulate such projects and does not require a conditional use permit (LAC 2010a).Therefore, proposed project would not be inconsistent with this CSD.
	22.44.141 Southeast Antelope Valley Community Standards District. A. Intent and Purpose. The Southeast Antelope Valley Community Standards District ("CSD") is established to protect and enhance the community's rural, equestrian, and agricultural character as well as its natural features, including significant ecological areas, flood plains, and desert terrain. The standards contained in this CSD are also intended to ensure reasonable access to public riding and hiking trails, and to minimize the impacts of urbanization.	Yes	Approximately 12 miles of the transmission line would cross the Southeast Antelope Valley Community Standards District (CSD) which is located east and southeast of the city of Palmdale (PHPP 2008). According to Los Angeles County's online GIS mapping, this portion of Segment 2 would traverse an area zoned for heavy agriculture (A-2) within this CSD. This portion of the proposed transmission line would be constructed within the existing SCE transmission line corridor. Because transmission lines are not specifically listed, staff sought the county's interpretation of its zoning code within this CSD. However, according to the county's comments on the PSA, the County's Zoning Ordinance does not regulate such projects and does not require a conditional use permit (LAC 2010a). Therefore, the proposed project would not be inconsistent with this CSD.
Los Angeles County, Antelope Valley Trails Master	The intent of the Antelope Valley Trails Master Plan (adopted in 2007) is to provide a framework for allowing the	Yes with implementation of COC **LAND-**	According to the county, the trail is currently a multi-use trail but has not been formally adopted, and upon approval of a project along the proposed trail, an easement must be dedicated for a multi-use trail. The

Applicable LORS	Description of Applicable LORS	Consistent?	Basis for Consistency
Plan	Department of Parks and Recreation to require easements for trails. The Department worked with community trail groups to identify regular trail alignments, and based on this effort, they mapped the best trails that would provide connectivity between city and county trails. (LAC 2010b) The Avenue S Connector Trail (trail alignment #147) was adopted by the county's Board of Supervisors. As such, the Department of Parks and Recreation is requesting a minimum of a 12-foot wide trail easement from the western edge of parcel #AIN39011 005 to the eastern edge of parcel #AIN3039006021.	**3**	project owner is responsible for funding and recording of the trail, as well as coordinating with the county. The county would not require a re-route of the proposed transmission line. Based on staff's discussions with the county, the county is recommending that the trail be re-routed or that the trail and transmission line could be co-located with the utility easement taking precedence and being the predominant land use. At this time, the county recommends the co-location of the trail with a maintenance road as the best option for the county and the proposed transmission line associated with the PHPP (LAC 2010b). Based on conversations with the county, staff recommends Condition of Certification **LAND-3** to ensure the proposed project's consistency with the Antelope Valley Trails Master Plan.

Noise Table

Applicable LORS	Description
Federal	
(OSHA): 29 U.S.C. § 651 et seq.	Under the Occupational Safety and Health Act of 1970 (29 USC § 651 et seq.), the Department of Labor, Occupational Safety and Health Administration (OSHA) has adopted regulations designed to protect workers against the effects of occupational noise exposure (29 CFR § 1910.95). These regulations list permissible noise exposure levels as a function of the amount of time during which the worker is exposed. The regulations further specify a hearing conservation program that involves monitoring the noise to which workers are exposed, assuring that workers are made aware of overexposure to noise, and periodically testing the workers' hearing to detect any degradation. There are no federal laws governing off-site (community) noise. The only guidance available for evaluation of power plant vibration is guidelines published by the Federal Transit Administration (FTA) for assessing the impacts of groundborne vibration associated with construction of rail projects. These guidelines have been applied by other jurisdictions to assess groundborne vibration of other types of projects. The FTA-recommended vibration standards are expressed in terms of the "vibration level," which is calculated from the peak particle velocity measured from groundborne vibration. The FTA measure of the threshold of perception is 65 VdB,[1] which correlates to a peak particle velocity of about 0.002 inches per second (in/sec). The FTA measure of the threshold of architectural damage for conventional sensitive structures is 100 VdB, which correlates to a peak particle velocity of about 0.2 in/sec.
State	
(Cal/OSHA): Cal. Code Regs., tit. 8, §§ 5095-5099	Protects workers from the effects of occupational noise exposure. California Government Code section 65302(f) encourages each local governmental entity to perform noise studies and implement a noise element as part of its General Plan. In addition, the California Office of Planning and Research has published guidelines for preparing noise

[1] VdB is the common measure of vibration energy.

Applicable LORS	Description
	elements, which include recommendations for evaluating the compatibility of various land uses as a function of community noise exposure. The California Occupational Safety and Health Administration (Cal/OSHA) has promulgated Occupational Noise Exposure Regulations (Cal. Code Regs., tit. 8, §§ 5095-5099) that set employee noise exposure limits. These standards are equivalent to the federal OSHA standards
Local	
City of Palmdale General Plan, Noise Element	Establishes noise guidelines and policies. The General Plan Noise Element, Section 2: Goals, Objectives and Policies, lists the following policies for any development (COP1993): Policy N1.1.3: Require measures to reduce noise levels to no more than 65 dBA CNEL exterior. Policy N1.2.2: Restrict construction hours during the evening, early morning and Sundays. Policy N1.2.3: Utilize any of all of the following measures in order to maintain acceptable noise environments throughout the City: 1. Control noise at its source, including noise barriers and other muffling devices built into the noise source. Section 3, TABLE N-3 sets maximum acceptable exterior noise levels at different land uses. The maximum acceptable exterior noise level at residential uses is 65 dBA L_{eq}. Section 3.C refers to the City Municipal Code, Chapter 8.28 and its provisions that restrict construction between the hours of 8:00 p.m. and 6:30 a.m. Restricts construction noise to specified hours. Establishes acceptable noise levels and limits hours of construction.

Applicable LORS	Description
	Limits time of day during which loud construction noise may be created.
City of Palmdale Municipal Code, Chapter 8.28	Chapter 8.28, Building Construction Hours of Operation and Noise Control, includes Section 8.28.030, *Construction noise prohibited in residential zones*, which states (COP2009a): Except as otherwise provided in this chapter, no person shall perform any construction or repair work on any Sunday, or any other day after 8:00 p.m. or before 6:30 a.m., in any residential zone or within 500 feet of any residence, hotel, motel or recreational vehicle park… (Ord. 1335 §1, 2007; Ord. 584 §1, 1986).
City of Lancaster General Plan, Noise Element	Section III of the General Plan comprises the Noise Element (COL2009a): Objective 4.3 requires the implementation of the noise standards identified in Table III-1. Table III-1, Noise Compatible Land Use Objectives, establishes maximum exterior noise levels in residential land uses at 65 dBA CNEL. Policy 4.3.1(h) requires that new noise sources comply with the maximum noise level standards of Table III-1 at the property line of adjacent uses. Policy 4.3.2(d) limits construction activities to daylight hours between sunrise and 8:00 p.m. Policy 4.3.3(b) requires the use, wherever feasible, of noise barriers (walls, berms, or a combination thereof) to reduce significant noise impacts.
City of Lancaster Municipal Code	Title 8 – Health and Safety includes Chapter 8.24 – Noise Regulations. Included in this chapter is subchapter 8.24.040 *Loud, unnecessary and unusual noises prohibited – Construction and building*, which states (COL2009b): Except as otherwise provided in this chapter, a person at any time on Sunday or any day between the hours of eight p.m. and seven a.m. shall not perform any

Applicable LORS	Description
	construction or repair work of any kind upon any building or structure or perform any earth excavating, filling or moving where any of the foregoing entails the use of any air compressor, jack hammer, power-driven drill, riveting machine, excavator, diesel-powered truck, tractor or other earth-moving equipment, hard hammers on steel or iron or any other machine tool, device or equipment which makes loud noises within five hundred (500) feet of an occupied dwelling, apartment, hotel, mobile home or other place of residence (Ord. 693 §1 (part), 1995: prior code §4-1.4)(Ord. No. 916, §2, 2-10-09).

Power Plant Efficiency

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

Power Plant Reliability

No federal, state, local, or county laws, ordinances, regulations and standards (LORS) pertain to the reliability of this project.

Public Health

Applicable LORS	Description
Federal	
Clean Air Act section 112 (Title 42, U.S. Code section 7412)	The National Emissions Standards for Hazardous Air Pollutants (NESHAP) requires new sources that emit more than 10 tons per year of any specified Hazardous Air Pollutant (HAP) or more than 25 tons per year of any combination of HAPs to apply Maximum Achievable Control Technology.
State	
California Health and Safety Code section 25249.5 et seq. (Proposition 65)	These sections establish thresholds of exposure to carcinogenic substances above which Prop 65 exposure warnings are required.
California Health and Safety Code section 41700	This section states that "no person shall discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause injury or damage to business or property."
California Code of Regulations, Title 22, Section 60306	Requires that whenever a cooling system uses recycled water in conjunction with an air conditioning facility and a cooling tower that creates a mist that could come into contact with employees or members of the public, a drift eliminator shall be used and chlorine, or other, biocides shall be used to treat the cooling system recirculating water to minimize the growth of Legionella and other micro-organisms.
California Public Resource Code section 25523(a); Title 20 California Code of Regulations (CCR) section 1752.5, 2300–2309 and Division 2 Chapter 5, Article 1, Appendix B, Part (1); California Clean Air Act, Health and Safety Code section 39650, et seq.	These regulations require a quantitative health risk assessment for new or modified sources, including power plants that emit one or more toxic air contaminants (TACs).
Local	
Antelope Valley Air Quality Management District (AVAQMD) Rule 212	This rule requires notification for projects with a predicted cancer risk greater than or equal to one-in-one-million.
AVAQMD Rule 402	This rule prohibits the discharge of air contaminants or other materials that can cause nuisance or injury.

Applicable LORS	Description
AVAQMD Regulation X	This regulation notifies sources of the requirements, enforceability, and practices for the California ATCM and Federal MACT standards for control of California TACs and Federal HAP emissions, respectively. It assigns a prioritization score for toxics and requires the preparation of a HRA by high risk facilities.
AVAQMD Rule 1000	This rule implements the Federal NESHAP promulgated under 40 CFR Part 61.
AVAQMD Rule 1401	This rule discusses the requirements for new source review for air toxics.
AVAQMD CEQA and Federal Conformity Guidelines	This rule provides significance thresholds under CEQA for exposure of sensitive receptors to cancer and noncancer public health risk impacts.

Socioeconomics

Applicable LORS	Description
State	
California Education Code, Section 17620	The governing board of any school district is authorized to levy a fee, charge, dedication, or other requirement for the purpose of funding the construction or reconstruction of school facilities.
California Government Code, Sections 65996-65997	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.
California Revenue and Taxation Code Section 70-74.7	Property taxes are not assessed on solar facilities. Assembly Bill 1451 extended the current property tax exclusion for new construction of solar energy systems to January 1, 2017.

Soil and Water

Applicable LORS	Description
Federal	
Clean Water Act (33 U.S.C. Section 1257 et seq.)	The Clean Water Act (CWA) (33 USC § 1257 et seq.) requires states to set standards to protect water quality, which includes regulation of storm water and wastewater discharges during construction and operation of a facility. California established its regulations to comply with the CWA under the Porter-Cologne Water Quality Control Act. The CWA also establishes protection of wetlands through section 401 and protection of navigable waters of the U.S. from discharges of dredge and fill material through section 404. Navigable waters can include perennial and ephemeral drainages, streams, washes, ponds, pools, and wetlands. If a discharge would impact navigable waters, then the impacts need to be quantified and mitigated. Section 401 is administered by the states, and in California, through the State Water Resources Control Board/Regional Water Quality Control Boards (SWRCB/RWQCBs). The RWQCB maintains the quality of the State's water by protecting the function and value of its use. Section 404 is administered and enforced by the U.S. EPA and Army Corps of Engineers (ACOE). Individual permit decisions and jurisdiction determinations are made by the ACOE.
State	
California Constitution, Article X, Section 2	The California Constitution requires that the water resources of the State be put to beneficial use to the fullest extent possible and states that the waste, unreasonable use or unreasonable method of use of water is prohibited.
California Water Code Section 1210, 1211, 1212	Section 1210 states that a wastewater treatment plant holds exclusive right to the water discharged to the water treatment and collection system. However, section 1210 does not mean that the wastewater treatment plant holds the exclusive right to effluent leaving the treatment plant, because downstream rights may develop that are dependent on that effluent. Section 1211 requires a permit from the SWRCB prior to making any change in the point of discharge, place of use, or purpose of use of treated wastewater, but only if the treated water is discharged to a watercourse and instream or riparian habitat could be adversely affected. Section 1212 requires discharge flows to be maintained when the flow to a watercourse is intended to maintain or enhance instream beneficial uses (such as fishery, wildlife, or recreation).
The Porter-Cologne Water Quality Control Act of 1967, Water Code Sec 13000 et seq.	Requires the State Water Resources Control Board (SWRCB) and the nine RWQCBs to adopt water quality criteria to protect state waters. Those regulations require that the RWQCBs issue waste discharge requirements (WDRs) specifying conditions for protection of water quality as applicable. Section 13000 also states that the State must be prepared to exercise its full power and jurisdiction to protect the quality of the waters of the State from degradation. Although Water Code 13000 et seq. is applicable in its entirety, the

	following specific sections are included as examples of applicable sections.
California Water Code Section 13050	Defines “waters of the State.”
California Water Code Section 13240, 13241, 13242, 13243, & Water Quality Control Plan for the Lahontan Region (Basin Plan)	The Basin Plan establishes water quality objectives that protect the beneficial uses of surface water and groundwater in the Region. The Basin Plan describes implementation plans and other control measures designed to ensure compliance with statewide plans and policies and provides comprehensive water quality planning. The following chapters are applicable to determining appropriate control measures and cleanup levels to protect beneficial uses and to meet the water quality objectives: Chapter 2, Present and Potential Beneficial Uses; Chapter 3, Water Quality Objectives, and the sections of Chapter 4, Implementation, entitled “Requirements for Site Investigation and Remediation,” “Cleanup Levels,” “Risk Assessment,” “Stormwater Problems and Control Measures,” Erosion and Sedimentation,” “Solid and Liquid Waste Disposal to Land,” and “Groundwater Protection and Management.”
California Water Code Section 13260	This section requires filing, with the appropriate RWQCB, a report of waste discharge that could affect the water quality of the state unless the requirement is waived pursuant to Water Code section 13269.
California Water Code Section 13523	If a RWQCB determines that it is necessary to protect public health, safety, or welfare, the RWQCB may prescribe water reclamation requirements for water which is or proposed to be used as recycled water.
California Water Code 13550	This section states that the use of potable domestic water for non-potable uses, including, but not limited to, industrial and irrigation uses, is a waste or an unreasonable use of the water within the meaning of Section 2 of Article X of the California Constitution if recycled water is available which meets all of the following conditions: 1. The source of recycled water is of adequate quality for the proposed use and is available for this use. 2. The recycled water may be furnished for these uses at a reasonable cost to the user. 3. After concurrence with the State Department of Health Services, the use of recycled water from the proposed source would not be detrimental to public health. 4. The use of recycled water for the proposed use would not adversely affect downstream water rights, would not degrade water quality, and is determined not to be injurious to plantlife, fish, and wildlife.
California Water Code Section 13551	This section requires that water resources of the State be put to the highest possible beneficial use, and that waste or unreasonable use or unreasonable method of use of water be prevented. This section also requires the conservation of water in a manner that is reasonable and for a beneficial use that is in the interest of the people and for the public welfare.
California Water Code Section 13552.6	This section specifically identifies the use of potable domestic water for industrial cooling towers as a waste or unreasonable use of water

	if suitable recycled water is available. The availability of recycled water is determined by the SWRCB based on criteria listed in Section 13550 of the Water Code.
California Water Code Section 13552.8	States that any public agency may require the use of recycled water in cooling towers if recycled water is available, meets the requirements set forth in Section 13550, that there would be no adverse impacts to any existing water right and that if public exposure to cooling tower mist is possible, appropriate mitigation or control is provided.
Water Recycling Act of 1991 (Water Code 13575 et. seq.)	The Water Recycling Act states that retail water suppliers, recycled water producers, and wholesalers should promote the substitution of recycled water for potable and imported water in order to maximize the appropriate cost-effective use of recycled water in California.
California Code of Regulations, Title 17, Division 1, Chapter 5, Group 4, Articles 1 and 2	These articles address the requirements for backflow prevention and cross connections of potable and non-potable water lines.
California Code of Regulations, Title 22, Division 4, Chapter 3, Article 1	This article specifies the use of recycled water for dust control must be disinfected to at least a secondary-23 level. This article also requires that recycled water used for industrial or commercial cooling or air conditioning that involves the use of a cooling tower, evaporative condenser, spraying or any mechanism that creates mist shall be disinfected tertiary recycled water.
California Code of Regulations, Title 23, Division 3, Chapter 15	This chapter applies to waste discharges to land and requires the RWQCB issue WDRs specifying conditions for protection of water quality as applicable.
Regional Water Quality Control Board Waste Discharge and Waste Reclamation Permits	Requires obtaining a new or modifying an existing WDRs Permit and a Wastewater Reclamation Permit to reuse effluent from wastewater treatment plants for industrial cooling.
State Water Resources Control Board 2009-0009-DWQ	The SWRCB regulates storm water discharges associated with construction affecting areas greater than or equal to 1 acre to protect state waters. Under Order 2009-0009-DWQ, the SWRCB has issued a National Pollutant Discharge Elimination System (NPDES) General Permit for storm water discharges associated with construction activity. Projects can qualify under this permit if specific criteria are met and an acceptable Storm Water Pollution Prevention Plan (SWPPP) is prepared and implemented after notifying the SWRCB with a Notice of Intent.
State Water Resources Control Board 97-03-DWQ	The SWRCB regulates storm water discharges associated with several types of facilities, including steam electric generating facilities. Under Order 97-03-DWQ, the SWRCB has issued a NPDES General Permit for storm water discharges associated with industrial activity. Projects can qualify under this permit if specific criteria are met and an acceptable SWPPP is prepared and implemented after notifying the SWRCB with a Notice of Intent.
State Water Resources Control Board 2003-003-DWQ	This general permit applies to the discharge of water to land that has a low threat to water quality. Categories of low threat discharges include piping hydrostatic test water.

Local	
County of Los Angeles Sanitation District No.14 and No. 20 – Requirements for Recycled Water Users	The Recycled Water Users Handbook, by the Sanitation Districts of Los Angeles County (2008), identifies the process to obtain permission to use recycled water, operational requirements, and best management practices, requirements for site inspection and site access, corrective action, notification, and record keeping. These requirements apply to all users of tertiary recycled water distributed by Districts No. 14 or No. 20 directly or through an intermediary.
County of Los Angeles Sanitation Districts No.14 and No. 20 – Wastewater Ordinance	This ordinance establishes the requirements for industrial wastewater sewer construction and use, the imposition of fees and charges, the implementation of federal and state pollution control regulations and other methods to control and regulate the discharge of wastewater.
County of Los Angeles Sanitation Districts No.14 and No. 20 Connection Fee Ordinance, Master Ordinances, and Rate and Mean Loadings Ordinances	This ordinance establishes sewer connection fee requirements and loading limitations for a connection to LACSD Districts No. 14 and No. 20 sewer service.
Los Angeles County Code Title 12 Environmental Protection, Chapter 12.80 Stormwater and Runoff Pollution Control	This code is intended to protect the health and safety of the residents of the county by protecting the beneficial uses, marine habitats, and ecosystems of receiving waters within the county from pollutants carried by stormwater and non-stormwater discharges and to enhance and protect the water quality of the receiving waters of the county and the United States.
Los Angeles County Code Title 11 Health and Safety, Chapter 11.38, Part 2 Water and Wells	Ordinances in Part 2 of Title 11, Chapter 11.38 provide requirements for protection of water quality for domestic water supplies.
Los Angeles County Code Title 11 Health and Safety, Chapter 11.38, Part 3 Sanitation, Sewage Disposal and Industrial Waste	Ordinances in Part 3 of Title 11, Chapter 11.38 specify requirements for sewage and industrial waste disposal systems.
City of Palmdale Storm Water Management Plan Ordinance	Requires a storm water management plan for grading activities occurring between October 1 and April 15
City of Palmdale Water-Efficient Landscape Ordinance	As a condition of approval for any development proposal, landscape plans must be submitted to the City Planning Department. The landscape plan must be scored according to water efficiency criteria and must achieve a minimum score in order to be approved.
City of Palmdale Floodplain Management Ordinance	A floodplain development permit must be obtained before construction or development begins within a Special Flood Hazard Area.
City of Palmdale Building Code	The City of Palmdale requires a grading permit for earth moving activities exceeding 3 feet in depth or 20 cubic yards in volume.

State	
Integrated Energy Policy Report (Public Resources Code, Div. 15, Section 25300 et seq.)	In the 2003 Integrated Energy Policy Report (IEPR), consistent with SWRCB Policy 75-58 and the Warren-Alquist Act, the Energy Commission clearly outlined the state policy with regards to water use by power plants, stating that the Energy Commission would approve the use of fresh water for cooling purposes only where alternative water supply sources and alternative cooling technologies are shown to be "environmentally undesirable" or "economically unsound."
SWRCB Res. 2009-0011 (Recycled Water Policy)	This policy supports and promotes the use of recycled water as a means to achieve sustainable local water supplies and reduction of greenhouse gases. This policy encourages the beneficial use of recycled water over disposal of recycled water. This policy states the following recycled water use goals: • "Increase the use of recycled water over 2002 levels by at least one million acre-feet per year (AF/y) by 2020 and by at least two million AF/y by 2030; • Increase the use of stormwater over use in 2007 by at least 500,000 AF/y by 2020 and by at least one million AF/y by 2030; • Increase the amount of water conserved in urban and industrial uses by comparison to 2007 by at least 20 percent by 2020; and • Included in these goals is the substitution of as much recycled water for potable water as possible by 2030."
State Water Resources Control Board (SWRCB) Statement of Policy with Respect to Maintaining High Quality Waters in CA / Res. No. 68-16	The "Antidegradation Policy" mandates that: 1) existing high quality waters of the State are maintained until it is demonstrated that any change in quality will be consistent with maximum benefit to the people of the State, will not unreasonably affect present and anticipated beneficial uses, and will not result in waste quality less than adopted policies; and 2) requires that any activity which produces or may produce a waste or increased volume or concentration of waste and which discharges or proposes to discharge to existing high quality waters, must meet WDRs which will result in the best practicable treatment or control of the discharge necessary to assure that: a) a pollution or nuisance will not occur and b) the highest water quality consistent with maximum benefit to the people of the State will be maintained.
SWRCB Res. No. 75-58	The principal policy of the SWRCB that addresses siting of energy facilities is the Water Quality Control Policy on the *Use and Disposal of Inland Waters Used for Power Plant Cooling*, adopted by the Board on June 19, 1976, by Resolution 75-58. This policy states that use of fresh inland waters should only be used for cooling if other sources or other methods of cooling would be environmentally undesirable or economically unsound.
State Water Resources Control Board (SWRCB) Res. 77-1	SWRCB Resolution 77-1 encourages and promotes recycled water use for non-potable purposes and use of recycled water to supplement existing surface and groundwater supplies.
SWRCB Res. No. 2005-0006	Adopts the concept of sustainability as a core value for SWRCB

	programs and directs its incorporation in all future policies, guidelines, and regulatory actions.
Los Angeles County General Plan	The General Plan describes the policies, goals, and implementation measures for water resources, flood and erosion control, and storm water protection within the county.

Traffic and Transportation

Applicable LORS	Description
Federal	
Code of Federal Regulations (CFR) Title 14, Chapter 1, Part 77	Includes standards for determining obstructions in navigable airspace. Sets forth requirements for notice to the Federal Aviation Administration of certain proposed construction or alteration. Also, provides for aeronautical studies of obstructions to air navigation to determine their effect on the safe and efficient use of airspace.
Title 49, Subtitle B	Includes procedures and regulations pertaining to interstate and intrastate transport (includes hazardous materials program procedures), and provides safety measures for motor carriers and motor vehicles who operate on public highways.
State	
California Vehicle Code, Division 2, Chapter. 2.5, Div. 6, Chap. 7, Div. 13, Chap. 5, Div. 14.1, Chap. 1 & 2, Div. 14.8, Div. 15 California Streets and Highway Code, Division 1 & 2, Chapter 3 & Chapter 5.5	Includes regulations pertaining to licensing, size, weight and load of vehicles operated on highways, safe operation of vehicles, and the transportation of hazardous materials. Includes regulations for the care and protection of State and County highways, and provisions for the issuance of written permits.
Local	
City of Palmdale General Plan Circulation Element	Includes goals, policies, and implementation measures that will balance traffic patterns with land uses to minimize existing road congestions while expanding the circulation network to serve the City's future growth areas. In addition, includes standards to govern the design of various roadways in the community, and identifies the location where improvements to existing roadways should be programmed as well as indicating the general location of rights-of-way for future roads.
City of Lancaster General Plan 2030 Plan for Physical Mobility	This section of the General Plan presents the City's existing traffic and transportation condition and plans for the anticipated impact associated with growth. It also establishes goals, objectives and policies pertaining to streets and highways, parking facilities, alternative transportation modes, commodity movement and air transportation.

TRANSMISSION LINE SAFETY AND NUISANCE

Applicable LORS	Description
Aviation Safety	
Federal	
Title 14, Part 77 of the Code of Federal Regulations (CFR),"Objects Affecting the Navigable Air Space"	Describes the criteria used to determine the need for a Federal Aviation Administration (FAA) "Notice of Proposed Construction or Alteration" in cases of potential obstruction hazards.
FAA Advisory Circular No. 70/7460-1G, "Proposed Construction and/or Alteration of Objects that May Affect the Navigation Space"	Addresses the need to file the "Notice of Proposed Construction or Alteration" (Form 7640) with the FAA in cases of potential for an obstruction hazard.
FAA Advisory Circular 70/460-1G, "Obstruction Marking and Lighting"	Describes the FAA standards for marking and lighting objects that may pose a navigation hazard as established using the criteria in Title 14, Part 77 of the CFR.
Interference with Radio Frequency Communication	
Federal	
Title 47, CFR, section 15.2524, Federal Communications Commission (FCC)	Prohibits operation of devices that can interfere with radio-frequency communication.
State	
California Public Utilities Commission (CPUC) General Order 52 (GO-52)	Governs the construction and operation of power and communications lines to prevent or mitigate interference.
Audible Noise	
Local	
City of Palmdale General Plan: Noise Element	Establishes goals and policies to ensure that the city's residents are protected from excessive noise.
City of Lancaster General Plan: Noise Element	Establishes goals and policies to ensure that residents are protected from excessive noise.
Hazardous and Nuisance Shocks	
State	
CPUC GO-95, "Rules for Overhead Electric Line Construction"	Governs clearance requirements to prevent hazardous shocks, grounding techniques to minimize nuisance shocks, and maintenance and inspection requirements.
Title 8, California Code of Regulations (CCR) section 2700 et seq. "High Voltage Safety Orders"	Specifies requirements and minimum standards for safely installing, operating, working around, and maintaining electrical installations and equipment.
National Electrical Safety Code	Specifies grounding procedures to limit nuisance shocks. Also specifies minimum conductor ground clearances.

Applicable LORS	Description
Industry Standards	
Institute of Electrical and Electronics Engineers (IEEE) 1119, “IEEE Guide for Fence Safety Clearances in Electric-Supply Stations”	Specifies the guidelines for grounding-related practices within the right-of-way and substations.
Electric and Magnetic Fields	
State	
GO-131-D, CPUC ”Rules for Planning and Construction of Electric Generation Line and Substation Facilities in California”	Specifies application and noticing requirements for new line construction including EMF reduction.
CPUC Decision 93-11-013	Specifies CPUC requirements for reducing power frequency electric and magnetic fields.
Industry Standards	
American National Standards Institute (ANSI/IEEE) 644-1944 Standard Procedures for Measurement of Power Frequency Electric and Magnetic Fields from AC Power Lines	Specifies standard procedures for measuring electric and magnetic fields from an operating electric line.
Fire Hazards	
State	
14 CCR sections 1250-1258, “Fire Prevention Standards for Electric Utilities”	Provides specific exemptions from electric pole and tower firebreak and conductor clearance standards and specifies when and where standards apply.

Transmission System Engineering

Applicable LORS	Description
California Public Utilities Commission General Order 95, *Rules for Overhead Electric Line Construction*,	Formulates uniform requirements for construction of overhead transmission lines. Compliance with this order ensures adequate service and safety to persons engaged in the construction, maintenance, and operation or use of overhead electric lines and to the public in general.
California Public Utilities Commission General Order 128, *Rules for Construction of Underground Electric Supply and Communications Systems*,	Formulates uniform requirements and minimum standards to be used for underground supply systems to ensure adequate service and safety to persons engaged in the construction, maintenance, and operation or use of underground electric lines and to the public in general.
National Electric Safety Code, 1999	Provides electrical, mechanical, civil, and structural requirements for overhead electric line construction and operation
The Western Electricity Coordinating Council (WECC) Planning Standards	Merged with the North American Electric Reliability Corporation (NERC) Planning Standards and provide the system performance standards used in assessing the reliability of the interconnected system. These standards require the continuity of service to loads as the first priority, and preservation of interconnected operation as a secondary priority. Certain aspects of the NERC/WECC standards are either more stringent or more specific than the NERC standards alone. These standards provide planning for electric systems so as to withstand the more probable forced and maintenance outage system contingencies at projected customer demand and anticipated electricity transfer levels, while continuing to operate reliably within equipment and electric system thermal, voltage, and stability limits. These standards include the reliability criteria for system adequacy and security, system modeling data requirements, system protection and control, and system restoration. Analysis of the WECC system is based to a large degree on section I. A. of the standards, entitled *NERC and WECC Planning Standards with Table I and WECC Disturbance-Performance Table,* and on section I. D., entitled *NERC and WECC Standards for Voltage Support and Reactive Power*. These standards require that the results of power flow and stability simulations verify defined performance levels.

	Performance levels are defined by specifying the allowable variations in thermal loading, voltage, and frequency, and loss of load that may occur on systems during various disturbances. Performance levels range from no significant adverse effects inside and outside a system area during a minor disturbance (loss of load or a single transmission element out of service) to a level that seeks to prevent system cascading and the subsequent blackout of islanded areas during a major disturbance (such as loss of multiple 500 kV lines along a common right of way, and/or multiple generators). While controlled loss of generation or load or system separation is permitted in certain circumstances, its uncontrolled loss is not permitted (WECC 2002).
NERC Reliability Standards for the Bulk Electric Systems of North America	Provides national policies, standards, principles, and guidelines to assure the adequacy and security of the electric transmission system. The NERC Reliability Standards provide for system performance levels under normal and contingency conditions. While these reliability standards are similar to NERC/WECC standards, certain aspects of the NERC/WECC standards are either more stringent or more specific than the NERC standards with regard to power flow and stability simulations for transmission system contingency performance. The NERC Reliability Standards apply not only to interconnected system operation but also to individual service areas (NERC 2006).
California ISO Planning Standards	Provides standards and guidelines to assure adequacy, security, and reliability in the planning of the California ISO transmission grid facilities. The California ISO Standards incorporate the NERC/WECC and NERC standards. With regard to power flow and stability simulations, these standards are similar to the NERC/WECC or NERC standards for transmission system contingency performance. However, the California ISO standards also provide some additional requirements that are not found in the NERC/WECC or NERC standards. The California ISO standards apply to all participating transmission owners interconnecting to the grid controlled by California ISO. They also apply when there are any impacts to the California ISO grid due to facilities interconnecting to adjacent grids not operated by California ISO (California ISO 2002a).
The California ISO/FERC (Federal Energy Regulatory Commission)	Provides guidelines for construction of all transmission additions/upgrades within the grid controlled by California ISO. The California ISO determines the need for the proposed project where it will promote economic efficiency

Electric Tariff	or maintain system reliability. The California ISO also determines the cost responsibility of the proposed project and provides an operational review of all facilities that are to be connected to the California ISO grid (California ISO 2003a).

Waste Management

Applicable LORS	Description
Federal	
Title 42, United States Code (U.S.C.), §6901, et seq. Solid Waste Disposal Act of 1965 (as amended and revised by the Resource Conservation and Recovery Act of 1976, et al.)	Establishes requirements for the management of solid wastes (including hazardous wastes), landfills, underground storage tanks, and certain medical wastes. The statute also addresses program administration, implementation and delegation to states, enforcement provisions, and responsibilities, as well as research, training, and grant funding provisions. RCRA Subtitle C establishes provisions for the generation, storage, treatment, and disposal of hazardous waste, including requirements addressing: • Generator record keeping practices that identify quantities of hazardous wastes generated and their disposition; • Waste labeling practices and use of appropriate containers; • Use of a manifest when transporting wastes; • Submission of periodic reports to the United States Environmental Protection Agency (U.S. EPA) or other authorized agency; and • Corrective action to remediate releases of hazardous waste and contamination associated with RCRA-regulated facilities. RCRA Subtitle D establishes provisions for the design and operation of solid waste landfills. RCRA is administered at the federal level by U.S. EPA and its 10 regional offices. The Pacific Southwest regional office (Region 9) implements U.S. EPA programs in California, Nevada, Arizona, and Hawaii.
Title 42, U.S.C., §9601, et seq. Comprehensive Environmental Response, Compensation and Liability Act (also known as *Superfund*)	Establishes authority and funding mechanisms for cleanup of uncontrolled or abandoned hazardous waste sites, as well as cleanup of accidents, spills, or emergency releases of pollutants and contaminants into the environment. Among other things, the statute addresses: • Reporting requirements for releases of hazardous substances; • Requirements for remedial action at closed or abandoned hazardous waste sites, and brownfields; • Liability of persons responsible for releases of hazardous substances or waste; and • Requirements for property owners/potential buyers to conduct “all appropriate inquiries” into previous ownership and uses of the property to 1) determine if hazardous substances have been or may have been released at the site, and 2) establish that the owner/buyer did not cause or contribute to the release. A Phase I Environmental Site Assessment is commonly used to satisfy CERCLA “all appropriate inquiries” requirements.
Title 40, Code of Federal Regulations (CFR), Subchapter I –	Implements the provisions of the Solid Waste Disposal Act and RCRA (described above). Among other things, the regulations establish the criteria for classification of solid waste disposal facilities (landfills), hazardous waste characteristic criteria and regulatory thresholds,

Solid Wastes	hazardous waste generator requirements, and requirements for management of used oil and universal wastes. • Part 257 addresses the criteria for classification of solid waste disposal facilities and practices. • Part 258 addresses the criteria for municipal solid waste landfills. • Parts 260 through 279 address management of hazardous wastes, used oil, and universal wastes (i.e., batteries, mercury-containing equipment, and lamps). U.S. EPA implements the regulations at the federal level. However, California is a RCRA-authorized state, so most of the solid and hazardous waste regulations are implemented by state agencies and authorized local agencies in lieu of U.S. EPA.
Title 49, CFR, Parts 172 and 173. Hazardous Materials Regulations	Addresses the United States Department of Transportation established standards for transport of hazardous materials and hazardous wastes. The standards include requirements for labeling, packaging, and shipping of hazardous materials and hazardous wastes, as well as training requirements for personnel completing shipping papers and manifests. Section 172.205 specifically addresses use and preparation of hazardous waste manifests in accordance with Title 40, CFR, Section 262.20.
Federal Clean Water Act, 33 USC § 1251 *et seq.*	Controls discharge of wastewater to the surface waters of the U.S.
State	
California Health and Safety Code (HSC), Chapter 6.5, §25100, et seq. Hazardous Waste Control Act of 1972, as amended	Creates the framework under which hazardous wastes must be managed in California. The law provides for the development of a state hazardous waste program that administers and implements the provisions of the federal RCRA program. It also provides for the designation of California-only hazardous wastes and development of standards (regulations) that are equal to or, in some cases, more stringent than federal requirements. The California Environmental Protection Agency (CalEPA), Department of Toxic Substances Control (DTSC) administers and implements the provisions of the law at the state level. Certified Unified Program Agencies (CUPAs) implement some elements of the law at the local level.
Title 22, California Code of Regulations (CCR), Division 4.5. Environmental Health Standards for the Management of Hazardous Waste	Establishes requirements for the management and disposal of hazardous waste in accordance with the provisions of the California Hazardous Waste Control Act and federal RCRA. As with the federal requirements, waste generators must determine if their wastes are hazardous according to specified characteristics or lists of wastes. Hazardous waste generators must obtain identification numbers; prepare manifests before transporting the waste off site; and use only permitted treatment, storage, and disposal facilities. Generator standards also include requirements for record keeping, reporting, packaging, and labeling. Additionally, while not a federal requirement, California requires that hazardous waste be transported by registered hazardous waste transporters. The standards addressed by Title 22, CCR include: • Identification and Listing of Hazardous Waste (Chapter 11, §66261.1, et seq.).

	• Standards Applicable to Generator of Hazardous Waste (Chapter 12, §66262.10, et seq.). • Standards Applicable to Transporters of Hazardous Waste (Chapter 13, §66263.10, et seq.). • Standards for Universal Waste Management (Chapter 23, §66273.1, et seq.). • Standards for the Management of Used Oil (Chapter 29, §66279.1, et seq.). • Requirements for Units and Facilities Deemed to Have a Permit by Rule (Chapter 45, §67450.1, et seq.). The Title 22 regulations are established and enforced at the state level by DTSC. Some generator and waste treatment standards are also enforced at the local level by CUPAs.
HSC, Chapter 6.11 §§25404 – 25404.9 Unified Hazardous Waste and Hazardous Materials Management Regulatory Program (Unified Program)	Consolidates, coordinates, and makes consistent the administrative requirements, permits, inspections, and enforcement activities of the six environmental and emergency response programs listed below. • Aboveground Petroleum Storage Act requirements for Spill Prevention, Control, and Countermeasure (SPCC) Plans. • Hazardous Materials Release and Response Plans and Inventories (Business Plans). • California Accidental Release Prevention (CalARP) Program. • Hazardous Material Management Plan / Hazardous Material Inventory Statements. • Hazardous Waste Generator / Tiered Permitting Program. • Underground Storage Tank Program. The state agencies responsible for these programs set the standards for their programs while local governments implement the standards. The local agencies implementing the Unified Program are known as CUPAs. The Los Angeles County Fire Department is the CUPA for the PHPP project. Note: The Waste Management analysis only considers application of the Hazardous Waste Generator/Tiered Permitting element of the Unified Program.
Title 27, CCR, Division 1, Sub-division 4, Chapter 1, §15100, et seq. Unified Hazardous Waste and Hazardous Materials Management Regulatory Program	Primarily addresses certification and implementation of the program by the local CUPAs, but also contains specific reporting requirements for businesses. • Article 9 – Unified Program Standardized Forms and Formats (§§ 15400–15410). • Article 10 – Business Reporting to CUPAs (§§15600–15620).
Public Resources Code, Division 30, §40000, et seq.	Establishes mandates and standards for management of solid waste in California. The law addresses solid waste landfill diversion requirements; establishes the preferred waste management hierarchy (source reduction first, then recycling and reuse, and treatment and disposal last); sets

California Integrated Waste Management Act of 1989	standards for design and construction of municipal landfills; and addresses programs for county waste management plans and local implementation of solid waste requirements.
Title 14, CCR, Division 7, §17200, et seq. California Integrated Waste Management Board	Implements the provisions of the California Integrated Waste Management Act and sets forth minimum standards for solid waste handling and disposal. The regulations include standards for solid waste management, as well as enforcement and program administration provisions. • Chapter 3 – Minimum Standards for Solid Waste Handling and Disposal. • Chapter 3.5 – Standards for Handling and Disposal of Asbestos Containing Waste. • Chapter 7 – Special Waste Standards. • Chapter 8 – Used Oil Recycling Program. • Chapter 8.2 – Electronic Waste Recovery and Recycling.
HSC, Division 20, Chapter 6.5, Article 11.9, §25244.12, et seq. Hazardous Waste Source Reduction and Management Review Act of 1989	Expands the state's hazardous waste source reduction activities. Among other things, it establishes hazardous waste source reduction review, planning, and reporting requirements for businesses that routinely generate more than 12,000 kilograms (approximately 26,400 pounds) of hazardous waste in a designated reporting year. The review and planning elements are required to be done on a four-year cycle, with a summary progress report due to DTSC every fourth year.
Title 22, CCR, §67100.1 et seq. Hazardous Waste Source Reduction and Management Review	Further clarifies and implements the provisions of the Hazardous Waste Source Reduction and Management Review Act of 1989 (noted above). The regulations establish the specific review elements and reporting requirements to be completed by generators subject to the act.
Local	
Los Angeles County Fire Department, Health and Hazardous Materials Division County of Los Angeles Codes, Title 32 Fire Code	Establishes requirements for the use, generation, storage, and disposal of hazardous materials and wastes within the Los Angeles County.
Solid Waste Handling and Recycling Services Chapter 5.52 City of Palmdale Municipal Code	Establishes requirements for commercial and industrial collection of solid waste.
Los Angeles County Code Chapter 20.87	Requires projects in the County unincorporated areas to recycle or reuse 50 percent of the debris generated, in accordance with the mandates of Integrated Waste Management Act of 1989. The County of Los Angeles Department of Public Works enforces the ordinance in unincorporated areas of the County.

Worker Safety and Fire Protection

Applicable LORS	Description
Federal	
29 U.S. Code sections 651 et seq (Occupational Safety and Health Act of 1970)	This Act mandates safety requirements in the workplace, with the purpose of "[assuring] so far as possible every working man and woman in the nation safe and healthful working conditions and to preserve our human resources" (29 USC § 651).
29 CFR sections 1910.1 to 1910.1500 (Occupational Safety and Health Administration Safety and Health Regulations)	These sections define the procedures for promulgating regulations and conducting inspections to implement and enforce safety and health procedures to protect workers, particularly in the industrial sector.
29 CFR sections 1952.170 to 1952.175	These sections provide federal approval of California's plan for enforcement of its own safety and health requirements, in lieu of most of the federal requirements found in 29 CFR §1910.1 to 1910.1500.
State	
8 CCR all applicable sections (Cal/OSHA regulations)	Requires that all employers follow these regulations as they pertain to the work involved. This includes regulations pertaining to safety matters during the construction, commissioning, and operation of power plants, as well as safety around electrical components, fire safety, and hazardous materials usage, storage, and handling.
24 CCR section 3, et seq.	Incorporates the current edition of the Uniform Building Code.
California Health and Safety Code, section 25531 to 25543.4	The California Accidental Release Program (Cal-ARP) requires the preparation of a Risk Management Plan (RMP) and Off-site Consequence Analysis (OCA) and submittal to the local Certified Unified Program Authority (CUPA) for approval.
Health and Safety Code sections 25500 to 25541	Requires a Hazardous Materials Business plan detailing emergency response plans for hazardous materials emergencies at a facility.
Local (or locally enforced)	
City of Palmdale Municipal Code, Title 8 Health and Safety, Chapter 8.04	Adoption of Health, Safety, and Technical Construction Codes from the Los Angeles County Code. Addresses organization, roles, responsibilities, etc. of Los Angeles County Fire Department and provisions of Palmdale City fire code.
City of Palmdale Building Code	Includes specific building codes, such as the electrical code.
Los Angeles County Fire, Certified Unified Permitting Agency	Responsible for administering the hazardous materials release response plans and inventory program and the California Accidental Release Prevention Program (Cal-ARP).
Los Angeles County Fire Department, Title	The adoption and incorporation of the fire code for the District of Los Angeles County.

32, Chapter 40 Consolidated Fire Protection District Code	
2007 California Fire Code and 2006 International Fire Code	The fire code contains general provisions for fire safety, including requirements for proper storage and handling of hazardous materials and listing of the information needed by emergency response personnel. Enforced by the Los Angeles County Fire Department.

Docket Number: **08-AFC-09** **Project Name:** **Palmdale Hybrid Power Plant**

FINAL EXHIBIT LIST

Applicant's Exhibits 1 - 299

Exhibit	Docket Transaction Number	Brief Description	Offered	Refused	Admitted
1	47383	AFC – Section 1.0 – Executive Summary	3/2/11		3/2/11
2	47383	AFC – Section 2.0 – Project Description	3/2/11		3/2/11
3	47383	AFC – Section 3.0 – Closure	3/2/11		3/2/11
4	47383	AFC – Section 4.0 – Project Alternatives	3/2/11		3/2/11
5	47383	AFC – Section 5.1 – General Environmental	3/2/11		3/2/11
6	47383	AFC – Section 5.2 – Air Quality	3/2/11		3/2/11
7	47383	AFC – Section 5.3 – Biological Resources	3/2/11		3/2/11
8	47383	AFC – Section 5.4 – Cultural Resources	3/2/11		3/2/11
9	47383	AFC – Section 5.5 – Geology & Paleontology	3/2/11		3/2/11
10	47383	AFC – Section 5.6 – Hazardous Materials Handling	3/2/11		3/2/11
11	47383	AFC – Section 5.7 – Land Use	3/2/11		3/2/11
12	47383	AFC – Section 5.8 - Noise	3/2/11		3/2/11
13	47383	AFC – Section 5.9 - Paleontological Resources	3/2/11		3/2/11
14	47383	AFC – Section 5.10 – Public Health	3/2/11		3/2/11
15	47383	AFC – Section 5.11 – Socioeconomics	3/2/11		3/2/11
16	47383	AFC – Section 5.12 - Soils	3/2/11		3/2/11
17	47383	AFC – Section 5.13 – Traffic & Transportation	3/2/11		3/2/11
18	47383	AFC – Section 5.14 - Transmission Line Safety and Nuisance	3/2/11		3/2/11
19	47383	AFC – Section 5.15 – Visual Resources	3/2/11		3/2/11
20	47383	AFC – Section 5.16 – Waste Management	3/2/11		3/2/11
21	47383	AFC – Section 5.17 – Water Resources	3/2/11		3/2/11
22	47383	AFC – Section 5.18 – Worker Safety	3/2/11		3/2/11
23	47383	AFC – Appendix A - Surrounding Properties: Assessor's Parcel Nos./Property Owners - Project Description	3/2/11		3/2/11

Exhibit	Docket Transaction Number	Brief Description	Offered	Refused	Admitted
24	47383	AFC – Appendix B - Preliminary Geotechnical Investigation Report - Kleinfelder	3/2/11		3/2/11
25	47383	AFC – Appendix C - Engineering Design Criteria – Facility Design	3/2/11		3/2/11
26	47383	AFC – Appendix D - Therminol™ VP1 Heat Transfer Fluid: Material Safety Data Sheet	3/2/11		3/2/11
27	47383	AFC – Appendix E - Agency and Other Correspondence re: Soil & Water (Appendix E.1 and E.2) AFC – Appendix E - Agency and Other Correspondence re: Haz Mat (Appendix E.3) AFC – Appendix E - Agency and Other Correspondence re: Traffic & Transportation (Appendix E.4 and E.5)	3/2/11		3/2/11
28	47383	AFC – Appendix F - System Impact Study (Electrical Interconnection) re: TSE	3/2/11		3/2/11
29	47383	AFC – Appendix G - Air Quality Supporting Documentation	3/2/11		3/2/11
30	47383	AFC – Appendix H - Biological Resources Technical Report/Biological Assessment	3/2/11		3/2/11
31	47383	AFC – Appendix I - Cultural Resources Technical Report	3/2/11		3/2/11
32	47383	AFC – Appendix J - Paleontological Resources Technical Report	3/2/11		3/2/11
33	47383	AFC – Appendix Appendix K - Phase I Environmental Site Assessment – Waste Mgmt	3/2/11		3/2/11
34	47383	AFC Appendix L Drainage Erosion Sediment Control Plan – Soil & Water	3/2/11		3/2/11
35	47384	Appendix G.6 Air Quality and Public Health Modeling Files	3/2/11		3/2/11
36	47753	Paleontological Resources Technical Report (This exhibit has been deemed confidential and is on file with Melissa Jones, CEC Executive Director. Only the application for confidential designation of this document is included with Applicant's exhibits)	3/2/11		3/2/11

Exhibit	Docket Transaction Number	Brief Description	Offered	Refused	Admitted
37	48067	California Department of Parks and Recreation Form 523 for Primary 19-2730 showing the location of previous archaeological studies and previously recorded archaeological sites (This exhibit has been deemed confidential and is on file with Melissa Jones, CEC Executive Director. Only the application for confidential designation of this document is included with Applicant's exhibits)	3/2/11		3/2/11
38	48245	Paleontological Resources Technical Report (This exhibit has been deemed confidential and is on file with Melissa Jones, CEC Executive Director. Only the application for confidential designation of this document is included with Applicant's exhibits)	3/2/11		3/2/11
39	48300 (48317)	Applicant's Data Adequacy Supplement, Volume 3 (Project Overview and Transmission System Engineering) Applicant's Data Adequacy Supplement, Volume 3 (Biological Resources) Applicant's Data Adequacy Supplement, Volume 3 (Cultural Resources) Applicant's Data Adequacy Supplement, Volume 3 (Socioeconomics) Applicant's Data Adequacy Supplement, Volume 3 (Soils) Applicant's Data Adequacy Supplement, Volume 3 (Traffic and Transportation) Applicant's Data Adequacy Supplement, Volume 3 (Visual Resources) Applicant's Data Adequacy Supplement, Volume 3 (Soil and Water Resources)	3/2/11		3/2/11
40	n/a	Intentionally omitted			
41	n/a	Intentionally omitted			
42	n/a	Intentionally omitted			

Exhibit	Docket Transaction Number	Brief Description	Offered	Refused	Admitted
43	49555	Objections to Certain Data Requests from the California Energy Commission Staff, Data Requests Set 1 (Nos. 22-25) – Cultural Resources Objections to Certain Data Requests from the California Energy Commission Staff, Data Requests Set 1 (Nos. 86-87) – Waste Management	3/2/11		3/2/11
44	49688	Applicant's Responses to CEC Data Request, Sets 1 to 88 a) Applicant's Responses to CEC Data Request, Set 1 (Nos. 1-17) - Biological Resources b) Applicant's Responses to CEC Data Request, Set 1 (Nos. 18-25) – Cultural Resources c) Applicant's Responses to CEC Data Request, Set 1 (No. 26) – Geology and Paleontology d) Applicant's Responses to CEC Data Request, Set 1 (No. 27) – Haz Mat e) Applicant's Responses to CEC Data Request, Set 1 (Nos. 28-49) – Land use f) Applicant's Responses to CEC Data Request, Set 1 (Nos. 50-66) – Soil and Water g) Applicant's Responses to CEC Data Request, Set 1 (Nos. 67-72) – Socioeconomics h) Applicant's Responses to CEC Data Request, Set 1 (Nos. 73-79) – TSE i) Applicant's Responses to CEC Data Request, Set 1 (No. 80) – Visual j) Applicant's Responses to CEC Data Request, Set 1 (Nos. 81-87) – Waste k) Applicant's Responses to CEC Data Request, Set 1 (No. 88) – Worker Safety	3/2/11		3/2/11

Exhibit	Docket Transaction Number	Brief Description	Offered	Refused	Admitted
45	49750	Comments from LA County Public Works, re: Soils/ Geotechnical – Soil & Water	3/2/11		3/2/11
46	50094	Applicant Supplemental Responses to CEC Data Request Set 1 a) Transmission System Engineering b) Alternatives c) Air Quality d) Biological Resources e) Haz Mat f) Traffic and Transportation g) Visual Resources h) Waste Management i) Soil & Water	3/2/11		3/2/11
47	50363	Responses to CEC Data Request Set 1 a) Project Description b) TSE (Nos. 73-79) c) Alternatives d) Biological Resources (Nos. 4, 7 and 10) e) Cultural Resources (Nos. 21-22) f) Land Use (Nos. 28, 31, 39-49)	3/2/11		3/2/11
48	50368	Revised Attachment 7 Cultural Resources Technical Report, Palmdale Hybrid Power Project, Palmdale, California. (This exhibit has been deemed confidential and is on file with Melissa Jones, CEC Executive Director. Only the application for confidential designation of this document is included with Applicant's exhibits)	3/2/11		3/2/11
49	n/a	Intentionally omitted			
50	50476	PHPP Socioeconomic Question	3/2/11		3/2/11
51	50821	U.S. EPA Submittal – PSD Permit & Request for Endangered Species Act Consultation – Air Quality and Biological Resources	3/2/11		3/2/11

Exhibit	Docket Transaction Number	Brief Description	Offered	Refused	Admitted
52	50941	Applicant's Comments on Preliminary Determination of Compliance (PDOC) Air Quality	3/2/11		3/2/11
53	50961	Responses to CEC Data Requests a) Supplemental Response #3 to CEC Data Request Set 1 – Biological Resources b) Supplemental Response #3 to CEC Data Request Set 1 – Cultural Resources c) Supplemental Response #3 to CEC Data Request Set 1 – Land Use d) Supplemental Response #3 to CEC Data Request Set 1 – Waste Management e) Response to CEC Data Request Set 2 (Nos, 147 and 155) – Visual Resources	3/2/11		3/2/11
54	51012	Response to Data Request 20: Archaeological Survey of Two Realignments of the Electrical Transmission Line, Twenty-Two Pull Areas, and Three Laydown Areas, within the Palmdale Hybrid Power Project Area (This exhibit has been deemed confidential and is on file with Melissa Jones, CEC Executive Director. Only the application for confidential designation of this document is included with Applicant's exhibits)	3/2/11		3/2/11
55	51746	U.S. EPA's Comments on the PDOC – Air Quality	3/2/11		3/2/11

Exhibit	Docket Transaction Number	Brief Description	Offered	Refused	Admitted
56	51417	Responses to CEC Data Requests a) Applicant's Response to CEC Data Request Set 2 (Nos. 91-114) Air Quality b) Applicant's Response to CEC Data Request Set 2 (Nos. 115-126) – Alternatives c) Applicant's Response to CEC Data Request Set 2 (Nos. 127-136) and Supplemental Response #4 to Data Request, Set 1 – Biological Resources d) Applicant's Response to CEC Data Request Set 2 (No. 137) – Cultural Resources e) Applicant's Response to CEC Data Request Set 2 (Nos. 91-114) – Land Use f) Applicant's Response to CEC Data Request Set 2 (Nos. 143, 157-162) Traffic & Transportation g) Applicant's Response to CEC Data Request Set 2 (Nos. 144-146) – TSE h) Applicant's Response to CEC Data Request Set 2 (Nos. 147-155) – Visual i) Applicant's Response to CEC Data Request Set 2 (No. 156) – Waste Mgmt.	3/2/11		3/2/11
57	51524	CDFG Submittal - Revised application for incidental take of endangered species, threatened species, and candidate species	3/2/11		3/2/11
58	51623	E-mail response from Applicant to Data Request 142 - detailed land use maps	3/2/11		3/2/11
59	51592	Applicant's Response to CEC Data Request re Cultural Resources	3/2/11		3/2/11
60	n/a	Intentionally omitted			
61	51709	CDFG Comments on Applicant's Biological Resources Technical Report	3/2/11		3/2/11
62	51773	Data Response 152 Corrections – Visual	3/2/11		3/2/11
63	n/a	Intentionally omitted			
64	51782	Applicant's Revised Responses to CEC Data Requests 152 - 153 - Visual	3/2/11		3/2/11

Exhibit	Docket Transaction Number	Brief Description	Offered	Refused	Admitted
65	n/a	Intentionally omitted			
66	n/a	Intentionally omitted			
67	53579	PHPP Inventory Report for Joshua Trees and California Junipers, City of Palmdale Native Desert Vegetation Ordinance	3/2/11		3/2/11
68	52147	Applicant's Response to CEC Staff Request for Clarification on Data Request 137 - Cultural	3/2/11		3/2/11
69	52139	AVAQMD's Revised Preliminary Determination of Compliance	3/2/11		3/2/11
70	52220	Applicant's Response to CEC Staff Status Report 4 - Various	3/2/11		3/2/11
71	52185	SCE Letter in Response to CEC June 10th Request for Additional Information for Proposed Project - TSE	3/2/11		3/2/11
72	52305	AVAQMD's Comments on Staff Status Report No. 4 – A.Q.	3/2/11		3/2/11
73	n/a	Intentionally omitted			
74	52341	Applicant's Response to CDFG Comments on the Request for Incidental Take Permit for Mohave Ground Squirrel and Additional Comments	3/2/11		3/2/11
75	52445	Applicant's New Simulations of the PHPP Transmission Line – Visual Resources	3/2/11		3/2/11
76	52528	Supplemental Responses from July 9th Committee Conference a) AQ b) Biological Resources c) TSE d) Soil & Water Resources	3/2/11		3/2/11
77	52890	Map depicting potential compensation mitigation lands. The mitigation map is related to previously submitted materials associated with Applicant's Supplemental Responses to Data Request CC-B1, dated July 22, 2009. (Biological Resources) (This exhibit has been deemed confidential and is on file with Melissa Jones, CEC Executive Director. Only the application for confidential designation of this document is included with Applicant's exhibits)	3/2/11		3/2/11
78	n/a	Intentionally omitted			
79	52654	Final Arroyo Toad Survey Report	3/2/11		3/2/11

Exhibit	Docket Transaction Number	Brief Description	Offered	Refused	Admitted
80	52693	Responses to Requests from the July 28th Phone Conference – Biological Resources	3/2/11		3/2/11
81		DVD entitled, "Avoidance of Potentially Jurisdictional Waters" - Biological Resources	3/2/11		3/2/11
82	52790	Letter to U.S. EPA Transmitting an Addendum to the Biological Assessment - Biological Resources	3/2/11		3/2/11
83	52836	Revised Will Serve Letters – Soil and Water	3/2/11		3/2/11
84	52902	Letter to the U.S. EPA in Response to U.S. EPA's Comments on the Revised PDOC – Air Quality	3/2/11		3/2/11
85	52960	Revised map depicting potential compensation mitigation lands along with the locations of actual Mohave ground squirrel sitings since 1990 (first submitted to the CEC on July 23, 2009). Biological Resources (This exhibit has been deemed confidential and is on file with Melissa Jones, CEC Executive Director. Only the application for confidential designation of this document is included with Applicant's exhibits)	3/2/11		3/2/11
86	53021	Final Swainson's Hawk Nesting Survey Report	3/2/11		3/2/11
87	53028	Compilation of E-mail Responses to New Data Requests (Project Description) Compilation of E-mail Responses to New Data Requests (Land Use)	3/2/11		3/2/11
88	53215	CDFG Letter Regarding Streambed Alteration Agreement – Biological Resources	3/2/11		3/2/11
89	53316	Applicant's KOP-1 and KOP-2 Photos	3/2/11		3/2/11
90	53366	Map depicting potential compensation mitigation lands (first submitted to the CEC on July 23, 2009 and subsequently submitted in revised form on August 20, 2009). Biological Resources (This exhibit has been deemed confidential and is on file with Melissa Jones, CEC Executive Director. Only the revised application for confidential designation of this document is included with Applicant's exhibits)	3/2/11		3/2/11
91	n/a	Intentionally omitted			
92	n/a	Intentionally omitted			

Exhibit	Docket Transaction Number	Brief Description	Offered	Refused	Admitted
93	n/a	Intentionally omitted			
94	53825	ROC with Mike Mischel from City of Palmdale Public Works Department re Other Project Near Palmdale Site- Project Description	3/2/11		3/2/11
95	53827	Map depicting potential compensation mitigation lands (first submitted to the CEC on July 23, 2009 and subsequently submitted in revised form on August 20, 2009). Biological Resources (This exhibit has been deemed confidential and is on file with Melissa Jones, CEC Executive Director. Only the revised application for confidential designation of this document is included with Applicant's exhibits)	3/2/11		3/2/11
96	54366	Letter from J. Kelly to J. Ledford Regarding Southern California Edison's(SCE) Position on Transmission Line Technical Feasibility - TSE	3/2/11		3/2/11
97	54709	Final Palmdale Facilities Study - TSE	3/2/11		3/2/11
98	55125	Submittal to U.S Army Corps of Engineers – Revised Preliminary Jurisdictional and Delineation of Waters of the U.S.- Biological Resources	3/2/11		3/2/11
99	55276	City of Palmdale's Comments on Volume 1 of the Preliminary Staff Assessment (PSA) - Various	3/2/11		3/2/11
100	55060	Federal Aviation Administration Letter of Determination of "No Hazard to Air Navigation" – Traffic & Transportation	3/2/11		3/2/11

Exhibit	Docket Transaction Number	Brief Description	Offered	Refused	Admitted
101	55818	City of Palmdale's Comments on Volume 2 of the PHPP Preliminary Staff Assessment (Various) City of Palmdale's Comments on Volume 2 of the PHPP Preliminary Staff Assessment (Air Quality) City of Palmdale's Comments on Volume 2 of the PHPP Preliminary Staff Assessment (Biology)	3/2/11		3/2/11
102	55995	City of Palmdale's Supplemental Comments on Volumes 1 & 2 of the PHPP PSA (Various) City of Palmdale's Supplemental Comments on Volumes 1 & 2 of the PHPP PSA (Cultural Resources) City of Palmdale's Supplemental Comments on Volumes 1 & 2 of the PHPP PSA (Land Use) City of Palmdale's Supplemental Comments on Volumes 1 & 2 of the PHPP PSA (SWPPP and Water Resources) City of Palmdale's Supplemental Comments on Volumes 1 & 2 of the PHPP PSA (Traffic and Transportation) City of Palmdale's Supplemental Comments on Volumes 1 & 2 of the PHPP PSA (Visual Resources)	3/2/11		3/2/11
103	56148	E-mail Correspondence Between Representatives of SCE & Inland Energy on Behalf of Applicant - TSE	3/2/11		3/2/11
104	65456	Figures for the Assessment of Potential PHPP Impacts to Five Additional Archaeological Sites – Cultural Resources (This exhibit has been deemed confidential and is on file with Melissa Jones, CEC Executive Director. Only the application for confidential designation of this document is included with Applicant's exhibits)	3/2/11		3/2/11

Exhibit	Docket Transaction Number	Brief Description	Offered	Refused	Admitted
105	56467	Confidential Term Sheet for Proposed Contingent Forward Purchase and Sale of San Joaquin Emission Reduction Credits by and between the City of Palmdale and Calpine Energy Services, L.P., dated March 8, 2010 – Air Quality (This exhibit has been deemed confidential and is on file with Melissa Jones, CEC Executive Director. Only the application for confidential designation of this document is included with Applicant's exhibits)	3/2/11		3/2/11
106	56649	City of Palmdale's Supplemental Information and Comments on PSA (Various) City of Palmdale's Supplemental Information and Comments on PSA (Air Quality) City of Palmdale's Supplemental Information and Comments on PSA (Biological Resources) City of Palmdale's Supplemental Information and Comments on PSA (Water Resources)	3/2/11		3/2/11
107	57732	Applicant's Submittal of Contract Information for ERC's to Offset NOx and VOC Emissions – Air Quality	3/2/11		3/2/11
108	58013	Applicant's Special-Status Plants Pre-Construction Focused Survey Report –Biological Resources	3/2/11		3/2/11
109	58217	AVAQMD's Final Determination of Compliance	3/2/11		3/2/11
110	58594	Applicant's Response to Staff's Status Reports a) Report No. 8 (Air Quality) b) Report No. 8 (Alternatives) c) Report No. 8 (Traffic & Transportation)	3/2/11		3/2/11
111	58778	E-mail Report of Conversation Los Angeles County Sanitation District regarding Tertiary Treated Water Supplied to PHPP – Soil & Water	3/2/11		3/2/11
112	58903	Applicant's Comments to CEC Response to Additional Committee Questions Concerning Staff's Proposed Alternative T-Line Analysis (corrected version) - Alternatives	3/2/11		3/2/11

Exhibit	Docket Transaction Number	Brief Description	Offered	Refused	Admitted
113	59341	Antelope Valley Air Quality Management District's Letter to Mr. Rios re Palmdale Emission Reduction Credits	3/2/11		3/2/11
114	57079	PHPP, Email from USAF R. Cleaves to Mayor Ledford - Traffic/Transportation	3/2/11		3/2/11
115	57467	Antelope Valley AQMD Response to Staff's Comments on FDOC	3/2/11		3/2/11
116	59466	Applicant's Response to Final Staff Assessment - Various	3/2/11		3/2/11
117	60600	Declaration of Jim Allan re Cultural Resources	3/2/11		3/2/11
118	60600	Declaration of Matt Amalong re Biological Resources	3/2/11		3/2/11
119	60600	Declaration of Mike Arvidson re Waste Management, and Worker Safety	3/2/11		3/2/11
120	60600	Declaration of Arrie Bachrach re Project Description, Land Use, Facility Design, Alternatives, and Various	3/2/11		3/2/11
121	60600	Declaration of Howard Balentine re Traffic and Transportation, and Visual Resources	3/2/11		3/2/11
122	60600	Declaration of Tom Barnett re Project Description, Air Quality, Traffic and Transportation, Transmission System Engineering, Alternatives, and Various	3/2/11		3/2/11
123	60600	Declaration of Elizabeth Copley re Land Use, and Socioeconomic Resources	3/2/11		3/2/11
124	60600	Declaration of Cara Corsetti re Geology and Paleontology	3/2/11		3/2/11
125	60600	Declaration of Mike Flack re Soil & Water Resources	3/2/11		3/2/11
126	60600	Declaration of Rich Hamel re Air Quality, and Public Health	3/2/11		3/2/11
127	60600	Declaration of Roy Hauger re Soil & Water Resources, Traffic and Transportation	3/2/11		3/2/11
128	60600	Declaration of Sara Head re Project Description, Air Quality, Biological Resources, Land Use, Noise and Vibration, Socioeconomic Resources, Soil & Water Resources, Alternatives, and Various	3/2/11		3/2/11
129	60600	Declaration of Alice Karl re Biological Resources	3/2/11		3/2/11
130	60600	Declaration of Russ Kingsley re Air Quality, and Hazardous Materials	3/2/11		3/2/11

Exhibit	Docket Transaction Number	Brief Description	Offered	Refused	Admitted
131	60600	Declaration of Dave Larsen re Transmission Line Safety & Nuisance, Transmission System Engineering, and Alternatives	3/2/11		3/2/11
132	60600	Declaration of Phil Leitner re Biological Resources	3/2/11		3/2/11
133	60600	Declaration of Laurie Lile re Project Description, Land Use, and Soil & Water Resources	3/2/11		3/2/11
134	60600	Declaration of Carl Lindner re Waste Management	3/2/11		3/2/11
135	60600	Declaration of Merlyn Paulson re Visual Resources	3/2/11		3/2/11
136	60600	Declaration of Nick Ricono re Biological Resources	3/2/11		3/2/11
137	60600	Declaration of Carmen Caceres-Schnell re Soil & Water Resources, and Geology and Paleontology	3/2/11		3/2/11
138	60600	Declaration of Justin Westrum re Soil & Water Resources, and Geology and Paleontology	3/2/11		3/2/11
139	60600	Declaration of John Wilson re Traffic and Transportation	3/2/11		3/2/11
140	60600	Declaration of Greg Wolffe re Public Health	3/2/11		3/2/11
141	60600	Declaration of Roy Xu re Air Quality, and Soil & Water Resources	3/2/11		3/2/11
142	59504	Rebuttal Testimony of Laurie Lile re Alternatives	3/2/11		3/2/11
143	59540	Applicant's letter to U.S. EPA re: Supplemental Information for the Application for PSD Permit, dated July 21, 2010 (with enclosure)	3/2/11		3/2/11
144	59544	Applicant's Rebuttal to "Opening Testimony & Rebuttal to Applicant's Response to Final Staff Assessment by Center for Biological Diversity" – (Air Quality)	3/2/11		3/2/11
145	59656	Declaration of Sara Head to Sponsor New Exhibits	3/2/11		3/2/11
146	59853	PHPP PM10 Road Paving Map	3/2/11		3/2/11

STAFF EXHIBIT LIST 300 - 399

Exhibit	Docket Transaction Number	Brief Description	Offered	Refused	Admitted
300	59309	Final Staff Assessment dated December 22, 2010 and docketed December 22, 2010 (a) Air Quality (b) Biological Resources (c) Cultural Resources (d) Hazardous Materials (e) Land Use (f) Noise and Vibration (g) Public Health (h) Socioeconomic Resources (i) Soil and Water Resources (j) Traffic and Transportation (k) Transmission Line Safety and Nuisance (l) Visual Resources (m) Waste Management (n) Worker Safety (o) Facility Design (p) Geology and Paleontology (q) Power Plant Efficiency (r) Power Plant Reliability (s) Transmission System Engineering (t) Alternatives (u) Alternatives Appendix A (v) General Conditions	3/2/11		3/2/11

Exhibit	Docket Transaction Number	Brief Description	Offered	Refused	Admitted
301	59519	Staff's Rebuttal Testimony (a) Biological Resources (b) Cultural Resources (c) Geology and Paleontology (d) Hazardous Materials Management (e) Land Use (f) Public Health (g) Socioeconomics (h) Soil and Water Resources (i) Traffic and Transportation (j) Worker Safety and Fire Protection	3/2/11		3/2/11
302	58217	Antelope Valley Air Quality Management District Final Determination of Compliance, Palmdale Hybrid Power Project, May 13, 2010	3/2/11		3/2/11
303	59585	Reducing Predation by Common Ravens on Desert Tortoises in the Mojave and Colorado Deserts, USGS, July 18, 2002 (FSA 12/22/10)	3/2/11		3/2/11
304	59585	Environmental Assessment to Implement a Desert Tortoise Recovery Plan Task: Reduce Common Raven Predation on the Desert Tortoise, Final, USFWS, March 2008 (FSA 12/22/10)	3/2/11		3/2/11
305	59585	Region 8 Interim Guidelines for the Development of a Project-Specific Avian and Bat Protection Plan for Solar Energy Plants and Related Transmission Facilities, USFWS Pacific Southwest Region, September 2, 2010 (FSA 12/22/10)	3/2/11		3/2/11
306	59603	Energy Commission Staff's Prehearing Conference Statement (a) Visual Resources	3/2/11		3/2/11
307	59811	Joint stipulation of Energy Commission Staff and Applicant regarding changes to the Final Staff Assessment	3/2/11		3/2/11

Intervenor Center for Biological Diversity's Exhibits No. 400-499

Exhibit	Docket Transaction Number	Brief Description	Offered	Refused	Admitted
400	57740	Letter from Center for Biological Diversity Re: FDOC for the Palmdale Hybrid Power Project (08-AFC-9) dated July 22, 2010, and attachment letter re: Proposed Paving Emission Reduction Credits for Palmdale Hybrid Power Project, dated July 19, 2010, from Phyllis Fox, Ph.D., QEP, PE, BCEE, Consulting Engineer. (July 22, 2010)	3/2/11		3/2/11
401	59544	Center for Biological Diversity Opening Testimony and Rebuttal to Applicant's Response to the Final Staff Assessment (Filed January 19, 2011)	3/2/11		3/2/11
402	59604	Tholen Testimony (Filed February 4, 2011)	3/2/11		3/2/11
403	59884	Errata to Exhibit 402	3/2/11		3/2/11

Intervenor Desert Citizens Against Pollution - Exhibits No. 500-599

Exhibit	Docket Transaction Number	Brief Description	Offered	Refused	Admitted
500	59629	Comments from Desert Citizens Against Pollution, dated February 4, 2011.	3/2/11		3/2/11
501	59629	Green Chemistry Hazard Traits, Endpoints, and Other Relevant Data – Pre-Regulatory Draft for Discussion Purposes Only – Office of Environmental Health Hazard Assessment – California Environmental Protection Agency, dated August 10, 2010.	3/2/11		3/2/11
502	59629	Official Energy Commission reporter's transcript of the December 18, 2007, Evidentiary Hearing on the Eastshore Energy Center Project, Volume II, CEC Docket No. 06-AFC-6.	3/2/11		3/2/11
503	58861	Letter October 26, 2010 from U.S. EPA - AVAQMD	3/2/11		3/2/11
504	52602	July letter from U.S. EPA Comments of FDOC	3/2/11		3/2/11

BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION OF THE STATE OF CALIFORNIA
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APPLICATION FOR CERTIFICATION
For the *PALMDALE HYBRID POWER PROJECT*

Docket No. 08-AFC-9

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DECLARATION OF SERVICE

I, _____, declare that on, _____, I served and filed copies of the attached _____ dated _____. The original document, filed with the Docket Unit, is accompanied by a copy of the most recent Proof of Service list, located on the web page for this project at: [http://www.energy.ca.gov/sitingcases/palmdale/index.html]. The document has been sent to both the other parties in this proceeding (as shown on the Proof of Service list) and to the Commission's Docket Unit, in the following manner:

(*Check all that Apply*)

For service to all other parties:

_____ sent electronically to all email addresses on the Proof of Service list;

_____ by personal delivery;

_____ by delivering on this date, for mailing with the United States Postal Service with first-class postage thereon fully prepaid, to the name and address of the person served, for mailing that same day in the ordinary course of business; that the envelope was sealed and placed for collection and mailing on that date to those addresses NOT marked "email preferred."

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For filing with the Energy Commission:

___ sending an original paper copy and one electronic copy, mailed and emailed respectively, to the address below (preferred method);

OR

____depositing in the mail an original and 12 paper copies, as follows:

CALIFORNIA ENERGY COMMISSION
Attn: Docket No. 08-AFC-9
1516 Ninth Street, MS-4
Sacramento, CA 95814-5512
docket@energy.state.ca.us

I declare under penalty of perjury that the foregoing is true and correct, that I am employed in the county where this mailing occurred, and that I am over the age of 18 years and not a party to the proceeding.

_____