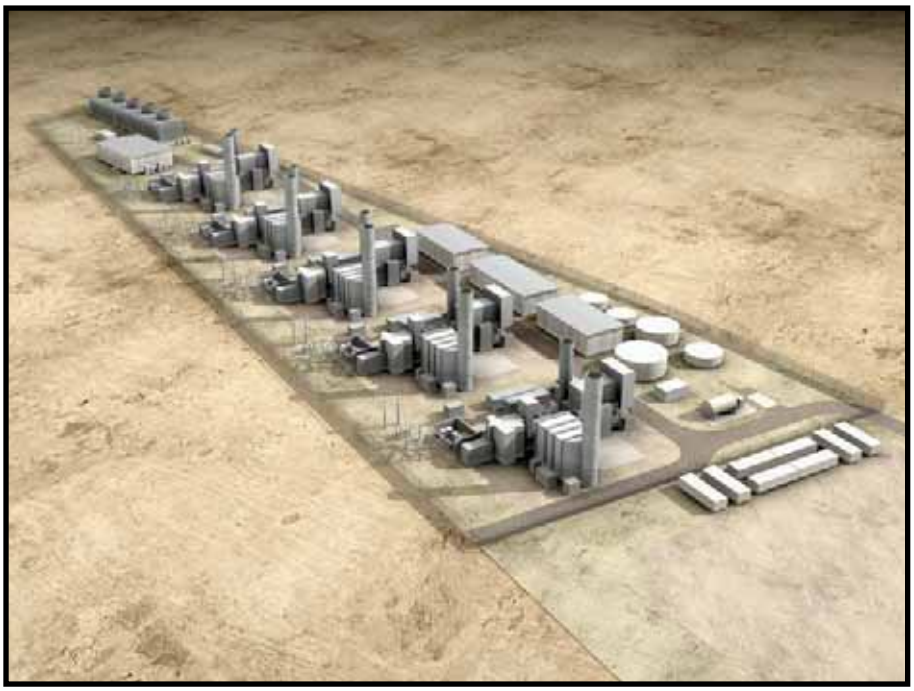
Preliminary Staff Assessment

WALNUT CREEK ENERGY PARK

Application For Certification (05-AFC-2)
Los Angeles County



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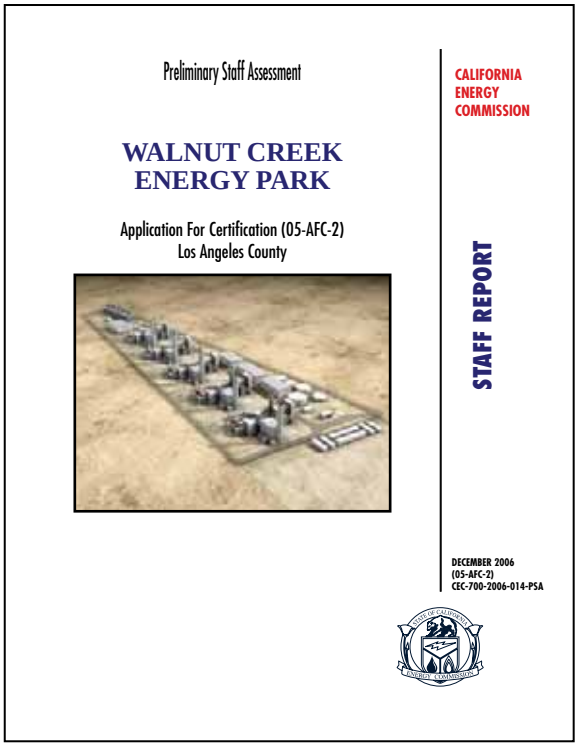

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WALNUT CREEK ENERGY PARK
(05-AFC-2)
PRELIMINARY STAFF ASSESSMENT

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EXECUTIVE SUMMARY

Lorne C. Prescott

INTRODUCTION

This Preliminary Staff Assessment (PSA) contains the California Energy Commission (Energy Commission) staff's independent analysis and preliminary recommendation on the Walnut Creek Energy Park (WCEP or project). The WCEP and related facilities, such as the natural gas line, reclaimed and potable water supply lines and transmission lines are under the Energy Commission's jurisdiction. When issuing a license, the Energy Commission acts as lead state agency under the California Environmental Quality Act, and its process is functionally equivalent to the preparation of an environmental impact report. After a 30-day public comment period on the PSA, staff will issue its testimony in the form of the Final Staff Assessment (FSA).

The Energy Commission staff has the responsibility to complete an independent assessment of the project's potential effects on the environment, the public's health and safety, and whether the project conforms with all applicable laws, ordinances, regulations and standards (LORS). The staff also recommends measures to mitigate potential significant adverse environmental effects and conditions for construction, operation and eventual closure of the project, if approved by the Energy Commission.

This PSA is not the decision document for these proceedings nor does it contain findings of the Energy Commission related to environmental impacts or the project's compliance with local/state/federal legal requirements. The FSA will serve as staff's testimony in evidentiary hearings to be held by the Committee of two Commissioners who are hearing this case. The Committee will hold evidentiary hearings and will consider the recommendations presented by staff, the applicant, all parties, government agencies, and the public prior to proposing its decision. The Energy Commission will make the final decision, including findings, after the Committee's publication of its proposed decision.

PROJECT LOCATION AND DESCRIPTION

On November 22, 2005, Walnut Creek Energy, LLC (WCE), a wholly-owned subsidiary of Edison Mission Energy (EME), filed an Application for Certification (AFC) for the Walnut Creek Energy Park (WCEP), seeking approval from the California Energy Commission to construct and operate a nominal 500 megawatt (MW) simple-cycle power plant in the City of Industry. On February 1, 2006, the Energy Commission accepted the AFC (05-AFC-2) with supplemental information as complete. This determination initiated Energy Commission staff's independent analysis of the proposed project. The Commission found the project to be data adequate at its Business Meeting on February 1, 2006.

The proposed WCEP site is located at 911 Bixby Drive in the City of Industry, Los Angeles County. The project site is an 11.48-acre parcel owned by the City of Industry Urban Development Agency (Development Agency). The site is currently occupied by a warehouse which is approximately 32 feet tall and 1100 feet long warehouse, which is

presently used by Coastal Group/ARC for electronic waste collection and recycling activities. The Development Agency has designated the parcel for redevelopment and the City of Industry plans to demolish the warehouse to make way for a higher-valued industrial use (EME 2005a, p. 2-1). EME has entered into a lease option agreement for the project site and will take physical possession of the site from the Development Agency after the warehouse has been demolished.

The WCEP site is located within an industrial area that includes warehousing, manufacturing and transportation (railroad and intermodal rail/truck yard) uses, electric transmission lines, the San Jose Creek Flood Control Channel, and the Southern California Edison (SCE) Walnut Substation. Residential areas are located to the north, and in unincorporated areas to the south.

Natural gas for the project would be supplied to the WCEP by Southern California Gas Company via a 14-inch diameter pipeline connection to an existing 30-inch diameter high-pressure gas pipeline that runs in a utility easement within the WCEP parcel. The WCEP would be connected to the SCE electrical system at the existing Walnut Substation which is located approximately 250 feet south of the project site. This connection would require construction of approximately 1200 feet of new 230-kilovolt transmission line and five offsite transmission towers, which would be located within SCE's transmission line corridor.

The WCEP would use tertiary-treated reclaimed water blended with impaired well water from the Rowland Water District's (RWD) San Jose Creek Wastewater Reclamation Plant. Impaired well water would be supplied from RWD's two wells which discharge into the RWD reclaimed water conveyance system. Blended reclaimed and impaired water will be used for all cooling and process water demand, and landscape irrigation. This water would be supplied to the WCEP site via an approximately 30-foot, 12-inch diameter pipeline connection to an existing 12-inch diameter reclaimed water pipeline at the corner of Bixby Drive and Chestnut Street. Potable water will serve domestic and sanitary purposes, and will be provided via a 4-inch diameter pipeline extending 30 feet beyond the project boundary.

The project is proposed to be operational in the August of 2008.

A more complete description of the project is contained in the **PROJECT DESCRIPTION** section of this PSA.

PUBLIC AND AGENCY COORDINATION

The Energy Commission's WCEP Committee conducted an Informational Hearing and Site Visit on February 28, 2006. This hearing provided a forum for the public to learn about the project, the Energy Commission's process, ask questions, and voice their opinions regarding the proposed power plant.

When the AFC was filed, staff mailed a notice to all property owners adjacent to the proposed project informing them of the proposal, and the Energy Commission's review

process. Staff's notice also informed the property owners of the methods available for participating in the Commission's review of the proposal.

Staff conducted a workshop on April 25, 2006 to discuss the applicant's responses to staff's data requests and to work toward resolving issues. This workshop was open to all interested agencies and members of the public.

Staff also coordinated their review of the WCEP with relevant local, state and federal agencies, such as the City of Industry, Los Angeles County, the California Independent System Operator, the South Coast Air Quality Management District, the U.S. Fish and Wildlife Service, and U.S. Environmental Protection Agency. A number of these agencies provided responses and comments concerning the project which were included in staff's analysis. This PSA provides agencies and the public the opportunity to review the Energy Commission staff's analysis of the proposed project.

Written comments on this PSA will be taken into consideration in preparing the Final Staff Assessment (FSA).

ENVIRONMENTAL JUSTICE

EPA guidelines on environmental justice state that if 50 percent of the population affected by a project has minority or low-income status, it must be determined if these populations are exposed to disproportionately high and adverse human health or environmental impacts.

Staff has reviewed Census 2000 data that shows the minority population by census block is 78.70 percent and 88.53 percent which exceeds staff's threshold of greater than fifty percent within a six-mile and one-mile radius of the proposed WCEP (**See Socioeconomics Figure 1**). The same data set shows that the below poverty population is 13.0 percent within the six-mile radius and 16.2 percent within the one-mile radius. Because staff has determined there is a minority population within the six-mile radius, staff has incorporated an analysis of environmental justice concerns in its analysis of technical areas.

When a minority or low-income population is identified, staff in the technical areas of air quality, public health, hazardous materials, noise, water, waste, traffic and transportation, visual resources, land use, socioeconomics, and transmission line safety and nuisance must consider possible impacts on the minority/low-income population as part of their analysis. This environmental justice analysis consists of identification of significant impacts (if any), identification of mitigation, and determination of whether there is a disproportionate impact if an unmitigated significant impact has been identified.

With the exception of air quality and noise, staff has concluded that the project does not result in any significant unmitigated impacts to an environmental justice population. A complete analysis of the potential environmental justice impacts of the proposed project, including air quality and noise, will be presented in the Final Staff Assessment.

STAFF'S ASSESSMENT

Each technical area section of the PSA contains a discussion of impacts, staff's preliminary conclusions and recommendations, and, where appropriate, mitigation measures and conditions of certification. The PSA includes staff's assessments of:

- the environmental setting of the proposal;
- impacts on public health and safety, and measures proposed to mitigate these impacts;
- environmental impacts, and measures proposed to mitigate these impacts;
- the engineering design of the proposed facility, and engineering measures proposed to ensure the project can be constructed and operated safely and reliably;
- project closure;
- project alternatives; and
- compliance of the project with all applicable laws, ordinances, regulations and standards (LORS) during construction and operation.

OVERVIEW OF STAFF'S CONCLUSIONS

Staff's preliminary analysis indicates that, with the exception of Air Quality and Noise, the project's environmental impacts can be mitigated to levels of less than significant, and that the project would conform with all applicable LORS. Staff's Air Quality and Noise conclusions are currently incomplete pending discussion of potential impacts and mitigation options in these areas, with the applicant and other interested parties. Staff will present a complete analysis, and recommendation, in the Final Staff Assessment.

The following table summarizes the potential environmental impacts and LORS compliance for each technical area.

Technical Discipline	Environmental / System Impact	LORS Conformance
Air Quality	Currently Incomplete	Currently Incomplete
Biological Resources	No Impact	Yes
Cultural Resources	No Impact	Yes
Power Plant Efficiency	No Impact	N/A
Power Plant Reliability	No Impact	N/A
Facility Design	Impacts Mitigated	Yes
Geology	Impacts Mitigated	Yes
Hazardous Materials	Impacts Mitigated	Yes
Land Use	Impacts Mitigated	Yes
Noise	Currently Incomplete	Currently Incomplete
Public Health	Impacts Mitigated	Yes
Socioeconomics	No Impact	Yes
Traffic and Transportation	Impacts Mitigated	Yes
Transmission Line Safety	Impacts Mitigated	Yes
Transmission System Engineering	Impacts Mitigated	Yes
Visual Resources	Impacts Mitigated	Yes
Waste Management	Impacts Mitigated	Yes
Water and Soils	Impacts Mitigated	Yes
Worker Safety	Impacts Mitigated	Yes

Air Quality

At this time, Energy Commission Staff's analysis has determined the WCEP applicant has not secured or identified sufficient emission reduction credits to offset the air quality emission impacts of sulfur dioxide (SO_2), volatile organic compound (VOC), particulate matter less than 10 microns in diameter (PM10) and particulate matter less than 2.5 microns in diameter (PM2.5). Unmitigated, these pollutants have the potential to cause significant environmental impacts. Staff believes construction and operation of the WCEP facility will contribute to an existing exceedance of the PM10 and PM2.5 state and federal ambient air quality standards. Staff has determined the potential impacts of PM10 and PM2.5 are greater to the local area surrounding the project site, than to the broader Los Angeles County region.

Staff recommends that the applicant investigate the potential for local mitigation measures to mitigate impacts of PM10/PM2.5 that would occur within 10 kilometers of the project site. Staff also recommends that the funds paid by the applicant to the South Coast Air Quality Management District for the Priority Reserve Credits be directed to mitigation programs and measures near the project site to offset localized impacts from PM10 and PM2.5 emissions from the facility.

Staff's summary of the mitigation needs for each pollutant and the proposed Conditions of Certification incorporate the requirements that will ensure the project's air quality impacts are mitigated to a level that is less than significant.

Noise

At this time, Energy Commission staff cannot conclude that the WCEP can be built to comply with all applicable noise laws, ordinances, regulations and standards, and that it will not cause significant adverse impacts under CEQA. Operation of the WCEP will likely result in nighttime noise levels exceeding the LORS and will likely result in significant impacts at the noise-sensitive residential receptors. In addition to the applicant's proposed mitigation measures, staff recommends that the applicant identify additional feasible noise mitigation measures that would allow the WCEP to comply with the Los Angeles County Noise Ordinance and CEQA requirements. Incorporation of the requirements embodied in staff's proposed conditions of certification would ensure that all necessary mitigation would be employed to reduce the noise levels to those consistent with the LORS. The incorporation of these requirements would also reduce the noise impacts to less than significant. If the applicant adheres to the requirements in staff's conditions of certification, the WCEP can be constructed and operated in compliance with all LORS.

CONCLUSION AND RECOMMENDATIONS

With the exceptions noted above for Air Quality and Noise the project would comply with LORS and not cause any unmitigated adverse significant impacts to the environment, public health and safety, and the transmission system, provided the recommended Conditions of Certification are implemented. As noted above, staff needs additional information in the technical area of Air Quality in order to complete an analysis of the potential impacts in this technical area.

Staff will notice and conduct one or more workshops in January or February 2006, for the purpose of receiving public comment on this PSA, and to resolve any remaining issues prior to release of the Final Staff Assessment.

INTRODUCTION

Lorne C. Prescott

PURPOSE OF THIS REPORT

The Preliminary Staff Assessment (PSA) presents the California Energy Commission (Energy Commission) staff's independent analysis of the Walnut Creek Energy Project (WCEP) Application for Certification (AFC). This PSA is a staff document. It is neither a Committee document, nor a draft decision. The PSA describes the following:

- the existing environmental setting;
- the proposed project;
- whether the facilities can be constructed and operated safely and reliably in accordance with applicable laws, ordinances, regulations and standards (LORS);
- the environmental consequences of the project including potential public health and safety impacts;
- cumulative analysis of the potential impacts of the project, along with potential impacts from other existing and known planned developments;
- mitigation measures proposed by the applicant, staff, interested agencies and intervenors that may lessen or eliminate potential impacts;
- the proposed conditions under which the project should be constructed and operated, if it is certified;
- project alternatives; and
- project closure requirements.

The 19 technical area analyses contained in this PSA are based upon information from: 1) the AFC; 2) subsequent submittals; 3) responses to data requests; 4) supplementary information from local and state agencies and interested individuals; 5) existing documents and publications; and 6) independent field studies and research. The analyses for most technical areas include discussions of proposed conditions of certification. Each proposed condition of certification is followed by a proposed means of "verification." The verification is not part of the proposed condition, but is the Energy Commission Compliance Unit's method of ensuring post-certification compliance with adopted requirements.

The Energy Commission staff's analyses were prepared in accordance with Public Resources Code section 25500 et seq. and Title 20, California Code of Regulation section 1701 et seq., and the California Environmental Quality Act (CEQA) (Pub. Resources Code, § 21000 et seq.).

ORGANIZATION OF THE STAFF ASSESSMENT

The PSA contains an Executive Summary, Introduction, Project Description, and Project Alternatives. The environmental, engineering, and public health and safety analysis of the proposed project is contained in a discussion of 19 technical areas. Each technical area is addressed in a separate chapter as follows: air quality, public health, worker safety and fire protection, transmission line safety, hazardous material management, waste management, land use, traffic and transportation, noise, visual resources, cultural resources, socioeconomics, biological resources, soil and water resources, geological and paleontological resources, facility design, power plant reliability, power plant efficiency, and transmission system engineering. These chapters are followed by a discussion of facility closure, project construction and operation compliance monitoring plans, and a list of staff that assisted in preparing this report.

Each of the 19 technical area assessments includes a discussion of:

- laws, ordinances, regulations and standards (LORS);
- the regional and site-specific setting;
- project specific and cumulative impacts;
- mitigation measures;
- closure requirements;
- conclusions and recommendations; and
- conditions of certification for both construction and operation (if applicable).

ENERGY COMMISSION SITING PROCESS

The California Energy Commission has the exclusive authority to certify the construction and operation of thermal electric power plants 50 megawatts (MW) or larger. The Energy Commission certification is in lieu of any permit required by state, regional, or local agencies, and federal agencies to the extent permitted by federal law (Pub. Resources Code, §25500). The Energy Commission must review power plant AFCs to assess potential environmental and public health and safety impacts, potential measures to mitigate those impacts (Pub. Resources Code, §25519), and compliance with applicable governmental laws and standards (Pub. Resources Code, §25523 (d)).

The Energy Commission's siting regulations require staff to independently review the AFC and assess whether the list of environmental impacts it contains is complete, and whether additional or more effective mitigation measures are necessary, feasible and available (Cal. Code Regs., tit. 20, §§ 1742 and 1742.5(a)). Staff's independent review is presented in this report (Cal. Code Regs., tit. 20 , §1742.5).

In addition, staff must assess the completeness and adequacy of the health and safety standards, and the reliability of power plant operations (Cal. Code Regs., tit. 20, § 1743(b)). Staff is required to coordinate with other agencies to ensure that applicable

laws, ordinances, regulations and standards are met (Cal. Code Regs., tit. 20, § 1744(b)).

Staff conducts its environmental analysis in accordance with the requirements of CEQA. No Environmental Impact Report (EIR) is required because the Energy Commission's site certification program has been certified by the Resources Agency (Pub. Resources Code, §21080.5 and Cal. Code Regs., tit. 14, §15251 (k)). The Energy Commission acts in the role of the CEQA lead agency and is subject to all other applicable portions of CEQA.

Staff typically prepares both a preliminary and final staff assessment. The Preliminary Staff Assessment (PSA) presents for the applicant, intervenors, agencies, other interested parties and members of the public, the staff's preliminary analysis, conclusions, and recommendations.

Staff uses the PSA to resolve issues between the parties and to narrow the scope of adjudicated issues in the evidentiary hearings. During the period between publishing the PSA and the Final Staff Assessment (FSA), staff will conduct one or more workshops to discuss their findings, proposed mitigation, and proposed compliance monitoring requirements. Based on the workshops and written comments, staff will refine their analysis, correct any errors, and finalize conditions of certification to reflect areas where staff has reached agreement with the parties. This refined analysis, along with responses to written comments on the PSA, will be published in the FSA. The FSA serves as staff's testimony on a proposal.

This staff assessment is only one piece of evidence that will be considered by the Committee (two Commissioners who have been assigned to this project) in reaching a decision on whether or not to recommend that the full Energy Commission approve the proposed project. At the public hearings, all parties will be afforded an opportunity to present evidence and to rebut the testimony of other parties, thereby creating a hearing record on which a decision on the project can be based. The hearing before the Committee also allows all parties to argue their positions on disputed matters, if any, and it provides a forum for the Committee to receive comments from the public and other governmental agencies.

Following the hearings, the Committee's recommendation to the full Energy Commission on whether or not to approve the proposed project will be contained in a document entitled the Presiding Members' Proposed Decision (PMPD). Following publication, the PMPD is circulated in order to receive written public comments. At the conclusion of the comment period, the Committee may prepare a revised PMPD. A revised PMPD will be circulated for a comment period to be determined by the Committee. At the close of the comment period for the revised PMPD, the PMPD is submitted to the full Energy Commission for a decision. Within 30 days of the Energy Commission decision, any intervenor may request that the Energy Commission reconsider its decision.

A Compliance Monitoring Plan and General Conditions will be assembled from conditions contained in the FSA and other evidence presented at the hearings. The Compliance Monitoring Plan and General Conditions will be presented in the PMPD.

Commission staff's implementation of the plan ensures that a certified facility is constructed, operated, and closed in compliance with the conditions adopted by the Energy Commission. Staff's proposed description of the contents of the Compliance Monitoring Plan and proposed General Conditions are included in the **GENERAL CONDITIONS** section of this PSA.

Agency Coordination

As noted above, the Energy Commission certification is in lieu of any permit required by state, regional, or local agencies, and federal agencies to the extent permitted by federal law (Pub. Resources Code, § 25500). However, the Commission typically seeks comments from and works closely with other regulatory agencies that administer LORS that may be applicable to proposed projects. These agencies include the U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service, California Department of Fish and Game, and the California Air Resources Board.

PROJECT DESCRIPTION

Lorne C. Prescott

INTRODUCTION

On November 22, 2005, Walnut Creek Energy, LLC (WCE), a wholly-owned subsidiary of Edison Mission Energy (EME), filed an Application for Certification (AFC) for the Walnut Creek Energy Park (WCEP), seeking approval from the California Energy Commission to construct and operate a nominal 500 megawatt (MW) simple-cycle power plant in the City of Industry. On February 1, 2006, the Energy Commission accepted the AFC (05-AFC-2) with supplemental information as complete. This determination initiated Energy Commission staff's independent analysis of the proposed project.

PURPOSE OF PROJECT

The WCEP is designed as a peaking facility to meet electric generation load in Southern California during periods of high demand, which generally occur during daytime hours, and more frequently during the summer than other portions of the year. Because the WCEP would use turbine generators that provide faster startup times and are more efficient than previous peaking generators, the power plant would provide greater flexibility and efficiency than typical peaking facilities. (EME 2005a, p. 2-19). The project is expected to have an annual capacity factor of approximately 20 to 40 percent, depending on weather-related customer demand, load growth, hydroelectric supplies, generating unit retirements and replacements, the level of generating unit and transmission outages, and other factors.

PROJECT LOCATION

The proposed WCEP site is located at 911 Bixby Drive in the City of Industry, Los Angeles County. The project site is an 11.48-acre parcel owned by the City of Industry Urban Development Agency (Development Agency). The site is currently occupied by a warehouse with an approximate height of 32 feet and length of 1100 feet, which is presently used by Coastal Group/ARC for electronic waste collection and recycling activities. The Development Agency has designated the parcel for redevelopment and the City of Industry plans to demolish the warehouse to make way for a higher-valued industrial use (EME 2005a, p. 2-1). EME has entered into a lease option agreement for the project site. The lease option will be assigned to and exercised by WCE, who will take physical possession of the site from the Development Agency after the warehouse has been demolished.

On February 27, 2006, the City of Industry filed a Notice of Determination with the Los Angeles County Clerk providing notice that the City Council has approved the proposed demolition of the warehouse and has prepared an Initial Study and adopted a Negative Declaration pursuant to the California Environmental Quality Act (CEQA). The demolition would entail removal of the 250,695-square foot building and all pavement and vegetation occupying the site. The Energy Commission has no approval authority

related to the demolition of the warehouse. However, because it will be torn down to allow the power plant to be built on the site, staff has determined that the demolition is part of the "whole of an action, which has a potential for resulting in either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment" (CEQA Guidelines, Cal. Code Regs., tit. 14, § 15378). Therefore, Energy Commission staff has considered the effects of the demolition in our analysis of the impacts of the proposed power project, deferring to the City of Industry's analysis where appropriate.

The WCEP site is located within an industrial area that includes warehousing, manufacturing and transportation (railroad and intermodal rail/truck yard) uses, electric transmission lines, the San Jose Creek Flood Control Channel, and the Southern California Edison (SCE) Walnut Substation. Residential areas are located in the City of La Puente to the north, beyond the industrial areas that are adjacent to the project site, and in unincorporated areas of the Los Angeles County community of Hacienda Heights to the south. The nearest residence is located approximately 0.21 mile south of the site in Hacienda Heights (EME 2005a, Figure 8.6-1). There are 13 schools within a one-mile radius of the project site; the closest is Glenelder Elementary School, which is located 0.26-mile to the southwest (EME 2005a, p. 8.6-1).

Project Description Figure 1 shows the regional setting for the proposed project.

POWER PLANT EQUIPMENT AND LINEAR FACILITIES

The WCEP would be a nominal 500 MW simple-cycle power plant, consisting of five General Electric LMS100 natural gas-fired combustion turbine-generators, each equipped with water injection capability to reduce nitrogen oxide (NOx) emissions, selective catalytic reduction equipment containing catalysts to further reduce NOx emissions, and an oxidation catalyst to reduce carbon monoxide emissions. Auxiliary equipment will include an inlet air filter house with evaporative cooler, turbine inter-cooler, 5-cell mechanical-draft cooling tower and circulating water pumps, natural gas compressor, generator step-up and auxiliary transformers, and water storage tanks. The tallest components of the project would be the five, 90-foot-tall combustion turbine-generator exhaust stacks. The cooling tower structure would be 39 feet tall and 211 feet long. **Project Description Figure 3** shows the general arrangement and layout of the facility. **Project Description Figure 4** provides an architectural rendering of the proposed facility.

ELECTRIC TRANSMISSION

The WCEP would be connected to the SCE electrical system at the existing Walnut Substation which is located approximately 250 feet south of the project site. This connection would be made via one of two proposed line options that would terminate at the northwest corner of the substation. Each of the proposed line options would require construction of approximately 1200 feet of new 230-kilovolt transmission line and five offsite transmission towers, which would be located within SCE's transmission line corridor. **Project Description Figure 2** depicts the route of the proposed electric transmission line. The transmission line towers would be 90 feet tall.

NATURAL GAS SUPPLY

Natural gas would be supplied to the WCEP by Southern California Gas Company via a 14-inch-diameter pipeline connection to an existing 30-inch-diameter high-pressure gas pipeline that runs in a utility easement within the WCEP parcel.

WATER SUPPLY

The WCEP would use reclaimed water for cooling purposes and other power plant processes and for site landscape irrigation. The Rowland Water District would supply, on average, approximately 827 acre-feet per year of reclaimed water for the project from the San Jose Creek Wastewater Reclamation Plant. This water would be supplied to the WCEP site via an approximately 30-foot long, 12-inch diameter pipeline connection to an existing 12-inch-diameter reclaimed water pipeline at the corner of Bixby Drive and Chestnut Street.

Potable water for drinking and sanitary uses would be provided through a 30-foot-long, 4-inch-diameter pipeline connection to the Rowland Water District's 12-inch-diameter water main in Bixby Drive, immediately adjacent to the project site.

WASTEWATER DISCHARGE

Sanitary wastewater would be discharged to the Los Angeles County Sanitation District No. 21, Section 3, 48-inch-diameter trunk sewer line that runs in a utility easement within the project site. Process wastewater would also be discharged to this sanitary sewer line through a 4-inch-diameter connecting pipe to the trunk sewer line.

PROJECT CONSTRUCTION AND OPERATION

The WCEP is estimated to have a capital cost ranging from $220 to $280 million (EME 2005a, p. 8.10-15). The project is expected to take 12 months to construct and could begin commercial operation as early as August 2008. The construction workforce would average 220 workers per month, and would peak during the eighth month with 408 workers onsite. Storage of construction materials and equipment and construction worker parking would occur within the project site boundaries and SCE easement to the north of the site. The WCEP would be run by two operators per shift, plus two relief operators and one maintenance technician, for a total staff of nine. The power plant would be capable of being dispatched throughout the year, but is expected to operate primarily during the utility-defined on-peak and mid-peak periods. The planned life of the generating facility is 30 years, but it could be operated longer if still economically viable.

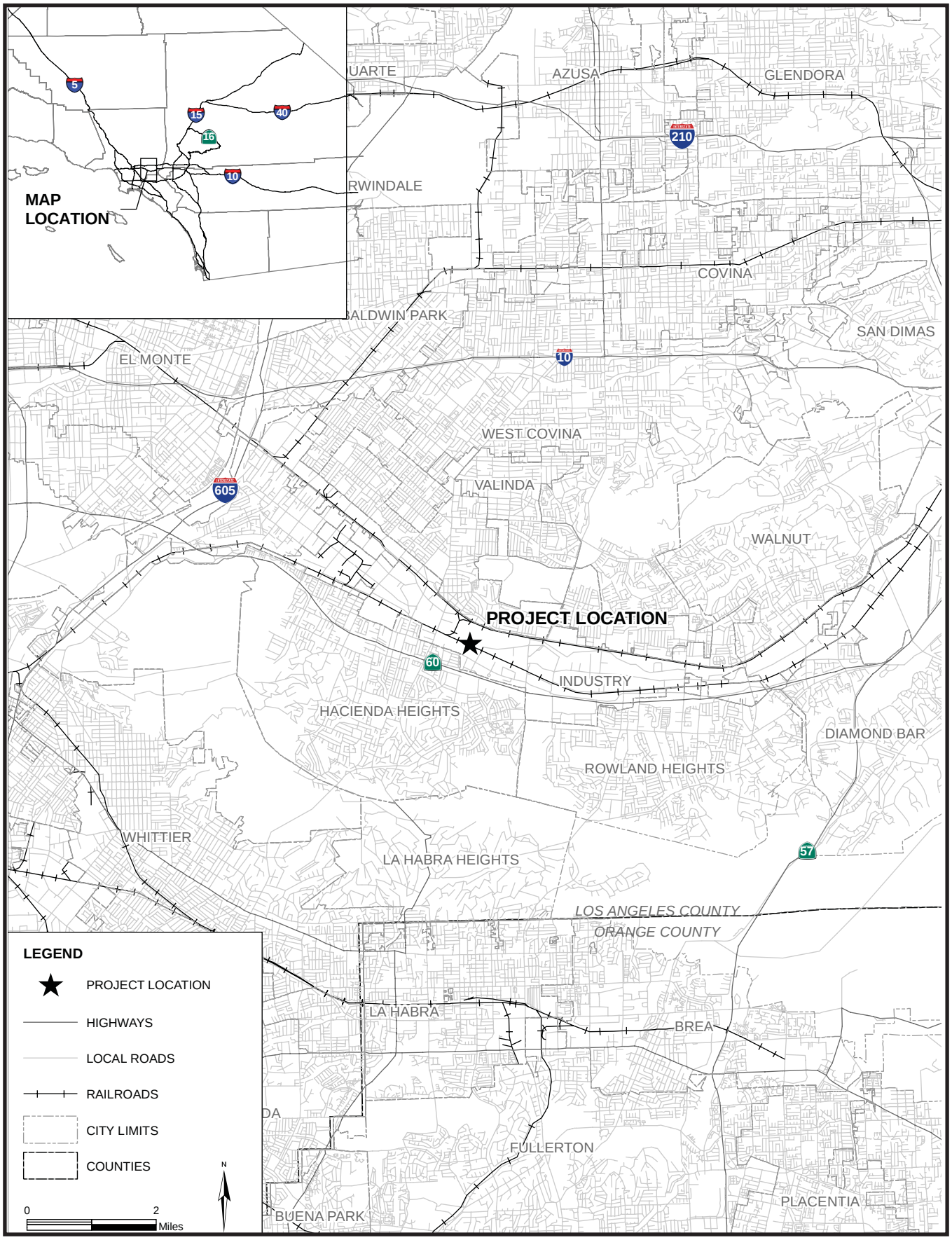
FACILITY CLOSURE

The WCEP will be designed for an operating life of 30 years. 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 setting for this project does not appear 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 which provide the flexibility to deal with the specific situation and project setting at the time of closure. Laws, ordinances, regulations and standards pertaining to facility closure are identified in the technical sections of this assessment. Facility closure will be consistent with laws, ordinances, regulations and standards in effect at the time of closure.

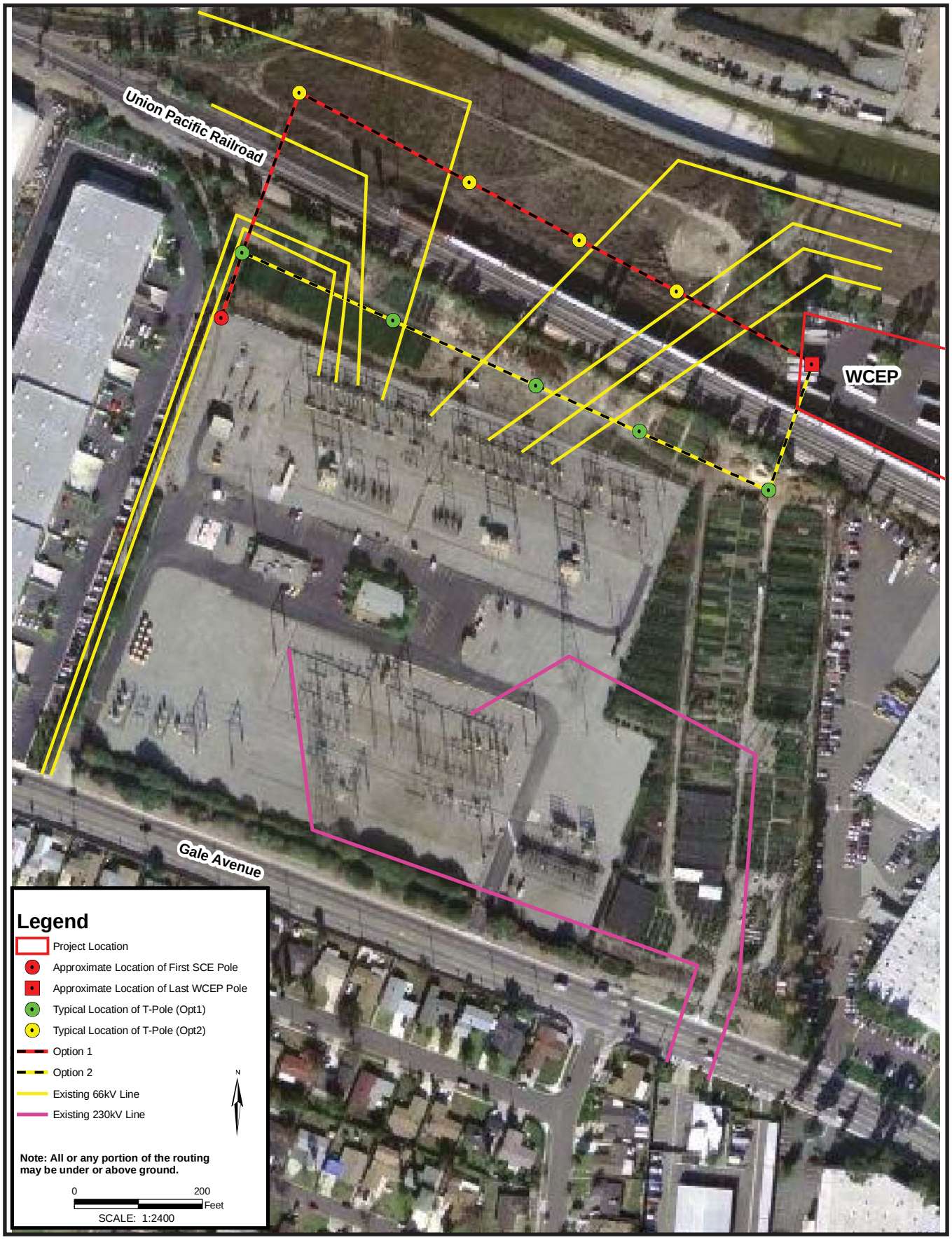
PROJECT DESCRIPTION - FIGURE 1
Walnut Creek Energy Park - Regional Setting



CALIFORNIA ENERGY COMMISSION, SYSTEMS ASSESSMENT & FACILITIES SITING DIVISION, DECEMBER 2006
SOURCE: AFC Figure 1.1-2

PROJECT DESCRIPTION - FIGURE 2

Walnut Creek Energy Park - Proposed Transmission Line

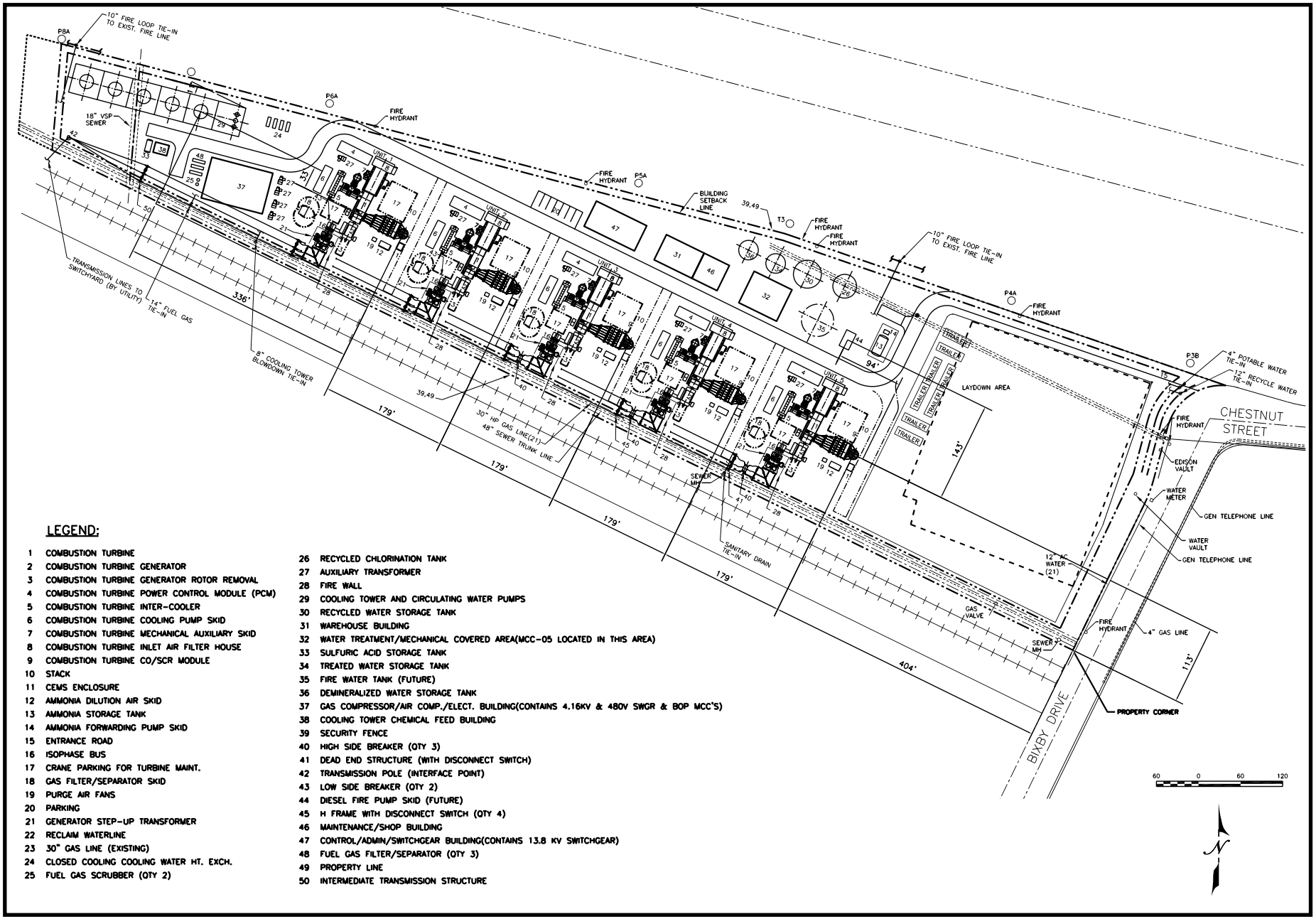


CALIFORNIA ENERGY COMMISSION, SYSTEMS ASSESSMENT & FACILITIES SITING DIVISION, DECEMBER 2006

SOURCE: Supplement IV - Figure WSQ-11

PROJECT DESCRIPTION - FIGURE 3

Walnut Creek Energy Park - General Arrangement and Layout



LEGEND:

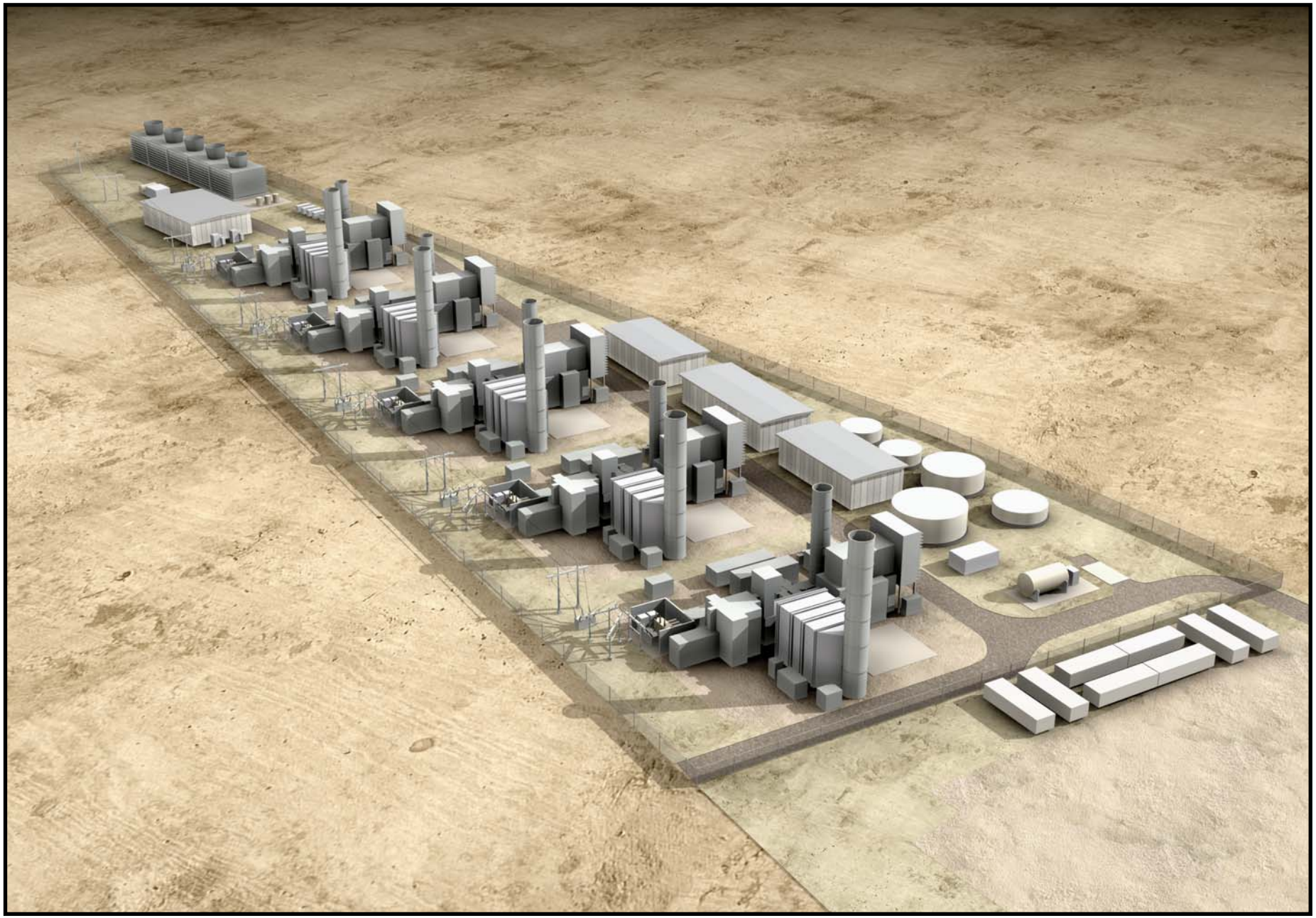
1 COMBUSTION TURBINE
2 COMBUSTION TURBINE GENERATOR
3 COMBUSTION TURBINE GENERATOR ROTOR REMOVAL
4 COMBUSTION TURBINE POWER CONTROL MODULE (PCM)
5 COMBUSTION TURBINE INTER-COOLER
6 COMBUSTION TURBINE COOLING PUMP SKID
7 COMBUSTION TURBINE MECHANICAL AUXILIARY SKID
8 COMBUSTION TURBINE INLET AIR FILTER HOUSE
9 COMBUSTION TURBINE CO/SCR MODULE
10 STACK
11 CEMS ENCLOSURE
12 AMMONIA DILUTION AIR SKID
13 AMMONIA STORAGE TANK
14 AMMONIA FORWARDING PUMP SKID
15 ENTRANCE ROAD
16 ISOPHASE BUS
17 CRANE PARKING FOR TURBINE MAINT.
18 GAS FILTER/SEPARATOR SKID
19 PURGE AIR FANS
20 PARKING
21 GENERATOR STEP-UP TRANSFORMER
22 RECLAIM WATERLINE
23 30" GAS LINE (EXISTING)
24 CLOSED COOLING COOLING WATER HT. EXCH.
25 FUEL GAS SCRUBBER (QTY 2)
26 RECYCLED CHLORINATION TANK
27 AUXILIARY TRANSFORMER
28 FIRE WALL
29 COOLING TOWER AND CIRCULATING WATER PUMPS
30 RECYCLED WATER STORAGE TANK
31 WAREHOUSE BUILDING
32 WATER TREATMENT/MECHANICAL COVERED AREA(MCC-05 LOCATED IN THIS AREA)
33 SULFURIC ACID STORAGE TANK
34 TREATED WATER STORAGE TANK
35 FIRE WATER TANK (FUTURE)
36 DEMINERALIZED WATER STORAGE TANK
37 GAS COMPRESSOR/AIR COMP./ELECT. BUILDING(CONTAINS 4.16KV & 480V SWGR & BOP MCC'S)
38 COOLING TOWER CHEMICAL FEED BUILDING
39 SECURITY FENCE
40 HIGH SIDE BREAKER (QTY 3)
41 DEAD END STRUCTURE (WITH DISCONNECT SWITCH)
42 TRANSMISSION POLE (INTERFACE POINT)
43 LOW SIDE BREAKER (QTY 2)
44 DIESEL FIRE PUMP SKID (FUTURE)
45 H FRAME WITH DISCONNECT SWITCH (QTY 4)
46 MAINTENANCE/SHOP BUILDING
47 CONTROL/ADMIN/SWITCHGEAR BUILDING(CONTAINS 13.8 KV SWITCHGEAR)
48 FUEL GAS FILTER/SEPARATOR (QTY 3)
49 PROPERTY LINE
50 INTERMEDIATE TRANSMISSION STRUCTURE

CALIFORNIA ENERGY COMMISSION, SYSTEMS ASSESSMENT & FACILITIES SITING DIVISION, DECEMBER 2006

SOURCE: AFC Figure 2.1-1

PROJECT DESCRIPTION - FIGURE 4

Walnut Creek Energy Park - Architectural Rending of Proposed Facility



CALIFORNIA ENERGY COMMISSION, SYSTEMS ASSESSMENT & FACILITIES SITING DIVISION, DECEMBER 2006

SOURCE: AFC Figure 1.1-1

ENVIRONMENTAL ASSESSMENT

AIR QUALITY

Joseph M. Loyer

SUMMARY OF CONCLUSIONS

At this time, staff's analysis indicates the Walnut Creek Energy Project applicant has not secured or identified sufficient emission reduction credits to offset the air quality emission impacts of nitrogen oxides (NOx), sulfur dioxide (SO_2), volatile organic compound (VOC), particulate matter less than 10 microns in diameter (PM10) and particulate matter less than 2.5 microns in diameter (PM2.5). Unmitigated, these pollutants have the potential to cause significant environmental impacts. With respect to VOC, the applicant has secured 226 lbs/day of emission reduction credits which more than satisfies the South Coast Air Quality Management District New Source Review requirements. However, in staff's opinion the applicant is 3.2 lbs/day short of full mitigation of the Walnut Creek Energy Project VOC emission impacts. With respect to PM10/PM2.5 in particular, Staff recommends that the applicant investigate the potential for local mitigation measures that either the applicant or South Coast Air Quality Management District may administer to mitigate local impacts of PM10/PM2.5 that would occur within 10 kilometers of the project site. We also suggest that the applicant work with the SCAQMD to earmark the funds the applicant will pay the South Coast Air Quality Management District for the Priority Reserve Credits to fund mitigation programs and measures near the project site to offset localized impacts from PM10/PM2.5 emissions from the facility.

INTRODUCTION

This analysis evaluates the expected air quality impacts of the emissions of criteria air pollutants due to Walnut Creek Energy, LLC's (WCE) proposed construction and operation of the Walnut Creek Energy Project (WCEP). Criteria air pollutants are defined as those air contaminants for which the state and/or federal government has established an ambient air quality standard to protect public health. The criteria pollutants analyzed are nitrogen dioxide (NO_2), SO_2, carbon monoxide (CO), ozone (O_3), PM10, and PM2.5. In addition, VOC emissions are analyzed because they are precursors to both O_3 and particulate matter. Because NO_2 and SO_2 readily react in the atmosphere to form other oxides of nitrogen and sulfur respectively, the terms nitrogen oxides (NOx) and sulfur oxides (SOx) are also used when discussing these two pollutants.

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

- Whether the WCEP is likely to conform with applicable Federal, State and South Coast Air Quality Management District (SCAQMD or District) air quality laws, ordinances, regulations and standards (Title 20, California Code of Regulations, section 1744 (b));
- Whether the WCEP is likely to cause significant new violations of ambient air quality standards or contributions to existing violations of those standards (Title 20, California Code of Regulations, section 1742 (b)); and

- Whether the mitigation proposed for the WCEP is adequate to lessen the potential impacts to a level of insignificance (Title 20, California Code of Regulations, section 1742 (b)).

LAWS, ORDINANCES, REGULATION, AND STANDARDS

The following federal, state, and local laws and policies pertain to the control of criteria pollutant emissions and mitigation of air quality impacts. Staff's analysis examines the project's compliance with these requirements.

AIR QUALITY Table 1
Laws, Ordinances, Regulations, and Standards (LORS)

Applicable Law	Description
Federal	
40 Code of Federal Regulations (CFR) 52	Nonattainment New Source Review (NSR) requires a permit and requires Best Available Control Technology (BACT) and Offsets. Permitting and enforcement delegated to SCAQMD. Prevention of Significant Deterioration (PSD) requires major sources to obtain permits for attainment pollutants. A major source for a simple-cycle combustion turbine is defined as any one pollutant exceeding 250 tons per year. Since the emissions from the WCEP are not expected to exceed 250 tons per year, PSD does not apply.
40 CFR 60 Subpart GG	New Source Performance Standard for gas turbines: 75 parts per million (ppm) NOx and 150 ppm SOx at15%O_2. BACT will be more restrictive. Enforcement delegated to SCAQMD.
40 CFR Part 70	Title V: Federal permit. Title V permit application required within one year of start of operation. Permitting and enforcement delegated to SCAQMD.
40 CFR Part 72	Acid Rain Program. Requires permit and obtaining sulfur oxides credits. Permitting and enforcement delegated to SCAQMD.

State	
Health and Safety Code (HSC) Section 40910-40930	Permitting of source needs to be consistent with approved Clean Air Plan.
HSC Section 41700	Restricts emissions that would cause nuisance or injury.

Local – South Coast Air Quality Management District (SCAQMD)	
Regulation II: Permits	This regulation sets forth the regulatory framework of the application for and issuance of construction and operation permits for new, altered and existing equipment.
Regulation IV: Prohibitions	This regulation sets forth the restrictions for visible emissions, odor nuisance, fugitive dust, various air emissions, fuel contaminants, start-up/shutdown exemptions and breakdown events.
Regulation VII: Emergencies	Establishes the procedures for reporting emergencies and emergency variances.
Regulation IX: Standards of Performance for New Stationary Sources	Regulation IX incorporates provisions of 40 CFR Part 60, Chapter I, and is applicable to all new, modified, or reconstructed sources of air pollution. Sections of this regulation apply to electric utility steam generators (Subpart Da) and stationary gas turbines (Subpart GG). These subparts establish limits of PM10, SO_2, and NO_2 emissions from the facility as well as monitoring and test method requirements.
Regulation XI: Source Specific Standards	Specifies the performance standards for stationary engines larger than 50 brake horse power (bhp).
Regulation XIII: New Source Review	Establishes the pre-construction review requirements for new, modified or relocated facilities to ensure that these facilities do not interfere with progress in attainment of the national ambient air quality standards and that future economic growth in the SCAQMD is not unnecessarily restricted. However, this regulation does not apply to NOx or SOx emissions from certain sources, which are addressed by Regulation XX (RECLAIM).
Regulation XVII: Prevention of Significant Deterioration	This regulation sets forth the pre-construction requirement for stationary sources to ensure that the air quality in clean air areas does not significantly deteriorate while maintaining a margin for future industrial growth.

Local – South Coast Air Quality Management District (SCAQMD)	
Regulation XX: Regional Clean Air Incentives Market (RECLAIM)	RECLAIM is designed to allow facilities flexibility in achieving emission reduction requirements for NOx and SOx through controls, equipment modifications, reformulated products, operational changes, shutdowns, other reasonable mitigation measures or the purchase of excess emission reductions.
Regulation XXX: Title V Permits	The Title V federal program is the air pollution control permit system required by the federal Clean Air Act as amended in 1990. Regulation XXX defines the permit application and issuance as well as compliance requirements associated with the program. Any new or modified major source which qualifies as a Title V facility must obtain a Title V permit prior to construction, operation or modification of that source. Regulation XXX also integrates the Title V permit with the RECLAIM program such that a project cannot proceed without the other.
Regulation XXXI Acid Rain Permits	Title IV of the federal Clean Air Act provides for the issuance of acid rain permits for qualifying facilities. Regulation XXXI integrates the Title V program with the RECLAIM program. Regulation XXXI requires a subject facility to obtain emission allowances for SOx emissions as well as monitoring SOx, NOx, and carbon dioxide (CO_2) emissions from the facility.

SETTING

CLIMATE AND METEOROLOGY

The semi permanent high-pressure system centered off the west coast of the United States has a dominating influence on California's general climate. In the summer, this system results in low inversion layers with clear skies inland and typically early morning fog by the coast. In winter, this system promotes wind and rainstorms originating in the Gulf of Alaska and funneled toward Northern California.

The large-scale wind flow patterns in the South Coast air basin are a diurnal cycle driven by the differences in temperature between the land and the ocean in addition to the channeling effect of the mountainous terrain surrounding the basin. The Tehachapi and Temblor mountains physically separate the air shed in the South Coast and San Joaquin Valley air basins. The San Bernardino, San Gabriel, and Santa Rosa mountain

ranges generally make up the eastern boundary of the South Coast air basin. The Santa Monica and Santa Ana coastal mountain ranges make up the northern and southern boundaries (respectively).

The proposed project would be located in the City of Industry, Los Angeles County, California. The City of Industry is located approximately 18 miles directly east of downtown Los Angeles. Recorded temperatures from the nearest representative monitoring station (Pomona Fairplex, #047050) indicate a minimum and maximum of approximately 48 degrees Fahrenheit (°F) and 94°F respectively, with an average daily range of 50° to 75°F. The region receives most of its rainfall between November and April, with an annual average of 14.68 inches.

The wind patterns near the project site are predominately from the west south west, with a nighttime drainage pattern yielding occasional mild air flow from the east at night. Calm conditions prevail approximately 10 percent of the time. The mixing heights, a parameter that defines the height through which pollutants released to the atmosphere are mixed, was recorded 25 miles to the south west of the project site at Los Angeles International Airport (LAX). Mixing heights at LAX varied from a minimum morning range between 335 meters (1,100 feet) and 1,000 meters (3,050 feet),to a maximum afternoon range between 510 meters (1,670 feet) and 1,200 meters (3,940 feet).

AMBIENT AIR QUALITY STANDARDS

The United States Environmental Protection Agency (U.S. EPA) and the California Air Resource Board (ARB) have both established allowable maximum ambient concentrations of criteria air pollutants based on public health impacts, called ambient air quality standards (AAQS). The state AAQS, established by ARB, are typically lower (more stringent) than the federal AAQS, established by the U.S. EPA. The state and federal air quality standards are listed in AIR QUALITY Table 2. As indicated, the averaging times for the various air quality standards (the duration over which all measurements taken are averaged) range from one hour to one year (annual). The standards are read as a concentration, in parts per million (ppm), or as a weighted mass of material per unit volume of air, in milligrams (10^{-3} g, 0.001 g, or mg) or micrograms (10^{-6} g, 0.000001 g, or µg) of pollutant in a cubic meter (m^3) of air, averaged over the applicable time period.

AIR QUALITY Table 2
Federal and State Ambient Air Quality Standards

Pollutant	Averaging Time	California Standard	Federal Standard
Ozone (O_3)	1 Hour	0.09 ppm (180 μg/m^3)	--
	8 Hour	0.07 ppm (140 μg/m^3)	0.08 ppm (157 μg/m^3)
Respirable Particulate Matter (PM10)	24 Hour	50 μg/m^3	150 μg/m^3
	Annual*	20 μg/m^3	50 μg/m^3
Fine Particulate Matter (PM2.5)	24 Hour	--	**35 μg/m^3** ~~65 μg/m^3~~
	Annual*	12 μg/m^3	15 μg/m^3
Carbon Monoxide (CO)	1 Hour	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)
	8 Hour	9 ppm (10 mg/m^3)	9 ppm (10 mg/m^3)
Nitrogen Dioxide (NO_2)	1 Hour	0.25 ppm (470 μg/m^3)	--
	Annual*	--	0.053 ppm (100 μg/m^3)
Sulfur Dioxide (SO_2)	1 Hour	0.25 ppm (655 μg/m^3)	--
	3 Hour	--	0.5 ppm (1300 μg/m^3)
	24 Hour	0.04 ppm (105 μg/m^3)	0.14 ppm (365 μg/m^3)
	Annual*	--	0.03 ppm (80 μg/m^3)
Lead	30 Day Average	1.5 μg/m^3	--
	Calendar Quarter	--	1.5 μg/m^3
Sulfates	24 Hour	25 μg/m^3	--
Hydrogen Sulfide (H_2S)	1 Hour	0.03 ppm (42 μg/m^3)	--
Vinyl Chloride (chloroethene)	24 Hour	0.010 ppm (26 μg/m^3)	--
Visibility Reducing Particulates	8 hours	In sufficient amount to produce an extinction coefficient of 0.23 per kilometer due to particles when the relative humidity is less than 70 percent.	--
* Annual Arithmetic Mean			

Source: U.S. EPA and ARB, March 2006, note the new standard for PM2.5.

In general, an area is designated as attainment for a specific pollutant if the concentrations of that air contaminant do not exceed the standard. Likewise, an area is designated as non-attainment for an air contaminant if that standard is violated. Where not enough ambient data is available to support designation as either attainment or non-attainment, the area can be designated as unclassified. Unclassified areas are normally treated the same as attainment areas for regulatory purposes. An area can be designated as attainment for one air contaminant and non-attainment for another, or attainment for the federal standard and non-attainment for the state standard for the same contaminant. The entire area within the boundaries of an air district is usually evaluated to determine the District's attainment status.

EXISTING AMBIENT AIR QUALITY

The project is located in the City of Industry and is under the jurisdiction of the SCAQMD. AIR QUALITY Table 3 lists the attainment and non-attainment status of the district for each criteria pollutant for both the federal and state ambient air quality standards.

AIR QUALITY Table 3
Attainment / Non-Attainment Classification
South Coast Air Quality Management District (SCAQMD)

Pollutants	Federal Classification	State Classification
Ozone	**Non-Attainment**	**Non-Attainment**
PM10	**Non-Attainment**	**Non-Attainment**
PM2.5	**Non-Attainment**	**Non-Attainment**
CO	**Non-Attainment**	**Non-Attainment**
NO_2	Attainment	Attainment
SO_2	Attainment	Attainment

Source: ARB 2006a

Ambient air quality data has been collected extensively in the air basin. AIR QUALITY Table 4 lists a summary of maximum ambient measurements for the years 1999 through 2005 at the monitoring stations closest to the project site.

AIR QUALITY Table 4
Criteria Pollutant Summary
Maximum Short Term Ambient Concentrations (ppm or µg/m^3)

Pollutant	Averaging Period	Units	1999	2000	2001	2002	2003	2004	2005	Limiting AAQS
Ozone	1 hour	ppm	0.119	0.139	0.132	0.111	0.128	0.104	0.077	**0.09**
PM10	24 hours	µg/m^3	88	80	97	64	80	72	70	**50**
PM2.5	24 hours	µg/m^3	85.6	89.5	77.3	61	90.3	60.7	58.2	**35**
CO	1 hour	ppm	6.8	6.8	5.5	5.2	5.2	4.7	3	**20**
NO_2	1 hour	ppm	0.155	0.15	0.138	0.125	0.142	0.124	0.09	**0.25**
SO_2	1 Hour	ppm	0.053	0.075	0.025	0.016	0.03	0.025	0.07	**0.25**

Note: PM10 and SO_2 data collected at the Los Angeles North Main Street monitoring site, all other data collected at the Pico Rivera monitoring site.

Source: ARB 2006b

Comparison of the values in AIR QUALITY Table 4 to the most restrictive AAQS in AIR QUALITY Table 2 clearly shows that ozone, PM10, and PM2.5 continue to violate applicable standards while NO_2 and SO_2 do not violate the standards. Though no CO violations were recorded at the monitoring station closest to the proposed project site over this six year period, violations were recorded at two other monitoring sites in the region in three of the last six years (at Lynwood in1999, at Lynwood and Reseda in 2000, and at Lynwood in 2002). However, because no violations were recorded at any location in the district in 2003 and 2004, the district has requested reclassification to attainment of the federal standards for CO. Reclassification is a lengthy process, however, and will probably not occur within the time frame of this licensing process.

Thus, in the context of this analysis, the district is still considered to be classified as non-attainment for CO.

Attainment Criteria Pollutants

Although both NO_2 and SO_2 are classified as in attainment with all State and Federal AAQS, they remain of significant concern since they are precursors to PM10, and NO_2 is a precursor to ozone. Because NO_2 and SO_2 are precursors to non-attainment pollutants, the district will require full offset mitigation for both.

Nitrogen Dioxide (NO_2)

Most combustion activities and engines emit significant quantities of nitrogen oxides (NOx), a term used in reference to combined quantities of nitrogen oxide (NO) and NO_2. Most of the NOx emitted from combustion sources is NO. Although only NO_2 is a criteria pollutant, NO is readily oxidized in the atmosphere into NO_2. In urban areas, the ozone concentration level is typically high. That level will drop substantially at night as NO is oxidized into NO_2, and increase again in the daytime as sunlight disassociates NO_2 into NO and ozone. This reaction explains why urban ozone concentrations at ground level can be relatively low, while downwind rural areas (without sources of fresh NO emissions) are exposed to higher ozone concentrations as arriving NO_2 dissociates into NO and ozone in the presence of sunlight.

Sulfur Dioxide (SO_2)

Sulfur dioxide is typically emitted as a result of the combustion of fuels containing sulfur. In significant ambient quantities, SO_2 can lead to acid rain and sulfite particulate formation. Natural gas contains very little sulfur and consequently results in very little SO_2 emissions when combusted. By contrast, fuels high in sulfur, such as lignite (a type of coal), emit large amounts of SO_2 when combusted. Sources of SO_2 emissions within the basin come from every economic sector and include a wide variety of gaseous, liquid and solid fuels.

Non-Attainment Criteria Pollutants

The following sections provide background for the non-attainment criteria pollutants: ozone, PM10, PM2.5, and CO.

Ozone (O_3)

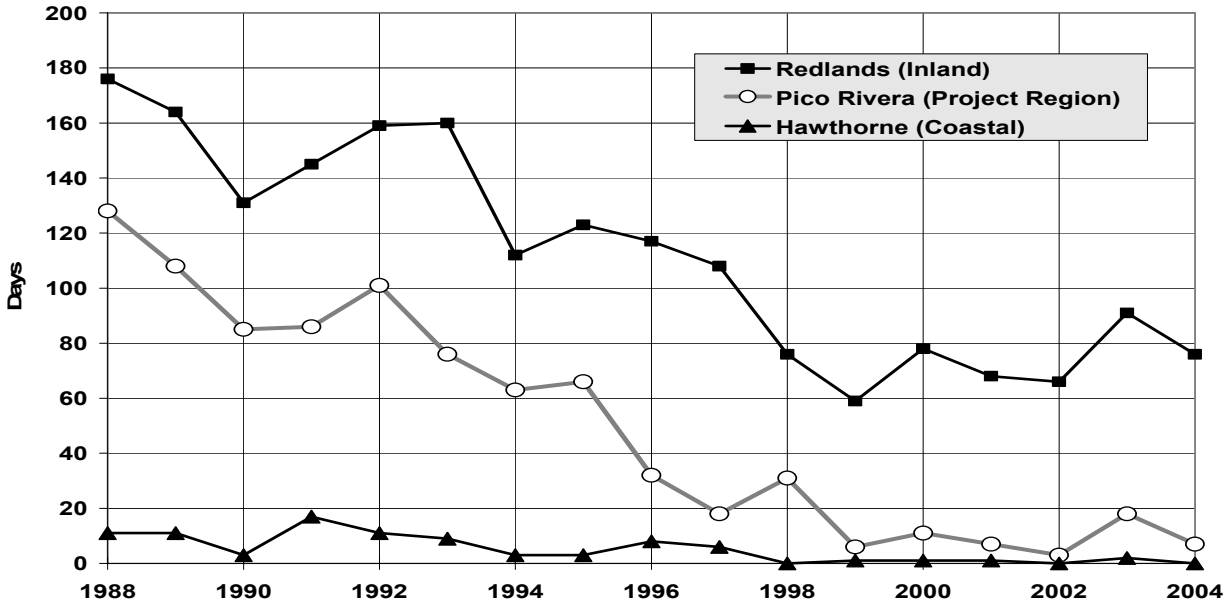
Ozone is not directly emitted from stationary or mobile sources, but is formed as the result of chemical reactions in the atmosphere between precursor air pollutants. The primary ozone precursors are NOx and VOC, both of which interact in the presence of sunlight to form ozone.

The District is designated as extreme non-attainment for ozone (the worst possible classification), meaning that the South Coast air basin ambient ozone design concentration is 0.280 ppm or above and it will not reach attainment before 2007. Efforts to achieve ozone attainment typically focus on controlling the ozone precursors NOx and VOC. District published state implementation plans (SIP) rely on the ARB to control mobile sources, the U.S. EPA to control emission sources under federal jurisdiction, and SCAQMD to control local industrial sources. Through these control

measures, California and the SCAQMD are required to reach attainment of the federal ozone ambient air quality standard by 2010.

Exceedances of the national and state ozone ambient air quality standards occur in the region both up wind and down wind of the project site. AIR QUALITY Figure 1 shows the number of days each year on which exceedances of the state 1-hour ozone standard occurred for three representative monitoring sites. The three monitoring sites were chosen to represent three distinct parts of the air shed: coastal region, proposed project region, and inland region.

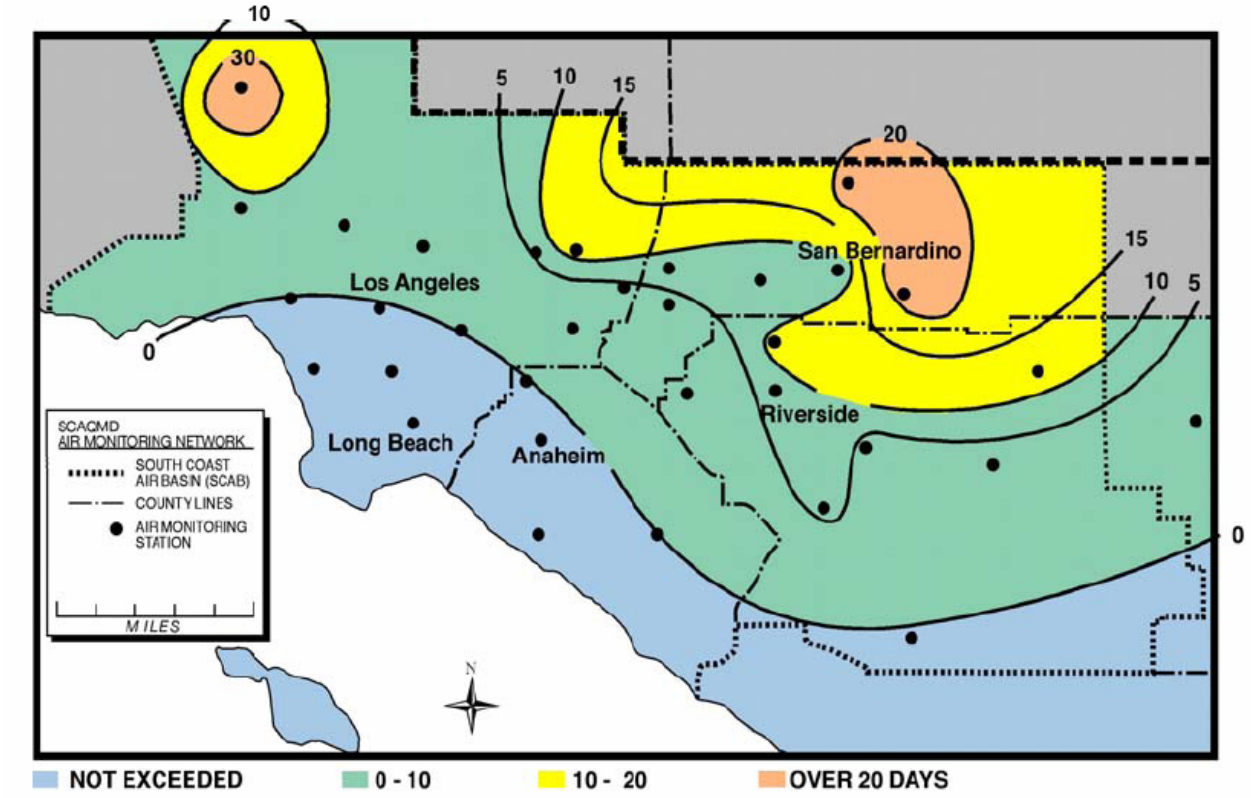
AIR QUALITY Figure 1
OZONE 1988-2004
Number of Days Exceeding the State 1-Hour AAQS



Source: ARB 2006b

The proposed project region (represented in AIR QUALITY Figure 1 by the Perris monitoring station) is in an area very near the inland regions of the SCAQMD. The data clearly shows the characteristic trend to higher ambient ozone concentrations farther away from the coast, due to prevailing onshore airflow. AIR QUALITY Figure 2 provides a graphical representation of this effect for a single year, showing how the onshore airflow pushes pollution inland and thus focuses regional violations away from the coast.

AIR QUALITY Figure 2
OZONE – 2002
Number of Days Exceeding 1-Hour Federal Standard
(1-hour average ozone > 0.12 ppm)



Source: SCAQMD 2003

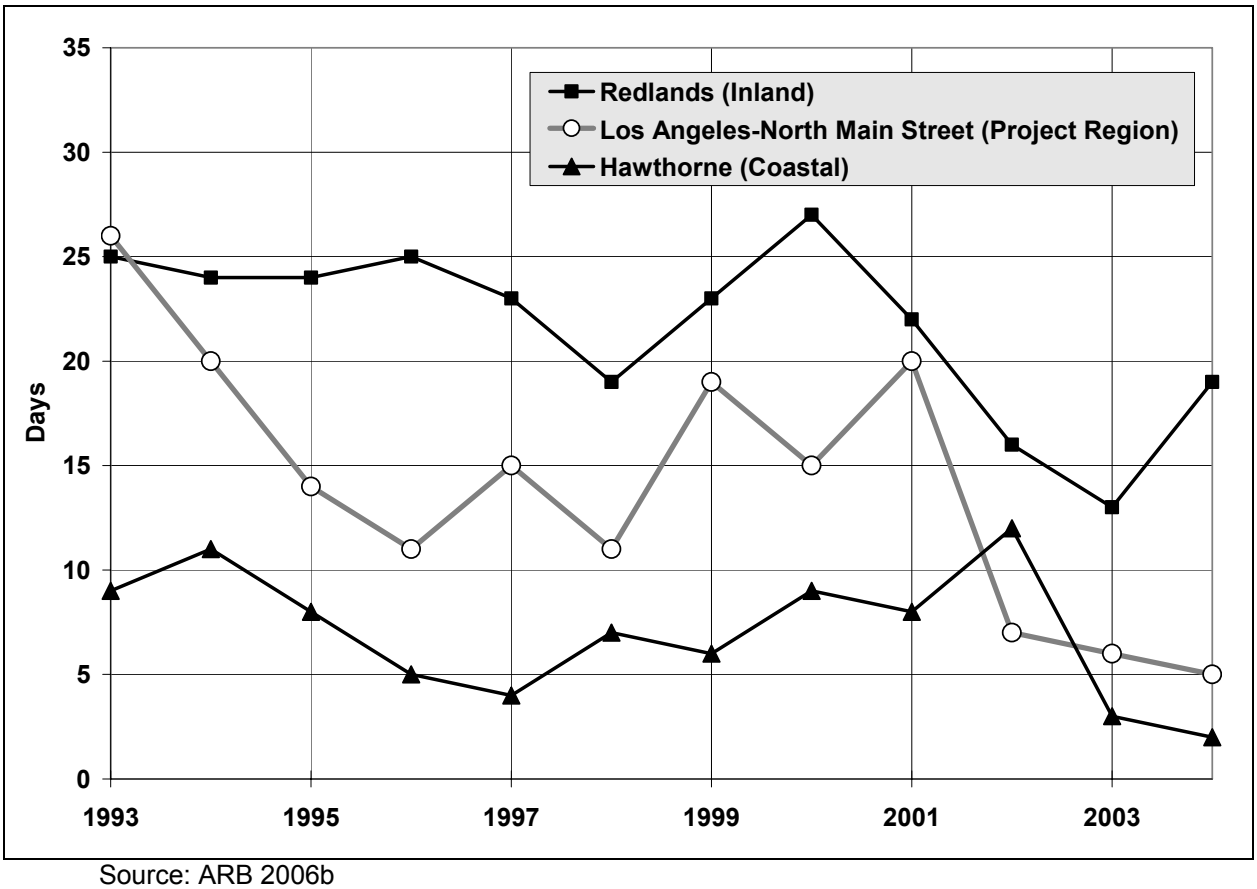
Though there are a significant number of exceedances of the ozone ambient air quality standards throughout the district, it is important to consider the improvements that have occurred in recent years. The SCAQMD leads the nation in air quality management methods and regulatory programs. These programs have significantly improved the air quality in spite of the growing population and industrial and commercial enterprises. AIR QUALITY Figure 1 clearly shows the improvements in ozone air quality levels over the past 16 years in the South Coast air basin, especially in the intermediate region near the proposed project site. As shown in AIR QUALITY Figure 1, in 2003 there was a slight increase over prior years in the number of exceedances recorded. Since 2003, however, the downward trend has returned, approaching the 2002 lower number of exceedances.

Respirable Particulate Matter (PM10)

PM10 is generated both directly from a combustion process and generated downwind of a source when various emitted precursor pollutants chemically interact in the atmosphere to form solid precipitates. These solids are called secondary particulates, because they are not directly emitted, but are still generated as a consequence of facility emissions. Gaseous emissions of pollutants such as NOx, SO_2, and VOC from turbines, and ammonia (NH_3) from NOx control equipment can form particulate nitrates, sulfates, and organic solids.

San Bernardino (not the entire South Coast air basin) has been designated a non-attainment zone for the federal 24-hour and annual PM10 ambient air quality standards. The South Coast air basin (including a portion of the San Bernardino County within the basin) has been designated as a non-attainment zone for the state 24-hour and annual PM10 ambient air quality standards. AIR QUALITY Figure 3 below shows the number of days each year on which exceedances of the state 24-hour PM10 standard occurred for three representative monitoring regions: coastal, project site, and inland.

AIR QUALITY Figure 3
PM10 1993-2004
Number of Days Exceeding the State 24-Hour AAQS



Source: ARB 2006b

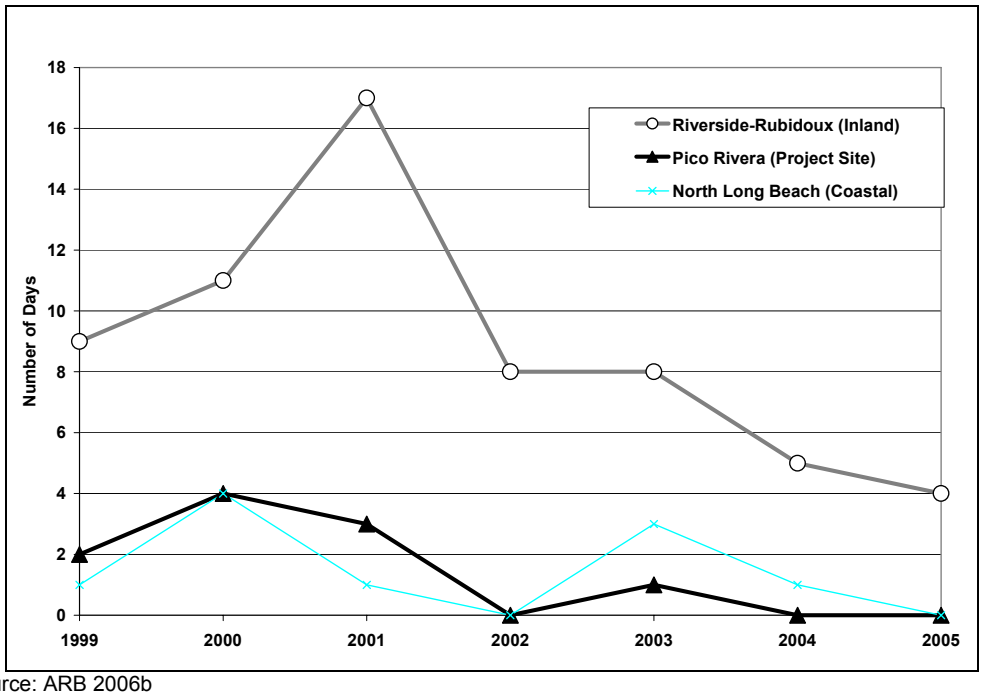
The data shows some improvement over the period, but overall the PM10 situation remains a concern.

Fine Particulate Matter (PM2.5)

PM2.5, a subset of PM10, consists of particles with an aerodynamic diameter less than or equal to 2.5 microns. Particles within the PM2.5 fraction penetrate more deeply into the lungs, and can be much more damaging by weight than larger particulates. PM2.5 is primarily a product of combustion and includes nitrates, sulfates, organic carbon (ultra fine dust) and elemental carbon (ultra fine soot). AIR QUALITY Figure 4 below shows the number of days each year on which exceedances of the federal 24-hour PM2.5 standard of 65 ug/m^3 (there is no separate short-term state standard) occurred for three representative monitoring regions: coastal, project site, and inland. The federal 24-hour

PM2.5 standard has recently been lowered to 35 ug/m^3. Staff is working through the ambient air quality measurement data from CARB to develop the "Number of Days Exceeding" necessary to correct this graph. That data will be available for Final Staff Assessment.

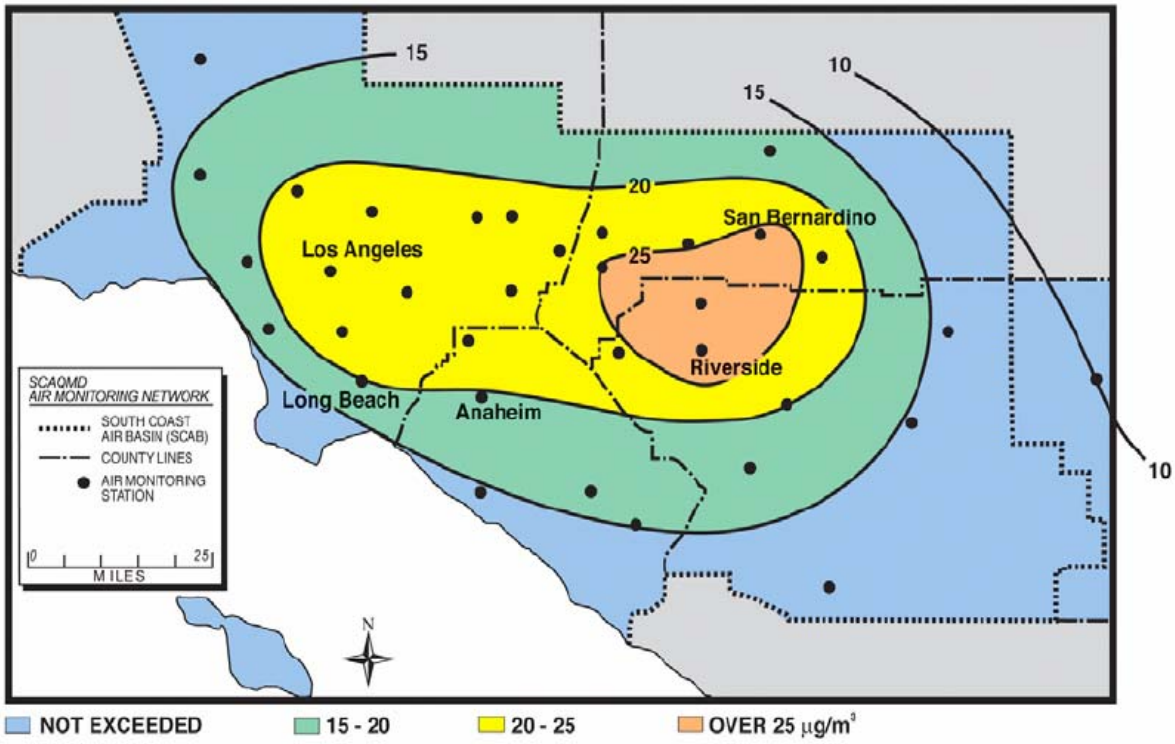
AIR QUALITY Figure 4
PM2.5 1999-2004
Number of Days Exceeding the Federal 24-Hour AAQS



Source: ARB 2006b

The highest concentrations of PM2.5 in the District occur within the counties of San Bernardino and Riverside (similarly to PM10), but also extend west toward downtown Los Angeles. This effect is shown graphically in AIR QUALITY Figure 5 below.

AIR QUALITY Figure 5
PM2.5 – 2002
Annual Arithmetic Mean, µg/m^3



Source: SCAQMD 2003

PM2.5 standards were first adopted by EPA in 1997, and were upheld by the United States Supreme Court in 2001 over a challenge from the American Trucking Association (ATA et al). Though SCAQMD is designated as non-attainment for all state and federal PM2.5 AAQS, the District has not yet finished preparing a PM2.5 SIP. The District expects to submit a PM2.5 SIP in early 2007, and once the plan is approved by USEPA, the District will prepare revised NSR rules that will likely require offsetting of PM2.5 emissions. The District is thus unlikely to address PM2.5 in their rules within the schedule of this proposed project. Staff, however, has a CEQA responsibility to address PM2.5 emissions since there are current ambient air quality standards in effect and the proposed project region is not in attainment of those standards.

Carbon Monoxide (CO)

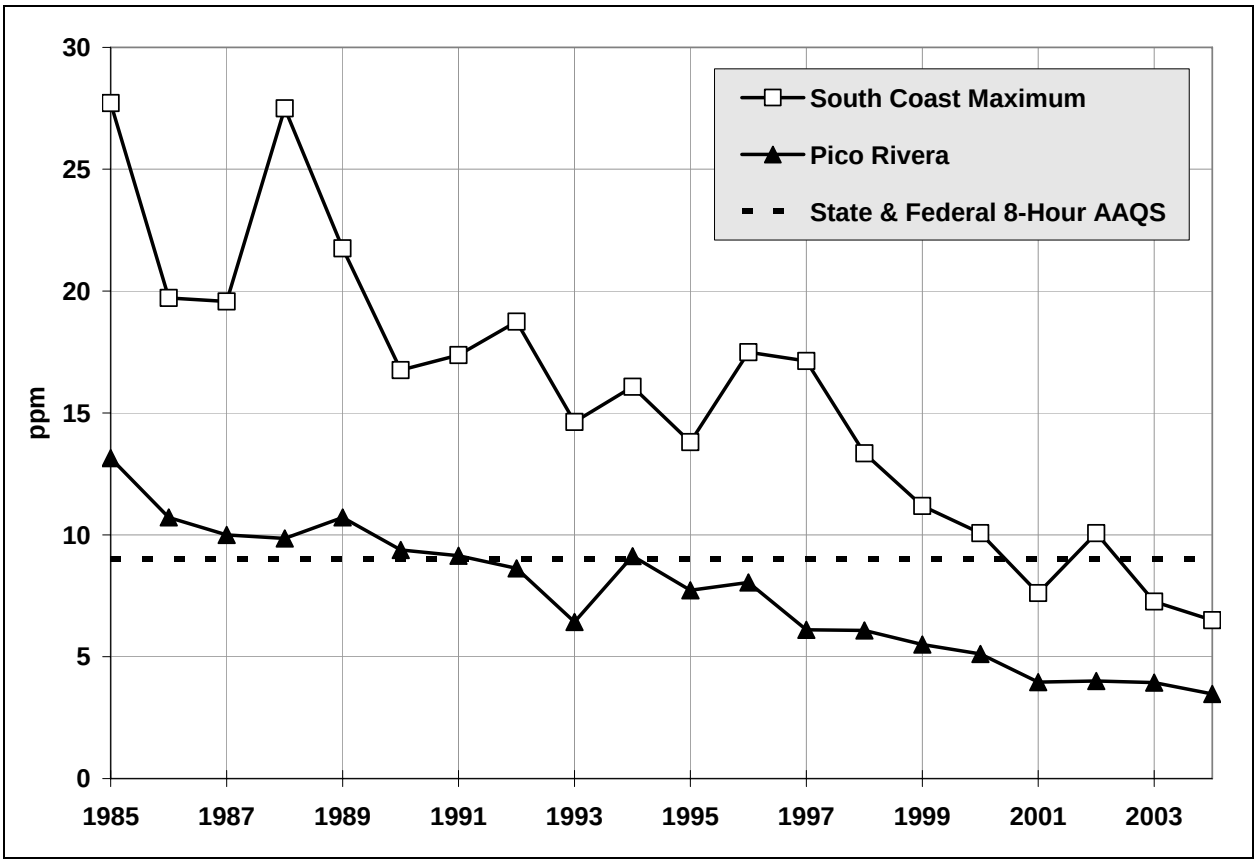
CO is generated from most combustion engines and other combustion activities. CO is considered a local pollutant, as it will rapidly oxidize. It is thus found in high concentrations only near the source of emissions. Automobiles and other mobile sources are the principal source of CO emissions. High levels of CO emissions can also be generated from fireplaces and wood-burning stoves. Industrial sources, including power plants, typically constitute less than 10 percent of the ambient CO levels in the South Coast region (ARB 2006c).

The highest concentrations of CO occur when low wind speeds and a stable atmosphere trap the pollution emitted at or near ground level in what is known as the

stable boundary layer. These conditions occur frequently in the wintertime late in the afternoon, persist during the night and may extend one or two hours after sunrise. Because the mobile sector (ships, cars, trucks, busses and other vehicles) is the main source of CO, ambient concentrations of CO are highly dependent on traffic patterns. Carbon monoxide concentrations in the state have declined significantly due to two state-wide programs: 1) the 1992 wintertime oxygenated gasoline program, and 2) Phases I and II of the reformulated gasoline program. New vehicles with oxygen sensors and fuel injection systems have also contributed to the decline in CO levels in the state. Today, all the counties in California, with the sole exception of Los Angeles County, are in compliance with the state CO AAQS.

AIR QUALITY Figure 6 below shows the maximum 8-hour average CO measurements at the closest monitoring station (Riverside-Magnolia) to the project site and the maximum for the entire South Coast district.

AIR QUALITY Figure 6
CO 1985-2004
Maximum 8-hour Average Concentration



Source: ARB 2006b

Existing Ambient Air Quality Summary

Based on the above analysis of background ambient air quality, staff recommends the background ambient air concentrations in AIR QUALITY Table 5 for the purpose of modeling and evaluating potential ambient air quality impacts from the proposed project.

AIR QUALITY Table 5
Staff Recommended Background Concentrations (µg/m^3)

Pollutant	Averaging Time	Recommended Background	Limiting Standard	Percent of Standard
NO_2	1 hour	248.2	470	53%
	Annual	65.8	100	66%
CO	1 hour	6,286	23,000	27%
	8 hour	4,571	10,000	46%
PM10	24 hour	97	50	**194%**
	Annual	44.2	30	**147%**
PM2.5	24 hour	66.6	35	**190%**
	Annual	25.2	12	**210%**
SO_2	1 hour	78.2	655	12%
	24 hour	39.1	105	37%
	Annual	7.8	80	10%

Source: ARB 2006b & Energy Commission Staff Analysis

PROJECT DESCRIPTION AND PROPOSED EMISSIONS

The proposed WCEP major air emissions sources are:

- Five General Electric (GE) LMS100 combustion turbine generators (CTG)
- Oxidation catalyst (OC) and selective catalytic reduction (SCR) equipment
- A five cell mechanical draft cooling tower
- A 340 bhp diesel emergency fire pump engine

The potential emissions from the facility are classified in three categories: construction, initial commissioning, and operation.

Construction Emissions

Facility construction is expected to take about 12 months. The power plant project construction consists of three major areas of activity: 1) the civil/structural construction 2) the mechanical construction, and 3) the electrical construction. The projected maximum daily and annual emissions, based on the highest monthly emissions over the entire construction period, are shown in AIR QUALITY Table 6.

AIR QUALITY Table 6
Estimated Maximum Construction Emissions

	NOx	SO_2	CO	VOC	PM10
Maximum Daily Emissions (lb/day)	101.2	10.9	134.4	20.4	16.41
Maximum Annual Emissions (tons/year)	6.7	0.5	15.5	2.0	0.4

Source: WCE 2005a, Appendix 8.1E.3

The largest percentage of these construction emissions will likely be emitted during the first phase of project site activity, mostly due to earth moving, grading activities, large

equipment operations, underground utility installation, and as building erection occurs. These types of activities require the use of large earth moving equipment, which generate considerable direct combustion emissions, along with fugitive dust emissions. The mechanical construction phase includes the installation of the heavy equipment such as the gas turbines, compressors, pumps, and associated piping. Although not a large fugitive dust generation activity, the use of large cranes to install such equipment generates significantly more direct combustion emissions than other construction equipment. Lastly, the electrical construction phase involves installation of transformers, switching gear, instrumentation, and all wiring; and is a relatively small source of emissions in comparison to the earlier construction activities.

Initial Commissioning Emissions

New power generation facilities must go through an initial firing and commissioning phase before being deemed commercially available to generate power. During this period, emissions may exceed permitted levels due to numerous startups and shutdowns, periods of low load operation, and other testing required before emission control systems are fine-tuned for optimum performance.

The applicant anticipates six distinct commissioning phases (WCE 2005a, p. 8.1-62), with a total of approximately 94 hours of operation per turbine without full emissions controls, and a further 300 hours of commissioning tuning under full emissions control. AIR QUALITY Table 7 presents the predicted maximum short term emissions of NOx, CO, and VOC. PM10 and SO_2 emissions are not included here since they are proportional to fuel use, and fuel use (and thus PM10 and SO_2 emissions) during commissioning is equal to or lower than during full load operations.

AIR QUALITY Table 7
Estimated Maximum Initial Commissioning Emissions

	NOx	CO	VOC
Maximum Hourly Emissions (lb/hour)	175	255	5

Source: WCE 2005a, Appendix Table 8.1A-10

Operation Emission Controls

NOx Controls

Each CTG exhaust will be treated by a SCR system before release to the atmosphere. SCR refers to a process that chemically reduces NOx to elemental nitrogen and water vapor by injecting ammonia into the flue gas stream in the presence of a catalyst and excess oxygen. The process is termed selective because the ammonia preferentially reacts with NOx rather than oxygen. The catalyst material most commonly used is titanium dioxide, but materials such as vanadium pentoxide, zeolite, or noble metals are also used. Regardless of the type of catalyst used, efficient conversion of NOx to nitrogen and water vapor requires uniform mixing of ammonia into the exhaust gas stream and a catalyst surface large enough to ensure sufficient time for the reaction to take place.

VOC and CO Controls

VOC and CO will be controlled at the CTG combustor and by an oxidation catalyst. An oxidation catalyst system chemically reacts organic compounds and CO with excess oxygen to form nontoxic carbon dioxide and water. Unlike the SCR system for reducing NOx, an oxidation catalyst does not require any additional chemicals.

PM10 and SO_2 Controls

The exclusive use of natural gas, an inherently clean fuel that contains very little noncombustible solid residue, will limit the formation of SO_2 and PM10. Natural gas does contain small amounts of a sulfur-based scenting compound known as mercaptan which results in sulfur dioxide emissions when combusted. However, in comparison to other fuels used in modern thermal power plants, such as fuel oil or coal, the sulfur dioxide produced from the combustion of natural gas is very low. Like SO_2, the emission of PM10 from natural gas combustion is also very low compared to the combustion of fuel oil or coal. It is assumed in these calculations that the natural gas has a maximum short term sulfur content of 0.75 gr/100scf (grains per 100 cubic feet at standard temperature and pressure), based on Southern California Gas Company rules for pipeline quality natural gas, and an annual average sulfur content of 0.25 gr/100scf, based on a monthly gas sampling requirement at the WCEP

The majority of the emissions from cooling towers are pure water vapor; however, a small amount of liquid water can escape and is known as "drift". Cooling tower drift consists of a mist of very small water droplets, which can generate particulate matter that originates from the dissolved solids in the circulating water once the water evaporates. To limit these particulate emissions, cooling towers use drift eliminators to capture these water droplets, and cooling tower operators are required to monitor the total dissolved solids (TDS) in the cooling tower recirculation water to ensure that it does not exceed a District specified value. The applicant intends to use drift eliminators on the cooling towers designed to limit drift to 0.0005 percent of the circulating water volume per unit time.

Proposed Operation Emissions

Per the applicant's request, all emissions calculations and limitations are based on an assumed availability of 3200 hours per year, plus 350 startups and shutdowns, though staff is not proposing an hours of operation limitation (WCE 2006a). WCE has estimated their capacity factor at 40 percent; this would translate to just over 3,500 hours of operation, which is reasonably consistent with the assumed hours of operation. The CTGs will burn only pipeline natural gas; there are no provisions for an alternative or back-up fuel.

The proposed maximum criteria air pollutant emissions are based entirely on vendor data for the GE LMS100 turbine and the data presented in the SCAQMD Preliminary Determination of Compliance (SCAQMD 2006b). AIR QUALITY Table 8 lists the maximum 1-hour emissions from each piece of equipment on the proposed project site.

AIR QUALITY Table 8
Equipment Maximum Short-Term Emissions Rates
(pounds per hour [lb/hr])

Process Description	NOx	SO_2	CO	VOC	PM10
CTG Startup (35 minute startup, **lb/event**)	7.00	0.35	15.40	2.10	3.50
CTG Full Load	8.21	0.61	12.00	1.71	6.00
CTG Shutdown (11 minute shutdown, **lb/event**)	4.30	0.11	18.20	1.60	1.10
Fire Pump Engine	10.54	0.004	0.202	0.112	0.067
Cooling Tower	0	0	0	0	0.44

Source: WCE 2005a, SCAQMD 2006b and Energy Commission staff calculations

Based on these emissions rates, the maximum possible 1-hour emissions from the entire facility would occur when all five turbines start-up and then operate at full load for the remainder of the hour, concurrent with a test of the fire pump engine. AIR QUALITY Table 9 below presents this scenario as the facility wide maximum potential short-term emissions. AIR QUALITY Table 10 presents the more common maximum full load emissions scenario.

AIR QUALITY Table 9
Facility Maximum 1-hour Emissions
(pounds per hour [lb/hr])

Process Description	NOx	SO_2	CO	VOC	PM10
5 CTGs Startup (35 minutes each)	35.00	1.77	77.00	10.50	17.50
5 CTGs Full Load (25 minutes each)	17.10	1.26	25.00	3.56	12.50
Fire Pump Engine (1 hour)	10.54	0.00	0.20	0.11	0.0674
Cooling Tower (1 hour)	0.00	0.00	0.00	0.00	0.4439
Total Maximum 1-hour Emissions	62.64	3.03	102.20	14.17	30.51

Source: Energy Commission staff calculations

AIR QUALITY Table 10
Facility 1-hour Full Load Emissions
(pounds per hour [lb/hr])

Process Description	NOx	SO_2	CO	VOC	PM10
5 CTGs Full Load	41.05	3.03	60.00	8.55	30.00
Cooling Tower (1 hour)	0.00	0.00	0.00	0.00	0.44
Total Full Load 1-hour Emissions	41.05	3.03	60.00	8.55	30.44

Source: Energy Commission staff calculations

In general, higher emissions of NOx, VOC and CO will occur during the startup and shutdown of a large CTG because the turbine combustors are designed for maximum efficiency during full load, steady state operation. During startup, combustion temperatures and pressures change rapidly, resulting in less efficient combustion and higher emissions. Also, flue gas emission controls (the catalysts discussed above), operate most efficiently when a turbine operates at or near full load temperatures. The maximum daily emission rates for NOx, CO, and VOC were conservatively estimated for each power train based on 22 hours and 28 minutes of operation, two 35 minute startups, and two 11 minute shutdowns per turbine. The maximum daily

emission rates for PM10 and SO_2 were based instead on 24 hours of full load operation, since PM10 and SO_2 emissions are proportional to fuel use. The total project maximum daily emissions are then conservatively estimated as the sum of the emissions from all five power trains, the cooling tower, and a single hour of emergency fire pump operation for required weekly testing purposes. These estimates are presented in AIR QUALITY Table 11 below.

AIR QUALITY Table 11
Project Maximum Daily Emissions
(pounds per day [lb/day])

Process Description	NOx	SO_2	CO	VOC	PM10
10 CTG Cold Starts (0:35 hour each)	70.00	3.54	154.00	21.00	35.00
5 CTG Full Load (22:28 hours each)	922.26	68.07	1,348.00	192.09	674.00
10 CTG Shutdowns (0:11 hour each)	43.00	1.11	182.00	16.00	11.00
1 hour Fire Pump Engine testing	10.54	0.00	0.20	0.11	0.07
24 hours Cooling Tower	0.00	0.00	0.00	0.00	10.65
Total Maximum Daily Emissions	1,045.80	72.72	1,684.20	229.20	730.72

Source: Energy Commission Staff calculations

The expected maximum annual emissions from each turbine are summarized in AIR QUALITY Table 12, and the total facility expected maximum annual emissions is summarized in AIR QUALITY Table 13. The calculations assume 3200 hours of operation, 350 startups, and 350 shutdowns per turbine. The facility annual emissions further assume 3200 hours of cooling tower operation, 50 hours of emergency fire pump testing and 50 hours of diesel generator testing. In addition, the calculations for annual SO_2 emissions assume annual average fuel sulfur content of 0.25 gr/100 scf.

AIR QUALITY Table 12
Turbine Maximum Annual Emissions
(pounds per year [lb/yr])

Process Description	NOx	SO_2	CO	VOC	PM10
350 Startups	2,450.00	123.73	5,390.00	735.00	1,225.00
350 Shutdowns	1,505.00	38.89	6,370.00	560.00	385.00
3200 hours Full Load	26,272.00	1,939.20	38,400.00	5,472.00	19,200.00
Total Maximum per Turbine	30,227.00	2,101.81	50,160.00	6,767.00	20,810.00

Source: Energy Commission Staff calculations

AIR QUALITY Table 13
Project Maximum Annual Emissions
(pounds per year [lb/yr] and tons per year [tpy])

Process Description	NOx	SO_2	CO	VOC	PM10
5 Turbines (lb/yr)	151,135.0	10,509.05	250,800.0	33,835.00	104,050.0
Fire Pump Diesel Engine (52 hours) (lb/yr)	548.08	0.21	10.51	5.84	3.50
Cooling Tower (lb/yr)	0.00	0.00	0.00	0.00	1,420.48
Total Maximum Annual Emissions (lb/yr)	151,683.1	10,509.26	250,810.5	33,840.84	105,474.0
Total Maximum Annual Emissions (tpy)	75.84	5.25	125.41	16.92	52.74

Source: Energy Commission Staff calculations and WCE 2005a

Ammonia Emissions

To control NOx emissions from the combustion turbines, ammonia is injected into the flue gas stream as part of the SCR system. In the presence of the catalyst, the ammonia and NOx react to form harmless elemental nitrogen and water vapor. However, not all of the ammonia reacts with the flue gases to reduce NOx; a portion of the ammonia passes through the SCR and is emitted unaltered from the stacks. These ammonia emissions are known as ammonia slip. It should be noted that a maximum permitted ammonia slip rate only occurs after significant degradation of the SCR catalyst, usually five years or more after commencing operations. At that point, the SCR catalysts are removed and replaced with new catalysts. During the majority of the operational life of the SCR system, actual ammonia slip will be at 10 to 50 percent of the permitted limit. The applicant proposes an ammonia emissions limit of five ppm for the WCEP.

ASSESSMENT OF IMPACTS AND DISCUSSION OF MITIGATION

Staff assesses potential impacts from the construction and operation of the proposed project, and also analyzes the cumulative effects of this project with past, present, and reasonably foreseeable projects that are sources of similar emissions. Construction impacts result from the emissions occurring during the construction of the project. The operation impacts result from the emissions over the proposed lifetime of the project. The cumulative impacts analysis includes projections regarding the conditions contributing to cumulative impacts as reflected in the district's adopted attainment plan, a summary of expected environmental impacts from related projects in the region, and an analysis of those impacts from a cumulative standpoint

METHOD AND THRESHOLD FOR DETERMINING SIGNIFICANCE

Staff has used two main significance criteria in evaluating this project. First, all project emissions of nonattainment criteria pollutants and their precursors (NOx, VOC, CO, PM10, PM2.5, and SO_2) are considered significant and must be mitigated. Second, any AAQS violation or any contribution to any AAQS violation caused by any project emissions is considered significant and must be mitigated. For construction emissions, the mitigation is limited to controlling construction equipment tailpipe emissions and fugitive dust emissions to the maximum extent feasible. For operating emissions, the mitigation includes both the best available control technology (BACT) and the use of emission reduction credits (ERC) or other valid emission reductions to offset emissions of nonattainment criteria pollutants and their precursors.

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

DIRECT/INDIRECT IMPACTS AND MITIGATION

While the emissions are the actual mass of pollutants emitted from the project, the impacts are the concentration of pollutants from the project that reach the ground level. When emissions are expelled at a high temperature and velocity through the relatively tall stack, the pollutants will be significantly diluted by the time they reach ground level. The emissions from the proposed project are analyzed through the use of air dispersion models to determine the probable impacts at ground level.

Air dispersion models provide a means of predicting the location and ground level magnitude of the impacts of a new emissions source. These models consist of a complex series of mathematical equations, which are repeatedly evaluated by a computer for many different sets of ambient conditions and input parameters. The model results are often described as a maximum theoretical concentration of pollutant in the air to which people could be exposed, or units of mass per volume of air, such as micrograms per cubic meter ($\mu g/m^3$).

In general, the input parameters for the modeling include stack information (exhaust flow rate, temperature, and stack dimensions), specific turbine emission data, and meteorological data, such as wind speed, atmospheric conditions, and site elevation. For this project, the meteorological data used as inputs to the model included hourly wind speeds and directions measured at the Riverside meteorological station, and background criteria pollutant measurements from a number of SCAQMD maintained ambient monitoring stations in the vicinity of the project site (WCE 2005a, Section 8.1.1.3.2, p. 8.1-20).

The applicant used the U.S. EPA approved Industrial Source Complex Short Term model (ISCST3), version 02035, as both a screening and refined model to estimate the direct impacts of the project's NOx, PM10, CO, and SO_2 emissions resulting from project construction and operation. A description of the modeling analysis and its results are provided in Section 8.1.2.3 and Appendix 8.1 of the Application for Certification (AFC) (WCE 2005a). ISCST3 is a generally accepted model for this type of project, and the meteorological input data is sufficient. Staff added the applicant's modeled impacts to the available highest ambient background concentrations recorded during the previous three years from nearby monitoring stations. The results were then compared with the ambient air quality standards for each respective air contaminant to determine whether the project's emission impacts would cause a new violation of the ambient air quality standards or contribute to an existing violation.

Construction Impacts and Mitigation

Pre-Construction Site Demolition

The City of Industry Urban-Development Agency will oversee the demolition of the industrial building that currently occupies the project site. The Initial Study of the environmental impacts of the demolition indicated that all air quality impacts from the demolition would be less than significant (City of Industry 2006).

Construction Impact Analysis

The construction air quality impact analyses prepared by the applicant considered both fugitive dust generated from the construction activity and combustion emissions produced by construction equipment. As a conservative assumption, this includes the following major sources (WCE 2005a, Appendix 8.1E):

- Dust entrained during site preparation and finish grading
- Dust entrained during onsite travel on paved and unpaved surfaces
- Dust entrained during aggregate and soil loading and unloading operations
- Dust caused by wind erosion of areas disturbed during construction
- Exhaust from diesel construction equipment used for site preparation, grading, excavation, and construction
- Exhaust from water trucks used for onsite paved and unpaved road fugitive dust control
- Exhaust from diesel powered welding machines, electric generator, air compressors, and water pumps
- Exhaust from pickup trucks and diesel trucks used to transport workers and materials around the construction site
- Exhaust from diesel trucks used to deliver concrete, fuel, and construction supplies to the site
- Exhaust from locomotives used to deliver mechanical equipment
- Exhaust from automobiles used by workers to commute to the construction site

The maximum 24-hour impacts were assessed using the emission rates for the month of maximum activity and annual impacts were assessed using the average emissions for the entire construction period. The results of this modeling effort (shown in AIR QUALITY Table 14 below) were added to the assumed maximum background values, and compared to the most restrictive AAQS.

AIR QUALITY Table 14
Maximum Construction Impacts (µg/m^3)

Pollutant	Averaging Time	Modeled Impact	Background	Total Impact	Limiting Standard	Percent of Standard
NO_2	1 hour	82.5	248.2	330.7	470	70%
	Annual	1.4	65.8	67.2	100	67%
CO	1 hour	43.35	6,286	6,329	23,000	28%
	8 hour	40.29	4,571	4,612	10,000	46%
PM10	24 hour	22.8	97	119.8	50	**240%**
	Annual	2.6	44.2	46.8	20	**234%**
PM2.5[a]	24 hour	22.8	66.6	89.4	35	**255%**
	Annual	2.6	25.2	27.8	12	**232%**
SO_2	1 hour	11.2	78.2	89.4	655	14%
	24 hour	1.9	39.1	41.0	105	39%
	Annual	0.3	7.8	8.1	80	10%

a Includes only combustion emissions from the construction equipment.
Source: WCE 2005a (Appendix 8.1E, Table 8.1E-4) and Energy Commission Staff calculations

As AIR QUALITY Table 14 shows, the project's emissions will not cause a new violation of the NO_2, CO and SO_2 ambient air quality standards, and thus those impacts are not considered significant. Staff believes that the particulate emissions from the construction of the project present a potentially significant impact because they will contribute to existing violations of the annual and 24-hour average PM10/PM2.5 AAQS, and that those emissions can and should be mitigated to a level of insignificance.

Construction Mitigation

Applicant's Proposed Mitigation

The applicant proposes a number of mitigation and emissions control measures for use during the construction of the project. The applicant specifically proposes the following measures to control exhaust emissions from heavy diesel construction equipment (WCE 2005a, Appendix 8.1E.2):

- Operational measures, such as limiting time spent with the engine idling by shutting down equipment when not in use;
- Regular preventive maintenance to prevent emission increases due to engine problems;
- Use of low sulfur and low aromatic fuel meeting California standards for motor vehicle diesel fuel; and
- Use of low-emitting gas and diesel engines meeting state and federal emissions standards (Tier I and II) for construction equipment, including, but not limited to catalytic converter systems and particulate filter systems.

The applicant further proposes the following measures to control fugitive dust emissions during construction of the project:

- Use either water application or chemical dust suppressant application to control dust emissions from on-site unpaved road travel and unpaved parking areas;
- Use vacuum sweeping and/or water flushing of paved road surface to remove buildup of loose material to control dust emissions from travel on the paved access road (including adjacent public streets impacted by construction activities) and paved parking areas;
- Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least two feet of freeboard;
- Limit traffic speeds on unpaved site areas to 5 mph;
- Install sandbags or other erosion control measures to prevent silt runoff to roadways;
- Replant vegetation in disturbed areas as quickly as possible;
- Use wheel washers or wash tires of all trucks exiting the construction site; and
- Mitigate fugitive dust emissions from wind erosion of areas disturbed from construction activities (including storage piles) by application of either water or chemical dust suppressant.

Adequacy of Proposed Mitigation

Staff agrees with the applicant's proposed mitigation measures. However, because of the predicted significant contribution to both the short- and long-term PM10 problems, staff believes some additional construction mitigation measures are necessary. These additional measures are detailed in the Staff Proposed Mitigation section below.

Staff Proposed Mitigation

The WCE modeling assessment discussed earlier indicates the project construction has the potential to contribute significantly to violations of the state 24-hour and annual PM10 AAQS. Staff has determined that the use of oxidizing soot filters is a viable emissions control technology for all heavy diesel powered construction equipment that does not use an ARB certified low emission diesel engine and ultra-low sulfur content diesel fuel. In addition, staff proposes that prior to the commencement of construction, the applicant provide an Air Quality Construction Mitigation Plan (AQCMP) that specifically identifies the mitigation measures that the applicant will employ to limit air quality impacts during construction. Staff includes proposed staff conditions of certification **AQ-SC1** through **AQ-SC5** below to implement these requirements. These conditions are consistent with both the applicant's proposed mitigation above, and conditions of certification adopted in previous licensing cases similar to the WCEP. With the compliance of these conditions, it is staff's opinion that the potential of an unmitigated significant air quality impact from the construction of the project is reasonably expected to be very low.

Operation Impacts and Mitigation

While the construction and commissioning impacts are both relatively short lived, the operation impacts from the project will continue throughout the life of the facility. The operation impacts are thus subjected to a more refined level of analysis. The following sections discuss the air quality impacts of project operation during normal full load

conditions, including startup and shutdown events, the commissioning phase operations, and fumigation meteorological conditions.

Operation and Startup Impact Analysis

The applicant provided a refined modeling analysis (WCE 2005a, Section 8.1.2.3 and Appendix 8.1B), using the ISCST3 model to quantify the potential impacts of the project during both full load operation and startup conditions. The worst case (maximum) results of this modeling analysis are shown in AIR QUALITY Table 15.

AIR QUALITY Table 15
Refined Modeling Maximum Impacts (µg/m^3)

Pollutant	Averaging Time	Modeled Impact	Background	Total Impact	Limiting Standard	Percent of Standard
NO_2	1 hour [a]	52.349	248.2	300.5	470	64%
	1 hour [b]	165.92	248.2	414.1	470	88%
	Annual[c]	0.825	65.8	66.6	100	67%
CO	1 hour [a]	117.44	6,286	6,403	23,000	28%
	1 hour [b]	43.35	6,286	6,329	23,000	28%
	8 hour[a]	40.29	4,571	4,612	10,000	46%
PM10	24 hour[d]	6.77	97	104	50	**208%**
	Annual[c]	0.573	44.2	44.8	20	**224%**
PM2.5	24 hour[d]	6.77	66.6	73.4	35	**210%**
	Annual[c]	0.573	25.2	25.8	12	**215%**
SO_2	1 hour[a]	2.71	78.2	80.9	655	12%
	24 hour[d]	0.856	39.1	40.0	105	38%
	Annual[c]	0.056	7.8	7.9	80	10%

[a] modeled 1-hour average impacts during startup event, (8-hour impacts include 1 startup and 7 hours operation).
[b] modeled 1-hour average impacts during required periodic fire pump testing, concurrent with all turbines operating at full load.
[c] modeled annual emissions assume 350 startups, 350 shutdowns, 3,468 hours of operation.
[d] modeled 24-hour emissions assume 1 startup, 1 shutdown and 22 hours of operation.

Source: WCE 2005a (Table 8.1-38) and Energy Commission Staff calculations

Startup impacts are much larger than full load impacts not only because the emissions are greater, but also because the flue gas stream is at a lower velocity and temperature. This reduced emissions velocity means the pollutants will settle faster and thus have less time to dilute before reaching the ground. Note that the values presented are very conservative, based on worst case startup emission estimates from the turbine manufacturer. Typical startup events are likely to generate significantly less emissions and impacts. This analysis is additionally conservative in regards to the assumed background measurements. The assumption is that the highest background measurements, from the last four years, coincide (in both location and timing) with the maximum project emission impacts. Because such a high background level is unlikely to occur at the same time and location as the maximum impacts from the project, these modeled conditions are considered worst case, conservative, and not likely to occur.

This table shows that during worst case startup and full load operations, the facility will potentially contribute to the existing PM10 and PM2.5 violations exceeding 200 percent of the ambient air quality standard. The air dispersion modeling predicted the locations

of the 50 highest PM10/PM2.5 ambient air quality impacts between 1.6 and 2.0 kilometers (or 1.0 and 1.3 miles) to the North-Northeast of the project site. Staff uses the federal and state ambient air quality standards, which are health based standards, as the indication of a possible ambient air quality impacts. Since the project PM10/PM2.5 emission impacts will contribute to an existing exceedance of the PM10 and PM2.5 state and federal ambient air quality standards staff presumes that these impacts may thus also contribute to existing human health impacts (generally in the form of respiratory impacts). Thus, staff considers the project PM10/PM2.5 emission impacts to be significant if left unmitigated, in the vicinity of the proposed project, and more local than regional in nature.

Since the project's impacts alone do not cause a violation of any NO_2, CO, or SO_2 ambient air quality standards under such conservative assumptions, staff considers the project impacts for those pollutants to be insignificant. Although the direct NO_2 impacts from the WCEP do not cause a violation of the NO_2 ambient air quality standard, all NO_2 emissions from the facility will need to be regionally mitigated with RECLAIM Trading Credits (RTCs) to maintain district wide progress toward attainment with the ozone ambient air quality standards because NO_2 is a precursor emission to ozone formation. Similarly, the direct SO2 impacts from the WCEP, which do not cause a violation of the SO_2 ambient air quality standards, will also need to be regionally mitigated with ERCs or PRCs to maintain district wide progress toward attainment with the PM10 ambient air quality standards because SO_2 is a precursor emission to secondary PM10/PM2.5 formation. Please see the "Operations Mitigation" section below for a detailed discussion of the proposed mitigation.

Fumigation Modeling Impact Analysis

Surface air is usually stable during the early morning hours before sunrise. During such meteorological conditions, emissions from elevated stacks rise through this stable layer and are dispersed and diluted. When the sun first rises, the air at ground level is heated, resulting in turbulent vertical mixing (both rising and sinking) of air within a few hundred feet of the ground. Emissions from a stack that enter this turbulent layer of air will also be vertically mixed, bringing some of those emissions down to ground level before significant dispersion occurs and possibly causing abnormally high short term impacts. As the sun continues to heat the ground, this vertical mixing layer becomes thicker over time, and the emissions plume becomes better dispersed. The early morning air pollution event, called fumigation, usually lasts approximately 30 to 60 minutes.

The applicant used the U.S. EPA approved SCREEN3 model (version 96043) for the calculation of fumigation impacts, without a shoreline assumption, since the proposed facility is approximately 35 km from the nearest shoreline. AIR QUALITY Table 16 shows the highest modeled fumigation impacts in comparison with the one-hour NO_2, SO_2 and CO standards. Since fumigation impacts will not typically occur for more than a one-hour period, only the impacts on the one-hour standards are shown. The results of the modeling analysis show that fumigation impacts will not violate any of the one-hour standards. Therefore, staff finds the potential ambient air quality impacts from fumigation to be less than significant.

AIR QUALITY Table 16
CTG Fumigation Modeling
Maximum 1 hour Impacts (µg/m^3)

Pollutant	Modeled Impact	Background	Total Impact	Limiting Standard	Percent of Standard
NO_2	28.22	248.2	276.4	470	59%
CO	8.98	6,286	6,295	23,000	27%
SO_2	0.32	78.2	78.5	655	12%

Source: WCE 2005a (Table 8.1-35)

Commissioning Modeling Impact Analysis

The initial commissioning of a power plant refers to the time frame between completion of construction and the consistent production of electricity for sale on the market. Normal operating emission limits usually do not apply during initial commissioning procedures. WCE will go through several tests during initial commissioning. During the first set of tests, post-combustion controls will not be operational (i.e., the SCR and oxidation catalyst).

These tests start with a Full-Speed, No-Load test. This test runs the turbine at approximately 20 percent of its maximum heat input rate. Components tested include the ignition system, synchronization with the electric generator and the turbine-overspeed safety system. Part Load testing runs the turbines to approximately 60 percent of the maximum heat input rating. During this test the turbine will be tuned. Full Load testing runs the turbines to their maximum heat input rate. This testing entails further tuning of the turbine. Full Load –Partial SCR testing runs the turbines at 100 percent of their maximum heat input rate and operates the SCR ammonia injection grid for the first time. Finally, Full Load – Full SCR testing runs the turbines at their maximum heat input rate and operates the SCR ammonia inject grid at its full capacity. It is during this test that the SCR system will be completely tuned and operating at design levels (i.e., NOx control at 2.0 ppm).

There is little experience to draw from regarding the initial commissioning of the GE LMS100 turbines. The applicant is estimating that it will need approximately 394 hours of actual turbine operation per turbine train for commissioning purposes. The applicant plans on commissioning all five turbine trains at approximately the same time. The applicant estimates that the maximum NOx emission rate (175 lbs/hr for one turbine) is most likely to occur during the water injection commissioning phase when the water injection will be 50 percent effective and the turbine train will be at 50 percent load. The maximum CO emission rate (255 lbs/hr) will most likely occur when the water injection is 100 percent effective and the turbine train is at 100 percent load (SCR and oxidation catalyst are not yet commissioned).

The applicant used the U.S. EPA approved SCREEN3 model (version 96043) for the calculation of commissioning impacts. AIR QUALITY Table 17 shows the highest modeled impacts in comparison with the one-hour NO_2 and CO standards. The modeling reflects the NOx and CO emission rates presented and shows that there is no reasonable expectation that the emissions from initial commissioning will cause or contribute to an exceedance of the limiting ambient air quality standards.

AIR QUALITY Table 17
CTG Commissioning Modeling
Maximum 1 hour Impacts (µg/m^3)

Pollutant	Modeled Impact	Background	Total Impact	Limiting Standard	Percent of Standard
NO_2	170.49	248.2	418.69	470	89%
CO 1-HOUR	538.25	6,286	6,824.25	23,000	30%
CO 8-HOUR	88.39	4,571	4,659.39	10,000	46%

Source: WCE 2005a

Secondary Pollutant Impacts

The project's gaseous emissions of NOx, SO_2, VOC and ammonia can contribute to the formation of secondary pollutants: ozone and PM10/PM2.5. There are air dispersion models that can be used to quantify ozone impacts, but they are used for regional planning efforts where hundreds or even thousands of sources are input into the modeling to determine ozone impacts. There are no regulatory agency models approved for assessing single source ozone impacts. However, because of the known relationship of NOx and VOC emissions to ozone formation, it can be said that the emissions of NOx and VOC from the WCEP do have the potential (if left unmitigated) to contribute to higher ozone levels in the region. These impacts would be significant because they would contribute to ongoing violations of the state and federal ozone ambient air quality standards.

Secondary PM10 formation, which is assumed to be 100 percent PM2.5, is the process of conversion from gaseous reactants to particulate products. The process of gas-to-particulate conversion, which occurs downwind from the point of emission, is complex and depends on many factors, including local humidity and the presence of air pollutants. The basic process assumes that the SOx and NOx emissions are converted into sulfuric acid and nitric acid first, then react with ambient ammonia to form sulfate and nitrate. The sulfuric acid reacts with ammonia much faster than nitric acid and converts completely to particulate form. Nitric acid reacts with ammonia to form both a particulate and a gas phase of ammonium nitrate. The particulate phase will tend to fall out, however the gas phase can revert back to ammonia and nitric acid. Thus, under the right conditions, ammonium nitrate and nitric acid establish a balance of concentrations in the ambient air. There are two conditions that are of interest described as "ammonia rich" and "ammonia poor." In the case of "ammonia rich," there is more than enough ammonia to react with all the sulfuric acid and to establish a balance of nitric acid-ammonium nitrate. Further ammonia emissions in this case will not necessarily lead to increases in ambient PM2.5 concentrations. In the case of an "ammonia poor" environment, there is insufficient ammonia to establish a balance and thus additional ammonia will tend to increase PM2.5 concentrations.

The area near Rubidoux in San Bernardino County (located east of the project site in Los Angeles County) has been the subject of an extensive study of ambient ammonia, which found that the area was ammonia rich. Therefore, further ammonia emissions from the WCEP project might not lead to further formation of ammonium nitrate or sulfate. While there will certainly be some conversion from the ammonia emitted from

the WCEP project, there is currently no regulatory model that can predict the conversion rate. However, because of the known relationship of NOx and SOx emissions to PM2.5 formation, it can be said that the emissions of NOx and SOx from the WCEP project do have the potential (if left unmitigated) to contribute to higher PM2.5 levels in the region.

Visibility Impacts

A visibility analysis of a project's gaseous emissions is required under the Federal Prevention of Significant Deterioration (PSD) permitting program. The analysis provided by the applicant showed that the only Class 1 PSD area, which pertains to national parks and national wildlife refuges, that is not beyond the distances prescribed in the SCAQMD Rule 1303 (Table C-1) is the San Gabriel Wilderness Area (approximately 26 km from the proposed project site). The applicant provided an assessment of the potential changes to visibility and nitrogen deposition using the VISCREEN model. The results of the analysis showed that there will be no noticeable effect on visibility at the San Gabriel Wilderness Area from the air pollution emissions at the WCEP. Staff concurs with the conclusion of the analysis provided by the applicant. Therefore, staff finds the potential ambient air visibility impacts Class 1 PSD areas from the exhaust emissions of the project to be less than significant.

Operations Mitigation

Applicant's Proposed Mitigation

The WCEP air pollutant emissions impacts will be reduced by using emission control equipment on the project and by providing emission offsets. To reduce NOx emissions, the applicant proposes to use water injection into the combustors in the CTGs and an SCR system with an ammonia injection grid.

Combustion Turbine

To reduce CO emissions, the applicant proposes to use a combination of good combustion and maintenance practices, along with an oxidizing catalyst. The use of a clean-burning fuel (natural gas) and the efficient combustion process of the CTGs will limit VOC and PM10 emissions. The use of natural gas as the only fuel will limit SO_2 emissions.

Water Injection

Over the last 20 years, combustion turbine manufacturers have focused their attention on limiting the NOx formed during combustion. One method has been steam or water injected into the combustor cans to reduce combustion temperatures and the formation of thermal NOx, which is the primary source of NOx emissions from a CTG. This method has been employed for many years and is well understood and has been proposed for the GE LMS100 turbines for this project.

Flue Gas Controls

To further reduce the emissions from the combustion turbines before they are exhausted into the atmosphere, flue gas controls, primarily catalyst systems, will be installed for the GE LMS100s. The applicant is proposing two catalyst systems, an SCR system to reduce NOx, and an oxidizing system to reduce CO and VOC.

Selective Catalytic Reduction (SCR)

SCR refers to a process that chemically reduces NOx by injecting ammonia into the flue gas stream over a catalyst in the presence of oxygen.

The process is termed selective because the ammonia reducing agent preferentially reacts with NOx rather than oxygen, producing inert nitrogen and water vapor. The performance and effectiveness of SCR systems are related to operating temperatures, which may vary with catalyst designs. Flue gas temperatures from a combustion turbine typically range from 950° to 1100 ^{o}F.

Catalysts generally operate between 600° to 750 ^{o}F (ARB 1992), and are normally placed inside the exhaust where the flue gas temperature has cooled. At temperatures lower than 600 ^{o}F, the ammonia reaction rate may start to decline, resulting in increasing ammonia emissions, called "ammonia slip." At temperatures above about 800°F, depending on the type of material used in the catalyst, damage to some catalysts can occur. The catalyst material most commonly used is titanium dioxide, but materials such as vanadium pentoxide, zeolite, or a noble metal are also used. These newer catalysts (versus the older alumina-based catalysts) are resistant to fuel sulfur fouling at temperatures below 770 ^{o}F (EPRI 1990).

Regardless of the type of catalyst used, efficient conversion of NOx to nitrogen and water vapor requires uniform mixing of ammonia into the exhaust gas stream. Also, the catalyst surface has to be large enough to ensure sufficient time for the reaction to take place.

Oxidizing Catalyst

To reduce the turbine CO and VOC emissions, the applicant proposes to install an oxidizing catalyst, which is similar in concept to catalytic converters used in automobiles. The catalyst is usually coated with a noble metal, such as platinum, which will oxidize unburned hydrocarbons and CO to water vapor and carbon dioxide (CO_2). The catalyst is proposed to limit the CO concentrations exiting the exhaust stack to six ppm, corrected to 15 percent excess oxygen and averaged over three-hours.

Emission Offsets

With the exception of VOC, the applicant has not secured sufficient offsets to satisfy either SCAQMD Rule 1303 (which requires Emission Reduction Credits (ERCs)) or Regulation XX (which requires participation in the RECLAIM program) or to mitigate the project impacts under CEQA. At this time, staff is aware of 226 lbs/day of VOC ERCs that the applicant has secured. This is 3.2 lbs/day short of what staff believes is necessary to mitigate the project VOC emission impacts (see AIR QUALITY Table 19, below). Staff provides AIR QUALITY Table 18 to summarize the current intentions of the applicant to offset or otherwise mitigate the WCEP emission impacts.

The Regional Clean Air Incentives Market (RECLAIM) is designed to allow facilities flexibility in achieving emission reduction requirements for NOx and SOx through controls, equipment modifications, reformulated products, operational changes, shutdowns, other reasonable mitigation measures or the purchase of excess emission

reductions. The RECLAIM program establishes an initial allocation (beginning in 1994) and an ending allocation (to be attained by the year 2003) for each facility within the program (Rule 2002). Each facility then reduces their allocation annually on a straight line from the initial to the ending allocation. The RECLAIM program supersedes other specified district rules, where there are conflicts. As a result, the RECLAIM program has its own rules for permitting, reporting, monitoring (including continuous emission monitoring (CEM)), record keeping, variances, breakdowns and the New Source Review program, which incorporates BACT requirements (Rules 2004, 2005, 2006 and 2012). RECLAIM also has its own banking rule, RECLAIM Trading Credits (RTCs), which is established in Rule 2007. The project is exempt and excluded from the SOx RECLAIM program (Rule 2011) because it uses natural gas exclusively (per Rule 2001). However, it will be a NOx RECLAIM project and therefore subject to the rules of RECLAIM for NOx emissions.

AIR QUALITY Table 18
Offsets and Mitigation Proposed by the Applicant

Pollutant	Amount of Offsets Required	Offset or other mitigation
NOx	198,044 lbs/year for the first year of operation	The applicant intends to participate in the SCAQMD NOx RECLAIM program, but has not secured any Reclaim Trading Credits (RTCs).
SOx	55 lbs/day	The applicant intends to purchase SO_2 ERCs, but has not demonstrated to staff that they have secured any such ERCs at this time. Alternatively, the applicant may purchase credits in the Priority Reserve under SCAQMD Rule 1309.1, but has not completed the required due diligence to participate in the Priority Reserve program.
VOC	180 lbs/day	The applicant intends to purchase VOC ERCs, and has demonstrated to staff that they have secured 226 lbs/day of VOC ERCs at this time.
CO	1,490 lbs/day	U.S. EPA is reviewing whether the district should be designated as attainment for CO. The schedule for reaching this decision is not known. The applicant intends to purchase CO ERCs if the SCAQMD is not re-designated by the U.S. EPA to attainment for CO, but has not secured any such ERCs at this time. Alternatively, the applicant may participate in the Priority Reserve, but has not completed the required due diligence to participate.
PM10	560 lbs/day	The applicant intends to participate in the Priority Reserve under SCAQMD Rule 1309.1, but has not completed the required due diligence to purchase any available PM10 ERCs.
PM2.5	560 lbs/day	The applicant intends to rely on the PM10 credits they intend to purchase from the SCAQMD serve as PM2.5 mitigation.

Adequacy of Proposed Mitigation

Potential Mitigation for VOC

Given that the applicant has provided 226 lbs/day of VOC ERCs for staff to review, the project is compliant with SCAQMD new source review regulations, but is not adequately mitigated for its VOC emission impacts on ozone formation (see AIR QUALITY Table 19 below).

Potential Mitigation for NOx

For NOx, staff understands that the RTCs will be obtained after the Energy Commission permitting process is finalized (after the Commission Decision is issued). Consistent with previous Commission Decisions (Inland Empire Energy Center, AFC 01-AFC-17), staff recommends that the first year of the RTCs be obtained prior to the commencement of construction (see Condition of Certification AQ-SC7). If that occurs, staff believes that the NOx emission impacts as a contributor to secondary pollutant formation (ozone and PM10/PM2.5) will be adequately mitigated through compliance with Condition of Certification AQ-SC7.

Potential Mitigation for CO

As discussed in the Operation and Impacts section, staff believes that the project's potential impacts on the CO ambient air quality standards are not significant. Thus, staff does not recommend any further CO mitigation measures. However, the SCAQMD does require offsets under their NSR rule, at least if and until the U.S. EPA re-designates the South Coast Air Basin as attainment. Staff feels it is likely that, in the course of this licensing case, the U.S. EPA will re-designate the SCAQMD as attainment for the federal CO ambient air quality standards, and thus CO offsets would not be necessary.

Potential Mitigation for SOx, CO, PM10 and PM2.5

The applicant has proposed to offset the project's CO, SOx and PM10 emission impacts with the credits from the District Priority Reserve Bank. The applicant is allowed access to this bank by the recently adopted Rule 1309.1. There are several requirements that the applicant must fulfill to comply with Rule 1309.1 and thus have access to the Priority Reserve. According to the District Preliminary Determination of Compliance (SCAQMD 2006b), for the applicant to access the Priority Reserve, Rule 1309.1 imposes the following pertinent requirements:

- The applicant must pay a mitigation fee commensurate with the amount of credits purchased (the applicant would pay this fee prior to the SCAQMD issuance of a Permit to Construct).
- The project must be operational within three years of the permit to construct (the project is planned to be operational by July 2008).
- The applicant must enter into a long-term contract with the State of California for at least 50 percent of their power if the District's Executive Officer determines, based on consultation with state power agencies, that the state is entering into such

contracts and that a need for such contracts exists at the time of permitting. (The state is currently not offering such contracts.)

- The applicant must purchase PRCs at a 1.2 to 1.0 offset ratio, which the applicant plans to do.
- The applicant is required to conduct a due diligence effort approved by the Executive Officer to secure ERCs for the requested Priority Reserve pollutants (potentially SOx, CO and PM10; the applicant has not demonstrated compliance with this requirement).

The SCAQMD is proposing further amendments to Rule 1309.1 that is currently scheduled for adoption by the SCAQMD Governing Board meeting on March 2 2007. This amendment rule would increase the fees the applicant would pay by 50% of the current rate. Staff is working with the SCAQMD to further our understanding of the Priority Reserve, thus enabling staff to make a reasonable recommendation to the Committee. The remainder of this section describes staff's current understanding of the workings of the Priority Reserve.

Priority Reserve Bank

Rule 1309.1 allows electrical-generation projects to access a District managed offset bank to meet New Source Review (NSR) requirements to offset PM10, SOx, and CO emissions. The SCAQMD believes that there is a critical shortage of traditional Emission Reduction Credits (ERC), and that by allowing power plant applicants to have access to the PRCs, the NSR requirements for emission offsets will be met and the projects can move forward in their permitting process.

The District has several rules which exempt specified sources from providing offset credits required under NSR. To satisfy federal Clean Air Act (CAA) NSR requirements, the District has maintained an Offset Tracking System to demonstrate equivalency with federal NSR requirements. The purpose of the system is to demonstrate that for each offset credit not surrendered for a particular project because of District exemptions, the District has provided an equivalent amount of offsets not otherwise required by federal law. At EPA's request, the District codified the provisions of this system into District Rule 1315 – New Source Review Offset Account and Tracking System--in late 2006. Rule 1315 lists the types of actions that may be credited and must be debited from the District's Offset Account.

In traditional ERC programs, private entities create offset credits from the modification or shutdown of emission sources, and can sell or trade those credits on the open market. The District Offset Account differs from the traditional ERC program in that the District identifies and collects emission reductions from various actions such as unclaimed shutdown, and credits surrendered to the Districts in excess of Federal NSR requirements. These emission reduction credits are deposited in the District's Offset Account and withdrawn as needed to provide offsets for qualified facilities as specified by Rules 1304, 1309.1 and 1309.2. Payments for these credits by qualifying facilities are made directly to the District, which debits the District Offset account; the credits are not transferred to the new emission source or owner in the accounts. The District Offset

Account is funded with emission reductions from various types of permitting actions. Following are examples.

- The federal Clean Air Act (CAA) does not require minor sources to provide offsets; however, the District does require offsets for new and modified non-exempt (under the CAA) sources with non-attainment pollutant emission levels above 4 tons per year. Since these credits are not required by the CAA, the District believes these credits are surplus creditable reductions that can be added to the District's offset accounts.
- New emissions increases of SOx, CO and PM10 from major sources are typically offset at a ratio of 1.2:1, while the CAA requires that the ratio for offsetting these pollutants be at least 1.0:1.0. Therefore, the District believes that the extra reductions (0.2 or 20 percent) can be added to the District's offset accounts.
- When permitted equipment located at both minor and major sources is shutdown permanently or emissions reduced beyond required levels and the equipment owner does not claim or bank those reductions as an ERC, the District believes that the unclaimed reductions can be added to the District's offset accounts.

As proposed projects qualify for offsets under the Priority Reserve or Offset Account, applicants pay a fee to the District calculated as dollars per pound per day of permitted emissions. For the Priority Reserve PM10, the present cost is $50,417 for each pound of PM10 emitted per day. The monies received from applicants to satisfy their offset requirements are then allocated by the District to various emission reduction programs to generate emission reductions. From January 2001 through May, 2006, the District's Governing Board allocated Priority Reserve funds to programs such as:

- Liquid Natural Gas (LNG) Fueling Stations for use by the garbage trucks at municipal solid waste transfer stations,
- LNG Fueling Station infrastructure at transit bus and school district bus yards,
- Replacement of portable diesel engines with micro-turbines,
- Replacement of existing diesel school buses with new alternative-fueled buses,
- Diesel backup generators retrofitted with particulate traps, and
- Operation of the Coachella Valley compressed natural gas (CNG) powered street-sweepers fleet to reduce fugitive dust (PM10) emissions.
  (2006 SCAQMD, "Priority Reserve Rule 1309.1 Mitigation Projects" as of April 12, 2006")

Other types of emission reduction programs the District has identified are: providing low-sulfur diesel fuel to railway locomotives that operate within the Air Basin, encouraging the use of fuel cells and electrification of power supplies for docked ships, retrofitting existing diesel mobile sources (such as construction equipment) with particulate traps or oxidation catalysts, and encouraging the conversion of internal combustion lawn and garden equipment to battery or electric operation. (2006 SCAQMD, Preliminary Draft Staff Report Proposed Amended Rule 1302 – Definitions, and Proposed Amended Rule 1309.1 - Priority Reserve, June 15, 2006). The emission reductions from these programs are not used to generate more credits to add to the

District's Offset Account, but rather they are accounted for in the District's emission inventory for State Implementation Planning purposes (phone conversation with Michael Krause of SCAQMD, August 23, 2006).

Quantification of Mitigation

Notwithstanding the lack of ERCs, RTCs, or credits from the Priority Reserve program (PRCs), there is another issue as to the quantification of the mitigation and offsets that the SCAQMD will require. For the pollutants SO_2, CO, VOC and PM10, the SCAQMD calculates the ERC liability based on a 30-day average calculated from the highest potential month of emissions. This method results in an average daily emission to be offset, and not the potential maximum daily emissions. For facilities that operate as baseloaded power plants, there is little difference between the SCAQMD 30-day average daily limit and the actual potential maximum daily emissions. However, when a facility is operated as a peaking unit, the SCAQMD 30-day average daily limit includes a significant portion of the month that the power plant does not operate. The differences in the ERCs, which are the mitigation for the project, and the maximum potential emissions, are shown in the following AIR QUALITY Table 19.

AIR QUALITY Table 19
Maximum Potential Daily Emissions vs. Required ERCs
(pounds per day [lb/day])

Pollutant	**SO_2**	**CO**	**VOC**	**PM10**
Maximum Daily Emissions[a]	72.7	1,684.2	229.2	730.7
SCAQMD Required Offsets	55.0	1490.0	180.0	560.0
Difference	**17.7**	**194.2**	**49.2**	**170.7**

[a] From AIR QUALITY Table 11

The maximum potential emissions from the project that are potentially not mitigated are shown in the last row. The solution for this difference is for the applicant to provide the additional emission credits to cover their true maximum emissions liability or get the cooperation of the District to use the applicant's fees for PRC's to fund emission-reduction programs in communities affected by the project.

Staff Proposed Mitigation

As discussed in the impacts section of this analysis, staff has identified local PM10/PM2.5 impacts as a result of the operation of the project (see Operation Impacts and Mitigation section). Thus staff recommends that local emission reductions should be identified and secured to adequately mitigate these localized impacts. Staff recommends that the applicant investigate the potential for local mitigation measures that either the applicant or SCAQMD may administer. The applicant should work with the SCAQMD to earmark the funds the applicant will pay the SCAQMD for the Priority Reserve Credits to fund mitigation programs and measures near the project site. Staff recommends the following criteria for such projects in order to enhance their effectiveness as mitigation of the project's expected local impacts from PM.

- The mitigation programs and measures should be implemented locally (staff recommends within 10 kilometers of the project site based on the modeling protocols that were used in this project).
- The mitigation programs and measures should be specific and result in measurable emission reductions.
- The mitigation programs and measures should have specific emission reduction goals in terms of pounds of pollutants reduced (or eliminated) and should not be limited by a specific dollar amount.
- The mitigation programs and measures should have a specific time frame and deadline for implementation and measurable results. The final deadline should not go beyond the date for the project initial commissioning.
- The mitigation programs and measures should include reasonable progress or status reporting to the public, SCAQMD Board and the Energy Commission.
- Finally, the emission reductions from these mitigation programs and measures should not be credited to the SCAQMD District Account (i.e., the Priority Reserve). Staff understands the District does not intend to replenish the Priority Reserve through these programs.

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." (CEQA Guidelines, § 15355.) 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, § 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, present, and reasonably foreseeable future projects.

This analysis is primarily concerned with "criteria" air pollutants. Such pollutants have impacts that are usually (though not always) cumulative by nature. Rarely will a project cause a violation of a federal or state criteria pollutant standard. However, a new source of pollution may contribute to violations of criteria pollutant standards because of the existing background sources or foreseeable future projects. Air districts attempt to attain the criteria pollutant standards by adopting attainment plans, which comprise a multi-faceted programmatic approach to such attainment. Depending on the air district, these plans typically include requirements for air "offsets" and the use of "Best Available Control Technology" for new sources of emissions, and restrictions of emissions from existing sources of air pollution.

Much of the preceding discussion is concerned with cumulative impacts. The "Existing Ambient Air Quality" section describes the air quality background in the South Coast Air Basin, including a discussion of historic ambient levels for each of the significant criteria pollutants. The "Construction Impacts and Mitigation" section discusses the project's contribution to the local existing background caused by project construction. This following section includes four additional analyses:

- a summary of projections for criteria pollutants by the air district and the air district's programmatic efforts to abate such pollution;
- an analysis of the project's "localized cumulative impacts"-- direct emissions locally when combined with other local major emission sources; and
- a discussion of chemically reactive pollution impacts; ozone and PM2.5.
- a discussion of greenhouse gas reporting

Summary of Projections

The summary of projections will include projections of both ozone and PM10/PM2.5 for the SCAQMD and will be available in the Final Staff Assessment. To provide these projections, the staff proposes to review several SCAQMD documents and produce a reasonable synopsis of the air district's adopted plans for comprehensively addressing attainment with air quality standards. The SCAQMD documents include the following:

- Draft 2007 Air Quality Management Plan (adopted August 1, 2003)
- Adopted 2003 Air Quality Management Plan (adopted 12/10/1999)
- Final 2003 Coachella Valley PM10 State Implementation Plan (adopted 8/1/2002)
- Final Socioeconomic Report for the Final 2003 AQMP (adopted 8/1/2003)

Localized Cumulative Impacts

Since the power plant air quality impacts can be reasonably estimated through air dispersion modeling (see Operational Modeling Analysis section) the project contributions to localized cumulative impacts can be estimated. To represent "past" and, to an extent, "present projects" that contribute to ambient air quality conditions, the Commission staff recommends the use of ambient air quality monitoring data (see Environmental Setting section), referred to as the "background". The staff undertakes the following steps to estimate what are additional appropriate "present projects" that are not represented in the background and "reasonably foreseeable projects":

- First, the Commission staff (or the applicant) works with the air district to identify all projects that have submitted, within the last year of monitoring data, new application for an authority to construct (ATC) or permit to operate (PTO) and applications to modify an existing PTO within six miles of the project site. Beyond six miles there is little or no measurable cumulative overlap between stationary emission sources. The non-photochemical-reactant pollutant emission impacts of the criteria pollutant emissions (i.e., NOx, SOx, CO, PM10 and PM2.5) have, from staff's experience with air dispersion modeling, had a finite time and distance to remain airborne. In Staff's experience of using the USEPA air dispersion models (SCREEN, ISCST3 and AERMOD), staff has never seen any proposed power plant project non-photochemical-reactant pollutant emission impacts approach or go beyond 10 kilometers (or six miles). This effectively identifies all new emissions that emanate from a single point (e.g., a smoke stack), referred to as "point sources." The submittal of an air district application is a reasonable demarcation of what is "reasonably foreseeable". So, as an example, if the last year of ambient air quality monitoring data from area monitoring stations was 2003, then Commission staff (or

the applicant) would ask the air district for all new applications that are not included in the ambient data.

- Second, the Commission staff (or the applicant) works with the air district and local counties to identify any new area sources within six miles of the project site. As opposed to point sources, area sources include sources like agricultural fields, residential developments or other such sources that do not have a distinct point of emission. New area sources are typically identified through draft or final Environmental Impact Reports (EIR) that are prepared for those sources. The initiation of the EIR process is a reasonable basis on which to determine what is "reasonably foreseeable" for new area sources.
- The data submitted, or generated from the applications with the air district for point sources or initiating the EIR process for area sources provides enough information to include these new emission sources in air dispersion modeling. Thus, the next step is to review the available EIR(s) and permit application(s), determine what sources must be modeled and how they must be modeled.
- Sources that are not new, but may not be represented in ambient air quality monitoring are also identified and included in the analysis. These sources are rare but include existing sources that are co-located with the proposed source (such as an existing power plant). In most cases, the ambient air quality measurements are not recorded close to the proposed project, thus a local major source might not be well represented by the background air monitoring. When these sources are included, it is typically a result of there being an existing source on the project site and the ambient air quality monitoring station being more than 2 miles away.
- When there are a large number of sources (in some cases 15 to 20 sources) and they are primarily of small emission quantities with higher impacts, the modeling results must be carefully interpreted so that they are not skewed towards the smaller, high-impacting sources. The reason being that while small sources can cause higher impacts, they are typically limited to within a hundred yards or similar close proximity of the source. Therefore, a cumulative interaction with the proposed project emission impacts is unlikely.

Once the modeling results are interpreted, they are added to the background ambient air quality monitoring data and thus the modeling portion of the cumulative assessment is complete. Due to the use of air dispersion modeling programs in staff's cumulative impacts analysis, the applicant must submit a modeling protocol, based on informational requirements for an application, prior to beginning the investigation of the sources to be modeled in the cumulative analysis. The modeling protocol is typically reviewed, commented on, and eventually approved in the Data Adequacy phase of the licensing procedure. Staff typically assists the applicant in finding sources (as described above), characterizing those sources and interpreting the results of the modeling. However, the actual modeling runs are usually left to the applicant to complete. There are several reasons for this; modeling analyses take time to perform and require significant expertise, the applicant has already performed a modeling analysis of the project alone (see Operational Modeling Analysis section), and the applicant can act on its own to modify the project as the results warrant. Once the cumulative project emission impacts are determined, the necessity to mitigate the project emissions can be evaluated, and the mitigation itself can be proposed by staff and//or applicant (see Mitigation section).

The cumulative assessment for WCE includes the seven other sources shown in AIR QUALTIY Table 20. The original list of possible new sources from the SCAQMD included 837 sources for both the WCEP project and the sister project Valley del Sol Energy. Of the 837 sources identified:

- 146 were VOC sources,
- 46 were not appropriate for modeling (e.g., grain storage),
- 18 had no expected emissions,
- 228 were mobile emissions,
- 116 had throughputs too small to be reasonably considered,
- 197 were too far from WCE (more than 6 miles),
- 275 had emissions less than 5 lbs/day and were more than 4 miles from WCE.

This initial culling left 31 facilities to investigate, which together contain 45 individual sources. 24 of the remaining facilities did not represent new emissions; they were simple ownership or name changes, or other minor modifications. The remaining 7 facilities included 10 individual sources for which not much further information was known. The applicant followed the general modeling guidelines from the U.S. EPA and the AP42 Emission Factors compendium to fill in the missing data.

AIR QUALITY Table 20
Facilities Included in the Cumulative Modeling by the Applicant

Facility	Source Type	Facility ID
Nationwide Boiler Inc.	20-50 mmBtu/hr LPG Boilers	79621
Zamora Mexican Foods	Unknown	135492
USA Foods, Inc.	5-20 mmBtu/hr NG Boiler	136655
CEPS, LLC*	Cogeneration Facility	138267
Schlumberger Well Services	Portable Engines > 500 bhp	138493
COI Energy Center, LLC*	Stationary Engine > 500 bhp	143396
Eagle Crusher Co. Inc.	Portable Engines > 500 bhp	147705

*Under local government jurisdiction.

The results of this modeling effort, AIR QUALITY Table 21, show that WCE will contribute to existing violations of the PM10 and PM2.5 ambient air quality standards. The results also show that WCE will contribute to a new violation of the 1-hour NO_2 State Ambient Air Quality Standard. The NO2 violation appears to be near the COI Energy Center and it appears that the COI Energy Center is the major contributor. WCEP NOx emissions contribute a maximum of 17.3 ug/m^3 to this location or approximately 7 percent. This modeling analysis shows that there will be a new and ongoing potential violation of the 1-hour NO_2 State Ambient Air Quality Standards. However, staff is confident that these results are not reasonably representative of the cumulative impacts. It is far more likely that the emissions from the COI Energy Center have been mis-characterized because the applicant used the AP-42 Emission Factors and not actual emission data from the facility. The AP-42 Emission Factors Compendium contains conservative general emission factors that are not reflective of

actual emissions from a facility. In this case, the AP-42 emission factors are overly conservative and need to be refined to more accurately reflect the COI Energy Center emissions. Staff is working with the applicant and the SCAQMD to determine a more reasonable characterization.

AIR QUALITY Table 21
Cumulative Impacts Modeling Results (ug/m^3)

Pollutant	Averaging Time	Maximum Modeled Concentration (ug/m^3)	Background (ug/m^3)	Total Impact (ug/m^3)	Limiting AAQS (ug/m^3)	Percent of Limiting Standard
NO_2	1-Hour	253.9	248.2	502.1	470	**107%**
	Annual	6.6	65.8	72.4	100	72%
SO_2	1-Hour	Na	78.2	--	655	--
	24-Hour	Na	39.1	--	105	--
	Annual	Na	7.8	--	80	--
CO	1-Hour	592.4	6,286	6,878.4	23,000	30%
	8-Hour	222.2	4,571	4,793.2	10,000	48%
PM10	24-Hour	6.8	97	103.8	50	**208%**
	Annual	0.6	44.2	44.8	20	**224%**
PM2.5	24-Hour	6.8	66.6	73.4	35	**210%**
	Annual	0.6	25.2	25.8	12	**215%**

Source: WCE Cumulative Assessment

Chemically Reactive Pollutant Impacts

Ozone Impacts

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

There are air dispersion models that can be used to quantify ozone impacts, but they are used for regional planning efforts where hundreds or even thousands of sources are input into the modeling to determine ozone impacts. There are no regulatory agency models approved for assessing single source ozone impacts. However, because of the known relationship of NOx and VOC emissions to ozone formation, it can be said that the emissions of NOx and VOC from the WCEP do have the potential (if left unmitigated) to contribute to higher ozone levels in the region. These impacts would be significant because they would contribute to ongoing violations of the state and federal ozone ambient air quality standards.

PM2.5 Impacts

Secondary PM10 formation, which is assumed to be 100 percent PM2.5, is the process of conversion from gaseous reactants to particulate products. The process of gas-to-particulate conversion, which occurs downwind from the point of emission, is complex and depends on many factors, including local humidity and the presence of air pollutants. The basic process assumes that the SOx and NOx emissions are converted into sulfuric acid and nitric acid first, then react with ambient ammonia to form sulfate

and nitrate. The sulfuric acid reacts with ammonia much faster than nitric acid and converts completely to particulate form. Nitric acid reacts with ammonia to form both a particulate and a gas phase of ammonium nitrate. The particulate phase will tend to fall out, however the gas phase can revert back to ammonia and nitric acid. Thus, under the right conditions, ammonium nitrate and nitric acid establish a balance of concentrations in the ambient air. There are two conditions that are of interest, described as "ammonia rich" and "ammonia poor." The term "ammonia rich" indicates that there is more than enough ammonia to react with all the sulfuric acid and to establish a balance of nitric acid-ammonium nitrate. Further ammonia emissions in this case will not necessarily lead to increases in ambient PM2.5 concentrations. In the case of an "ammonia poor" environment, there is insufficient ammonia to establish a balance and thus additional ammonia will tend to increase PM2.5 concentrations.

The area near Rubidoux in San Bernardino County (located east of the project site in Los Angeles County) has been the subject of an extensive study of ambient ammonia, which found that the area was ammonia rich. Therefore, further ammonia emissions from the WCEP project might not lead to further formation of ammonium nitrate or sulfate. While there will certainly be some conversion from the ammonia emitted from the WCEP project, there is currently no regulatory model that can predict the conversion rate. However, because of the known relationship of NOx and SOx emissions to PM2.5 formation, it can be said that the emissions of NOx and SOx from the WCEP project do have the potential (if left unmitigated) to contribute to higher PM2.5 levels in the region.

Greenhouse Gas Reporting

In addition to regulated criteria pollutants, the combustion of fossil fuels produces air emissions known as greenhouse gases. These include primarily carbon dioxide, nitric oxide, and methane (unburned natural gas). Greenhouse gases are known to contribute to the warming of the earth's atmosphere. Climate change from rising temperatures represents a risk to California's economy, public health, and environment (CEC 2003). In 1998, the Energy Commission identified a range of strategies to prepare for an uncertain climate future, including a need to account for the environmental impacts associated with energy production, planning, and procurement (CEC 1998, p.5). In 2003, the Energy Commission recommended that the state should require reporting of greenhouse gas emissions as a condition of state licensing of new electric generating facilities (CEC 2003, p. 42). Staff recommends condition of certification **AQ-SC9**, which requires the project owner to report the quantities of relevant greenhouse gases emitted as a result of electric power production. Such reporting would be done in accordance with accepted reporting protocols as specified.

The calculations specified in condition of certification **AQ-SC9** are based on standard protocols developed by the Intergovernmental Panel on Climate Change, an international scientific body that is responsible for developing a common methodology for developing greenhouse gas inventories for all world governments to follow. The calculations are for those emissions associated with on-site fuel storage; all fuel combustion associated with the prime mover of the power plant; and the associated emissions of the on-site power transformer equipment. The greenhouse gas emissions to be reported in condition of certification **AQ-SC9** are carbon dioxide, methane, nitric

oxide and sulfur hexafluoride emissions that are directly associated with the production and transmission of electric power.

The Intergovernmental Panel on Climate Change-approved methodology for calculating the greenhouse gas emissions in an inventory is particular to the type of fossil fuel burned. In their Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories: Reference Manual, the Intergovernmental Panel on Climate Change established the factors for oxidation, fuel-based emissions, and global warming potential.

COMPLIANCE WITH LORS

FEDERAL

The District has not yet issued a Final Prevention of Significant Deterioration (PSD) permit as part of their Determination of Compliance for the project. The Preliminary Determination of Compliance, issued October 27, 2006 is expected to serve as the basis for the PSD permit for this project.

STATE

The applicant will demonstrate that the project will comply with Section 41700 of the California State Health and Safety Code, which restricts emissions that would cause nuisance or injury, with the District Preliminary Determination of Compliance (issued October 27, 2006) and the CEC staff's affirmative finding for the project.

LOCAL

Compliance with specific SCAQMD rules and regulations is discussed below via excerpts from the Preliminary Determination of Compliance(SCAQMD 2006b). For a more detailed discussion of the compliance of the project, please refer to the Preliminary Determination of Compliance (SCAQMD 2006b).

REGULATION II - PERMITS

RULE 212-Standards for Approving Permits

Rule 212 requires that a person shall not build, erect, install, alter, or replace any equipment, the use of which may cause the issuance of air contaminants or the use of which may eliminate, reduce, or control the issuance of air contaminants without first obtaining written authorization for such construction from the Executive Officer. A public notice will be issued followed by a 30-day public comment period prior to issuance of a permit.

Regulation IV-Prohibitions

RULE 401-Visible Emissions

This rule limits visible emissions to an opacity of less than 20 percent (Ringlemann No.1), as published by the United States Bureau of Mines. It is unlikely, with the use of the SCR /CO catalyst configuration that there will be visible emissions.

RULE 402-Nuisance

This rule requires that a person 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 cause, or have a natural tendency to cause injury or damage to business or property. The new turbine will be operated in a fairly remote (non-residential) area of San Bernardino County and is not expected to create a public nuisance based on experience with identical CTGs. Therefore, compliance with Rule 402 is expected.

RULE 403-Fugitive Dust

The purpose of this rule is to reduce the amount of particulate matter entrained in the ambient air as a result of man-made fugitive dust sources by requiring actions to prevent, reduce, or mitigate fugitive dust emissions. The provisions of this rule apply to any activity or man-made condition capable of generating fugitive dust. This rule prohibits emissions of fugitive dust beyond the property line of the emission source. The applicant will be taking steps to prevent and/or reduce or mitigate fugitive dust emissions from the project site. Such measures include covering loose material on haul vehicles, watering, and using chemical stabilizers when necessary. The installation and operation of the CTGs is expected to comply with this rule.

RULE 407-Liquid and Gaseous Air Contaminants

This rule limits CO emissions to 2,000 ppmvd and SO_2 emissions to 500 ppmvd, averaged over 15 minutes. For CO, the CTGs will meet the BACT limit of 6.0 ppmvd @ 15% O_2, 1-hr average, and the turbines will be conditioned as such. For SO_2, equipment which complies with Rule 431.1 is exempt from the SO_2 limit in Rule 407. The applicant will be required to comply with Rule 431.1 and thus the SO_2 limit in Rule 407 will not apply.

RULE 409-Combustion Contaminants

This rule restricts the discharge of contaminants from the combustion of fuel to 0.1 grain per cubic foot of gas, calculated to 12% CO_2, averaged over 15 minutes. The equipment is expected to meet this limit.

RULE 431.1-Sulfur Content of Gaseous Fuels

WCEP will use pipeline quality natural gas which will comply with the 16 ppmv sulfur limit, calculated as H2S, specified in this rule.

RULE 475-Electric Power Generating Equipment

Requirements of the rule specify that the equipment must comply with a PM10 mass emission limit of 11 lb/hr or a PM10 concentration limit of 0.01 grains/dscf. The PM10 mass emissions from the WCEP turbines are estimated to be 6 lb/hr. Therefore, compliance is expected.

Regulation XIII – New Source Review

RULE 1303(a) and Rule 2005(b)(1)(A)-BACT – LMS100 CTGs

These rules state that the Executive Officer shall deny the Permit to Construct for any new source which results in an emission increase of any non-attainment air contaminant, any ozone depleting compound, or ammonia unless the applicant can demonstrate that BACT is employed for the new source. The applicant has provided a performance warranty which accompanied the initial application package which indicates that each LMS100 operating on a simple cycle can comply with, and for NOx, even exceed the BACT requirements. AQMD now considers the more restrictive 1-hour averaging times to be Achieved in Practice and WCEP will therefore be required to comply with the 1-hour averages for NOx, CO, and VOC as opposed to the three hour as was proposed. The proposed project emission characteristics are lower than that required by BACT for the combustion turbines.

RULE 1303(a) and Rule 2005(b)(1)(A)-BACT – Emergency Fire Pump

The emergency fire pump is required to employ BACT because the maximum daily emissions from this source are expected to exceed 1 lb/day. WCE will be required to evaluate the technological feasibility of using a particulate trap on the emergency fire pump. In the event that it is not technologically feasible to install a particulate trap to control PM_{10} emissions, the Tier II BACT levels will apply to the emergency fire pump. BACT for SOx emissions for compression ignition emergency fire pumps is diesel fuel with a sulfur content no greater than 0.0015% by weight. The manufacturer has indicated that this engine can comply with the Tier II emission levels and the user will only purchase diesel fuel with a sulfur content of no greater than 0.0015% by weight. The emergency fire pump is expected to comply with BACT.

RULE 1303(a)-BACT – Cooling Tower

Rule 219(e)(3) provides an exemption for water cooling towers and water cooling ponds not used for evaporative cooling of process water or not used for evaporative cooling of water from barometric jets or from barometric condensers and in which no chromium compounds are contained. The 5-cell cooling tower being proposed at WCEP will meet the requirements of Rule 219(e)(3) and is therefore exempt from NSR. BACT therefore does not apply.

RULE 1303(a)-BACT – Ammonia Storage Tank

A pressure relief valve that will be set at no less than 25 psig will control ammonia emissions from the storage tank. In addition, a vapor return line will be used to control ammonia emissions during storage tank filling operations. Based on the above, compliance with BACT requirements is expected.

Based on the above BACT analysis for the entire project, the 5 CTGs and the emergency fire pump will comply with the current BACT requirements found in Regulation XIII (for the non-RECLAIM pollutants) and in Regulation XX (for the RECLAIM pollutants). BACT for all equipment is satisfied. RULE 1303(b)(1) and Rule 2005(b)(1)(B) - Modeling

The applicant has conducted air dispersion modeling using the EPA Industrial Source Complex Short Term ISCST3 air dispersion model, Version 3. The Tier 4 Health Risk Assessment was conducted in accordance with guidelines set forth by the California Office of Environmental Health Hazard Assessment (OEHHA) and the California Air Resources Board (CARB). The OEHHA/CARB computer program (HARP) was used to determine the health risk assessment. SCAQMD Staff's review of the modeling and HRA analyses concluded that the applicant used EPA ISCST3 model version 02035 along with the appropriate model options in the analysis for NO_2, CO, PM_{10}, and SO_2. The applicant modeled both the cumulative and individual permit unit impacts for the project. No significant deficiencies in methodology were noted.

RULE 1303(b)(2) and Rule 2005(b)(2)-Offsets – LMS100 PA CTGs

Since WCEP is a new facility with an emissions increase, offsets will be required for all criteria pollutants. WCEP will be included in NOx RECLAIM and as such, NOx increases will be offset with RTCs at a 1.0 to1 ratio. Non-RECLAIM criteria pollutants (CO, VOC, SOx, and PM_{10}) will be offset by either the purchase of Emission Reduction Credits (ERCs) and/or Priority Reserve Credits (PRCs) at a 1.2 to 1 ratio. The facility may elect to offset emission increases using either purchased ERCs or PRCs or any combination thereof as allowed by AQMD Rules and Regulations. WCEP has indicated that the required amounts of offsets will be provided prior to issuance of the Facility Permit. Compliance with offset requirements of Rules 1303(b)(2) and 2005(b)(2) is expected.

RULES 1303(b)(3)-Sensitive Zone Requirements and 2005(e)-Trading Zone Restrictions

Both rules state that credits must be obtained from the appropriate trading zone. In the case of Rule 1303(b)(3), unless credits are obtained from the Priority Reserve, facilities located in the South Coast Air Basin are subject to the Sensitive Zone requirements specified in Health & Safety Code Section 40410.5. WCEP is located in Zone 2a and is therefore eligible to obtain its ERCs from either Zone 1 or Zone 2a. Similarly in the case of Rule 2005(e), WCEP, because of its location may obtain RTCs from either Zone 1 or Zone 2, at its choosing. Compliance is expected with both rules.

RULE 1303(b)(4)-Facility Compliance

The new facility will comply with all applicable Rules and Regulations of the AQMD.

RULE 1303(b)(5)-Major Polluting Facilities

Rule 1303(b)(5)(A) – Alternative Analysis

The applicant is required to conduct an analysis of alternative sites, sizes, production processes, and environmental control techniques for the WCEP and to demonstrate that

the benefits of the proposed project outweigh the environmental and social costs associated with this project. WCE has performed a comparative evaluation of alternative sites as part of the AFC process and has concluded that the benefits of providing additional electricity and increased employment in the surrounding area will outweigh the environmental and social costs incurred in the construction and operation of the proposed facility.

Rule 1303(b)(5)(B) – Statewide Compliance

WCE has certified in the 400-A form that all major sources under its ownership or control in the State of California are in compliance with all federal, state, and local air quality rules and regulations. In addition, WCE has submitted an email to the AQMD dated October 19, 2006 stating that "any and all facilities that WCE owns or operates in the State of California (including the proposed WCEP) are in compliance or are on a schedule for compliance with all applicable emission limitations and standards under the Clean Air Act. Therefore, compliance is expected.

Rule 1303(b)(5)(C) – Protection of Visibility

Modeling is required if the source is within a Class I area and the NOx and PM10 emissions exceed 40 TPY and 15TYP respectively. Since the nearest Class I area is located over 28 miles from the proposed WCEP site, modeling from plume visibility is not required, however, the applicant has provided modeling impact data for the Class I areas as part of the AFC process. Compliance is expected.

Rule 1303(b)(5)(D) – Compliance through CEQA

The California Energy Commission's (CEC) certification process is essentially equivalent to CEQA. Since the applicant is required to receive a certification from the CEC, the applicable CEQA requirements and deficiencies will be addressed. Compliance is expected.

RULE 1309.1-Priority Reserve

As part of the recent amendments to Rule 1309.1-Priority Reserve, (September 8, 2006), the AQMD Executive Officer committed to hold a public meeting for each project prior to accessing the Priority Reserve. AQMD held a public meeting to inform the public about the specifics of the proposed project. The meeting was held on October 17, 2006. Topics discussed included facility emissions, local impacts on schools, and surrounding area. The requirements and compliance status are summarized in the table below:

The following is a direct excerpt from the SCAQMD PDOC:

Rule 1309.1 Requirements and Compliance Determination	
REQUIREMENTS	COMPLIANCE (Yes/No)
Rule 1309.1(c)(1) – Permit condition requiring facility to comply with BARCT for pollutants received from Priority Reserve for all existing sources prior to operation of any new sources	**(YES)** Since there are no existing sources at this facility, BARCT is not applicable and the new equipment will be constructed using BACT for simple cycle power plants. These emission limits the lowest levels achieved in practice under federal LAER. Compliance is expected
Rule 1309.1(c)(2) – The applicant must pay a mitigation fee pursuant to subdivision (g)	**(YES)** The applicant will pay this fee for each pollutant upon securing PRCs.

Rule 1309.1(c)(3) – Conducts due diligence effort approved by the Executive Officer to secure ERCs for requested Priority Reserve pollutants	**(PENDING)** The applicant has submitted written correspondence to AQMD (see letter in file dated September 27, 2006 from Latham & Watkins to Mr. Mohsen Nazemi) which indicates the applicant is in the process of attempting to secure ERCs for the requested Priority Reserve pollutants. AQMD has received a letter dated September 27, 2006 which provided information regarding the progess in securing offsets for WCEP. WCE will continue to provide progress reports until the ERCs are secured.
Rule 1309.1(c)(4) – Applicant has the new source fully and legally operational at rated capacity within 3 years following AQMD permit to Construct issuance or CEC certification, whichever is later	**(YES)** The applicant is scheduled to have the new facility fully operational at its rated capacity by July 2008.
Rule 1309.1(c)(5) – Applicant must enter into a long-term contract with the State of California to sell at least 50% of the portion of power which it has generated using PRCs	**(YES)** The applicant is a power generator and is engaged in the sale of generated power to end users. Most of the power will be supplied to the state's electrical grid. However, at this time, it is the AQMD's understanding that the State of California is not offering long term contracts for the acquisition of power.
Rule 1309.1(c)(6) – Applicant for an in-Basin EGF must purchase PRCs at an offset ratio of 1.2 –to-1.0	**(YES)** The applicant has proposed to purchase both ERCs and PRCs at an offset ration of 1.2-to-1.0.
Rule 1309.1(c)(7) – Applicant for a Downwind Air Basin EGF shall obtain credits at an offset ratio as determined by the downwind air district	**(NOT APPLICABLE)** This facility is located within the South Coast Air Basin (SCAB) and the applicable offset ratio for PRCs in the SCAB is 1.2-to-1.0.
Rule 1309.1(c)(8) – Applicant for Permit to Construct must agree to a permit condition which requires new sources to be fully and legally operational at rated capacity within 3 years. An applicant that is a municipality must have an additional year if the EGF contains a renewable energy component with a rated capacity of at least 50 MW of renewable energy.	**(YES)** The applicant is scheduled to have the new facility fully operational at its rated capacity by July 2008.
BASED ON THE INFORMATION IN THIS TABLE, WCEP CAN COMPLY WITH THE APPLICABLE REQUIREMETS OF RULE 1309.1	

PROPOSED AMENDED RULE 1309.1

On December 1, 2006, the SCAQMD proposed an additional amendment to Rule 1309.1, the Priority Reserve. This amendment identifies three zones within the South Coast Air Basin (Zones 1, 2 and 3) where differing requirements for use of Priority Reserve credits would be established. These zones are based on the ambient air concentrations of PM2.5 (note that the Priority Reserve does not include PM2.5 credits). If a proposed project is located within Zone 1, there are no additional requirements for using the Priority Reserve than the present rule requires. If within Zone 2, the applicant must pay 150 percent of the fee specified for Zone 1. If within Zone 3, the project would not be able use the Priority Reserve Credits. Based on staff's preliminary assessment of the location of WCEP, the project would be located in Zone 2. The present schedule for adoption of the amended Rule 1309.1 is March 2, 2007.

REGULATION XVII-PREVENTION OF SIGNIFICANT DETERIORATION

The SCAQMD Governing Board, in its action on February 7, 2003, authorized the Executive Officer, upon withdrawal of the EPA Prevention of Significant Deterioration (PSD) delegation, not to request any further delegation and to allow the EPA to terminate the AQMD's PSD delegation agreement and for EPA to become the permitting agency for PSD sources in the AQMD.

The Board determined that Regulation XVII is inactive upon EPA's withdrawal of delegation and shall remain inactive unless and until the EPA provides the AQMD with new delegation of authority to act either in full or on a Facility/Permit-Specific basis. The delegation was rescinded on March 3, 2003, by EPA.

The District Governing Board in its April 1, 2005, meeting reaffirmed its previous action on February 7, 2003, to relinquish PSD analysis back to federal government and render Regulation XVII inactive unless the District receives new delegation in part or in full from the EPA.

Based on the Governing Board's actions, this rule is ineffective and no analysis is required for any pollutant subject to federal PSD requirement. The AQMD has sent the applicant a notification to contact the EPA directly for applicability of PSD to the proposed project. AQMD sent a letter to the applicant on December 8, 2005, and instructed the applicant to contact EPA directly regarding implementation of PSD. To staff's knowledge there has been no resolution to this issue, USEPA has not at this time delegated the PSD analysis to the SCAQMD as has been the practice in the last few years.

REGULATION XX - RECLAIM

Rule 2005(g) – Additional Requirements

As with Rule 1303(b)(5) for the Non-RECLAIM pollutants, WCEP has addressed the alternative analysis, statewide compliance, protection of visibility, and CEQA compliance requirements of this rule for NOx. These requirements are essentially the same as those found in Rule 1303(b)(5), subparts A through D for non-RECLAIM pollutants, and are summarized below.

Rule 2005(g)(1) – Statewide Compliance

WCE has certified in the 400-A form that all major sources under its ownership or control in the State of California are in compliance with all federal, state, and local air quality rules and regulations. In addition, WCE has submitted an email to the AQMD dated October 19, 2006 stating that "any and all facilities that WCE owns or operates in the State of California (including the proposed WCEP) are in compliance or are on a schedule for compliance with all applicable emission limitations and standards under the Clean Air Act. Therefore, compliance is expected.

Rule 2005(g)(2) – Alternative Analysis

The applicant is required to conduct an analysis of alternative sites, sizes, production processes, and environmental control techniques for the WCEP and to demonstrate that the benefits of the proposed project outweigh the environmental and social costs associated with this project. WCE has performed a comparative evaluation of alternative sites as part of the AFC process and has concluded that the benefits of providing additional electricity and increased employment in the surrounding area will outweigh the environmental and social costs incurred in the construction and operation of the proposed facility.

Rule 2005(g)(3) – Compliance through CEQA

The California Energy Commission's (CEC) certification process is a certified regulatory program under CEQA. Since the applicant is required to receive certification from the CEC, the applicable CEQA requirements and deficiencies will be addressed. Compliance is expected

Rule 2005(g)(4) – Protection of Visibility

Modeling is required if the source is within a Class I area and the NOx emissions exceed 40 TPY. Since the nearest Class I area is located over 28 miles from the proposed WCEP site, modeling from plume visibility is not required, however, the applicant has provided modeling impact data for the Class I areas as part of the AFC process. Compliance is expected

Rule 2005(h) – Public Notice

WCEP will comply with the requirements for Public Notice found in Rule 212. Therefore compliance with Rule 2005(h) is demonstrated.

Rule 2005(i) – Rule 1401 Compliance.

WCEP will comply with Rule 1401 as demonstrated in the Tier 4 analysis and subsequently reviewed and found to be satisfactory by AQMD modeling staff. Compliance is expected.

Rule 2005(j) – Compliance with State and Federal NSR.

WCEP will comply with the provisions of this rule by having demonstrated compliance with AQMD NSR Regulations XIII and Rule 2005-NSR for RECLAIM.

REGULATION XXX – TITLE V

WCEP is a Title V facility because the cumulative emissions will exceed the Title V major source thresholds and because it is also subject to the federal acid rain provisions. The initial Title V permit will be processed and the required public notice will be sent along with the Rule 212(g) Public Notice, which is also required for this project. EPA is afforded the opportunity to review and comment on the project within a 45-day review period.

NOTEWORTHY PUBLIC BENEFITS

There are no air quality-based noteworthy public benefits to the project.

RESPONSE TO AGENCY AND PUBLIC COMMENTS

Staff has received no public comments at this time.

CONCLUSIONS

Staff's analysis indicates the project's PM10/PM2.5 direct and cumulative emission impacts to be significant. At this time, the Walnut Creek Energy Project applicant has yet to secure or identify sufficient emission reduction credits to offset the air quality emission impacts of NOx, SO_2, VOC, PM10 and PM2.5. Unmitigated, these pollutants have the potential to cause significant environmental impacts. Staff summarizes the mitigation needs for each pollutant with the following list of necessary information or recommended mitigation:

NOx – Prior to the commencement of construction, RTCs should be obtained to satisfy the District's requirement for the first year of operation.

CO – Staff does not recommend any additional CO mitigation measures. If CO re-designation from non-attainment to attainment is not forthcoming prior to the preparation of the FSA, then the CO ERCs and/or the PRCs should be submitted prior to the District issuing their Permit to Construct after the Commission Decision.

VOC – Prior to the staff publishing the FSA, the applicant should submit additional VOC ERCs certificates or other contractual documentation (option contracts) in the amount of 3.2 (from Table 19) lbs/day (229 lbs/day minus the 226 lbs/day already identified)

SO2 – Prior to the staff publishing the FSA, the applicant should submit SO2 ERCs certificates or other contractual documentation in the amount of 73 (from Table 19) lbs/day. If ERCs are not proposed, then SO2 emission reductions outlined below in the discussion of PM10/PM2.5 should be submitted.

PM10/PM2.5 – Prior to the staff publishing the FSA, the applicant should submit the following information that would result in the emission reductions in the local community equivalent to 731 (from Table 19) lbs/day to mitigate the potential localized impacts of PM10/PM2.5. Staff recommends that the applicant investigate the potential for local mitigation measures that either the applicant or SCAQMD may administer. The applicant should work with the SCAQMD to earmark the funds the applicant will pay the SCAQMD for the Priority Reserve Credits for mitigation programs and measures near the project site. Staff recommends the following criteria for such projects in order to ensure their effectiveness as mitigation:

- The mitigation programs and measures should be implemented, if feasible, within 10 kilometers (approximately 6 miles) of the project site.
- The mitigation programs and measures should be specific and result in measurable emission reductions.
- The mitigation programs and measures should have specific emission reduction goals in terms of pounds of pollutants reduced (or eliminated) and should not be tied to a specific dollar amount.

- The mitigation programs and measures should have a specific time frame and deadline for implementation and provide measurable results. The final deadline should not go beyond the date for the project initial commissioning.
- The mitigation programs and measures should include progress/status reports to the public, SCAQMD Board and the Energy Commission.
- Finally, the emission reductions from these mitigation programs and measures should not be credited to the SCAQMD District Account (i.e., the Priority Reserve); they should only be counted as environmental benefits.

The staff proposes the following Conditions of Certification. These Conditions include the SCAQMD proposed Conditions from the PDOC, with appropriate staff proposed verification language for each condition, as well as Energy Commission staff proposed conditions.

The Staff has proposed a number of permit conditions that are in addition to the permit conditions that the SCAQMD has proposed. In most cases the staff proposed permit conditions deal with air quality issues that the SCAQMD are not required to address. The Staff proposed Conditions of Certification are summarized as follows. Conditions AQ-SC1 through AQ-SC5 are construction related permit conditions. Conditions SC6 and SC8 deal with the administrative procedures for project modifications. Condition SC7 is a reporting requirement for the providing of emission offsets. Condition SC9 is the Commission Greenhouse Gas reporting requirement. Condition SC10 is a quarterly emission reporting requirement. Conditions SC11 and SC12 are cooling tower permit requirements. Condition SC13 is a daily emission limit requirement based on the SCAQMD's proposed emission offset requirements. Conditions AQ1 through AQ16 are the SCAQMD permit conditions with staff proposed verification language.

PROPOSED CONDITIONS OF CERTIFICATION

The SCAQMD has a unique system of structuring and numbering their permit conditions. In order for the reader to avoid confusion between how the SCAQMD numbers their permit conditions and how the Energy Commission staff normally numbers permit conditions, the staff prepared the following table that cross references the conditions in the PDOC with the conditions presented by staff in this analysis.

AIR QUALITY Table 22
District Permit Conditions with Corresponding Commission Conditions of Certification

SCAQMD Permit Conditions	CEC Condition of Certification	Condition Description
LMS100PA CTGs		
A63.1	AQ-1	Monthly contaminant emission limit (PM10, CO, SOx & VOC)
A63.2	AQ-2	Annual contaminant emission limit (PM10, CO, SOx & VOC)
A99.1	AQ-3	Relief from 2.5ppm NOx limit during commissioning, startup and shut down. Commissioning, startup & shutdown time limits. Limit of number of startups per year.
A99.2	AQ-3	Relief from 6.0ppm CO limit during commissioning, startup and shut down. Commissioning, startup & shutdown time limits. Limit of number of startups per year.
A99.3	AQ-3	NOx limit during the turbine commissioning, not to exceed 12 months.
A99.4	AQ-3	NOx limit for interim time period of end of commissioning to continuous emission monitoring system (CEMS) certification, not to exceed 12 months.
A195.1	AQ-4	CO emission limit of 6.0 ppm @ 15% O_2 averaged over 1-hour.
A195.2	AQ-4	NOx emission limit of 2.5 ppm @ 15% O_2 averaged over 1-hour.
A193.3	AQ-4	VOC emission limit of 2.0 ppm @ 15% O_2 averaged over 1-hour.
A327.1	AQ-5 Rescinding relief.	Relief from emission limits, under Rule 475; project may violate either the mass emission limit or concentration emission limit, but not both at the same time.

C1.1	AQ-6	Limits the fuel usage for each turbine to 393 mmcf per month.
D12.1	AQ-6	Requires the installation of a fuel flow meter.
D29.1	AQ-7	Requires source tests for specific pollutants (NOx, CO, SOx, VOC, PM10, NH3) within 180 days of initial startup.
D29.2	AQ-8	Requires source tests for ammonia (NH3); quarterly for the first year and annually thereafter.
D29.3	AQ-7 Requires annual source testing for (NOx, CO, SOx, VOC and PM10/PM2.5)	Requires source tests for specific pollutants (SOx, VOC, PM10) once every three years.
D82.1	AQ-9	Requires the installation of CEMS for CO emissions.
D82.2	AQ-9	Requires the installation of CEMS for NOx emissions.
E193.1	AQ-SC8	Requires that the ***turbines*** be operated within the mitigation measures stipulated in the Commission Decision.
I296.1	AQ-16	Prohibited from operation unless the operator hold sufficient RTCs for the CTGs.
K40.1	AQ-7, -8 & -9	Source test reporting requirements.
K67.1	AQ-10	Requires record keeping of fuel use during commissioning, prior to and after CEMs certification.
SCR/CO Catalyst		
A195.4	AQ-11	Establishes the 5 ppm ammonia slip limit.
D12.2	AQ-12	Requires a flow meter for the ammonia injection.
D12.3	AQ-13	Requires a temperature meter at the SCR inlet.
D12.4	AQ-14	Requires a pressure gauge to measure the differential pressure across the SCR grid.
E179.1	AQ-12 & -13	Defines “continuously record” for D12.2 and D12.3 as recording once an hour based on the average of continuous monitoring for that hour.
E179.2	AQ-14	Defines “continuously record” for D12.4 as recording once a month based on the average of continuous monitoring for that month.

E193.1	AQ-SC8	Requires that the ***SCR/CO catalyst*** be operated within the mitigation measures stipulated in the Commission Decision.
Ammonia Storage Tank		
C157.1	See Hazardous Material section	Requires the installation of a pressure relief valve.
E144.1	See Hazardous Material section	Requires venting of the storage tank during filling only to the vessel from which it is being filled.
E193.1	AQ-SC8	Requires that the ***Ammonia Storage Tank*** be operated within the mitigation measures stipulated in the Commission Decision.
Emergency Firewater Pump		
C1.3	AQ-15	Limited to 199.99 hours per year (for operation and ready test firing).
D12.5	AQ-15	Requires the installation of a non-resettable time meter.
D12.6	AQ-15	Requires the installation of a non-resettable fuel meter.
B61.1	AQ-15	Restricts the sulfur content of the diesel fuel to no more than 15 ppm by weight.
E193.2	AQ-15	Establishes the operational restrictions for the firewater pump, including a restriction of 50 hours/year for ready test firing.
I296.2	AQ-16	Prohibited from operation unless the operator hold sufficient RTCs for the firewater pump.
K67.2	AQ-15	Required record keeping for the firewater pump.
Portable Architectural Coating Equipment		
K67.3	NA	Required record keeping of thinners and no-thinners architectural applications (paint).

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

have other responsibilities in addition to those described in this condition. The AQCMM shall not be terminated without written consent of the CPM.

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

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

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

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

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

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

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

d) All construction 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 (or less during periods of precipitation) 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 (or less during periods of precipitation) on days when construction activity occurs or on any other day when dirt or runoff from the construction site is visible on the public roadways.

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 the potential to cause visible emissions shall be provided with a cover, or the materials shall be sufficiently wetted and loaded onto the trucks in a manner to provide at least two feet of freeboard.

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.

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

AQ-SC4 Dust Plume Response Requirement: The AQCMM or an AQCMM Delegate shall monitor all construction activities for visible dust plumes. Observations of visible dust plumes that have the potential to be transported (1) off the project site or (2) 200 feet beyond the centerline of the construction of linear facilities or (3) within 100 feet upwind of any regularly occupied structures not owned by the project owner indicate that existing mitigation measures are not resulting in effective mitigation. The AQCMM or Delegate shall implement the following procedures for additional mitigation measures in the event that such visible dust plumes are observed:

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

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

Step 3: The AQCMM or Delegate shall direct a temporary shutdown of the activity causing the emissions if Step 2 specified above fails to result in

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

AQ-SC7 The project owner shall provide emission reduction credits to offset turbine exhaust and emergency equipment NOx, CO, VOC, SOx, PM10 and PM2.5 emissions in the form and amount required by the District. RECLAIM Trading Credits (RTCs) shall be provided for NOx as is necessary to demonstrate compliance with Condition of Certification **AQ-16**.

Emission reduction credits (ERCs) or SCAQMD Priority Reserve Credits (PRCs) shall be provided for CO (1,490 lb/day, includes offset ratio of 1.2, SOx (55 lb/day, includes offset ratio of 1.2) and PM10 (560 lb/day, includes offset ratio of 1.2). Emission reduction credits only shall be provided for VOC (180 lb/day, includes offset ratio of 1.2).

The project owner shall surrender the ERCs, if applicable, for CO, SOx, VOC and PM10 from among those that are listed in the table below or a modified list, as allowed by this condition. If additional ERCs are submitted, the project owner shall submit an updated table including the additional ERCs to the CPM. The project owner shall request CPM approval for any substitutions, modifications, or additions of credits listed.

The CPM, in consultation with the District, may approve any such change to the ERC list provided that the project remains in compliance with all applicable laws, ordinances, regulations, and standards, the requested change(s) will not cause the project to result in a significant environmental impact, and the District confirms that each requested change is consistent with applicable federal and state laws and regulations.

The project owner shall request from the District a report of the NSR Ledger Account for the project after the District has issued the Permit to Construct. This report is to specifically identify the ERCs and PRCs used to offset the project emissions.

Certificate Number	Amount (lbs/day)	Pollutant
AQ003679	8	VOC
AQ002683	1	VOC
Former AQ004209	117	VOC
Former AQ006303	100	VOC

Verification: The project owner shall submit to the CPM the NSR Ledger Account, showing that the project's offset requirements have been met, 15 days prior to initiating construction for Priority Reserve credits, and 30 days prior to turbine first fire for traditional ERCs. Prior to commencement of construction, the project owner shall obtain sufficient RTCs to satisfy the District's requirements for the first year of operation as prescribed in Condition of Certification **AQ-16**. If the CPM approves a substitution or modification to the list of ERCs, the CPM shall file a statement of the approval with the project owner and commission docket. The CPM shall maintain an updated list of approved ERCs for the project.

AQ-SC8 The project owner shall comply with all staff (AQ-SC) and District (AQ) conditions of certification. The CPM, in consultation with the District, may approve as an insignificant change, any change to an air quality condition of certification, provided that: (1) the project remains in compliance with all

applicable laws, ordinances, regulations, and standards, (2) the requested change clearly will not cause the project to result in a significant environmental impact, (3) no additional mitigation or offsets will be required as a result of the change, (4) no existing daily, quarterly, or annual permit limit will be exceeded as a result of the change, and (5) no increase in any daily, quarterly, or annual permit limit will be necessary as a result of the change.

Verification: The project owner shall notify the CPM in writing of any proposed change to a condition of certification pursuant to this condition and shall provide the CPM with any additional information the CPM requests to substantiate the basis for approval.

AQ-SC9 If the project owner does not participate in the voluntary California Climate Action Registry, then the project owner shall report on a quarterly basis to the CPM the quantity of greenhouse gases (GHG) emitted as a direct result of facility electricity production as follows:

The project owner shall maintain a record of fuel use in units of million-Btu (MMBtu) for all fuels burned on site for the purpose of power production. These fuels shall include but are not limited to: (1) all fuel burned in the combustion turbines, (2) HRSGs (if applicable) or auxiliary boiler (if applicable), and (3) all fuels used in any capacity for the purpose of turbine startup, shutdown, operation or emission controls.

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

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

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

The project owner shall convert the N_2O and CH_4 emissions into CO_2 equivalent emissions using the following IPCC Global Warming Potentials (GWP): 310 for N_2O (1 pound of N_2O is equivalent to 310 pounds of CO_2) and 21 for CH_4.

The project owner shall maintain a record of all SF_6 that is used for replenishing on-site transformers. At the end of each reporting period, the project owner shall total the mass of SF_6 used and convert that to a CO_2 equivalent emission using the IPCC GWP of 23,900 for SF_6.

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

Verification GHG emissions that are not reported to the California Climate Action Registry shall be reported to the CPM as part of the Quarterly Operation Reports required by condition of certification **AQ-SC10**.

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

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

AQ-SC11 The project owner shall perform quarterly cooling tower recirculating water quality testing, or shall provide for continuous monitoring of conductivity as an indicator, for total dissolved solids content. The project owner shall also provide a flow meter to determine the daily cooling tower circulating water flow.

Verification: The project owner shall submit to the CPM cooling tower recirculating water quality tests or a summary of continuous monitoring results and daily recirculating water flow in the Quarterly Operation Report (**AQ-SC10**). If the project owner uses continuous monitoring of conductivity as an indicator for total dissolved solids content, the project owner shall submit data supporting the calibration of the conductivity meter and the correlation with total dissolved solids content at least once each year in a Quarterly Operation Report (**AQ-SC10**).

AQ-SC12 The cooling tower daily PM_{10} emissions shall be limited to 10.6 lb/day. The cooling tower shall be equipped with a drift eliminator to control the drift fraction to 0.0005 percent of the circulating water flow. The project owner shall estimate daily PM10 emissions from the cooling tower using the water quality testing data or continuous monitoring data and daily circulating water flow data collected on a quarterly basis. Compliance with the cooling tower PM10 emission limit shall be demonstrated as follows:
PM10 = cooling water recirculation rate * total dissolved solids concentration in the blowdown water * design drift rate.

Verification: The project owner shall submit to the CPM daily cooling tower PM_{10} emission estimates in the Quarterly Operation Report (**AQ-SC10**).

AQ-SC13 The project owner shall limit the total daily emissions from the five (5) CTGs to the following amounts.

SO_2	55 lbs/day
CO	1,490 lbs/day
VOC	226 lbs/day
PM10	560 lbs/day
PM2.5	560 lbs/day

For SO_2, VOC, PM10 and PM2.5; these emissions shall be calculated based on fuel use and emission factors from the source tests required by Condition of Certification AQ-7. For CO; the emissions may be calculated based on fuel use and emission factors from the source tests required by Condition of Certification AQ-7 or as reported the CEMS required by Condition of Certification AQ-9.

Verification: The project owner shall submit all emission calculations, fuel use, CEM records and a summary demonstrating compliance of all emission limits stated in this Condition for approval to the CPM on a quarterly basis in the quarterly emissions report.

AQ-1 The project owner shall limit the emissions from **each** gas fired combustion turbine train exhaust stacks as follows:

Contaminant	Emissions Limit
PM_{10}	2,722 lbs in any one month
CO	6,772 lbs in any one month
SOx	281 lbs in any one month
VOC	919 lbs in any one month

For the purpose of this condition, the limit(s) shall be based on the emissions from a single exhaust stack.

The project owner shall calculate the emission limit(s) by using the monthly fuel use data and the following emission factors: PM10: 6.93 lb/mmscf, VOC: 2.00 lb/mmscf & SOx: 0.71 lb/mmscf.

The project owner shall calculate the emission limit(s) for CO during the commissioning period, using fuel consumption data and the following emission factors: 125.87 lb/mmscf

The project owner shall calculate the emission limit(s) for CO after commissioning period and prior to the CO CEMS certification, using fuel consumption data and the following emission factors: 18.46 lb/mmscf. The emission rate shall be recalculated in accordance with Condition **AQ-10** if the approved CEMS certification test results in emission concentration higher that 6 ppmv.

The project owner shall calculate the emission limit(s) for CO after the CO CEMS certification, based on readings from the certified CEMS. In the event the CO CEMS is not operating or the emissions exceed the valid upper range of the analyzer, the emissions shall be calculated with the following emission factor: 18.46 lbs/mmscf.

During Commissioning, the CO emissions shall not exceed 7,681 lbs/month and the VOC emissions shall not exceed 935 lbs/month.

Verification: The project owner shall submit all emission calculations, fuel use, CEM records and a summary demonstrating compliance of all emission limits stated in this Condition for approval to the CPM on a quarterly basis in the quarterly emissions report (**AQ-SC10**).

AQ-2 The project owner shall limit the emissions from **each** gas fired combustion turbine train exhaust stacks as follows:

Contaminant	Emissions Limit
PM_{10}	20,392 lbs in any one year
CO	52,256 lbs in any one year
SOx	2,102 lbs in any one year
VOC	7,043 lbs in any one year

For the purpose of this condition, the yearly emission limit shall be defined as a period of 12 consecutive months determined on a rolling basis with a new 12 month period beginning on the first day of each month.

The project owner shall calculate the emission limit(s) by using the annual fuel use data and the following emission factors: PM10: 6.93 lb/mmscf, VOC: 2.00 lb/mmscf & SOx: 0.71 lb/mmscf.

The project owner shall calculate the emission limit(s) for CO during the commissioning period, using fuel consumption data and the following emission factors: 125.87 lb/mmscf

The project owner shall calculate the emission limit(s) for CO after commissioning period and prior to the CO CEMS certification, using fuel consumption data and the following emission factors: 18.46 lb/mmscf. The emission rate shall be recalculated in accordance with Condition **AQ-10** if the approved CEMS certification test results in emission concentration higher that 6 ppmv.

The project owner shall calculate the emission limit(s) for CO after the CO CEMS certification, based on readings from the certified CEMS. In the event the CO CEMS is not operating or the emissions exceed the valid upper range of the analyzer, the emissions shall be calculated with the following emission factor: 18.46 lbs/mmscf.

During Commissioning, the CO emissions shall not exceed 60,376 lbs/year and the VOC emissions shall not exceed 7,191 lbs/year.

Verification: The project owner shall submit all emission calculations, fuel use, CEM records and a summary demonstrating compliance of all emission limits stated in this Condition for approval to the CPM on a quarterly basis in the quarterly emissions report.

AQ-3 The 2.5 ppm NOx emission limit and the 6.0 ppm CO emission limit shall not apply during turbine commissioning, start-up and shutdown. The commissioning period shall not exceed 134 operating hours per turbine from the initial start-up. Following commissioning, start-ups shall not exceed 60 minutes and the number of start-ups shall not exceed 350 per year. Following commissioning, shutdowns shall not exceed 10 minutes and the number of shutdowns shall not exceed one per day per turbine. Written records of commissioning, start-ups and shutdowns shall be kept and made available to District and submitted to the CPM for approval.

The 123.46 lb/mmscf NOx emission limit(s) shall only apply during interim reporting period during initial turbine commissioning and the 10.86 lbs/mmscf shall apply only during the interim reporting period after the initial turbine commissioning period, to report RECLAIM emissions. The interim period shall not exceed 12 months from the initial start-up date.

Verification: The project owner shall provide the District and the CPM with the written notification of the initial start-up date no later than 60 days prior to the startup date. The project owner shall submit, commencing one month from the time of gas turbine first fire, a monthly commissioning status report throughout the duration of the commissioning phase that demonstrates compliance with this condition and the emission limits of Condition **AQ-13**. The monthly commissioning status report shall include criteria pollutant emission estimates for each commissioning activity and total commissioning emission estimates. The monthly commissioning status report shall be submitted to the CPM until the report includes the completion of the initial commissioning activities. The project owner shall provide start-up and shutdown occurrence and duration data as part as part of the Quarterly Operation Report (**AQ-SC8**). The project owner shall make the site available for inspection of the commissioning and startup/shutdown records by representatives of the District, CARB and the Commission.

AQ-4 The 2.5 PPM NOx emissions limit(s) are averaged over 60 minutes at 15 percent oxygen, dry basis.

The 6.0 ppm CO emission limit(s) are averaged over 60 minutes at 15 percent oxygen, dry basis.

The 2.0 ppm ROG emission limit(s) are averaged over 60 minutes at 15 percent oxygen, dry basis.

The 5.0 ppm NH_3 emission limit(s) are averaged over 60 minutes at 15 percent oxygen, dry basis.

Verification: The project owner shall submit to the CPM for approval all emissions and emission calculations on a quarterly basis as part of the quarterly emissions report of Condition of Certification **AQ-SC8**.

AQ-5 The project owner may at no time purposefully exceed either the mass or concentration emission limits set forth in Conditions of Certification AQ-1, -2, -3 or -4.

Verification: The project owner shall submit to the CPM for approval all emissions and emission calculations on a quarterly basis as part of the quarterly emissions report of Condition of Certification **AQ-SC8**.

AQ-6 The project owner shall limit the fuel usage from each turbine to no more than 393 mmscf of pipeline quality natural gas in any one month. The operator shall install and maintain a fuel flow meter and recorder to accurately indicate and record the fuel usage being supplied to each turbine.

Verification: The project owner shall submit to the CPM for approval all fuel usage records on a quarterly basis as part of the quarterly emissions report of Condition of Certification **AQ-SC8**.

AQ-7 The project owner shall conduct an initial source test and annually thereafter for NOx, CO and NH3 and annually thereafter for SOx, VOC and PM10 of each gas turbine exhaust stack in accordance with the following requirements:

- The project owner shall submit a source test protocol to the District and the CPM 45 days prior to the proposed source test date for approval. The protocol shall include the proposed operating conditions of the gas turbine, the identity of the testing lab, a statement from the lab certifying that it meets the criteria of District Rule 304, and a description of all sampling and analytical procedures.
- The initial source test shall be conducted no later than 180 days following the date of first fire.
- The District and CPM shall be notified at least 10 days prior to the date and time of the source test.
- The source test shall be conducted with the gas turbine operating under maximum, average and minimum loads.
- The source test shall be conducted to determine the oxygen levels in the exhaust.
- The source test shall measure the fuel flow rate, the flue gas flow rate and the turbine generating output in MW.
- The source test shall be conducted for the pollutants listed using the methods, averaging times, and test locations indicated and as approved by the CPM:

Pollutant	Method	Averaging Time	Test Location
NOx	District Method 100.1	1 hour	Outlet of SCR

CO	District Method 100.1	1 hour	Outlet of SCR
SOx	District approved method	District approved averaging time	Fuel Sample
VOC	District approved method	1 hour	Outlet of SCR
PM10 (and as a surrogate for PM2.5)	District approved method	District approved averaging time	Outlet of SCR
Ammonia	District Methods 5.3 and 207.1 or EPA Method 17.	1 hour	Outlet of SCR

- The source test results shall be submitted to the District and the CPM no later than 60 days after the source test was conducted.
- All emission data is to be expressed in the following units:
    1. ppmv corrected to 15% oxygen dry basis,
    2. pounds per hour,
    3. pounds per million cubic feet of fuel burned and
    4. additionally, for PM10 only, grains per dry standard cubic feet of fuel burned.
- Exhaust flow rate shall be expresses in terms of dry standard cubic feet per minute and dry actual cubic feet per minute.
- All moisture concentrations shall be expressed in terms of percent corrected to 15 percent oxygen.

Verification: The project owner shall submit the proposed protocol for the initial source tests 45 days prior to the proposed source test date to both the District and CPM for approval. The project owner shall submit source test results no later than 60 days following the source test date to both the District and CPM. The project owner shall notify the District and CPM no later than 10 days prior to the proposed initial source test date and time.

AQ-8 The project owner shall conduct source testing of each gas turbine exhaust stack in accordance with the following requirements:

- The project owner shall submit a source test protocol to the District and the CPM no later than 45 days prior to the proposed source test date for approval. The protocol shall include the proposed operating conditions of the gas turbine, the identity of the testing lab, a statement from the lab certifying that it meets the criteria of District Rule 304, and a description of all sampling and analytical procedures.
- Source testing shall be conducted quarterly for the first 12 months of operation and annually thereafter.
- NOx concentrations as determined by CEMS shall be simultaneously recorded during the ammonia test. If the NOx CEMS is inoperable, a test shall be

conducted to determine the NOx emission by using District Method 100.1 measured over a 60 minute time period.

- Source testing shall be conducted to determine the ammonia emissions from each gas turbine exhaust stack using District Method 5.3 and 207.1 or EPA Method 17 measured over a 1 hour averaging period at the outlet of the SCR.
- The District and CPM shall be notified of the date and time of the source testing at least 7 days prior to the test.
- The source test shall be conducted and the results submitted to the District and CPM within 45 days after the test date.
- Source testing shall measure the fuel flow rate, the flue gas flow rate and the gas turbine generating output.
- The test shall be conducted when the equipment is operating at 80 percent load or greater.
- All emission data is to be expressed in the following units:
  1. ppmv corrected to 15% oxygen,
  2. pounds per hour,
  3. pounds per million cubic feet of fuel burned and

Verification: The project owner shall submit the proposed protocol for the source tests 45 days prior to the proposed source test date to both the District and CPM for approval. The project owner shall notify the District and CPM no later than 7 days prior to the proposed source test date and time. The project owner shall submit source test results no later than 45 days following the source test date to both the District and CPM.

AQ-9 The project owner shall install and maintain a CEMS in each exhaust stack of the combustion turbine trains to measure the following parameters:

NOx concentration in ppmv and CO concentration in ppmv.

Concentrations shall be corrected to 15 percent oxygen on a dry basis.
The CEMS will convert the actual CO concentrations to mass emission rates (lb/hr) and record the hourly emission rates on a continuous basis.

The CEMS shall be installed and operated to measure CO concentration over a 15minute averaging time period.

The CEMS shall be installed and operated in accordance with an approved District Rule 218 CEMS plan application and the requirements of Rule 2012.

The CO CEMS shall be installed and operating no later than 90 days after initial start-up of the turbine.

The NOx CEMS shall be installed and operating no later than 12 months after initial start-up of the turbine.

During the interim period between the initial start-up and the provisional certification date of the CEMS, the project owner shall comply with the monitoring requirements of Rule 2012 (h)(2) and Rule 2012 (h)(3). Within two weeks of the

turbine start-up date, the project owner shall provide written notification to the District of the exact date of start-up.

Verification: Within 30 days of certification, the project owner shall notify the CPM of the completion of the certification process for the CEMS.

AQ-10 The project owner shall keep records in a manner approved by the District for the following items:

Natural Gas use after CEMS certification
Natural Gas use during the commissioning period
Natural Gas use after the commissioning period and prior to the CEMS certification.

Verification: The project owner shall submit to the CPM for approval all fuel usage records on a quarterly basis as part of the quarterly emissions report of Condition of Certification **AQ-SC8**.

AQ-11 The owner/operator shall determine the hourly ammonia slip emissions from each exhaust stack for each gas turbine/HRSG train individually via both the following formula:

District Requirement
NH3 (ppmv) = [a-b*(c*1.2)/1E6]*1E6/b
Where:
a = NH3 injection rate (lb/hr) / 17(lb/lbmol),
b = dry exhaust flow rate (scf/hr) / 385.5 (scf/lbmol),
c = change in measured NOx across the SCR (ppmvd at 15% O2)

The above described ammonia slip calculation procedure shall not be used for compliance determination or emission information determination without corroborative data using an approved reference method for the determination of ammonia for the District.

Energy Commission Requirement
NH3 (ppmv @ 15% O2) = ((a-b*(c/1E6))*1E6/b)*d,
Where:
a = NH3 injection rate(lb/hr)/17(lb/lbmol),
b = dry exhaust gas flow rate (lb/hr)/(29(lb/lbmol), or
b = dry exhaust flow rate (scf/hr) / 385.5 (scf/lbmol),
c = change in measured NOx concentration ppmv corrected to 15% O2 across catalyst, and
d = correction factor.

The correction factor shall be derived through compliance testing by comparing the measured and calculated ammonia slip. The correction factor shall be reviewed and approved by the CPM on at least an annual basis. The correction factor may rely on previous compliance source test results or other comparable analysis as the CPM finds the situation warrants. The above described ammonia

slip calculation procedure shall be used for Energy Commission compliance determination for the ammonia slip limit as prescribed in Condition of Certification **AQ-4** and reported to the CPM on a quarterly basis as prescribed in Condition of Certification **AQ-SC8**.

An exceedance of the ammonia slip limit as demonstrated by the above Energy Commission formula shall not in and of itself constitute a violation of the limit. An exceedance of the ammonia slip limit shall not exceed 6 hours in duration. In the event of an exceedance of the ammonia slip limit exceeding 6 hours duration, the project owner shall notify the CPM within 72 hours of the occurrence. This notification must include, but is not limited to: the date and time of the exceedance, duration of the exceedance, estimated emissions as a result of the exceedance, the suspected cause of the exceedance and the corrective action taken or planned. Exceedances of the ammonia limit that are less than or equal to 6 hours in duration shall be noted in a specific section within the Quarterly Report (**AQ-SC8**). This section shall include, but is not limited to: the date and time of the exceedance, duration of the exceedance, and the estimated emissions as a result of the exceedance. Exceedances shall be deemed chronic if they total more than 10% of the operation for any single HRSG exhaust stack. Chronic exceedances must be investigated and redressed in a timely manner and in conjunction with the CPM though the cooperative development of a compliance plan. The compliance plan shall be developed to bring the project back into compliance first and foremost and shall secondly endeavor to do so in a feasible and timely manner, but shall not be limited in scope.

The owner/operator shall maintain compliance with the ammonia slip limit, redress exceedances of the ammonia slip limit in a timely manner, and avoid chronic exceedances of the ammonia slip limit. Exceedances shall be deemed a violation of the ammonia slip limit if they are not properly redressed as prescribed herein.

The owner/operator shall install a NOx analyzer to measure the SCR inlet NOx ppm accurate to within +/- 5 percent calibrated at least once every 12 months.

Verification: The project owner shall include ammonia slip concentrations averaged on an hourly basis calculated via both protocols provided as part of the Quarterly Operational Report required in Condition of Certification **AQ-SC8**. The project owner shall submit all calibration results performed to the CPM within 60 days of the calibration date. The project owner shall submit to the CPM for approval a proposed correction factor to be used in the Energy Commission formula at least once a year but not to exceed 180 days following the completion of the annual ammonia compliance source test. Exceedances of the ammonia limit shall be reported as prescribed herein. Chronic exceedances of the ammonia slip limit shall be identified by the project owner and confirmed by the CPM within 60 days of the fourth quarter Quarterly Operational Report (**AQ-SC8**) being submitted to the CPM. If a chronic exceedance is identified and confirmed, the project owner shall work in conjunction with the CPM to develop a reasonable compliance plan to investigate and redress the chronic exceedance of the ammonia slip limit within 60 days of the above confirmation.

AQ-12 The operator shall install and maintain an ammonia injection flow meter and recorder to accurately indicate and record the ammonia injection flow rate being supplied to each turbine. The device or gauge shall be accurate to within plus or minus 5 percent and shall be calibrated once every twelve months.

Continuously recording is defined for this condition as at least once every hour and is based on the average of the continuous monitoring for that hour.

Verification: The project owner shall submit to the CPM no less than 30 days after installation, a written statement by a California registered Professional Engineer stating that said engineer has reviewed the as-built-designs or inspected the identified equipment and certifies that the appropriate device has been installed and is functioning properly. The project owner shall submit annual calibration results within 30 days of their successful completion.

AQ-13 The operator shall install and maintain a temperature gauge and recorder to accurately indicate and record the temperature in the exhaust as the inlet of the SCR reactor. The gauge shall be accurate to within plus or minus 5 percent and shall be calibrated once every twelve months.

Continuously recording is defined for this condition as at least once every hour and is based on the average of the continuous monitoring for that hour.

Verification: The project owner shall submit to the CPM no less than 30 days after installation, a written statement by a California registered Professional Engineer stating that said engineer has reviewed the as-built-designs or inspected the identified equipment and certifies that the appropriate device has been installed and is functioning properly. The project owner shall submit annual calibration results within 30 days of their successful completion.

AQ-14 The operator shall install and maintain a pressure gauge and recorder to accurately indicate and record the pressure differential across the SCR catalyst bed in inches of water column. The gauge shall be accurate to within plus or minus 5 percent and shall be calibrated once every twelve months.

Continuously recording is defined for this condition as at least once every month and is based on the average of the continuous monitoring for that month.

Verification: The project owner shall submit to the CPM no less than 30 days after installation, a written statement by a California registered Professional Engineer stating that said engineer has reviewed the as-built-designs or inspected the identified equipment and certifies that the appropriate device has been installed and is functioning properly. The project owner shall submit annual calibration results within 30 days of their successful completion.

AQ-15 The project owner shall limit the operating time of the firewater pump to no more than 199.99 hours per year. The firewater pump shall be equipped with a non-resettable elapsed meter to accurately indicate the elapsed operating time of the engine. The firewater pump shall be equipped with a non-resettable totalizing fuel

meter to accurately indicate the fuel usage of the engine. The firewater pump shall burn only diesel fuel that contains sulfur compounds less than or equal to 15 ppm by weight.

The project owner shall operate and maintain the firewater pump according to the following requirements:

1. This equipment shall only operate if utility electricity is not available.
2. This equipment shall only be operated for the primary purpose of providing a backup source of power to drive an emergency fire pump.
3. This equipment shall only be operated for maintenance and testing, not to exceed 50 hours in any one year.
4. This equipment shall only be operated under limited circumstances under a Demand Response Program (DRP).
5. An engine operating log shall be kept in writing, listing the date of operation, the elapsed time, in hours, and the reason for operation. The log shall be maintained for a minimum of 5 years and made available to AQMD personnel and CPM upon request.

The project owner shall keep records in a manner approved by the Executive Officer; consisting of the date of operation, the elapsed time in hours, and the reason for operation.

Verification: The project owner shall submit to the CPM no less than 30 days after installation, a written statement by a California registered Professional Engineer stating that said engineer has reviewed the as-built-designs or inspected the identified equipment and certifies that the appropriate devices have been installed and are functioning properly. The project owner shall submit all dates of operation, elapsed time in hours, and the reason for each operation in the Quarterly Operations Report (**AQ-SC8**).

AQ-16 The project equipment shall not be operated unless the project owner demonstrates to the SCAQMD Executive Officer that the facility holds sufficient RTCs to offset the prorated annual emissions increase for the first compliance year of operation. In addition, this equipment shall not be operated unless the project owner demonstrates to the Executive Officer that, at the commencement of each compliance year after the first compliance year of operation, the facility hold sufficient RTCs in an amount equal to the annual emission increase. The project owner shall submit all such information to the CPM for approval.

To comply with this condition, the project owner shall hold a minimum of 40,515 lbs/year of NOx RTCs for the first year of operation and 30,973 lbs/year there after.

Verification: The project owner shall submit all identified evidence demonstrating compliance to the CPM on an annual basis as part of the annual compliance report.

ACRONYMS

AQCMM	Air Quality Construction Mitigation Manager
AQCMP	Air Quality Construction Mitigation Plan
ARB	California Air Resources Board
BACT	Best Available Control Technology
bhp	brake horse power
CEC	California Energy Commission (or Energy Commission)
CEQA	California Environmental Quality Act
CO	Carbon Monoxide
CPM	(CEC) Compliance Project Manager
ERC	Emission Reduction Credit
FDOC	Final Determination Of Compliance
gr	Grains (1 gr $\cong$ 0.0648 grams)
HRSG	Heat Recovery Steam Generator
ISCST3	Industrial Source Complex Short Term, version 3
MMBtu	Million British thermal units
MW	Megawatts (1,000,000 Watts)
NH_3	Ammonia
NO_2	Nitrogen Dioxide
NOx	Oxides of Nitrogen *or* Nitrogen Oxides
NSR	New Source Review
PDOC	Preliminary Determination Of Compliance
PM10	Particulate Mater less than 10 microns in diameter
PM2.5	Particulate Mater less than 2.5 microns in diameter
ppm	Parts Per Million
ppmv	Parts Per Million by Volume
ppmvd	Parts Per Million by Volume, Dry
PRC	Priority Reserve Credit
PSA	Preliminary Staff Assessment (this document)
PSD	Prevention of Significant Deterioration
RECLAIM	Regional Clean Air Incentives Market
RTC	RECLAIM Trading Credit
SCAQMD	South Coast Air Quality Management District (also: District)
scf	Standard Cubic Feet
SCR	Selective Catalytic Reduction
SIP	State Implementation Plan
SO_2	Sulfur Dioxide
SO_3	Sulfate
SOx	Oxides of Sulfur
U.S. EPA	United States Environmental Protection Agency
VOC	Volatile Organic Compounds
WCEP	Walnut Creek Energy Project

REFERENCES

ARB 2006a (California Air Resources Board). Ambient Air Quality Standards. May 17, 2006. http://www.arb.ca.gov/aqs/aaqs2.pdf

ARB 2006b (California Air Resources Board). California Ambient Air Quality Data, 1980-2004 (CD-ROM #PTSD-06-022-CD & #PTSD-06-021-CD

ARB 2006c (California Air Resources Board). Almanac Emission Projection Data (published in 2006). http://www.arb.ca.gov/ei/emsmain/emsmain.htm

CEC 1998 (California Energy Commission). 1997 Global Climate Change, Greenhouse Gas Emissions Reduction Strategies for California, Volume 2, Staff Report. 1998.

CEC 2003 (California Energy Commission). 2003 Integrated Energy Policy Report. December 2003.

City of Industry 2006a. (The City of Industry, California). Initial Study for: 911 Bixby Drive, Building Demolition. January 31, 2006.

SCAQMD 2003 (South Coast Air Quality Management District). Air Quality Standards Compliance Report. September 2003.

WCE 2005a (Walnut Creek Energy, LLC). Application for Certification. November 2005.

WCE 2006a (Walnut Creek Energy, LLC). Response to Data Requests 1-97. April 2006.

Yannayon, US EPA, April 25, 2006 Personal telephone conversation.

BIOLOGICAL RESOURCES

Joanna Grebel

SUMMARY OF CONCLUSIONS

Walnut Creek Energy, LLC (WCE or applicant) proposes to construct and operate a 500 megawatt (MW) natural gas-fired facility in the City of Industry. Because the proposed project site is located in an industrial area, there are no remaining natural features that provide suitable habitat for protected plant or wildlife species. Energy Commission staff examined the potential impacts to biological resources that are expected to occur from the construction and operation of the proposed project and concluded there would be none. Staff believes that due to the lack of biological resources on or near the proposed site, the proposed project would not have any significant direct, indirect, or cumulative impacts.

INTRODUCTION

This section provides the staff analysis of potential impacts to biological resources from the applicant's proposal to construct and operate a new natural gas-fired peaking power plant in the City of Industry. This analysis determines if there will be impacts to state and federally listed species, species of special concern, wetlands, and other areas of critical biological concern. This analysis presents information regarding the affected biotic community, the potential environmental impacts associated with the construction and operation of the proposed project, and where necessary, specifies mitigation planning and compensation measures to reduce potential impacts to non-significant levels. This analysis also determines compliance with applicable laws, ordinances, regulations, and standards (LORS), and determines whether conditions of certification are necessary.

This analysis is based, in part, on information provided in WCE's Application for Certification (AFC) for the Walnut Creek Energy Park (WCEP) (EME 2005a) and staff's observations at the Committee's Informational Hearing and Site Visit on February 28, 2006.

LAWS, ORDINANCES, REGULATION, AND STANDARDS

The applicant will need to abide by the following laws, ordinances, regulations, and standards (LORS) during project construction and operation as listed in **BIOLOGICAL RESOURCES Table 1**.

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

Applicable Law	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.
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.
Clean Water Act (Title 33, United States Code, sections 1251 through 1376, and Code of Federal Regulations, part 30, section 330.5(a)(26))	Requires the permitting and monitoring of all discharges to surface water bodies. Section 404 requires a permit from the U.S. Army Corps of Engineers for a discharge from dredged or fill materials into waters of the U.S., including wetlands. Section 401 requires a permit from a regional water quality control board for the discharge of pollutants.
State	
California Endangered Species Act of 1984 (Fish and Game Code, sections 2050 through 2098)	Protects California's rare, threatened, and endangered species.
California Code of Regulations (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.
Native Plant Protection Act of 1977 (Fish and Game Code section 1900 et *seq.*)	Designates state rare, threatened, and endangered plants.
Local	
City of Industry General Plan	The project is located entirely within the City of Industry's boundaries. The Conservation Element of the City of Industry's General Plan (City of Industry, 1971) contains objectives to conserve, develop, and utilize resources within the City limits.

Source: EME 2005a

SETTING

REGIONAL SETTING

The City of Industry is located in the Puente Valley, a narrow one to two-mile wide valley that extends for approximately 15 miles from the City of El Monte (six miles) to the west to the City of Pomona (16 miles) to the east and is framed by the San Jose Hills (five miles) to the north and Puente Hills (four miles) to the south. The valley is an important transportation corridor for the Los Angeles region with the Pomona Freeway (SR-60) located along the valley's southern edge.

LOCAL

The City of Industry contains a mixture of industrial, commercial, and residential districts. The proposed power plant site is located approximately 12 miles east of downtown Los Angeles on Bixby Drive, and is surrounded by industrial and commercial development. Any special status plant species, such as salt marsh bird's-beak *(Cordylanthus maritimus* ssp. *maritimus)* and marsh sandwort (*Arenaria paludicola*), that were associated with the natural habitat that was once prevalent in the Los Angeles area has been lost to extensive urbanization. Urbanization has also removed any suitable habitats which would attract or support any special status wildlife such as western snowy plover (*Charadruis alexandrinus nivosus*) and least Bell's vireo (*Vireo bellii pusillus*).

PROJECT SITE AND VICINITY DESCRIPTION

The entire power plant site measures approximately 11.5 acres. All associated linear facilities will be short in length (gas – 30 feet, transmission – 600 feet, water – 20 feet) and located either on site or within adjacent utility easements. The WCEP site is located entirely within an industrial area and includes an existing warehouse, paving, and ornamental landscaping. There are no remaining natural features that provide significant habitat for plant or wildlife species within the site footprint. Vegetation in the immediate proposed project area is limited to non-native, ruderal species that are established in the transmission lines and railroad corridors to the north and south of the WCEP site and in the drainage swale immediately west of the WCEP site. **BIOLOGICAL RESOURCES Table 2** lists the special status species that could potentially occur in the project area. A lack of natural suitable habitat on the project site would preclude the existence of such species. **BIOLOGICAL RESOURCES Appendix 1** lists the plant and wildlife species that were observed during reconnaissance surveys conducted on September 9, 2005, by the applicant on the proposed project site and surrounding areas. No sensitive species were found during the surveys.

BIOLOGICAL RESOURCES Table 2
Special Status Species Potentially Occurring in WCEP Project Area

Plants	Scientific Name	Status
Marsh sandwort	*Arenaria paludicola*	FE/SE/1B
Greata's aster	*Aster greatae*	__/__/1B
Braunton's milk-vetch	*Astragalus brauntonii*	FE/__/1B
Nevin's barberry	*Berberis nevinii*	FE/SE/1B
Thread-leaved brodiaea	*Brodiaea filifolia*	FT/SE/1B
Slender mariposa lily	*Calochortus clavatus* var. *gracilis*	__/__/1B
Plummer's mariposa lily	*Calochortus plummerae*	__/__/1B
Salt marsh bird's-beak	*Cordylanthus maritimus* ssp. *maritimus*	FE/SE/1B
Slender-horned spineflower	*Dodecahema leptoceras*	FE/SE/1B
San Gabriel River dudleya	*Dudleya cymosa* ssp. *crebrifolia*	__/__/1B
Santa Monica Mountains dudleya	*Dudleya cymosa* ssp. *ovatifolia*	FT/__/1B
Coulter's goldfields	*Lasthenia glabrat*a ssp. *coulteri*	__/__/1B
Robinson's peppergrass	*Lepidium virginicum* var. *robinsonii*	__/__/1B
Lemon lily	*Lilium parryi*	__/__/1B
San Gabriel linanthus	*Linanthus concinnus*	__/__/1B
Fringed grass-of-parnassus	*Parnassia cirrata*	__/__/1B
Lyon's pentachaeta	*Pentachaeta lyonii*	FE/SE/1B
Brand's phacelia	*Phacelia stellaris*	__/__/1B
Rayless ragwort	*Senecio aphanactis*	__/__/2
Sonoran maiden fern	*Thelypteris puberula* var. *sonorensis*	__/__/2
Insects and Crustacea		
El Segundo blue butterfly	*Euphilotes battoides allyni*	FE/__/
Palos Verdes blue butterfly	*Glaucophsyche lygdamus palosverdensis*	FE/_
Amphibians		
Mountain yellow-legged frog	*Rana muscosa*	FE/__
Birds		
Western snowy plover	*Charadrius alexandrinus nivosus*	FT/__
Western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	FC/SE
Southwestern willow flycatcher	*Epidonax traillii extimus*	FE/SE
Least Bell's vireo	*Vireo bellii pusillus*	FE/SE
Mammals		
San Bernardino kangaroo rat	*Dipodomys merriami parvus*	FE/__
Pacific pocket mouse	*Perognathus longimembrus pacificus*	FE/__

*** Status Legend** (Federal/State/California Native Plant Society (CNPS) lists, CNPS list is for plants only):
FE = Federally-listed Endangered; **FT** = Federally-listed Threatened; **FC** = Candidate Species for Listing; **SE** = State-listed Endangered; **List 1B** = Rare or Endangered in California and elsewhere; **List 2** = Rare or Endangered in California, more common elsewhere; __ = not listed in that category. [(Sources: EME 2005a; California Natural Diversity Database (CDFG 2006)]

ASSESSMENT OF IMPACTS AND DISCUSSION OF MITIGATION

The WCEP site is currently occupied by a large warehouse that will be demolished by the City of Industry to clear the proposed project site for development of the proposed power plant. The City of Industry has approved the demolition and has prepared an

Initial Study and adopted a Negative Declaration (COI 2006b) pursuant to the California Environmental Quality Act (CEQA). The demolition will include removal of all pavement and vegetation occupying the proposed project site. Because the warehouse it will be torn down to allow the power plant to be built on the site, staff has determined that the demolition is part of the "whole of an action, which has a potential for resulting in either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment" (CEQA Guidelines, Cal. Code Regs., tit. 14, § 15378). Therefore, staff has considered the effects of the demolition in the analysis of the impacts of the proposed power project, deferring to the City of Industry's analysis where appropriate.

METHOD AND THRESHOLD FOR DETERMINING SIGNIFICANCE

The determination of whether a project has a significant effect on biological resources is based on the best scientific and factual data that staff could review on the project. The significance of the activity is in large part dependent on the setting and the existing LORS for the particular site. For example, disturbance during construction on a brownfield site may not be significant, but this same activity on a greenfield site may be significant because of the higher likelihood of biological resources in the area.

Significant biological resource impacts would occur if state- or federal-listed species, state Fully Protected species, candidates for state or federal listing and/or Species of Special Concern are likely to be impacted from the construction or operation of the proposed project. Interruption of species migration, reduction of native fish, wildlife and plant habitat, causing a fish or wildlife population to drop below self-sustaining levels, and disturbance of wetlands, marshes, riparian areas or other wildlife habitat would also be considered significant impacts. Harassment of a protected species, even if it does not result in the loss of habitat or reduction in population numbers, would still be considered a significant impact. Substantial degradation of the quality of the environment or environmental effects that are individually limited, but cumulatively considerable, would also be considered significant.

DIRECT AND INDIRECT IMPACTS AND MITIGATION

Direct impacts result at the same time and place as the project. *Indirect impacts* are caused by the project, but can occur later in time or farther removed in distance, but are still reasonable foreseeable and related to the project.

Projects in developed sites typically have less of an impact on sensitive biological resources because they lack suitable habitat on site. However, such projects are evaluated for the impacts they could have on surrounding areas that remain in natural conditions and support sensitive biological resources.

Pre-Construction Impacts and Mitigation

Warehouse Demolition

The WCEP site currently contains a large warehouse that will be demolished by the City of Industry to clear the site for development of the proposed power plant. The demolition will include removal of all pavement on site. Staff has considered the effects of the demolition in the analysis of the impacts of the proposed power project, and concurs

with the City of Industry's analysis (COI 2006b) that there will be no impact to biological resources.

Construction Impacts and Mitigation

Laydown and Parking

Onsite construction laydown and parking areas will occupy approximately 2 acres and be within existing site boundaries. Offsite laydown and parking areas will utilize 6.7 acres of ruderal habitat located in the Southern California Edison (SCE) transmission corridor north of the plant site (EME 2005a). Parking and equipment staging areas required during the construction period will be located on previously disturbed sites containing no natural vegetation and provides no habitat to sensitive species. Sensitive species, such as the burrowing owl (*Athene cunicularia*), have been found to occupy sites in urban areas similar to WCEP. It is highly unlikely that burrowing owls would be found on the WCEP site because the laydown area does not contain any suitable habitat. Staff concludes, therefore, there will not be a significant impact to biological resources.

Power Plant Site

The WCEP site would permanently occupy approximately 11.5 acres of existing industrial land. Because the entire site is paved and does not contain any vegetation or habitat to support sensitive species, staff concludes there will not be a significant impact to biological resources.

Transmission Line

The proposed project's electrical connection will connect to the SCE electrical transmission system at the Walnut Substation approximately 250 feet southwest of the proposed project. The proposed project requires construction of approximately 1200-foot long transmission line corridor and five transmission towers that will be located adjacent to the substation within SCE's transmission corridor. The transmission corridor contains ruderal vegetation and a few ornamental trees. Because the new line will be located in an area that contains no natural vegetation and provides no habitat to sensitive species, no impacts to sensitive biological resources are expected to occur during construction of the new transmission line.

Pipelines

The WCEP's natural gas, sewer, and water supply pipelines will be constructed by open trench excavation through areas of pavement and concrete that does not contain any vegetation or habitat for sensitive species. Therefore, staff concludes that there will not be a significant impact to biological resources during construction of the natural gas, sewer, or water supply pipelines.

Light

No sensitive species were found on the proposed project site that would be impacted by additional lighting from the WCEP. A slight increase in light and glare at the WCEP is expected to occur during construction of the WCEP facility. Since most of the construction activities are scheduled to occur between 7:00 am and 7:00 pm (EME 2005a) the need for nighttime lighting would be minimal. During periods when nighttime construction will take place, illumination that meets state and federal worker safety

guidelines will be required. Under certain circumstances, lights can disorient migratory birds flying at night, or attract wildlife such as insects and insect-eaters. Nighttime lighting will be directed onsite to minimize significant light and glare. Because the proposed project will be located in an industrial area with facilities that operate 24 hours per day, staff concludes there will be no significant impacts to sensitive species from the minimal amount of lighting associated with construction of the new facility.

Noise

No sensitive species were found on the proposed project site that would be impacted by additional noise during construction of WCEP. The WCEP site is zoned industrial and surrounded by several industrial facilities adjacent to the site which typically operate 24 hours per day, 7 days per week. Construction of the plant would temporarily produce elevated noise levels. The proposed project would be located within an existing developed area, and no sensitive species that could be impacted by additional noise are known to occur in the immediate vicinity. Therefore, staff concludes there will be no significant impacts to biological resources by any increase or additional noise.

Operation Impacts and Mitigation

Air Quality

The operation of the proposed facility would generate air pollutants (nitrogen oxides (NO_x)) from the combustion of natural gas. Maximum expected deposition rate of particulates (NO, NO_2) is 0.238 g/m^2/year (EME 2005a), which is significantly less than levels expected to cause barely perceptible effects to the most sensitive crop plants. Increased nitrate availability would have no impact on natural vegetation because none exists in the vicinity of the proposed project. The maximum nitrogen deposition is expected to occur at a distance less than four miles from WCEP. Because nitrogen deposition would occur over an urban landscape, and would not reach any areas that remain in natural conditions or support sensitive biological resources on nitrogen deficient habitats, staff concludes that the additional NO_x pollutants from the proposed WCEP would not impact any sensitive biological resources or their habitat.

Hazardous Materials

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

Light

No sensitive species were found on the proposed project site that would be adversely impacted by additional lighting from the operation of WCEP. Although this facility is a

peaker power plant and will likely only operate approximately 4,000 hours per year, lighting is still needed to address worker safety and security even when the project is not operating. Similar to staff'sobservation for light resulting from construction activity, under certain circumstances, operation phase lighting can disorient migratory birds flying at night, or attract wildlife such as insects and insect-eaters. However, staff believes that the increased light due to the WCEP will not have adverse consequences since it will occur in an industrial area with other facilities that operate 24 hours per day and the additional lighting from the new power plant will only be directed on site. Staff, therefore, concludes that there will be no significant impacts to sensitive wildlife species from any additional lighting or glare associated with the proposed WCEP facility.

Noise

No sensitive species were found on the proposed project site that would be impacted by additional noise from the operation of WCEP. The WCEP site is zoned industrial and surrounded by several industrial facilities which typically operate 24 hours per day, 7 days per week. Although the operation of the plant would also produce noise, it is not likely to impact wildlife, due to existing noise levels and the lack of suitable wildlife habitat in the immediate vicinity. Since the proposed project would be located within an existing developed area, and no sensitive species that would be impacted by additional noise are known to occur in the immediate vicinity, staff concludes there will be no significant impact to biological resources.

Power Plant Exhaust Stacks

Tall structures such as radio and television antennas, power plant and refinery exhaust stacks, and even tall buildings can pose a threat to birds that might collide with them. The proposed power plant project would contain five 90-foot tall exhaust stacks. Bird collisions with the towers will be unlikely or minimal since most collisions occur at towers that are 300 feet or higher. Moreover, the WCEP site is not known to be an optimal flight path, nor a high bird use area or migration route. The proposed project lighting will be pointed downward and shielded to reduce attraction of birds to the exhaust stacks (EME 2005a). Staff, therefore, concludes that the proposed exhaust stacks would not pose a significant collision threat to bird populations.

Transmission Lines

Overhead transmission lines can increase the potential for bird collisions and electrocutions. Most collisions occur at night during inclement weather and low visibility conditions. However, the proposed transmission lines will be constructed in an area without any topographic or ecological features that would attract birds to this location or funnel them into the vicinity. Electrocutions can occur when a bird's wings simultaneously contact two conductors of different phases, or a conductor and a ground. The transmission lines will be short in length (600 feet) and the applicant proposed a "raptor-friendly" construction design (EME 2005a), with conductor wire spacing greater than the wingspans of large birds to help prevent electrocution as described in *Suggested Practices for Raptor Protection on Power Lines*: *The State of the Art in 1996* (APLC, 1996). With the proposed mitigation addressed in Condition of Certification **BIO-1,** staff concludes that the proposed transmission lines will not pose a significant collision or electrocution threat to bird populations.

Stormwater and Wastewater Impacts
Stormwater drainage from the proposed project would occur through a grate on the proposed project site. Drainage would include two discharge points, one on the northeast corner of the property and a second one to the south of the property boundary. Stormwater would be sent to the Los Angeles County Sanitation District via the concrete lined San Jose flood control channel. Wastewater discharge would be sent directly to the City of Industry's sewer system. The concrete channel does not provide any wildlife habitat, so staff concludes that there will be no significant impacts to biological resources associated with the discharge of stormwater during operation. Please see the **Soil and Water Resources** section of this staff analysis for more detailed information on stormwater and wastewater discharge and permitting.

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, section 15130.)

There are no other power plants under development or currently operating within the vicinity of the proposed power plant. Recent permits issued in the project area indicate that recent development in the area has largely consisted of relatively small-scale infill projects and modifications to existing facilities and structures. The project is not expected to result in significant biological resources impacts and there are no other proposed or currently operating projects in the study area that would contribute to any cumulative impacts, such as habitat loss, for sensitive species.

COMPLIANCE WITH LORS

The long-term industrial use of the site and the lack of biological resources preclude the need for further consultation with resource agencies (USDOI 2006a). The proposed WCEP would not be immediately adjacent to any riparian habitat or sensitive natural communities that exist in the region. There are no federally protected wetlands, including vernal pools and/or marsh habitat, within or immediately adjacent to the proposed WCEP area. The WCEP is in a developed area and does not act as a significant wildlife corridor nor does it conflict with any local policies or ordinances protecting biological resources. The proposed WCEP does not conflict with the provisions of an adopted Habitat Conservation Plan (HCP), Natural Community Conservation Plan (NCCP), or other approved local, regional, or state habitat conservation plan because there are no HCP's or NCCP's for this area. There are no biological resources of commercial or recreational value on the WCEP project site. Since staff does not anticipate any impacts to biological resources, the project will be in compliance with all federal, state, and local LORS during construction and operation.

CONCLUSIONS

The applicant has successfully avoided all construction and operation impacts to biological resources by locating the proposed power plant on a site that currently contains no biological resources and is located more than four miles south of any natural habitat areas (i.e., closest natural areas are the Puente Hills and San Jose regions). Similarly, the proposed project's parking and staging areas are devoid of biological resources. Staff concludes that impacts to biological resources during construction and operation will not occur so mitigation will not be required.

RESPONSE TO AGENCY AND PUBLIC COMMENTS

A comment letter was submitted by USFWS (USDOI 2006a) stating that the proposed project would have no effect on federally listed species or their critical habitat. No response is necessary. No public comments were received.

PROPOSED CONDITIONS OF CERTIFICATION

Staff proposes the following Condition of Certification:

COMPLIANCE WITH AVIAN POWER LINE INTERACTION COMMITTEE GUIDELINES

BIO-1 The project owner shall design, install, and maintain transmission lines and all electrical components in accordance with the Avian Power Line Interaction Committee, *Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 1996*, to reduce the likelihood of electrocutions of large birds.

Verification: No fewer than 60 days prior to the start of site mobilization, the project owner shall submit to the CPM written verification that the transmission line design meets APLIC guidelines.

REFERENCES

APLIC (Avian Power Line Interaction Committee).1996. Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 1996. Edison Electric Institute. Washington D.C.

CDFG (California Department of Fish and Game). 2006. California Natural Diversity Data Base. Search of the Azusa, Baldwin Park, El Monte, Glendora, La Habra, Mount Wilson, San Dimas, Whittier, and Yorba Linda 7.5-minute USGS quadrangles, 2006. CNDDB January 2006 government edition.

City of Industry. 1971. The General Plan, City of Industry. May.

CNPS (California Native Plant Society). 2001. Inventory of Rare and Endangered Vascular Plants of California. 6th edition. Sacramento, California.

COI 2006b – City of Industry (tn: 36667). Negative Declaration for demolition of 911 Bixby Drive warehouse. 02/01/06. Rec'd 04/06/06.

EME 2005a – Edison Mission Energy/GPL:bpm (tn: 35950). Walnut Creek Energy Park AFC. 11/21/2005. Rec'd 11/22/2005.

USDOI 2006a – United States Department of the Interior/Goebel (tn: 36213). Comments of the US Fish and Wildlife Service on the Walnut Creek Energy Park, City of Industry, Los Angeles County, California. 01/13/2006. Rec'd 01/19/2006.

APPENDIX BIO - 1 BIOLOGICAL RESOURCES

Regionally Occurring Plant and Wildlife Species that were Observed During Reconnaissance Surveys Conducted on the Project Site and Surrounding Areas

Plant Species	
Italian thistle	*Carduus pycnocephalus*
Prickly lettuce	*Lactuca serriola*
Bristly ox-tongue	*Picris echioides*
Milk thistle	*Silybum marianum*
Cocklebur	*Xanthium strumarium*
California fan palm	*Washingtonia filifera*
Salt heliotrope	*Heliotropium curassavicum*
Black mustard	*Brassica nigra*
Radish	*Raphanus sativus*
Castor bean	*Ricinus communis*
Eucalyptus	*Eucalytpus sp.*
Slender wild oat	*Avena barbata*
Ripgut brome	*Bromus diandrus*
Johnson grass	*Sorghum halepense*
Spreading knotweed	*Polygonum arenastrum*
Jimson weed	*Datura stramonium*
Puncture vine	*Tribulus terrestris*
Wildlife Species	
Mourning dove	*Zenaida macroura*
Killdeer	*Charadrius vociferus*
House finch	*Carpodacus mexicanus*
Red-tailed hawk	*Buteo jamaicensis*
Brewer's blackbird	*Euphagus cyanocephalus*
Anna's hummingbird	*Calypte anna*
American crow	*Corvus brachyrhynchos*
European starling	*Sturnus vulgaris*
Black phoebe	*Sayornis nigricans*
American kestrel	*Falco sparverius*
Rock dove	*Columba livia*
Domestic dog	*Canis familiaris*
California ground squirrel	*Spermophilus beecheyi*

CULTURAL RESOURCES

Dorothy Torres/Beverly Bastian

SUMMARY OF CONCLUSIONS

Staff has determined that the Walnut Creek Energy Park (WCEP) would have no impact on known significant archaeological resources, historic standing structures, or ethnographic resources with the adoption and implementation of the conditions of certification **CUL-1** through **CUL-8**. There is a potential for discovering archaeological sites during ground disturbance for the WCEP, but conditions **CUL-1** through **CUL-8** would mitigate any impacts to newly discovered archaeological sites to below a level of significance. Since no new development is planned nearby, there would not be cumulative impacts to cultural resources. As the existing warehouse is demolished, there is a potential for discovering cultural resources and staff recommends intermittent monitoring by an archaeologist to identify cultural material and ensure mitigation.

INTRODUCTION

Cultural resources are defined under state law as buildings, sites, structures, objects, and historic districts. Three kinds of cultural resources are considered in this assessment: prehistoric, historic, and ethnographic.

Prehistoric archaeological resources are those materials relating to prehistoric human occupation and use of an area. These resources may include sites and deposits, structures, artifacts, rock art, trails, and other traces of Native American human behavior. In California, the prehistoric period began over 10,000 years ago and extended through the eighteenth century until 1769, the time when the first Europeans settled in California.

Historic-period resources are those materials, archaeological and architectural, usually associated with Euro-American exploration and settlement of an area and the beginning of a written historical record. They may include archaeological deposits, sites, structures, traveled ways, artifacts, or other evidence of human activity. Under federal and state requirements, historical cultural resources must be greater than 50 years old to be considered of potential historic importance. A resource less than fifty years of age may be historically important if the resource is of exceptional importance.

Ethnographic resources are those materials important to the heritage of a particular ethnic or cultural group, such as Native Americans or African, European, or Asian immigrants. They may include traditional resource collecting areas, ceremonial sites, topographic features, cemeteries, shrines, or ethnic neighborhoods and structures.

In this analysis staff provides an overview of the environmental setting and history of the project area, an inventory of the cultural resources identified in the project vicinity, and an analysis of the potential impacts from the proposed project using criteria from the California Environmental Quality Act (CEQA). Staff's primary concern is to ensure that all potential impacts are identified and that conditions are set forth to ensure that impacts are mitigated below the level of significance.

If cultural resources are identified, staff determines whether the project may impact them. If the cultural resources cannot be avoided, staff determines whether any of the impacted resources are eligible for the California Register of Historical Resources (CRHR). If impacted resources are eligible for the register, staff recommends mitigation measures that ensure that impacts to the identified cultural resources are reduced to a less than significant level.

LAWS, ORDINANCES, REGULATIONS, AND STANDARDS

Projects licensed by the Energy Commission are reviewed to ensure compliance with all applicable laws. For this proposed project, in which there is no federal involvement,[1] the applicable laws are primarily state laws.

Laws, Ordinances, Regulations, and Standards

Applicable Law	Description
State	
Public Resources Code, section 21083.2	The lead agency may require reasonable steps to preserve a unique archaeological resource in place. Otherwise, the project applicant is required to fund mitigation measures to the extent prescribed in this section. This section also allows a lead agency to make provisions for archaeological resources unexpectedly encountered during construction, which may require the project applicant to fund mitigation and delay construction in the area of the find (CEQA).
California Code of Regulations, Title 14, section 15064.5, subsections (d), (e), and (f)	Subsection (d) allows the project applicant to develop an agreement with Native Americans on a plan for the disposition of remains from known Native American burials impacted by the project. Subsection (e) requires the landowner [possibly the project applicant] to rebury Native American remains elsewhere on the property if other disposition cannot be negotiated within 24 hours of accidental discovery and required construction stoppage. Subsection (f) directs the lead agency to make provisions for historical or unique archaeological resources that are accidentally discovered during construction, which may require the project applicant to fund mitigation and delay construction in the area of the find (CEQA Guidelines).

[1] Cultural resources are indirectly protected under provisions of the federal Antiquities Act of 1906 (Title 16, United States Code, Section 431 et seq.) and subsequent related legislation, policies, and enacting responsibilities, e.g., federal agency regulations and guidelines for implementation of the Antiquities Act.

California Code of Regulations, Title 14, section 15126.4(b)	This section describes options for the lead agency and for the project applicant to arrive at appropriate, reasonable, enforceable mitigation measures for minimizing significant adverse impacts from a project. It prescribes the manner of maintenance, repair, stabilization, restoration, conservation, or reconstruction as mitigation of a project's impact on a historical resource; discusses documentation as a mitigation measure; and advises mitigation through avoidance of damaging effects on any historical resource of an archaeological nature, preferably by preservation in place, or by data recovery through excavation if avoidance or preservation in place is not feasible. Data recovery must be conducted in accordance with an adopted data recovery plan (CEQA Guidelines).
Public Resources Code 5024.1	The California Register of Historic Resources (CRHR) is established and includes properties determined eligible for the National Register of Historic Places (NRHP), State Historic Landmark No. 770 and subsequent numbered landmarks, points of historical interest recommended for listing by the State Historic Resources Commission, and historical resources, historic districts, and landmarks designated or listed by a city or county under a local ordinance. The criteria for eligibility to the NRHP and CRHR are very similar. Criteria for determining eligibility to the CRHR are 1) is associated with historically important events, 2) is associated with important persons in history, 3) embodies distinctive construction or artistic value, and 4) may yield data important in history or prehistory.
Public Resources Code 5020.1 (h)	"Historic district" means a definable unified geographic entity that possesses a significant concentration, linkage, or continuity of sites, buildings, structures, or objects united historically or aesthetically by plan or physical development.
California Health and Safety Code, Section 7050.5	This code makes it a misdemeanor to disturb or remove human remains found outside a cemetery. This code would require the project owner to halt construction if human remains are discovered and to contact the county coroner.
Local	The City of Industry does not have a policy pertaining to cultural resources in the General Plan or City Ordinances (EME 2005a, p.8.3-16) (Kissell 2006a, personal communication).

SETTING

REGIONAL SETTING

The project region includes the entire Los Angeles Basin which is composed of a broad alluvial plain bounded by the Transverse and Peninsular ranges (EME 2005a, p. 8.3-2).

PROJECT SITE AND VICINITY DESCRIPTION

The proposed project would be located in the City of Industry, in a densely developed industrial and residential area approximately 12 miles east of downtown Los Angeles.

The proposed WCEP site would be located within an industrial park that is currently occupied by a warehouse and a truck parking lot (EME 2005a, p.8.3-2 to 8.3-10). The warehouse would be demolished prior to construction. A 66kV transmission line and the San Jose Flood Control Creek Channel are located along the proposed project site's northern border (EME 2005a, p. 8.15-1). The Union Pacific Railroad yard is located approximately 1,000 feet beyond the flood control channel (EME 2005a, Fig. 8.4-1). A vegetated drainage channel is located to the west of the project parcel, and a portion of the Southern California Regional Rail Authority Metro Link (formerly the San Pedro, Los Angeles, and Salt Lake Railway) borders the south side. There is also a substation located south of the project (EME 2005a, p. 8.3-9 to 8.3-10). With the exception of a few small tree planters, the site is unvegetated and covered by a warehouse or asphalt.

There are three transmission line routes proposed for the WCEP project. The first line would extend approximately 600 feet. This line would be 230kV and require two transmission towers. The second tie-in option would be approximately 1,170 feet long and require seven towers. The third line would be approximately 1,220 feet long and would need five transmission towers. There is a possibility that the lines would be placed underground. All of the options would connect with the Walnut Substation. (CH2MHill 2006e), p. 5)

With the exception of the three proposed transmission line alternatives and short connections, the linear facilities would be installed on the project site. The natural gas line tie-in to an existing high pressure line, would extend approximately 30 feet and be installed in an open trench approximately three to seven feet wide and 4 feet deep. The 20 feet long, recycled water pipeline would also be constructed by open trench. The excavation for the pipeline would be approximately 4 feet deep and 3 to 7 feet wide depending on soil types. Maximum excavation depths for foundations are expected to be no greater than 4 feet and 6 to 8 feet for the underground cooling water piping (CH2MHILL 2006a, p. 25). A geotechnical survey recently completed at the proposed project site revealed fill that extends from approximately 4.5 feet to 6 feet deep over the surface of the project location (EME 2005a, Volume 2, Appendix 10).

The WCEP site is currently occupied by a large warehouse that will be demolished by the City of Industry to clear the site for development of the proposed power plant. The City of Industry has approved the demolition, and prepared an Initial Study and adopted a Negative Declaration pursuant to CEQA. The demolition will include removal of all pavement and vegetation occupying the site. Because the warehouse will be torn down to allow the power plant to be built on the site, staff has determined that the demolition is part of the "whole of an action, which has a potential for resulting in either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment" (CEQA Guidelines, Cal. Code Regs., tit. 14, § 15378). Therefore, staff has considered the effects of the demolition in the analysis of the impacts of the proposed power project, deferring to the City of Industry's analysis where appropriate.

Prehistoric Setting

The presence of human beings at Rancho La Brea may be tentatively dated at approximately 15,000 years ago (Moratto 1984, p. 36) based on bones removed from

the nearby La Brea Tar Pits, but no additional evidence for this early occupation has been found. Of several dating systems used to assign archaeological artifacts to specific periods of time, the applicant uses a chronology developed by William Wallace to address archaeological sites in southern California. The earliest period from approximately 12,000 to about 7,500 years ago is characterized by large well-made projectile points, large crude stone tools and camp locations that appear to have been part nomadic (EME 2005a, p. 8.3-5).

From about 7,500 to 5,000 years ago stone milling tools appear in the archaeological record. Settlement size increased over the previous period and there is evidence that the population conducted seasonal migrations from one location to another to take advantage of available food. The period from 5,000 to 1,000 years ago was characterized by population growth, a diversification in food use, the bow and arrow, the mortar and pestle, use of acorns, and an increase in population. The final phase is characterized as 1,000 to 200 years ago. During the final phase, extensive trade networks were developed, personal ornaments and tools were made out of shell, obsidian was used, larger and more permanent villages were established, and population increased.

Ethnographic Background

The earliest inhabitants of the Los Angeles Basin were probably Hokan speakers. From approximately 1,500 years ago, until the Spanish arrived in 1542, the Gabrielino who were Takic speakers inhabited the area. At times, prior to contact with the Spanish, the Gabrielino population may have numbered around 10,000 people. There were large permanent villages in lowlands along rivers and creeks (EME 2005a, p. 8.3-6).

The Gabrielino were a hunter gatherer society that exploited a variety of resources. Hunting tools and ocean-going canoes were used to procure fish while acorns were the most important staple. Bows and arrows were important hunting tools and in addition to acorns, nuts, seeds and berries were processed using different processing tools like manos, metates, hammerstones, and anvils. Garbrielino houses were large and could accommodate 50 people. The houses were circular, domed, and thatched with tule (EME 2005a, p. 8.3-6).

The Gabrielino resided on several offshore islands and the mainland much of which is now the Los Angeles Basin. Boundaries of the Gabrielino ancestral territory are not precise (EME 2005a, p. 8.3-6). Most mainland groups of Gabrielino manufactured items out of steatite that reflected a high degree of artisanship. Steatite was used to make animal carvings, pipes, ornaments, and cooking utensils (Bean and Smith 1978, p. 542). The mainland Gabrielino cremated their dead.

In Gabrielino society, old people taught and supervised the young. Younger people hunted and fished, at times accomplishing deep sea fishing. Animal and plant food resources were collected and large land animals were hunted with bows and arrows (Bean and Smith 1978, p. 546).

Gabrielino lifeways were impacted by the influx of non-natives to California. The Spanish founded Mission San Gabriel in 1771, with mass conversions of villages

beginning in 1778. Life at the missions was lived in close quarters resulting in disease. The missions began to decline by 1833, and the Mexican government confiscated the land in 1835, and gave it to private citizens (EME 2005, p. 8.3-7).

Historic Setting

Gabrielino contact with Spanish explorers occurred in 1542, when Juan Rodriguez Cabrillo explored the area. Additional exploration by the Spanish was conducted in 1602 under Sebastian Vizcaino. In 1771, the San Fernando and San Gabriel missions were built in Gabrielino territory. As a result, many Indians followed the mission way of life, died from disease, or fled to another part of California (EME 2005a, p. 8.3-7).

After secularization of the missions, the project area became part of a Spanish land grant. In 1842, the Mexican Governor Alvarado granted the 48,790-acre Rancho La Puente to John Rowland and William Workman (EME 2005a, p. 8.3-7). In 1851, Rowland and Workman divided the acreage; Rowland took the eastern 29,000 acres and Workman took the western 20,000 acres. Workman Ranch was sold and divided after the collapse of the Temple-Workman Bank in 1875, but the Rowland Ranch was used as agricultural land until the 1950s. Post 1860s, the Workman and Rowland ranchos produced wheat and grapes. Rowland was California's first large scale wine producer and the entire area became well known for walnut and fruit production in the 1930s (EME 2005a, p. 8.3-7).

The Workman and Rowland homes are maintained by the City of Industry. The Workman Homestead Mansion which is a City museum and a related residential structure on the same property, were built by son-in-law Francisco Temple, along with a family cemetery are located approximately 1 mile west of the proposed project location. The Workman Homestead Mansion is listed on the National Register of Historic Places (NRHP) and as California State Registered Landmark 874. The two storey Rowland House is maintained by the City as a historic structure and also listed on the NRHP. It is located approximately 0.6 miles west of the WCEP site (EME 2005a, p. 8.3-8).

The Civil War made it difficult for California residents to obtain fuel from the East Coast. The first oil well was drilled in Northern California in 1865. By 1903, oil drilling was well established in the central and southern portions of California. There are several oil fields in the proposed project area, south of Hacienda Heights.

Railroads played a substantial role in settling and developing southern California. The Southern Pacific Railroad was installed in the San Gabriel Valley in 1872 (City of Industry 2006) Union Pacific now owns the Southern Pacific rail line. It is located to the north within ½ mile of the proposed project site. The San Pedro, Los Angeles & Salt Lake Railway borders the proposed project site to the south and is now operated by Union Pacific. The line has been recommended eligible to the NRHP (EME 2006b, p.8.3-9).

The land in what is now The City of Industry was primarily agricultural until the 1950s. Led by James Stafford, a member of the Los Angeles Regional Planning Commission, local farmers and businessmen planned a city that would develop and manage the industrial expansion of the Los Angeles area. The new city was composed of

approximately five square miles bordered on the north and south by the Southern Pacific, and Union Pacific railroads and dedicated to providing a haven for business. In 1957, the City of Industry incorporated and became the 54th city in the County of Los Angeles (City of Industry 2006).

During the 1960s, the City of Industry attracted many large firms that were looking for room to expand. Development of city infrastructure, roads, and railroads contributed to continued growth. In the 1970s, the City of Industry began to manage the growth and plan for organized development. That organized development continues to the present (City of Industry 2006).

Resources Inventory

Literature/Records Search and Native American Contacts

The applicant's records check and literature search conducted at the South Central California Information Center of the California Historical Resources Information System (CHRIS) included all known cultural resources within a 0.5-mile radius of the proposed plant site, and appurtenant linear facilities (EME 2005a, p. 8.3-8 to 8.3-9). The search identified eight previous surveys that had been completed within the 0.5-mile radius area.

The results of the search included the previously recorded San Pedro, Los Angeles, & Salt Lake Railway. The line is currently in use as the Southern California Regional Rail Authority MetroLink Riverside line. This railroad line borders the south side of the proposed project site. The search also identified the Southern Pacific Railroad line located approximately 1,000 feet north of the project. The Southern Pacific line predates the San Pedro, Los Angeles & Salt Lake Railway (EME 2005a, p. 8.3-8).

The search also identified the Workman and Temple historic homes that are located slightly over a mile from the proposed project and the Rowland historic home located approximately 0.6 miles from the project site. These properties are listed on the National Register (EME 2005a, p. 8.3-8).

Contacts with Historical Societies

On March 28, 2006, the applicant left voice mail messages for both the Los Angeles City Historical Society and La Puente Valley Historical Society requesting information about cultural resources in the project area. As of April 10, 2006, the applicant had not received any responses (CH2MHILL 2006a).

Contact with Southern California Edison's Manager of Natural and Cultural Resources

Staff contacted Thomas Taylor, Southern California Edison's (SCE) Manager of Natural and Cultural Resources, via telephone on June 15, 2006. Mr. Taylor has been a cultural resources specialist for SCE for 27 years and is very knowledgeable about the history and technological development of the SCE system. Mr. Taylor based his opinions on facts obtained from SCE's records and his 27 years of experience with the company, and staff judges that Mr. Taylor is an expert in this area and a reliable source of information.

Staff asked Mr. Taylor about the potential significance of the substation as associated with events contributing to the broad patterns of history, or as associated with the lives of significant persons, or as embodying a type or the work of a master, or as possessing valuable but unrecorded data. Based on his knowledge of SCE's history and his long experience with the company, Mr. Taylor expressed the opinion that the substation was not significant in any of those respects, to the best of his knowledge. Staff asked Mr. Taylor if the substation was in any way related to the founding of the City of Industry. Mr. Taylor stated that he did not know, and that information of that nature was not in SCE's files. Mr. Taylor indicated that federal Homeland Security requirements prevent outside access to technical records about the substation (Taylor 2006, telephone conversation).

Native American Contacts

The applicant contacted the Native American Heritage Commission (NAHC) to determine whether there are any previously identified locations of heritage importance in the proposed project vicinity. The NAHC searched their sacred lands file and determined that there are no sacred lands in the immediate project area.

The applicant sent informational letters to groups and individual Native Americans whose names were provided on the list from the NAHC. As a follow-up, as requested by the NAHC, the applicant also called the Native American groups and individuals who were listed (EME 2005a, p. 8.3-10). The applicant received four responses. Susan Frank of the Gabrielino Band of Mission Indians responded by voice mail and by letter. Tribal Chairwoman Frank requested that Native American monitors be present and explained that her tribe has many monitors who are trained and available. She also requested that the tribe be informed of any discoveries of Native American sites and provided an opportunity to view any cultural resources that are discovered. Moreover, Ms. Frank suggested that any discovered objects not be moved and that the appropriate tribe that traced their heritage to that area be contacted so that the artifacts can be correctly repatriated (CH2MHILL 2006a).

John Tommy Rosas of the Tongva Ancestral Tribal Nation requested that the letter be resent to him, via e-mail. Anthony Morales, Chairperson of the Gabrielino/Tongva Tribal Council requested that if archaeologists are on site, the tribe would also like to have a Native American monitor present. Robert Doreme of the Gabrielino Tongva Indians of California Tribal Council requested that they be contacted if prehistoric and historic cultural resources are discovered (CH2MHILL 2006a).

Staff also requested a list of Native Americans in the proposed project area from the NAHC. Letters from staff were sent to Native American groups and individuals on March 16, 2006, asking for information regarding Native American concerns in the proposed project area.

County of Los Angeles

Since properties listed on local lists of historic properties may be assumed to be eligible for the California Register of Historic Resources pursuant to Public Resources Code Section 5024.1 (e) (4), staff contacted Los Angeles County by e-mail on April 11, 2006,

to determine whether the County maintained a list of historic resources. The City of Industry and County of Los Angeles do not maintain that sort of list (EME 2005a, p. 3.3-16) (LA 2006, e-mail).

Field Surveys

The applicant completed a pedestrian survey for the proposed project site. At present, a warehouse covers much of the site. Outside the warehouse, the proposed project area is covered by asphalt, except for small tree planters. The area was surveyed using 20–meter wide parallel transects. Areas originally proposed as potential locations for new transmission line poles to the southwest and laydown area and access road during construction in the SCE 66-kV transmission right-of-way were also surveyed. Ground visibility in the transmission right of way for the 600 foot line was about 15 percent. No historic or prehistoric cultural remains were observed (EME 2005a, p. 8.3-10). Staff's analysis of the proposed alternate transmission lines provided in AFC Supplement IV (CH2MHill 2006e, p5) has identified portions of the two additional alternate transmission lines that have not been surveyed. The results of a survey will be provided to staff prior to publication of the Final Staff Assessment. (Dr. Davy 2006, telephone conversation)

The applicant also conducted an architectural reconnaissance for the proposed project to determine whether there are any historic or potentially historic buildings or structures near or adjacent to the WCEP that the project might affect. The applicant concluded that there are no buildings or structures near the project site older than 45 years (EME 2005a, p. 8.3-10).

Identified Prehistoric and Historical Archaeological Resources

No prehistoric sites were identified within 0.5 mile of the project during either the literature search or pedestrian survey.

Identified Historic Standing Structures

The San Jose Creek Flood Control Channel appears to be less than 40 years old (CH2MHILL 2006a, p. 16) and is not subject to further consideration as a historic resource.

The nearby Walnut Substation was built in 1957 (CH2MHILL 2006a, p. 16). Although transmission lines are present on maps as early as 1924, it appears that the two rows of steel lattice towers and a wooden pole line present today replaced the older lines during 1960s. The project would connect to this substation.

The existing warehouse on the proposed project site which will be demolished was constructed in 1979, and does not appear to be exceptional; therefore, it is not subject for further consideration as a historic resource (EME 2006c, p. 11).

The San Pedro, Los Angeles & Salt Lake Railway, constructed in 1902, borders the proposed project site on the south. The line officially opened in 1905, and as it wound through the Los Angeles area, it often ran parallel to the pre-existing Southern Pacific line. It was important in the shipment of goods in the Los Angeles area and is associated with people important in history, including Mark Hopkins, Collis P. Huntington, Leland Stanford, and Charles Crocker. A consultant has recommended this

line as eligible to the NRHP under criteria A and B (EME 2006a, DPR primary # 19-186112, p. 2). Staff agrees with this recommendation.

Southern Pacific Railroad (now owned by Union Pacific Railroad) is located approximately 1,000 feet to the north of the proposed project. The single gauge railroad, constructed in the 1870s, has associated features including railroad yards, rail spurs, and sidings. Portions of the railroad were additions to the first transcontinental railroad. The historic railroad was important to the development of the Los Angeles area because it enabled emigration and the transportation of goods. The Southern Pacific Railroad is also associated with a number of important people in history including Mark Hopkins, Collis P. Huntington, Leland Stanford, and Charles Crocker. Therefore, a consultant recommended this railroad as eligible to NRHP under Criteria A and B (CH2MHILL 2006a, DPR form p. 1-2). Staff agrees that the railroad is eligible to the NRHP and therefore, eligible to the CRHR.

The Workman and Temple historic homes are located one mile from the proposed project and are listed on the NRHP. The Rowland historic home is also listed on the NRHP and is within 0.6 mile of the project site (EME 2005a, p. 8.3-9). There are numerous modern buildings and structures between WCEP and the historic buildings, and WCEP will not affect the historical buildings.

Identified Ethnographic Resources

No specific areas of Native American heritage concern were identified within 0.5 mile of the proposed project as a result of the inquiry letters and phone calls conducted by the applicant. Native Americans who responded to the applicant's letters and phone calls requested that a Native American monitor be present on site or that information be provided to the tribe. If Native American human remains or a Native American archaeological site is discovered, there could be impacts to heritage resources.

ASSESSMENT OF IMPACTS AND DISCUSSION OF MITIGATION

METHOD AND THRESHOLD FOR DETERMINING SIGNIFICANCE

Various laws apply to the evaluation and treatment of cultural resources. CEQA requires the Energy Commission to evaluate resources by determining whether they meet several criteria. These evaluations then influence the analysis of potential impacts to the resources and the mitigation that may be required to lessen any such impacts.

The CEQA Guidelines provide a definition of a historical resource as a "resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the CRHR", or "a resource listed in a local register of historical resources or identified as significant in a historical resource survey meeting the requirements of Section 5024.1 (g) of the Public Resources Code," or "any object , building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California, provided the agency's determination is supported by substantial evidence in light of the whole record." (California Code of Regulations, Title 14, section 15064.5(a)). Historical

resources that are automatically listed in the CRHR include California historical resources listed in or formally determined eligible for the NRHP and California Registered Historical Landmarks from No. 770 onward (Public Resources Code, Section 5024.1(d)).

Under the CEQA Guidelines, a cultural resource is generally considered to be historically significant if it meets the criteria for listing in the CRHR. These criteria are essentially the same as the eligibility criteria for the NRHP. In addition to being at least 50 years old,[2] a resource must meet at least one of the following four criteria: is associated with events that have made a significant contribution to the broad patterns of our history (Criterion 1); or, is associated with the lives of persons significant in our past (Criterion 2); or, that embodies the distinctive characteristics of a type, period, or method of construction, or represents the work of a master, or possesses high artistic values (Criterion 3); or, that has yielded, or may be likely to yield, information important to history or prehistory (Criterion 4) (Public Resources Code section 5024.1). In addition, historical resources must also possess integrity of location, design, setting, materials, workmanship, feeling, and association (California Code of Regulations, Title 14, section 4852(c)).

Even if a cultural resource is not listed or determined to be eligible for listing in the CRHR, CEQA directs the lead agency to make a determination as to whether the resource is a historical resource as defined in Public Resources Code sections 5020.1 (j) or 5024.1. Whether a proposed project would cause a substantial adverse change in the significance of historical resources is the issue that staff analyzes to determine if the project may have a significant effect on the environment.

DIRECT/INDIRECT IMPACTS AND MITIGATION

In the abstract, direct impacts to cultural resources are those associated with proposed 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.

Ground disturbance during construction at the proposed plant site, along the proposed linear facilities and at the proposed laydown area, has the potential to directly impact archaeological resources, unidentified at this time. The potential direct, physical impacts of the proposed construction on unknown archaeological resources are commensurate with the extent of ground disturbance entailed in the particular mode of construction, and this varies with each component of the proposed project.

[2] The Office of Historic Preservation's Instructions for Recording Historical Resources (1995) endorses recording and evaluating resources over 45 years of age to accommodate a five-year lag in the planning process.

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.

Construction Impacts and Proposed Mitigation

Direct Impacts on Archaeological Resources

Staff agrees with the applicant that no significant known archaeological resources have been identified in the area where the proposed project would be built. Consequently, no project-related construction impacts from the WCEP to known archaeological resources have been identified, and no mitigation would be required for known archaeological resources. As previously noted, portions of the two additional alternate transmission line routes proposed by the applicant (CH2MHill 2006e, p5) have not been surveyed. Staff's preliminary analysis of the recently proposed transmission lines has determined that ground disturbance activities associated with the WCEP to known archaeological resources are not likely, however, staff's complete analysis of the results of the new survey will be provided in the Final Staff Assessment.

Because the proposed project development and construction generally would require subsurface disturbance near San Jose Creek, which is likely to have been utilized in prehistoric and historic times, the applicant and staff agree that WCEP may have the potential to adversely affect unknown archaeological resources when excavation exceeds the depth of the fill (EME 2005a, p. 8.3-11 and 8.3-12). Geotechnical borings for the project identified fill in some locations extending to a minimum depth of 4 feet (EME 2005a, Volume 2). Procedures for identifying, evaluating, and mitigating impacts to new discoveries are specified in staff's proposed conditions of certification **CUL-1** through **CUL-8**.

As discussed above, it is possible that prehistoric and historic archaeological deposits could be encountered during construction, after the depth of fill, which varies from 4 to 6.5 feet over the project site, is exceeded. If the newly found resources are eligible for the CRHR, the direct impacts from construction could materially impair the resources. Appropriate mitigation measures, such as avoidance or assessment and data recovery, must be implemented to reduce that impact to less than significant. In recognition of this possibility, CEQA directs a lead agency to make provisions for archaeological resources unexpectedly encountered during construction (Public Resources Code, section 21083.2; California Code of Regulations, Title 14, sections 15064.5(f) and 15126.4(b)).

Existing Warehouse

Prior to work beginning for the WCEP, the existing warehouse will be removed. The warehouse, built in 1979, is not old enough to be considered as a historic resource and there is no information that indicates it might be considered exceptional. However, since the proposed project is located near San Jose Creek, a location that is likely to have been used by both prehistoric and historic groups of people, there is a potential for discovering archaeological resources. The City of Industry will conduct the demolition of

the warehouse. According to Mike Kissell, Planning Director for the City of Industry, ground disturbance for the warehouse did not discover any archaeological resources when ground preparation for the warehouse was undertaken in 1979 (Kissell 2006a, personal communication).

The geotechnical report for the WCEP project indicates that there is fill under the warehouse. The level of the fill differs from 4 to 6.5 feet deep (EME 2005a Volume 2). According to Planning Director Mike Kissell, the entire foundation for the warehouse will be removed and grading will probably extend to 4 or 5 feet below the surface (Kissell 2006b, personal communication). Staff recommends that the City of Industry retain an archaeologist on a part-time basis to check the soils, preferably on a daily basis, to determine whether site remediation has extended below the level of fill and whether any cultural material is present. If cultural material is identified, staff recommends full time monitoring until construction ground disturbance is complete.

If cultural resources are present, grading, excavation or trenching that extends below the level of fill might damage them. If site remediation extends below the level of fill, staff recommends that an archaeologist examine soils twice each day and if cultural material is identified, the archaeologist should monitor full time as long as there is ground disturbance. If an archaeological site is discovered and cannot be avoided, then it would be appropriate to determine significance and conduct data recovery. If appropriate, . curation would be the final step to mitigate impacts to a significant archaeological site. (EME 2005a, Volume. 2, Appendix 10).

Direct Impacts on Historic Standing Structures

No previously recorded historic standing structures would be impacted or demolished by the project. However, with its tall combustion turbine stacks, a new element would be introduced into the immediate area. At present, the project site consists of a warehouse and truck parking lot. Nearby structures consist of warehouses, a transmission line, a substation, two historic railroads and a channelized creek. The proposed project site is located in an industrial park. Nearby buildings are primarily warehouses constructed within the last 45 years. Construction of the WCEP at this location would not affect the setting of structures or buildings.

Historical Homes

The Workman and Temple historic homes are part of the Workman Temple Family Homestead Museum, located approximately one-mile west from the proposed project, and listed on the NRHP. The Rowland historic home, built in the 1850s and listed on the NRHP is located approximately 0.6 miles from the proposed project (EME 2005a, p. 8.3-4). Many modern buildings and structures are located between the project location and the historic buildings and have already affected the integrity of the setting of the historic buildings.

Historical Railroads

The San Pedro, Los Angeles & Salt Lake Railway borders the project on the south side. It is recommended as eligible to the NRHP by a consultant (EME 2006a, DPR primary # 19-186112, p. 2). The proposed project will not demolish, or connect to the railroad. Numerous modern buildings and structures have already affected the setting of the

railroad. Therefore, there will not be any sort of physical alteration of the railroad or an impact to the setting of the railroad.

Walnut Substation

The Walnut Substation was constructed in 1957. It was originally manned, but was changed to remote operation in 1991. Additional 12kV lines and new capacitor banks were added in 1989. According to information the applicant obtained from SCE, additional 3 A transformer banks were installed in the 1980s. New transformers were added in 1974, and additional 12kV lines and new capacitor lines were added in 1989 (CH2MHILL 2006b, p. 5). Information concerning the changes to the substation was provided to CH2MHILL by Thomas Taylor of SCE.

The new connection from the new power plant to the substation would involve a connection to an existing bus. The bus was probably installed after 1965, when A-frame buses were developed. It would also be necessary to install a new bay and a new breaker. The substation has space to install these new features, and it is likely that the substation was designed to incorporate these later additions (Arachchige 2006: personal communication).

Tom Taylor explained that the Walnut Substation had an “off the shelf” design, with nothing unique, distinctive, or innovative about it, that it is typical of many of SCE’s substations, and that even the alterations made to it are typical, done to increase safety and reliability and to accommodate growth. Based on an extensive knowledge of energy development and SCE substations in southern California and his knowledge of the construction, engineering, and alterations to the Walnut Substation, Tom Taylor has recommended that the Walnut substation is not eligible for the CRHR under significance criteria 2, 3, and 4, but cannot provide an opinion on whether the substation is eligible under criterion 1 (See the LORS section of this analysis for criteria) (Taylor 2006). In staff’s opinion the Walnut Substation may be significant under criterion 1, an association with an event that has contributed to a broad pattern of history, namely, the founding of the City of Industry. The substation was built in the same year as the City of Industry was established, and there may be a relationship between the two events.

If the substation were eligible for the CRHR under criterion 1, the alterations which it has undergone would not significantly impair the substation’s ability to convey its historical significance: the buildings, though their function has changed, are still present, and the equipment upgrades have not affected the public’s ability to “read” the substation as a substation. The substation therefore has unimpaired integrity of location, setting, workmanship, feeling, and association, and has retained sufficient integrity of design and materials to qualify under criterion 1, if a relationship between the substation and the founding of the City of Industry is established.

Similarly, the equipment upgrades needed for the connection of the proposed new plant to the substation would not impair the integrity of the substation sufficiently to disqualify it under criterion 1. Therefore, the alterations required by the proposed project would not constitute a significant impact on the substation.

Consequently, no project-related construction impacts to standing historic structures, that would materially impair their significance, have been identified, so no mitigation would be required for this class of cultural resources.

Direct Impacts on Ethnographic Resources

No ethnographic resources, either previously recorded or newly disclosed in the communications with Native Americans initiated by the applicant for the proposed project, were identified in the vicinity of the proposed project. At times, however, Native Americans are reluctant to reveal the location of heritage sites until they feel there is no choice but to identify locations to preserve the heritage site, If archaeological sites are discovered, there is a potential for ethnographic/heritage impacts. Condition **CUL-8** recommends the presence of a Native American monitor during cultural resources monitoring where there is a potential for the discovery of Native American artifacts.

Inadvertent Discovery of Human Burials

The applicant proposes to mitigate any impacts from the inadvertent discovery of Native American human remains by following state law (EME 2005a, p. 8.3-14). Staff agrees with this recommendation.

Indirect Impacts

Neither the applicant nor staff identified any indirect impacts to any known cultural resources in the impact area of the proposed project; therefore, no mitigation measures would be required for indirect impacts for any class of cultural resources.

Proposed Mitigation

The applicant has proposed the following measures to mitigate impacts to newly discovered significant cultural resources:

1. Designation of a cultural resources specialist;
2. Implementation of a construction worker training program;
3. Monitoring during initial clearing and excavation at the plant site;
4. Procedures to halt construction if there is a discovery of an archaeological site or human remains;
5. Procedures for recording and evaluating a discovery;
6. Procedures for mitigating impacts to significant discoveries; and
7. A Report of Findings.

Although, staff concurs with many of the applicant’s suggested mitigation measures,, staff has added additional recommendations or expanded upon the applicant’s recommendations to ensure that all impacts to cultural resources are mitigated below a level of significance. The applicant’s proposed mitigation measures and staff’s additional recommendations are incorporated into the proposed conditions of certification **CUL-1** through **CUL-8**.

Operation Impacts and Mitigation

During operation of the proposed power plant, if a leak should develop in the gas or water pipelines supplying the plant, repair of the buried utility could require the excavation of a large hole..Such repairs could impact previously unknown subsurface archaeological resources in areas unaffected by the original trench excavation. The conditions of certification proposed for mitigating impacts to previously unknown archaeological resources during ground disturbance, construction of the plant and linear facilities would also serve to mitigate impacts from repairs occurring during plant operation.

Cumulative Impacts and Mitigation

A cumulative impact refers to a proposed project's incremental effect together with other closely related past, present, and reasonably foreseeable future projects whose impacts may compound or increase the incremental effect of the proposed project. (Pub. Resources Code § 21083; Cal. Code Regs., tit. 14, §§ 15064(h), 15065(c). 15130. and 15355.) The construction of other projects in the same vicinity as the proposed project could affect unknown subsurface archaeological deposits (both prehistoric and historic). Applications for 61 proposed projects have been filed in the City of Industry, City of La Puente, and Hacienda Heights within the last 18 months (EME 2005a, Vol II, Appendix 8.6). The applicant has provided information that none of the projects will be built within one 0.5 mile of the WCEP. Proponents for future projects in the WCEP area can mitigate impacts to as yet undiscovered subsurface archaeological deposits to less than significant by implementing mitigation measures requiring construction monitoring, evaluation of resources discovered during monitoring, and avoidance or data recovery for resources evaluated as significant (eligible for the CRHR or NRHP). Staff's proposed conditions of certification will ensure that the proposed project's incremental effect is not cumulatively considerable.

CONCLUSIONS AND RECOMMENDATIONS

With the exception of portions of the two proposed alternate transmission line routes that have not been surveyed for archaeological resources, staff's cultural resources analysis has determined that WCEP may have an impact on the Walnut Substation, but would have no impact on known, historic standing structures, significant archaeological sites, or ethnographic resources. The applicant plans to survey portions of the proposed transmission line routes and provide that information to staff, prior to publication of the Final Staff Analysis (Dr. Davy 2006, telephone conversation). With the adoption and implementation of the conditions of certification **CUL-1** through **CUL-8** there will be no impacts to newly discovered archaeological resources or known resources that might be impacted in an unanticipated manner.

If the conditions of certification, below, are implemented, construction of WCEP would result in a less than significant impact on newly found cultural resources or on those known resources that may be impacted in a previously unanticipated manner. The project would therefore be in compliance with CEQA and other applicable state laws, ordinances, regulations, and standards listed in Cultural Resources Table 1.

Staff recommends the adoption of the following cultural resources conditions of certification, which include and expand upon the applicant's proposed mitigation measures. When properly implemented, these conditions of certification would mitigate to less than significant any impacts to unknown cultural resources if they are discovered during ground disturbance for the proposed project.

PROPOSED CONDITIONS OF CERTIFICATION

CUL-1 Prior to the start of pre-construction site mobilization; construction ground disturbance; construction grading, boring, and trenching; and construction, the project owner shall obtain the services of a Cultural Resources Specialist (CRS), and one or more alternates, if alternates are needed, to manage all monitoring, mitigation, and curation activities. The CRS may elect to obtain the services of Cultural Resource Monitors (CRMs) and other technical specialists, if needed, to assist in monitoring, mitigation, and curation activities. The project owner shall ensure that the CRS makes recommendations regarding the eligibility to the California Register of Historic 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, unless specifically approved by the CPM. Approval of a CRS may be denied or revoked for non-compliance on this or other projects.

CULTURAL RESOURCES SPECIALIST (CRS)

The resume for the CRS and alternate(s) shall include information demonstrating that the minimum qualifications specified in the U.S. Secretary of the Interior's Guidelines, as published at Title 36 of the Code of Federal Regulations, Part 61, are met. In addition, the CRS shall have the following qualifications:

1. A technical specialty of the CRS shall be appropriate to the needs of the project and shall include a background in anthropology, archaeology history architectural history or a related field; and
2. At least three years of archaeological resource mitigation and field experience in California; or
3. The resume shall demonstrate to the satisfaction of the CPM that the proposed CRS or alternate CRS has the appropriate training and background to effectively make recommendations regarding the significance of cultural resources.

The resume of the CRS shall include the names and telephone numbers of contacts familiar with the work of the CRS on referenced projects and shall demonstrate that the CRS has the appropriate education and experience to accomplish the cultural resource tasks that must be addressed during ground disturbance.

CULTURAL RESOURCES MONITOR (CRM)

CRMs shall have the following qualifications:

8. a BS or BA degree in anthropology, archaeology, historical archaeology, or a related field, and one year experience monitoring in California; or
9. an AS or AA degree in anthropology, archaeology, historical archaeology, or a related field, and four years experience monitoring in California; or
10. enrollment in upper division classes pursuing a degree in the fields of anthropology, archaeology, historical archaeology, or a related field, and two years of monitoring experience in California.

CULTURAL RESOURCES TECHNICAL SPECIALISTS

The resume(s) of any additional technical specialists, e.g., prehistoric archaeologist, historian, architectural historian, and/or physical anthropologist, shall be submitted to the CPM for approval.

Verification: At least 45 days prior to the start of pre-construction site mobilization; construction ground disturbance; construction grading, boring, and trenching; and construction, the project owner shall submit the resume of the CRS and alternate(s), if desired, to the CPM for review and approval.

At least 10 days prior to a termination or release of the CRS, or within 103 days after resignation of the CRS, the project owner shall submit the resume of the proposed new CRS to the CPM for review and approval. 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 construction may continue up to a maximum of 3 days without a CRS. If cultural resources are discovered then construction will remain halted until there is a CRS or alternate CRS to make a recommendation regarding significance.

At least 20 days prior to start of pre-construction site mobilization; construction ground disturbance; construction grading, boring, and trenching; and construction, the CRS shall provide a letter naming anticipated CRMs for the project and stating that the identified CRMs meet the minimum qualifications for cultural resource monitoring required by this condition. If additional CRMs are obtained during the project, the CRS shall provide additional letters to the CPM identifying the CRMs and attesting to the qualifications of the CRMs, at least five days prior to the CRMs beginning on-site duties. At least 10 days prior to beginning specialized technical tasks, the resume(s) of any additional technical specialists shall be provided to the CPM for review and approval.

At least 10 days prior to the start of pre-construction site mobilization; construction ground disturbance; construction grading, boring, and trenching; and construction, the project owner shall confirm in writing to the CPM that the approved CRS will be available for on-site work and is prepared to implement the cultural resources conditions of certification.

CUL-2 Prior to the start of pre-construction site mobilization; construction ground disturbance; construction grading, boring, and trenching; and construction, if the CRS has not previously worked on the project, the project owner shall

provide the CRS with copies of the AFC and any confidential cultural resources reports for the project. The project owner shall also provide the CRS and the CPM with maps and drawings showing the footprint of the power plant and all linear facilities. Maps shall include the appropriate USGS quadrangles and a map of the proposed plant site and linear facilities at an appropriate scale (e.g., 1:200 or 1" = 20') for plotting archaeological features. If the CRS requests enlargements for the plant site or strip maps for linear facility routes, the project owner shall provide copies to the CRS and CPM. The CPM shall review submittals and, in consultation with the CRS, approve those maps and drawings that are appropriate for use in cultural resources planning activities. No ground disturbance shall occur prior to CPM approval of maps and drawings, unless specifically approved by the CPM.

If construction of the project will proceed in phases, maps and drawings not previously provided shall be submitted prior to the start of each phase. Written notification identifying the proposed schedule of each project phase shall be provided to the CRS and CPM. The project owner shall notify the CRS and CPM of any changes to the scheduling of the construction phases.

At a minimum, the CRS shall consult weekly with the project construction manager to confirm area(s) to be worked during the next week, until ground disturbance is completed.

Verification: At least 40 days prior to the start of pre-construction site mobilization; construction ground disturbance; construction grading, boring, and trenching; and construction, the project owner shall submit the subject documents to the CRS and the subject maps and drawings to the CPM and CRS. The CPM will review the project owner's submittals in consultation with the CRS and approve maps and drawings suitable for cultural resources planning activities.

At least 15 days prior to the start of pre-construction site mobilization; construction ground disturbance; construction grading, boring, and trenching; and construction, if there are changes to any project-related footprint, the project owner shall provide to the CRS and CPM revised maps and drawings for those changes and an e-mail or letter from the CRS stating that cultural resources information, compiled during the siting phase of the project, has been received.

At least 15 days prior to each phase, if project construction is phased, the project owner shall provide to the CRS the subject maps and drawings, if not previously provided, and notify the CRS and CPM in writing, identifying the proposed schedule of each project phase.

On a weekly basis prior to and during pre-construction site mobilization; construction ground disturbance; construction grading, boring, and trenching; and construction; a current schedule of anticipated project activity shall be provided to the CRS and CPM by letter, email, or fax.

If compliance documents are being submitted in keeping with a phased project schedule, within five (5) days of identifying any changes to the scheduling of

construction phases, the project owner shall provide written notice to the CRS and CPM of the changes.

CUL-3 Prior to the start of pre-construction site mobilization; construction ground disturbance; construction grading, boring, and trenching; and construction, the project owner shall submit the Cultural Resources Monitoring and Mitigation Plan (CRMMP), as prepared by (or its preparation overseen by) the CRS, to the CPM for approval. The CRMMP shall be provided in the Archaeological Resource Management Report (ARMR) format, and, per ARMR guidelines, the author's name shall appear on the title page of the CRMMP. The CRMMP shall identify general and specific measures to minimize potential impacts to sensitive cultural resources. Implementation of the CRMMP shall be the responsibility of the CRS and the project owner. Copies of the CRMMP shall reside with the CRS, alternate CRS, each monitor, and the project owner's on-site manager. No ground disturbance shall occur prior to CPM approval of the CRMMP, unless specifically approved by the CPM.

The CRMMP shall include, but not be limited to, the following elements and measures:

1. A proposed 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 functions of the research questions formulated in the research design. A prescriptive treatment plan may be included in the CRMMP for limited resource types.
2. The following statement shall be added to the CRMMP's 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. If there appears to be any conflict between the conditions and the way in which they have been summarized, described, or interpreted in the CRMMP, the conditions, as written in the Energy Commission's Final Decision, supersede any interpretation of the conditions in the CRMMP." The Cultural Resources conditions of certification shall be attached as an appendix to the CRMMP.
3. Specification of the implementation sequence and the estimated time frames needed to accomplish all project-related archaeological tasks during ground disturbance, construction, and post-construction analysis phases of the project.
4. Identification of the person(s) expected to perform each of the archaeological tasks, their responsibilities, and the reporting relationships between project construction management and the mitigation and monitoring team.
5. A discussion of the inclusion of Native American observers or monitors, the procedures to be used to select them, and their role and responsibilities.
6. A discussion of all avoidance measures (such as flagging or fencing) which will be used to prohibit or otherwise restrict access to sensitive cultural resource areas that are, or, once discovered, may need to be avoided during construction and/or operation, and identification of areas where these measures may be implemented.

The discussion shall address how these measures would be implemented prior to the start of construction, or after discovery, and how long they would be needed to protect the resources from project-related effects.

7. A discussion of the requirement that all cultural resources encountered that cannot be treated prescriptively shall be recorded on a DPR form 523, mapped, and photographed. In addition, a discussion shall be included of the requirement that all records produced and all archaeological materials collected and retained as a result of the archaeological investigations (survey, testing, monitoring, and data recovery) shall be curated in accordance with the State Historical Resources Commission's "Guidelines for the Curation of Archaeological Collections," in a retrievable storage collection in a public repository or museum. The public repository or museum must meet the standards and requirements for the curation of cultural resources set forth at Title 36 of the Code of Federal Regulations, Part 79.
8. A discussion of any requirements, specifications, or funding needed for the curation of the materials to be delivered for curation and how requirements, specifications, and funding shall be met. This shall include information indicating that the project owner will pay all curation fees and state that any agreements concerning curation will be retained and be available for audit for the life of the project. Also, the name and phone number of the contact person at the curating institution shall be provided.
9. A discussion of the availability of and the designated specialist's access to equipment and supplies necessary for photographing and site mapping, and for recovering, recording, and photographing all cultural materials encountered during construction that cannot be treated prescriptively.
10. A discussion of the required Cultural Resources Report.

Verification: At least 30 days prior to the start of pre-construction site mobilization; construction ground disturbance; construction grading, boring and trenching; and construction, the project owner shall submit the subject CRMMP. Ground disturbance activities may not commence until the CRMMP is approved, unless specifically approved by the CPM. A letter shall be provided to the CPM indicating that the project owner agrees to pay curation fees for any materials collected as a result of the archaeological investigations (survey, testing, monitoring, and data recovery).

CUL-4 The project owner shall submit the Cultural Resources Report (CRR) to the CPM for approval. The CRR shall be written by the CRS and shall be provided in the ARMR format. The CRR shall report on **all** field activities including dates, times, locations, samplings, analyses, and findings. All survey reports, Department of Parks and Recreation (DPR) 523 forms, and additional research reports not previously submitted to the California Historical Resources Information System (CHRIS) and the State Historic Preservation Officer (SHPO) shall be included as an appendix to the CRR. If the ARMR reports have previously been sent to the CHRIS, then receipt letters from the CHRIS shall be included in an appendix. If the technical report originally prepared for this project, has not been submitted to the CHRIS, append it to the CRR. If no technical report was prepared for the siting phase of this project, the cultural resources information collected for the siting phase of the project shall be incorporated into this CRR.

Verification: Within 90 days after completion of all ground disturbance (including landscaping), the project owner shall submit the subject CRR. Within 10 days after CPM approval of the CRR, the project owner shall provide documentation to the CPM that copies of the CRR have been provided to the SHPO, the CHRIS, and the curating institution (if archaeological materials were collected and curated).

CUL-5 Prior to and during the start of pre-construction site mobilization; construction ground disturbance; construction grading, boring, and trenching; and construction (including landscaping), the project owner shall provide Worker Environmental Awareness Program (WEAP) training to all new workers within their first week of employment. The training shall be prepared by the CRS, may be conducted by any member of the archaeological team, and may be presented in the form of a video. The CRS shall be available (by telephone or in person) to answer questions posed by employees. The project owner will require all trained workers to sign a WEAP Certification of Completion form. The training shall include:

1. A discussion of applicable laws and penalties under the law;
2. Samples or visuals of artifacts and visuals of archaeological deposits that might be found in the project area;
3. Instruction that the CRS, the alternate CRS, and the CRMs have the authority to halt construction to the extent necessary, as determined by the CRS, in the event of the discovery of or an unanticipated impact to a cultural resource;
4. Instruction that employees are to halt work on their own in the vicinity of a potential cultural resources discovery and to contact their supervisor and the CRS or CRM, and that redirection of work shall be determined by the construction supervisor and the CRS;
5. An informational brochure that identifies reporting procedures in the event of a discovery;
6. A WEAP Certification of Completion form to be signed by each worker indicating that they have received the training; and
7. A sticker that shall be placed on hard hats indicating that environmental training has been completed.

No ground disturbance shall occur prior to implementation of the cultural resources portion of the WEAP program, unless specifically approved by the CPM.

Verification: At least 30 days prior to the beginning of pre-construction site mobilization; construction ground disturbance; construction grading, boring, and trenching; and construction, the CRS shall provide the training program draft text and graphics and the informational brochure to the CPM for review and approval, and the CPM will provide to the project owner a WEAP Certification of Completion form which the project owner shall require each WEAP-trained worker to sign. The project owner shall provide in the Monthly Compliance Report the WEAP Certification of Completion forms of persons who have completed the training in the prior month and a running total of all persons who have completed training to date.

CUL-6 The project owner shall ensure that the CRS, alternate CRS, or CRMs shall monitor pre-construction site mobilization; construction ground disturbance; construction grading; boring, and trenching; and construction (including landscaping), full-time at the project site where ground disturbance or excavations exceed three feet and for the full width and length of excavations for linear facilities where the ground disturbance or excavation exceeds three feet, to ensure there are no impacts to undiscovered cultural resources and to ensure that known cultural resources are not impacted in an unanticipated manner. If ground disturbance becomes necessary at any ancillary areas, full-time monitoring shall be conducted there as well. Full-time archaeological monitoring is defined as archaeological monitoring of all earth-moving activities on a construction site for as long as the activities are ongoing. Full-time archaeological monitoring may require one monitor per active earthmoving machine working in archaeologically sensitive areas. After examining the soils, if the CRS determines that full-time monitoring is not necessary in certain locations, a letter or e-mail providing a detailed justification for the decision to reduce the level of monitoring shall be provided to the CPM for review and approval at least 24 hours prior to any reduction in monitoring.

The project owner shall ensure that the CRS has an agreement in effect for the curation of artifacts recovered during project-related archaeological activities. 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. Copies of the daily logs shall be provided to the CPM by the CRS. In addition, the CRS shall use these logs to compile a monthly summary report on the progress or status of cultural resources-related activities. If there are no monitoring activities, the summary report shall specify why monitoring has been suspended. The CRS 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 of certification.

The CRS and/or the project owner shall notify the CPM by telephone or e-mail within 24 hours of any incidents of non-compliance with the Cultural Resources conditions of certification and/or applicable LORS, upon becoming aware of the situation. The CRS shall also recommend corrective action to resolve the problem or achieve compliance with the conditions of certification. 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 Monthly Compliance Report (MCR).

Verification: At least 30 days prior to the beginning of pre-construction site mobilization; construction ground disturbance; construction grading, boring, and trenching; and construction, the project owner shall provide to the CPM a copy of the agreement between the CRS, or between the environmental firm employing the CRS, and the curation facility(ies). At least 30 days prior to the start of ground disturbance, the CPM will provide to the CRS reproducible copies of forms to be used as daily monitoring logs and non-compliance reports. At the beginning of each week following monitoring, the CRS shall provide copies of the legibly handwritten daily logs of the monitors to the CPM as emails or in some other form acceptable to the CPM. While monitoring is on-going, the project owner shall include in each MCR a copy of the monthly summary report of cultural resources-related monitoring prepared by the CRS. Copies of daily logs shall be retained by the project owner on-site during construction.

CUL-7 A Native American monitor or monitors shall be obtained to monitor pre-construction site mobilization, construction ground disturbance, construction grading, boring, and trenching and construction; (including landscaping) in areas where Native American artifacts may be discovered. Lists of concerned Native Americans, with contact information, and guidelines for monitoring shall be obtained from the Native American Heritage Commission. Preference in selecting a monitor or monitors shall be given to Native Americans with traditional ties to the area that shall be monitored.

Verification: At least one week prior to the beginning of pre-construction site mobilization; construction ground disturbance; construction grading, boring, and trenching; and construction; in areas where there is a potential to discover Native American artifacts, the project owner shall send notification to the CPM identifying the person(s) retained to conduct Native American monitoring. The project owner shall also provide a plan identifying the proposed monitoring schedule and information explaining how Native Americans who wish to provide comments will be allowed to comment. The project owner shall also ensure that the CRS informs Native American groups of any discoveries of Native American archaeological material. 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.

CUL-8 The project owner shall grant authority to halt construction to the CRS, alternate CRS, and the CRMs in the event previously unknown cultural resources sites or materials are encountered (discovery), or if known resources may be impacted in a previously unanticipated manner. Redirection of ground disturbance (including landscaping) shall be accomplished under the direction of the construction supervisor in consultation with the CRS.

In the event cultural resources are found or impacts can be anticipated, construction shall be halted or redirected in the immediate vicinity of the find and shall remain halted or redirected until all of the following have occurred:

1. The CRS has notified the project owner and the CPM has been notified within 24 hours of the discovery, or by the following Monday morning if the cultural resources discovery occurs between 8:00 AM on Friday and 8:00

AM on Sunday. Notification to the CPM must include a description of the discovery (or changes in character or attributes), the action taken (i.e., work stoppage or redirection), a recommendation of eligibility, and recommendations for mitigation of any cultural resources discoveries, whether or not a determination of significance has been made.

2. The CRS has completed field notes, measurements, and photography for a Department of Parks and Recreation (DPR) 523 primary form for all cultural materials that cannot be treated prescriptively. The 523 primary form will include in the Description entry a recommendation of the significance of the find. The completed forms shall be submitted to the CPM.

3. The CRS and the project owner have consulted with the CPM, and the CPM has concurred with the recommended eligibility of the discovery and approved the CRS's proposed data recovery, including the curation of the artifacts, or other appropriate mitigation; and

4. Any necessary data recovery and mitigation has been completed.

Verification: At least 30 days prior to pre-construction site mobilization; construction ground disturbance; construction grading, boring, and trenching; and construction, the project owner shall provide the CPM and CRS with a letter confirming that the CRS, alternate CRS, and CRMs have the authority to halt pre-construction site mobilization, construction ground disturbance, construction grading, boring, and trenching and construction activities within 100 feet 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. For discovered cultural material that cannot be treated prescriptively, completed DPR form 523s shall be submitted to the CPM for review and approval no later than 48 hours following the notification of the CPM, or 48 hours following the completion of data recordation/recovery, whichever is more appropriate for the subject cultural material.

REFERENCES

Arachchige, Sudath 2006-CEC Engineering Office, Electric Transmission, personal communication regarding connection to Walnut Substation on 6/2/2006.

Bean and Smith 1978-Bean, John Lowell and Smith Charles, R. "Gabrielino" in *Handbook of North American Indians, California Volume 8.* General Editor. Sturtevant William C., Volume Editor Heizer, Robert F., Smithsonian Institution. Washington.

CH2MHILL 2006a-CH2MHILL/J.Carrier (tn: 36678). Applicant's Responses to CEC Staff Data Requests 1-97. POS. 04/10/2006. Received 04/10/2006.

CH2MHILL 2006b-CH2MHILL/D. Davy (tn: 37046). Supplemental Data Responses (set 1-97), Responses to Workshop questions, and Data Responses 98-99/ 05/31/06. Received 05/31/2006.

City of Industry. "City History" http://www.city of industry.org/picbase/picbase_dex.html (June 9, 2006).

CH2MHill 2006e-CH2MHILL/D. Davy. Supplemental Data Response Set IV (Data Responses 1 through 104 and April 25 Workshop. Received 11/13/06.

Dr. Davy, Doug-CH2MHill/AFC Project Manager. Telephone conversation regarding two alternate transmission line routes 11/17/06.

EME 2005a – Edison Mission Energy/GPL:bpm (tn:35950). Walnut Creek Energy Park AFC. 11/21/2005. Received 11/22/2005.

EME 2005a – Edison Mission Energy/Scilacci tn: 36210). Supplement in Response to CEC Staff's Data Adequacy Comments on the AFC for the Walnut Creek Energy Park. 01/12/2006. Received 01/13/2006.

EME 2005a-2006f-Edison Mission Energy/Galati & Blek (tn: 36670). Request for Confidential Designation of the Response to Data Request Number 52. POS (this letter accompanied the CONFIDENTIAL FILING from South Central Coastal Information Center). 04/06/2006. Received 04/06/2006.

EME 2006c – Edison Mission Energy/Scilacci (tn: 36210). Supplement in Response to CEC Staff's Data Adequacy Comments on the AFC for the Walnut Creek Energy Park. 01/12/2006. Rec'd 01/13/2006.

EME 2006 Sup IV, Supplement IV in Response to Data Requests and Workshop Queries in Support of the Applicatioon for Certification for the Walnut Creek Energy Park (05-AFC-02), Received 11/13/06.

Kissell, Mike 2006a, Mike Kissell, Planning Director, City of Industry, telephone conversation regarding City cultural resources policy. 6/1/2006.

Kissell, Mike 2006b, Mike Kissell, Planning Director, City of Industry, telephone conversation regarding demolition of the existing warehouse. 9/11/2006.

LA 2006-County of Los Angeles. Zoning LDCC, zoningldcc@planning.co.la.ca.us, personal communication regarding list of historic resources. Received 4/11/2006.

Moratto, Michael. California Archaeology 1984: Academic Press Inc. Florida.

Taylor, Thomas 2006a, Thomas Taylor, Manager of Natural and Cultural Resources Group, Corporate Environmental Health and Safety Organization, Southern California Edison, telephone conversation with Dorothy Torres and Beverly Bastian regarding the Walnut Substation. Report of Conversation, 6/15/2006.

HAZARDOUS MATERIALS MANAGEMENT

Geoffrey Lesh, PE, and Rick Tyler

SUMMARY OF CONCLUSIONS

Staff's evaluation of the proposed project (with staff's proposed mitigation measures) indicates that hazardous materials use would not present a significant impact to the public. With adoption of the proposed conditions of certification, the proposed project will comply with all applicable laws, ordinances, regulations and standards. In response to Health and Safety Code, section 25531 et seq., the applicant would be required to develop a Risk Management Plan. To insure adequacy of the Risk Management Plan, staff's proposed conditions of certification would require that the Risk Management Plan be submitted for concurrent review by United States Environmental Protection Agency, Los Angeles County Fire Department, Health Hazardous Materials Division (HHMD), and the California Energy Commission staff. In addition, staff's proposed conditions of certification require HHMD's review, and staff review and approval of the Risk Management Plan prior to delivery of any hazardous materials to the facility. Other proposed conditions of certification address the issue of the transportation, storage, and use of aqueous ammonia.

INTRODUCTION

The purpose of this Hazardous Materials Management analysis is to determine if the proposed Walnut Creek Energy Park (WCEP) has the potential to cause significant impacts on the public as a result of the use, handling, storage, or transportation of hazardous materials at the proposed facility. If significant adverse impacts on the public are identified, Energy Commission staff must also evaluate the potential for facility design alternatives and additional mitigation measures to reduce impacts to the extent feasible.

This analysis does not address potential exposure of workers to hazardous materials used at the proposed facility. Employers must inform employees of hazards associated with their work and provide employees with special protective equipment and training to reduce the potential for health impacts associated with the handling of hazardous materials. The **Worker Safety and Fire Protection** section of this document describes the requirements applicable to the protection of workers from such risks.

Aqueous ammonia (19 percent ammonia in aqueous solution) is the only hazardous material proposed to be used or stored at the WCEP in quantities exceeding the reportable amounts defined in the California Health and Safety Code, section 25532 (j) (EME 2005a Table 8.5-3). Aqueous ammonia will be used for controlling oxides of nitrogen (NO_x) emissions through selective catalytic reduction. The use of aqueous ammonia significantly reduces the risk that would otherwise be associated with use of the more hazardous anhydrous form of ammonia. Use of the aqueous form eliminates the high internal energy associated with the anhydrous form which is stored as a liquefied gas at elevated pressure. The high internal energy associated with the anhydrous form of ammonia can act as a driving force in an accidental release, which can rapidly introduce large quantities of the material to the ambient air and result in high

down-wind concentrations. Spills associated with the aqueous form are much easier to contain than those associated with anhydrous ammonia and emissions from such spills are limited by the slow mass transfer from the surface of the spilled material.

Other hazardous materials, such as mineral and lubricating oils, corrosion inhibitors and water conditioners, will be present at the proposed 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 onsite during construction. None of these materials pose significant potential for off-site impacts as a result of the quantities on-site, their relative toxicity, their physical state, and/or their environmental mobility. Although no natural gas is stored, the project will also involve the handling of large amounts of natural gas. Natural gas poses some risk of both fire and explosion. Natural gas will be delivered through an on-site 14-inch-diameter connection to an existing 30-inch-diameter natural gas transmission line which is operated by Southern California Gas Company. The connection will be in a utility easement that lies with the WCEP project parcel. The WCEP project will also require the transportation of aqueous ammonia to the facility. This document addresses all potential impacts associated with the use and handling of hazardous materials.

LAWS, ORDINANCES, REGULATION, AND STANDARDS

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

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

Applicable Law	Description
Federal	
The Superfund Amendments and Reauthorization Act of 1986 (42 United States Code (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 which store, handle, or produce significant quantities of extremely hazardous materials.
The CAA section on Risk Management Plans (42 USC §112(r)	Requires the states to implement a comprehensive system to inform local agencies and the public when a significant quantity of such materials is stored or handled at a facility. The requirements of both SARA Title III and the CAA are reflected in the California Health and Safety Code, section 25531, et seq.
49 Code of Federal Regulations Parts 172-800 (49 CFR 172-800)	U.S. Department of Transportation (U.S. DOT) requirement that suppliers of hazardous materials prepare and implement security plans.

Applicable Law	Description
49 CFR Part 1572, Subparts A and B	Requires suppliers of hazardous materials to ensure that all their hazardous materials drivers are in compliance with personnel background security checks.
The Clean Water Act (CWA) (40 CFR 112)	Aims to prevent the discharge or threat of discharge of oil into navigable waters or adjoining shorelines. Requires a written Spill Prevention, Control, and Countermeasures (SPCC) plan to be prepared for facilities that store oil that my leak into navigable waters.
49 CFR Part 190	Outlines gas pipeline safety program procedures.
49 CFR Part 191	Addresses transportation of Natural and Other Gas by Pipeline: Annual Reports, Incident Reports, and Safety-Related Condition Reports, requires operators of pipeline systems to notify the U.S. Department of Transportation of any reportable incident by telephone and then submit a written report within 30 days.
49 CFR Part 192	Addresses transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards, specifies minimum safety requirements for pipelines and includes material selection, design requirements, and corrosion protection. The safety requirements for pipeline construction vary according to the population density and land uses that characterize the surrounding land. This part also contains regulations governing pipeline construction that must be followed for Class 2 and Class 3 pipelines, and requirements for preparing a Pipeline Integrity Management Program.
State	
The California Health and Safety Code, section 25534 and Title 19, California Code of Regulations (Cal Code Regs.) Section 2770.5	Directs facility owners, storing or handling regulated substances (formerly called “acutely hazardous materials”) in reportable quantities, to develop a Risk Management Plan (RMP) and submit it to appropriate local authorities, the United States Environmental Protection Agency (EPA), and the designated local administering agency for review and approval. The plan must include an evaluation of the potential impacts associated with an accidental release, the likelihood of an accidental release occurring, the magnitude of potential human exposure, any preexisting evaluations or studies of the material, the likelihood of the substance being handled in the manner indicated, and the accident history of the material. This new, recently developed program California Accidental Release Prevention Program (CalARP) supersedes the California Risk Management and Prevention Plan (RMPP).
Title 8, Cal. Code Regs., Section 5189	Requires facility owners to develop and implement effective safety management plans to insure that large quantities of hazardous materials are handled safely. While such requirements primarily provide for the protection of workers, they also indirectly improve public safety and are coordinated with the RMP process.
Title 8, Cal. Code Regs., Section 458 and Sections 500 to 515	Set forth requirements for design, construction and operation of vessels and equipment used to store and transfer ammonia. These sections generally codify the requirements of several industry codes, including the 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.
California Health	Requires that “No person shall discharge from any source whatsoever

Applicable Law	Description
and Safety Code, section 41700	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 to be discharged into sources of drinking water.
Local	
Los Angeles County Code, Title 12 (Title 12.50.030)	Requires preparation of a Hazardous Materials Certificate of Registration and Hazardous Materials Business Plan for storage of hazardous materials.
Los Angeles County Code, Title 12 (Title 12.64.030)	Requires preparation of a Risk Management Plan for regulated substances.
Los Angeles County, Title 32 Fire Code	Requires proper storage and handling of hazardous materials.

The Certified Unified Program Authority (CUPA) with responsibility to review RMPs and Hazardous Materials Business Plans is the Los Angeles County Fire Department, Health Hazardous Materials Division (HHMD). In regards to seismic safety issues, the site is located in Seismic Risk Zone 4. Construction and design of buildings and vessels storing hazardous materials will meet the seismic requirements of California Code of Regulations, Title 24 and 2001 California Building Code.

SETTING

Several factors associated with the area in which a project is to be located affect the potential for an accidental release of a hazardous material to cause public health impacts. These include:

- local meteorology;
- terrain characteristics; and
- location of population centers and sensitive receptors relative to the project.

METEOROLOGICAL CONDITIONS

Meteorological conditions, including wind speed, wind direction and air temperature, affect the extent to which accidentally released hazardous materials would be dispersed into the air and the direction in which they would be transported. This affects the potential magnitude and extent of public exposure to such materials, as well as the associated health risks. When wind speeds are low and the atmosphere is stable, dispersion is severely reduced and can lead to increased localized public exposure.

Recorded wind speeds and ambient air temperatures are described in the Air Quality section (8.1) and Appendix 8.1 of the Application for Certification (AFC) (EME 2005a). Staff agrees with the applicant that use of F stability (stagnant air, very little mixing),

wind speed of 1.5 meters per second, and a temperature of 97 °Fahrenheit is appropriate for conducting the Offsite Consequence Analysis. Staff believes these represent a reasonably conservative scenario and thus reflects worst case atmospheric conditions.

TERRAIN CHARACTERISTICS

The location of elevated terrain is often an important factor to be considered in assessing potential exposure. An emission plume resulting from an accidental release may impact high elevations before impacting lower elevations. The site topography is mostly flat, with an average elevation of about 350 feet above mean sea level. Terrain in the project vicinity ranges up to 800 feet above sea level at distances approximately one mile from the site.

LOCATION OF EXPOSED POPULATIONS AND SENSITIVE RECEPTORS

The general population includes many sensitive subgroups that may be at greater risk from exposure to emitted pollutants. These sensitive subgroups include the very young, the elderly, and those with existing illnesses. In addition, the location of the population in the area surrounding a project site may have a large bearing on health risk. Table 8.9-1 of the AFC provides a list of sensitive receptors within one mile of the project site. There are 13 schools and day care facilities within a one-mile radius of the site, the nearest one being 0.26-mile to the west (EME 2005a).

ASSESSMENT OF IMPACTS AND DISCUSSION OF MITIGATION

METHOD FOR DETERMINING SIGNIFICANCE

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

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

Staff reviewed the applicant's proposed engineering controls and administrative controls concerning hazardous materials usage. Engineering controls are those physical or mechanical systems, such as storage tanks or automatic shut-off valves, that can

prevent a spill of hazardous material from occurring or which can limit the spill to a small amount or confine it to a small area. Administrative controls are those rules and procedures that workers at the facility must follow that will help to prevent accidents or keep them small if they do occur. Both engineering and administrative controls can act as methods of prevention or as methods of response and minimization. In both cases, the goal is to prevent a spill from moving off-site and causing harm to the public.

Staff reviewed and evaluated the applicant's proposed use of hazardous materials as described in the AFC (EME 2005a, Section 8.5). Staff's assessment followed the five steps listed below:

- Step 1: Staff reviewed the chemicals and the amounts proposed for on-site use as listed in Table 8.5-2 of the AFC and determined the need and appropriateness of their use.
- Step 2: Those chemicals, proposed for use 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 assessment.
- Step 3: Measures proposed by the applicant to prevent spills were reviewed and evaluated. These included engineering controls such as automatic shut-off valves and different size transfer-hose couplings and administrative controls such as worker training and safety management programs.
- Step 4: Measures proposed by the applicant 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 and administrative controls such as training emergency response crews.
- Step 5: Staff analyzed the theoretical impacts on the public of a worst-case spill of hazardous materials even with the mitigation measures proposed by the applicant. When mitigation methods proposed by the applicant are sufficient, no further mitigation is recommended. If the proposed mitigation is not sufficient to reduce the potential for adverse impacts to a level that is less than significant, staff will propose additional prevention and response controls until the potential for causing harm to the public is reduced to a level that is less than significant. It is only at this point that staff can recommend approval of the facility's use of hazardous materials.

DIRECT/INDIRECT IMPACTS AND MITIGATION

Small Quantity Hazardous Materials

In conducting the analysis, staff determined in Steps 1 and 2 that some materials, although present at the proposed facility, pose a minimal potential for off-site impacts as they will be stored in a solid form or in small quantities, have low mobility, or have low levels of toxicity. These hazardous materials, which were eliminated from further consideration, are discussed briefly below.

During the construction phase of the project, the only hazardous materials proposed for use include paint, paint thinner, cleaners, solvents, sealants, gasoline, diesel fuel, motor oil, hydraulic fluid, lubricants, and welding flux. Any impact of spills or other releases of

these materials will be limited to the site due to the small quantities involved, the infrequent use and hence reduced chances of release, and/or the temporary containment berms used by contractors. Petroleum hydrocarbon-based motor fuels, mineral oil, lube oil, and diesel fuel are all of very low volatility and represent limited off-site hazard even in larger quantities.

During operations, hazardous chemicals such as hydraulic and lubricating oils and other various chemicals (see **Hazardous Materials Appendix C** for a list of all chemicals proposed to be used and stored at WCEP), would be used and stored in relatively small amounts and represent limited off-site hazard due to their small quantities, low volatility, and/or low toxicity.

Sodium hypochlorite, sodium hypobromite, sodium hydroxide, and sulfuric acid will be stored on-site but do not pose a risk of off-site impacts because the volumes stored will be less than 2000 gallons, they have relatively low vapor pressures, and spills would be confined to the site. In 1995, staff conducted a quantitative assessment of the potential for impact associated with sulfuric acid use, storage, and transportation. Staff concluded that no hazard would be posed to the public due to the extremely low volatility of this aqueous solution of sulfuric acid. However, in order to protect against risk of fire, staff proposes condition of certification **HAZ-5** which will require that no combustible or flammable material is stored within 50 feet of the sulfuric acid tank. **HAZ-3** addresses the need to prevent the accidental mixing of sulphuric with aqueous ammonia.

After removing from consideration those chemicals that pose no risk of off-site impact in Steps 1 and 2, staff continued with Steps 3, 4, and 5 to review the remaining hazardous materials: natural gas and aqueous ammonia.

Large Quantity Hazardous Materials

Natural Gas

Natural gas poses a fire and/or possible explosion risk as a result of its flammability. Natural gas is composed of mostly methane, but also contains ethane, propane, nitrogen, butane, isobutene, and isopentane. It is colorless, odorless, and tasteless and is lighter than air. Natural gas can cause asphyxiation when methane is 90 percent in concentration. Methane is flammable when mixed in air at concentrations of 5 to 14 percent, which is also the detonation range. Natural gas, therefore, poses a risk of fire and/or possible explosion if a release were to occur under certain specific conditions. However, it should be noted that, due to its tendency to disperse rapidly (Lees 1998), natural gas is less likely to cause explosions than many other fuel gases, such as propane or liquefied petroleum gas, but it can explode under certain conditions (as demonstrated by the recent natural gas detonation in Belgium in July of 2004).

While natural gas will be used in significant quantities, it will not be stored on-site. The risk of a fire and/or explosion on-site can be reduced to insignificant levels through adherence to applicable codes and development and implementation of effective safety management practices. The National Fire Protection Association (NFPA 85A) requires 1) the use of double block and bleed valves for gas shut-off; and 2) automated combustion controls. These measures will significantly reduce the likelihood of an

explosion in gas-fired equipment. Additionally, start-up procedures would require air purging of the gas turbines prior to start-up, thus precluding the presence of an explosive mixture. The safety management plan proposed by the applicant would address the handling and use of natural gas and significantly reduce the potential for equipment failure due to improper maintenance or human error. The proposed facility will not require the installation of any new off-site gas pipeline.

Aqueous Ammonia

Aqueous ammonia will be used in controlling NO_x emmissions from the combustion of natural gas in the facility. The accidental release of aqueous ammonia without proper mitigation can result in significant down-wind concentrations of ammonia gas. One 16,000-gallon capacity above-ground storage tank will be used to store the 19 percent aqueous ammonia (EME 2005a, Section 8.5.2.3).

Based on staff's analysis, as described above, aqueous ammonia is the only hazardous material that may pose a risk of off-site impacts. The use of aqueous ammonia can result in the formation and release of toxic gases in the event of a spill even without interaction with other chemicals. This is a result of its moderate vapor pressure and the large amounts of aqueous ammonia that will be used and stored on-site. However, as with sodium hypochlorite solution, the use of aqueous ammonia instead of the much more hazardous anhydrous ammonia (i.e. ammonia that is not diluted with water) poses far less risk.

To assess the potential impacts associated with an accidental release of aqueous ammonia, staff uses the four "bench mark" exposure levels of ammonia gas occurring off-site. These include: 1) the lowest concentration posing a risk of lethality of 2,000 ppm; 2) the Immediately Dangerous to Life and Health (IDLH) level of 300 parts-per-million (ppm); 3) the Emergency Response Planning Guideline (ERPG) level 2 of 150 ppm, which is also the RMP level 1 criterion used by EPA and California; and 4) the level considered by the Energy Commission staff to be without serious adverse effects on the public for a one-time exposure is 75 ppm averaged over 30 minutes. An accidental release causing exposures above 75 ppm is unlikely and is not expected to occur during the life of the project. Thus, any plausible exposures due to a potential accidental release that produce exposures below 75 ppm will be considered insignificant.. If staff's analysis determines that the potential exposure associated with a potential release exceeds 75 ppm at any public receptor, staff will assess the probability of occurrence of the release and/or the nature of the potentially exposed population in determining whether the likelihood and extent of potential exposure are sufficient to support a finding of potentially significant impact. A detailed discussion of the exposure criteria considered by staff and their applicability to different populations and exposure-specific conditions is provided in **Hazardous Materials Appendices A** and **B**.

Section 8.5.2.4 and Appendix 8.5A of the AFC (EME 2005a) describe the modeling parameters used for the worst case accidental releases of aqueous ammonia in the applicant's Offsite Consequence Analysis (OCA). This modeling used a numerical air dispersion model for a worst-case release associated with a failure of the storage tank into the containment area and subsequent flow into the planned subsurface vault.

Staff has reviewed the applicant's aqueous ammonia modeling calculations and conclusions. Staff believes that due to the engineering controls proposed by the applicant for the storage and transfer of aqueous ammonia, any potential accidental release of aqueous ammonia at the project site will not cause a significant impact and will not represent a significant risk to the public.

Mitigation

The potential for accidents resulting in the release of hazardous materials is greatly reduced by the implementation of a safety management program, which includes the use of both engineering and administrative controls. Elements of facility controls and the safety management plan, as required by condition of certification **HAZ-3**, are summarized below.

Engineering Controls

Engineering controls help to prevent accidents and releases (spills) from moving off-site and impacting the community by incorporating engineering safety design criteria into the design of the facility. The engineering safety features proposed by the applicant for use at this facility include:

- construction of secondary containment areas surrounding each of the hazardous materials storage areas designed to contain accidental releases that might happen during storage or delivery;
- physical separation of stored chemicals in isolated containment areas separated by a noncombustible partition in order to prevent accidental mixing of incompatible materials which may result in the evolution and release of toxic gases or fumes;
- installation of an automatic sprinkler systems and an exhaust system for indoor hazardous materials storage areas;
- construction of a concrete secondary containment area surrounding the aqueous ammonia storage tank with a sloped floor that will drain any liquid into a covered sump;
- construction of a bermed containment area surrounding the truck unloading area with a sloped floor draining into the spill vault under the storage tank;
- process protective systems including continuous tank level monitors, temperature and pressure monitors, alarms, check valves, and emergency block valves; and
- ammonia sensors in the vicinity of the ammonia storage tank that would activate alarms and flashing lights to alert WCEP employees that a spill has occurred.

Administrative Controls

Administrative controls also help prevent accidents and releases (spills) from moving off-site and impacting the community by establishing worker training programs, process safety management programs and by complying with all applicable health and safety LORS.

A worker health and safety program will be prepared by the applicant and will include (but is not limited to) the following elements (see the **WORKER SAFETY/FIRE PROTECTION** section in this PSA for specific regulatory requirements):

- worker training regarding chemical hazards, health and safety issues, and hazard communication;
- procedures to ensure the proper use of personal protective equipment;
- safety operating procedures for operation and maintenance of systems utilizing hazardous materials;
- fire safety and prevention; and
- emergency response actions including facility evacuation, hazardous material spill cleanup, and fire prevention.

At the facility, the project owner will be required to designate an individual who has the responsibility and authority to ensure a safe and healthful workplace. The project health and safety official will oversee the health and safety program and will have the authority to halt any action or modify any work practice in order to protect the workers, facility, and the surrounding community in the event that the health and safety program is violated.

The applicant will also prepare an RMP for aqueous ammonia as required by CalARP regulations and condition of certification **HAZ-2** that would include a program for prevention of accidental releases and responding to an accidental release of aqueous ammonia. A Hazardous Materials Business Plan (HMBP) will also be prepared by the applicant that would incorporate state requirements for the handling of hazardous materials (EME 2005a Section 8.5.4.2).

On-site Spill Response

In order to address the issue of spill response, the facility will prepare and implement an Emergency Response Plan which includes information on hazardous materials contingency and emergency response procedures, on-site spill containment, prevention systems and capabilities, personnel training, and spill notification. Emergency procedures will be established that include evacuation, spill cleanup, hazard prevention, and emergency response.

The Los Angeles County Hazardous Materials Team stationed at Los Angeles County Fire Station No. 43 is located at 921 South Stimson Avenue, La Puente, approximately 1.1 miles from the project site and is considered the first responder for hazardous materials incidents. Estimated response time is less than 10 minutes.

Additionally, designated plant personnel will be assigned to a hazardous materials response team and receive first responder training, hazardous materials technical training, and training in mitigation and control measures (EME 2005a Section 8.5.4.2).

Staff concludes that the hazardous materials response time is acceptable and that the Los Angeles County Hazardous Materials Response Team is adequately trained and equipped to respond in a timely manner (COLA 2006a).

Transportation of Hazardous Materials

Hazardous materials, including aqueous ammonia, sulfuric acid, and cleaning chemicals, will be transported to the facility via tanker truck. While many types of hazardous materials will be transported to the site, staff believes that transport of aqueous ammonia poses the predominant risk associated with hazardous materials transport.

Staff reviewed the applicant's proposed transportation route for hazardous materials delivery (from State route 60, to North Azusa Avenue, to East Gale Avenue to Bixby Drive, to the project site), considering its potential for impact on public and sensitive receptors and agrees that this is a suitable route, as it minimizes off-freeway travel distance and avoids passing directly by any local schools. The applicant stated that the exact route will be subject to permitting approval by the California Highway Patrol before delivery of aqueous ammonia (EME 2005a, Section 8.5.4.2).

Ammonia can be released during a transportation accident and the extent of impact in the event of such a release would depend on the location of the accident and on the rate of dispersion of ammonia vapor from the surface of the aqueous ammonia pool. The likelihood of an accidental release during transport is dependent on three factors:

- the skill of the tanker truck driver,
- the type of vehicle used for transport, and
- accident rates along similar roads.

To address this concern, staff evaluated the risk of an accidental transportation release in the project area. Staff's analysis focused on the project area after the delivery vehicle leaves the main highway (State Route 60). Consistent with CEQA, staff believes that it is appropriate to rely on the extensive regulatory program that applies to shipment of hazardous materials on California highways to ensure safe handling in general transportation (see the Federal Hazardous Materials Transportation Law 49 USC §5101 et seq., the US Department of Transportation Regulations 49 CFR Subpart H, §172-700, and California DMV Regulations on Hazardous Cargo). These regulations also address the issue of driver competence. See AFC section 8.12 for additional information on regulations governing the transportation of hazardous materials.

To address the issue of tanker truck safety, aqueous ammonia will be delivered to the proposed facility in U.S. DOT certified vehicles with design capacity of 6,500 gallons. These vehicles will be designed to U.S. DOT Code MC-306 or MC-307. These are high integrity vehicles designed for hauling of caustic materials such as aqueous ammonia. Staff has, therefore, proposed Condition of Certification **HAZ-6** to ensure that regardless of which vendor supplies the aqueous ammonia, delivery will be made in a tanker, which meets or exceeds the specifications described by these regulations.

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

Staff used the data from the Davies and Lees (1992) article which references the 1990 Harwood et al. study, to determine that the frequency of release for transportation of hazardous materials in the U.S. is between 0.06 and 0.19 releases per million miles traveled on well designed roads and highways. The maximum usage of aqueous ammonia each year of operation of the proposed WCEP will require about 104 tanker truck deliveries of aqueous ammonia per year each delivering about 6,500 gallons. Each delivery will travel approximately 1.4 miles from State Route 60 to the facility along Azusa Avenue to East Gale Ave, to Bixby Avenue to the facility.

This would result in about 154 miles of delivery tanker truck travel in the project area per year (with a full load). Staff believes that the risk over this distance is insignificant. Data from the U.S. DOT show that the actual risk of a fatality over the past five years from all modes of hazardous material transportation (rail, air, boat, and truck) is approximately 0.1 in one million.

In addition, staff calculated the risk of an accident associated with aqueous ammonia delivery from the freeway to the facility. Results show the risk of a significant spill to be 0.14 in one million for one trip and a risk of 15 in a million per year for 104 deliveries. This risk was calculated using accident rates on various types of roads (urban, one lane and two-lane) with distances traveled on each type of road computed separately. Although it is an extremely conservative model, the results show the risk of a transportation accident to be insignificant.

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

Based on the environmental mobility, toxicity, quantities present at the site and frequency of delivery, it is staff's opinion that aqueous ammonia poses the predominate risk associated with hazardous materials transportation and use at the proposed facility. Staff concludes that the risk associated with transportation of other hazardous materials to the proposed facility does not significantly increase the risk of impact beyond that associated with ammonia transportation.

Seismic Issues

The possibility exists that an earthquake would cause the failure of a hazardous materials storage tank. The quake could also cause the failure of the secondary containment system (berms and dikes) as well as electrically controlled valves and pumps. The failure of all these preventive control measures might then result in a vapor cloud of hazardous materials moving off-site and impacting the residents and workers in the surrounding community. The effects of the Loma Prieta earthquake of 1989, the

Northridge earthquake of 1994, and the earthquake in Kobe, Japan, in January 1995, heighten the concern regarding earthquake safety.

Information obtained after the January 1994 Northridge earthquake showed that some damage was caused to several large storage tanks and smaller tanks associated with the water treatment system of a cogeneration facility. Those tanks with the greatest damage, including seam leakage, were older tanks, while the newer tanks sustained displacements and failures of attached lines. Therefore, staff conducted an analysis of the codes and standards that should be followed in adequately designing and building storage tanks and containment areas to withstand a large earthquake. Staff also reviewed the impacts of the February 2001 Nisqually earthquake near Olympia, Washington, a state with similar seismic design codes as California. No hazardous materials storage tanks were impacted by this quake. Referring to the sections on **Geologic Resources and Hazards** and **Facility Design** in the AFC, staff notes that the proposed facility will be designed and constructed to the applicable standards of the 2001 California Building Code and the 1997 Uniform Building Code. The site is within Seismic Zone 4 (EME 2005a Section 8.4.1). Therefore, on the basis of what occurred in Northridge with older tanks and the lack of failures during the Nisqually earthquake with newer tanks designed to standards similar to those in California, staff determined that tank failures at the project site during seismic events are not probable and do not represent a significant risk to the public.

Site Security

This facility proposes to use hazardous materials that have been identified by the US EPA as materials where special site security measures should be developed and implemented to ensure that unauthorized access is prevented. The EPA published a Chemical Accident Prevention Alert regarding Site Security (EPA 2000a), the U.S. Department of Justice published a special report on Chemical Facility Vulnerability Assessment Methodology (US DOJ 2002), the North American Electric Reliability Council published Security Guidelines for the Electricity Sector in 2002 (NERC 2002), and the U.S. Department of Energy published a draft Vulnerability Assessment methodology for Electric Power Infrastructure in 2002 (DOE 2002). The energy generation sector is one of the 14 areas of Critical Infrastructure listed by the U.S. Department of Homeland Security.

The applicant has stated that a security plan will be prepared for the proposed facility, and will include a description of perimeter security measures, and procedures for evacuating, notifying authorities of a security breach, conducting site personnel background checks, and site access. Perimeter security measures utilized for this facility may include security guards, security alarms, breach detectors, motion detectors, and video or camera systems (EME 2005a Section 8.5.4.2.5). In order to ensure that this facility or a shipment of hazardous material is not the target of unauthorized access, staff's proposed Conditions of Certification **HAZ-8** and **HAZ-9** address both a Construction Security Plan and an Operations Security Plan. These plans would require the implementation of Site Security measures consistent with the above-referenced documents and Energy Commission guidelines.

The goal of these conditions of certification is to provide for the minimum level of security for power plants to protect California's electrical infrastructure from malicious mischief, vandalism, or domestic/foreign terrorist attacks. The level of security needed for this power plant is dependent upon the threat imposed, the likelihood of an adversarial attack, the likelihood of success in causing a catastrophic event, and the severity of consequences of that event. The results of the off-site consequence analysis prepared as part of the RMP will be used, in part, to determine the severity of consequences of a catastrophic event. In order to determine the level of security, the Energy Commission staff will provide guidance in the form of a vulnerability assessment (VA) decision matrix modeled after the U.S. Department of Justice Chemical Vulnerability Assessment Methodology (July 2002), the NERC 2002 guidelines, and the U.S. Department of Energy VAM-CF model. Basic site security measures shall be required at all locations in order to protect the infrastructure and electrical power generation within the state.

These measures will include perimeter fencing and detectors, possibly guards, alarms, site access procedures for employees and vendors, site personnel background checks, and law enforcement contact in the event of security breach. Site access for vendors shall be strictly controlled. Consistent with current state and federal regulations governing the transport of hazardous materials, hazardous materials vendors will have to maintain their transport vehicle fleet and employ only drivers properly licensed and trained. The project owner will be required, through the use of contractual language with vendors, to ensure that vendors supplying hazardous materials strictly adhere to the U.S. DOT requirements for Hazardous Materials vendors to prepare and implement security plans as per 49 CFR 172.800 and to ensure that all hazardous materials drivers are in compliance with personnel background security checks as per 49 CFR Part 1572, Subparts A and B. The Compliance Project Manager (CPM) may authorize modifications to these measures, or may require additional measures in response to additional guidance provided by the U.S. Department of Homeland Security, the U.S. Department of Energy, or the North American Electric Reliability Council, after consultation with appropriate law enforcement agencies and the applicant.

CUMULATIVE IMPACTS AND MITIGATION

Staff reviewed the potential for the operation of the WCEP combined with existing facilities to result in cumulative impacts on the population within the area. Staff determined that the chemical with the most potential to cause a cumulative impact is aqueous ammonia. However, it is expected that with the mitigation measures proposed by applicant and staff's suggested conditions of certification, there will be very little possibility for significant off-site air-borne concentration of ammonia gas, and accordingly even less possibility for there to be simultaneous off-site plumes from other facilities to merge and cause any significant off-site impact.

The applicant will develop and implement a hazardous materials handling program for the WCEP project independent of any other projects considered for potential cumulative impacts. Staff believes that the facility, as proposed by the applicant and with the additional mitigation measures proposed by staff, poses a minimal risk of accidental release that could result in offsite impacts. It is unlikely that an accidental release that has very low probability of occurrence (about one in one million per year) would

independently occur at the WCEP site and another facility at the same time. Therefore, staff concludes that the facility would not contribute to a significant cumulative impact.

COMPLIANCE WITH LORS

Staff concludes that construction and operation of the WCEP as proposed by the applicant and conditioned by staff, would be in compliance with all applicable LORS concerning long-term and short-term project impacts in the area of Hazardous Materials Management.

CONCLUSIONS

Staff's evaluation of the proposed project (with proposed mitigation measures) indicates that hazardous materials use will pose no significant impacts on the public. Staff's analysis also shows that there will be no significant cumulative impact. With adoption of the proposed conditions of certification, the proposed project will comply with all applicable LORS. In response to Health and Safety Code, section 25531 et seq., the applicant will be required to develop an RMP. To insure adequacy of the RMP, staff's proposed conditions of certification require that the RMP be submitted for concurrent review by U.S. EPA and Energy Commission staff. In addition, staff's proposed conditions of certification require Los Angeles County Fire Department, Health Hazardous Materials Division's review and comment, and staff's review and approval, of the RMP prior to delivery of any hazardous materials to the facility. Other proposed conditions of certification address the issue of the transportation, storage, and use of aqueous ammonia.

Staff recommends the Energy Commission impose the proposed conditions of certification, presented herein, to ensure that the project is designed, constructed and operated to comply with applicable LORS and to protect the public from significant risk of exposure to an accidental ammonia release. If all mitigation proposed by the applicant and by staff are required, the use, storage, and transportation of hazardous materials will not present a significant risk to the public.

Staff proposes nine conditions of certification mentioned throughout the text (above) and listed below. **HAZ-1** ensures that no hazardous material would be used at the facility except those listed in the AFC, unless there is prior approval by the City of Industry and County of Los Angeles and the Energy Commission CPM. **HAZ-2** requires that an RMP be prepared and submitted prior to the delivery of aqueous ammonia.

Staff believes that an accidental release of aqueous ammonia during transfer from the delivery tanker to the storage tank is the most probable accident scenario, and therefore proposes a condition (**HAZ-3**) requiring development of a safety management plan for the delivery of aqueous ammonia. The development of a Safety Management Plan addressing delivery of ammonia will further reduce the risk of any accidental release not addressed by the proposed spill prevention mitigation measures and the required RMP. **HAZ-4** requires that the aqueous ammonia storage tank be designed to comply with applicable LORS. **HAZ-5** addresses the storage of sulfuric acid, and the transportation

of hazardous materials is addressed in **HAZ-6** and **7**. Site security during both the construction and operations phases is addressed in **HAZ-8** and **HAZ-9**.

PROPOSED CONDITIONS OF CERTIFICATION

HAZ-1 The project owner shall not use any hazardous materials not listed in Appendix C, below, or in greater quantities than those identified by chemical name in Appendix C, below, unless approved in advance by the Compliance Project Manager (CPM).

Verification: The project owner shall provide to the CPM, in the Annual Compliance Report, a list of hazardous materials and storage quantities contained at the facility.

HAZ-2 The project owner shall concurrently provide a Business Plan and a Risk Management Plan (RMP) to the Certified Unified Program Authority – (CUPA) (Los Angeles County Fire Department, Health Hazardous Materials Division) and the CPM for review at the time the RMP is first submitted to the U.S. Environmental Protection Agency (EPA). After receiving comments from the CUPA, the EPA, and the CPM, the project owner shall reflect all recommendations in the final documents. Copies of the final Business Plan and RMP shall then be provided to the CUPA and EPA for information and to the CPM for approval.

Verification: At least 60 days prior to receiving any hazardous material on the site for commissioning or operations, the project owner shall provide a copy of a final Business Plan to the CPM for approval. At least sixty (60) days prior to delivery of aqueous ammonia to the site, the project owner shall provide the final RMP to the CUPA for information and to the CPM for approval.

HAZ-3 The project owner shall develop and implement a Safety Management Plan for delivery of aqueous ammonia. The plan shall include procedures, protective equipment requirements, training and a checklist. It shall also include a section describing all measures to be implemented to prevent mixing of aqueous ammonia with incompatible hazardous materials.

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

HAZ-4 The aqueous ammonia storage facility shall be designed to either the 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 sixty (60) 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 ensure that no flammable material is stored within 50 feet of the sulfuric acid tank.

Verification: At least sixty (60) days prior to the first receipt of sulfuric acid on-site, the project owner shall provide copies of the facility design drawings showing the location of the sulfuric acid storage tank and the location of any tanks, drums, or piping containing any flammable materials.

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

Verification: At least sixty (60) days prior to the first receipt of aqueous ammonia on site, the project owner shall submit copies of the notification letter to supply vendors indicating the transport vehicle specifications to the CPM for review and approval.

HAZ-7 The project owner shall direct all vendors delivering any hazardous material to the site to use only the route approved by the CPM (from State Route 60, to North Azusa Avenue, to East Gale Avenue to Bixby Drive, to the project site). The project owner shall submit any desired change to the approved delivery route to the CPM for review and approval.

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

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

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 thirty (30) days prior to commencing construction, the project owner shall notify the CPM that a site-specific Construction Security Plan is available for review and approval.

HAZ-9 In order to determine the level of security appropriate for this power plant, the project owner shall prepare a Vulnerability Assessment and submit that

assessment as part of the Operations Security Plan to the CPM for review and approval. The Vulnerability Assessment shall be prepared according to guidelines issued by the North American Electrical Reliability Council (NERC 2002), the U.S. Department of Energy (DOE 2002), and the U.S. Department of Justice Chemical Vulnerability Assessment Methodology (July 2002). Physical site security shall be consistent with the guidelines issued by the NERC (Version 1.0, June 14, 2002) and the DOE (2002) and will also be based, in part, on the use, storage, and quantity of hazardous materials present at the facility.

The project owner shall also prepare a site-specific Security Plan for the operational phase and shall be made available to the CPM for review and approval. The project owner shall implement site security measures addressing physical site security and hazardous materials storage. The level of security to be implemented will be determined by the results of the Vulnerability Assessment but in no case shall the level of security be less than that described as below (as per NERC 2002).

The Operation Security Plan shall include the following:

1. Permanent full perimeter fence or wall, at least 8 feet high;
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. Site personnel background checks, including employee and routine on-site contractors [Site personnel background checks are limited to ascertaining that the employee's claims of identity and employment history are accurate. All site personnel background checks shall be consistent with state and federal law regarding security and privacy.];
7. Site access controls for employees, contractors, vendors, and visitors;
8. Requirements for Hazardous Materials vendors to prepare and implement security plans as per 49 CFR 172.800 and to ensure that all hazardous materials drivers are in compliance with personnel background security checks as per 49 CFR Part 1572, Subparts A and B;
9. Closed Circuit TV (CCTV) monitoring system, recordable, and viewable in the power plant control room and security station (if separate from the control room) capable of viewing, at a minimum, the main entrance gate and the ammonia storage tank; and
10. Additional measures to ensure adequate perimeter security consisting of either:

1. Security guards present 24 hours per day, 7 days per week.

<u>or</u>

2. Power plant personnel on-site 24 hours per day, 7 days per week and **all** of the following:

1. The CCTV monitoring system required in number 9 above shall include cameras that are able to pan, tilt, and zoom (PTZ), have low-light capability, are recordable, and are able to view 100 percent of the perimeter fence, the ammonia storage tank, the outside entrance to the control room, and the front gate from a monitor in the power plant control room; **and**
2. Perimeter breach detectors **<u>or</u>** on-site motion detectors.

The project owner shall fully implement the security plans and obtain CPM approval of any substantive modifications to the security plans. The CPM may authorize modifications to these measures, or may require additional measures, such as protective barriers for critical power pant components (e.g., transformers, gas lines, compressors, etc.) depending on circumstances unique to the facility or in response to industry-related standards, security concerns, or additional guidance provided by the U.S. Department of Homeland Security, the U.S. Department of Energy, or the North American Electrical Reliability Council, after consultation with appropriate law enforcement agencies and the applicant.

<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 Vulnerability Assessment and Operations Site Security Plan are available for review and approval.

REFERENCES

AIChE (American Institute of Chemical Engineers). 1989. <u>Guidelines for Technical Management of Chemical Process Safety</u>, AIChE, New York, NY 10017.

AIChE (American Institute of Chemical Engineers). 1994. <u>Guidelines for Implementing Process Safety Management Systems</u>, AIChE, New York, NY 10017.

API (American Petroleum Institute). 1990. <u>Management of Process Hazards, API Recommended Practice 750;</u> American Petroleum Institute, First Edition, Washington, DC, 1990.

ASHRAE (American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc.). 2002. <u>Ammonia as a Refrigerant</u>, Position Document dated January 17, 2002.

Baldcock, P.J. (1980). <u>Accidental Releases of Ammonia: An Analysis of Reported Incidents</u>. (Unknown source).

California Code of Regulations Title 19, Accidental Release Prevention Program. November 1998.

Chemical Incident Reports Center Database, U.S. Chemical Safety Board. 2001.

Davies, P.A. and Lees, F.P. 1992. “The Assessment of Major Hazards: The Road Transport Environment for Conveyance of Hazardous Materials in Great Britain.” Journal of Hazardous Materials, 32: 41-79.

EME 2005a – Edison Mission Energy/GPL:bpm (tn: 35950). Walnut Creek Energy Energy Park AFC. 11/21/2005. Rec’d 11/22/2005

Environmental Protection Agency (EPA). 1987. Technical Guidance for Hazards Analysis, Environmental Protection Agency, Washington, DC, 1987.

Environmental Protection Agency (EPA). 1988. Screening Procedures for Estimating the Air Quality Impact of Stationary Sources, Environmental Protection Agency, Research Triangle Park, NC, August 1988.

Environmental Protection Agency (EPA). 2000a. Chemical Accident Prevention: Site Security. Environmental Protection Agency, Office of Solid Waste and Emergency Response. February 2000.

FEMA (Federal Emergency Management Agency). 1989. Handbook of Chemical Hazard Analysis Procedures, Federal Emergency Management Agency, Washington, DC, 1989.

Harwood, D.W., Viner, J.G., and E.R. Russell. 1990. "Truck Accident Rate Model for Hazardous Materials Routing." Transportation Research Record. 1264: 12-23.

Harwood, D.W., Viner, J.G., and E.R. Russell. 1993. "Procedure for Developing Truck Accident and Release Rates for Hazmat Routing." Journal of Transportation Engineering. 119(2): 189-199.

Lees, F.P. 1998. Loss Prevention in the Process Industries, Vols. I, II and III. Second Edition, Butterworths.

National Response Center Database. US Coast Guard. 2002

National Transportation Safety Board Database. US Department of Transportation. 2001

NFPA (National Fire Protection Association). 1987. NFPA 85A, Prevention of Furnace Explosions in Fuel Oil and Natural Gas Fired Single Burner Boiler Furnaces, National Fire Protection Association, Batterymarch Park, Quincy, MA, 1987.

North American Electric Reliability Council (NAERC) 2002. Security Guidelines for the Electricity Sector, Version 1.0, June 14, 2002.

NRC (National Research Council). 1979. Ammonia. Subcommittee on Ammonia. Committee on Medical and Biologic Effects of Environmental Pollutants. Division of Medical Sciences, Assembly of Life Sciences, National Research Council (NRC), Baltimore, Maryland, University Park Press (NTIS No. PB 278-027).

Perry. 1973. Perry's Chemical Engineers' Handbook, Sixth Edition, McGraw-Hill, USA.

Pet-Armacost, J.J., Sepulveda, J. and M. Sakude. 1999. "Monte Carlo Sensitivity Analysis of Unknown Parameters in Hazardous Materials Transportation Risk Assessment." Risk Analysis. 19(6): 1173-1184.

Rhyne, W.R. 1994. Hazardous Materials Transportation Risk Analysis. Quantitative Approaches for Truck and Train. Chapter 2: Transportation Quantitative Risk Analysis; and Chapter 3: Databases

Uniform Fire Code (UFC) 1997. International Fire Code Institute, Whittier, Ca.

U.S. Department of Energy (US DOE) 2002. Draft Vulnerability Assessment Methodology, Electric Power Infrastructure. Office of Energy Assurance, September 30, 2002.

U.S. Department of Justice (US DOJ) 2002. Special Report: Chemical Facility Vulnerability Assessment Methodology. Office of Justice Programs, Washington, D.C. July 2002.

USOSHA (United States Occupational Safety and Health Administration). 1993. Process Safety Management / Process Safety Management Guidelines For Compliance. U.S. Department of Labor, Washington, DC.

Vilchez, J.A., Sevilla, S., Montiel, H. and J. Casal. 1995. "Historical Analysis of Accidents in Chemical Plants and in the Transportation of Hazardous Materials." J. Loss Prev. Process Ind. 8(2): 87-96

Hazardous Materials
Appendix A

Basis for Staff's Use of 75 PPM Ammonia Exposure Criteria

September 2006

BASIS FOR STAFF'S USE OF 75 PPM AMMONIA EXPOSURE CRITERIA

Staff uses a health-based airborne concentration of 75 PPM as a threshold for initiating the evaluation of risk of exposure associated with potential accidental releases of ammonia. While this level is not consistent with the 150-ppm level used by EPA and Cal/EPA in evaluating such releases pursuant to the Federal Risk Management Program and State Accidental Release Program, it is appropriate for use in staff's analysis of the proposed project. The Federal Risk Management Program and the State Accidental Release Program are administrative programs designed to address emergency planning and ensure that appropriate safety management practices and actions are implemented in response to accidental releases. However, the regulations implementing these programs do not provide clear authority to require design changes or other major changes to a proposed facility. The preface to the Emergency Response Planning Guidelines (ERPGs) states that "these values have been derived as planning and emergency response guidelines, **not** exposure guidelines, they do not contain the safety factors normally incorporated into exposure guidelines. Instead they are estimates, by the committee, of the thresholds above which there would be an unacceptable likelihood of observing the defined effects." It is staff's contention that these values apply to healthy adult individuals and are levels that should not be used to evaluate the acceptability of avoidable exposures for the entire population. While these guidelines are useful in decision making in the event that a release has already occurred (for example, prioritizing evacuations), they are not appropriate for and are not binding on discretionary decisions involving proposed facilities where many options for mitigation are feasible. CEQA requires permitting agencies making discretionary decisions to identify and mitigate potentially significant impacts through feasible changes or alternatives to the proposed project.

Staff has chosen to use the National Research Council's 30-minute Short Term Public Emergency Limit (STPEL) for ammonia to determine the potential for significant impact. This limit is designed to apply to accidental unanticipated releases and subsequent public exposure. Exposure at this level should not result in serious effects but would result in "strong odor, lacrimation, and irritation of the upper respiratory tract (nose and throat), but no incapacitation or prevention of self-rescue." It is staff's opinion that exposures to concentrations above these levels pose significant risk of adverse health impacts on sensitive members of the general public. It is also staff's position that these exposure limits are the best available criteria to use in gauging the significance of public exposures associated with potential accidental releases. It is, further, staff's opinion that these limits constitute an appropriate balance between public protection and mitigation of unlikely events, and are useful in focusing mitigation efforts on those release scenarios that pose real potential for serious impacts on the public. Table 1 provides a comparison of the intended use and limitations associated with each of the various criteria that staff considered in arriving at the decision to use the 75-ppm STPEL. **Hazardous Materials Appendix B** provides a summary of adverse effects, which might be expected to occur at various airborne concentrations of ammonia.

Hazardous Materials Appendix A Table-1
Acute Ammonia Exposure Guidelines

Guideline	Responsible Authority	Applicable Exposed Group	Allowable Exposure Level	Allowable* Duration of Exposures	Potential Toxicity at Guideline Level/Intended Purpose of Guideline
IDLH[2]	NIOSH	Workplace standard used to identify appropriate respiratory protection.	300 ppm	30 min.	Exposure above this level requires the use of "highly reliable" respiratory protection and poses the risk of death, serious irreversible injury or impairment of the ability to escape.
IDLH/10[1]	EPA, NIOSH	Work place standard adjusted for general population factor of 10 for variation in sensitivity	30 ppm	30 min.	Protects nearly all segments of general population from irreversible effects
STEL[2]	NIOSH	Adult healthy male workers	35 ppm	15 min. 4 times per 8 hr day	No toxicity, including avoidance of irritation
EEGL[3]	NRC	Adult healthy workers, military personnel	100 ppm	Generally less than 60 min.	Significant irritation but no impact on personnel in performance of emergency work; no irreversible health effects in healthy adults. Emergency conditions one time exposure
STPEL[4]	NRC	Most members of general population	50 ppm 75 ppm 100 ppm	60 min. 30 min. 10 min.	Significant irritation but protects nearly all segments of general population from irreversible acute or late effects. One time accidental exposure
TWA[2]	NIOSH	Adult healthy male workers	25 ppm	8 hr.	No toxicity or irritation on continuous exposure for repeated 8 hr. Work shifts
ERPG-2[5]	AIHA	Applicable only to emergency response planning for the general population (evacuation) (not intended as exposure criteria) (see preface attached)	150 ppm	60 min.	Exposures above this level entail** unacceptable risk of irreversible effects in healthy adult members of the general population (no safety margin)

1) (EPA 1987) 2) (NIOSH 1994) 3) (NRC 1985) 4) (NRC 1972) 5) (AIHA 1989)

* The (NRC 1979), (WHO 1986), and (Henderson and Haggard 1943) all conclude that available data confirm the direct relationship to increases in effect with both increased exposure and increased exposure duration.

** The (NRC 1979) describes a study involving young animals, which suggests greater sensitivity to acute exposure in young animals. The (WHO 1986) warns that the young, elderly, asthmatics, those with bronchitis and those that exercise should also be considered at increased risk based on their demonstrated greater susceptibility to other non-specific irritants.

References for Hazardous Materials Appendix A, Table 1

AIHA. 1989. American Industrial Hygienists Association, Emergency Response Planning Guideline, Ammonia, (and Preface) AIHA, Akron, OH.

EPA. 1987. U.S. Environmental Protection Agency, Technical Guidance for Hazards Analysis, EPA, Washington, D.C.

NRC. 1985. National Research Council, Criteria and Methods for Preparing Emergency Exposure Guidance Levels (EEGL), short-term Public Emergency Guidance Level (SPEGL), and Continuous Exposure Guidance Level (CEGL) Documents, NRC, Washington, D.C.

NRC. 1972. Guideline for short-term Exposure of The Public To Air Pollutants. IV. Guide for Ammonia, NRC, Washington, D.C.

NIOSH. 1994. National Institute of Occupational Safety and Health, Pocket Guide to Chemical Hazards, U.S. Department of Health and Human Services, Washington D.C., Publication numbers 94-116.

WHO. 1986. World health Organization, Environmental Health Criteria 54, Ammonia, WHO, Geneva, Switzerland.

Abbreviations for Hazardous Materials Appendix A, Table 1

ACGIH, American Conference of Governmental and Industrial Hygienists
AIHA, American Industrial Hygienists Association
EEGL, Emergency Exposure Guidance Level
EPA, Environmental Protection Agency
ERPG, Emergency Response Planning Guidelines
IDLH, Immediately Dangerous to Life and Health Level
NIOSH, National Institute of Occupational Safety and Health
NRC, National Research Council
STEL, Short Term Exposure Limit
STPEL, Short Term Public Emergency Limit
TLV, Threshold Limit Value
TWA, Time-Weighted Average
WHO, World Health Organization

Hazardous Materials
Appendix B

Summary of Adverse Health Effects of Ammonia

September 2004

SUMMARY OF ADVERSE HEALTH EFFECTS OF AMMONIA[1]

638 PPM

WITHIN SECONDS:

- Significant adverse health effects;
- Might interfere with capability to self rescue;
- Reversible effects such as severe eye, nose and throat irritation.

AFTER 30 MINUTES:

- Persistent nose and throat irritation even after exposure stopped;
- irreversible or long-lasting effects possible: lung injury;
- Sensitive people such as the elderly, infants, and those with breathing problems (asthma) experience difficulty in breathing;
- Asthmatics will experience a worsening of their condition and a decrease in breathing ability, which might impair their ability to move out of area.

266 PPM

WITHIN SECONDS:

- Adverse health effects;
- Very strong odor of ammonia;
- Reversible moderate eye, nose and throat irritation.

AFTER 30 MINUTES:

- Some decrease in breathing ability but doubtful that any effect would persist after exposure stopped;
- Sensitive persons: experience difficulty in breathing;
- Asthmatics: may have a worsening condition and decreased breathing ability, which might impair their ability to move out of the area.

64 PPM

WITHIN SECONDS:

- Most people would notice a strong odor;
- Tearing of the eyes would occur;
- Odor would be very noticeable and uncomfortable.
- Sensitive people could experience more irritation but it would be unlikely that breathing would be impaired to the point of interfering with capability of self rescue
- Mild eye, nose, or throat irritation
- Eye, ear, & throat irritation in sensitive people

[1] Source: Alvin Greenberg, Ph.D., QEP

- Asthmatics might have breathing difficulties but would not impair capability of self rescue

22 or 27 PPM

WITHIN SECONDS:

- Most people would notice an odor;
- No tearing of the eyes would occur;
- Odor might be uncomfortable for some;
- Sensitive people may experience some irritation but ability to leave area would not be impaired;
- Slight irritation after 10 minutes in some people.

4.0, 2.2, or 1.6 PPM

- No adverse effects would be expected to occur;
- Doubtful that anyone would notice any ammonia (odor threshold 5 - 20 PPM);
- Some people might experience irritation after 1 hr.

LAND USE

Amanda Stennick

SUMMARY OF CONCLUSIONS

Staff agrees with the City of Industry's conclusions regarding the project's compliance with its land use laws, ordinances, regulations and standards (LORS). The development standards in **LAND USE Table 4** would be the land use conditions the City of Industry would apply to the project, were it the permitting agency. As conditioned, the project would comply with all applicable City of Industry land use LORS.

INTRODUCTION

The land use analysis of the Walnut Creek Energy Park (WCEP) AFC focuses on the project's consistency with land use plans, ordinances, and policies, and the project's compatibility with existing and planned land uses. In general, a power plant and its related facilities have the potential to create impacts in the areas of noise, dust, public health, traffic, and visual resources. These individual resource areas are discussed in detail in separate sections of this document.

LAWS, ORDINANCES, REGULATION, AND STANDARDS

The following table contains all applicable land use laws, ordinances, regulations, and standards.

LAND USE Table 1
Laws, Ordinances, Regulations, and Standards (LORS)

Applicable Law	Description
Federal	The proposed project is not located on federally administered lands and is not subject to federal land use regulations.
State	There are no state land use LORS for this project.
Local City of Industry	The City of Industry would require a conditional use permit and zone exception for the project (City of Industry Zoning Code Section 17.16.025, 17.36.060, and 17.48.050).

SETTING

The WCEP site is located in a densely developed industrial area in the City of Industry approximately 12 miles east of downtown Los Angeles. The project site is situated in an industrial park that includes warehousing, manufacturing, and transportation (railroad and inter-modal rail/truck yard) uses, transmission lines, the San Jose Creek Flood Control Channel, and the Southern California Edison (SCE) Walnut Substation. The 11.48-acre project site is owned by the City of Industry Urban Development Agency, which has designated the parcel for redevelopment. The WCEP site is currently occupied by a large warehouse that will be demolished by the City of Industry to clear the site for development of the proposed power plant. Edison Mission Energy (EME) has entered into a lease option agreement with the City of Industry for the project site. The WCEP would be a wholly-owned subsidiary of EME. The lease option will be

assigned to and exercised by Walnut Creek Energy (WCE). WCE will take physical possession of the site from the City of Industry Development Agency after the warehouse has been demolished.

The project construction laydown area consists of about 20 acres and is owned by SCE. SCE currently leases the 20 acres to Logistics Terminal INC (LTI) who will develop the site as a container storage area. LTI has agreed to sublease the 20-acre site to WCE for use as a construction laydown area during the project construction phase.

Residential uses are located in the City of La Puente to the north of the site and in unincorporated areas of the Los Angeles County community of Hacienda Heights south of the site. There are 13 schools (elementary, middle, and high) within a one-mile radius of the project site, the closest is Glenelder Elementary School, located 0.26 mile to the southwest.

No designated scenic, cultural, historical, unique, natural resource protection, natural resource extraction areas, or areas used for agricultural production are located within a one-mile radius of the project site.

GENERAL PLAN LAND USE DESIGNATIONS AND ZONING WITHIN THE ONE-MILE RADIUS PROJECT STUDY AREA

The project is located entirely within the City of Industry. The primary goal of the City is to create and maintain an ideal setting for manufacturing, distribution, and industrial facilities within the City. The following General Plan land use goals and policies are applicable to the proposed project.

1. Maintain and further develop an employment base in the San Gabriel Valley and the Los Angeles metropolitan area.
2. Accelerate and maintain a tax base that can support the overall growth potential of the area.

LAND USE Tables 2 and **3** show the general plan and zoning designations within one mile of the project site. **LAND USE Figures 1** and **2** show the general plan and zoning designations of jurisdictions within the one-mile project radius. In addition to the general plan and zoning designations of the City of Industry, the tables and figures show the general plan and zoning of the City of La Puente and the Los Angeles County unincorporated area of Hacienda Heights where they abut the City of Industry to the north and south, respectively.

Staff contacted the City of La Puente and Los Angeles County Planning Departments regarding any concerns the agencies may have about the project. As of this writing, the agencies have not responded.

LAND USE Table 2
General Plan Designations Within One Mile of the Project Site

Jurisdiction	General Plan Designations
City of Industry	Industrial, Recreation and Open Space
City of La Puente	Residential, Commercial, Mixed Use, Business-Employment, Public-Institutional, Open Space-Private
Los Angeles County	Residential, Commercial, Open Space

Source: City of Industry, City of La Puente, Los Angeles County cited in WCEP AFC.

The WCEP is located in the Industrial Zone (Zone M). Section 17.16.025 of the City Zoning Code lists uses permitted in the Industrial Zone with a conditional use permit, including a "utility substation or operations base." The City of Industry Planning Department has reviewed the proposed project and concluded that it would be a conditionally permitted use in the Industrial Zone (COI 2006e). The Manufacturing-Commercial Overlay Zone (M-C overlay) allows a mix of commercial and industrial uses of property currently zoned Industrial, where such commercial uses would be consistent with the general plan and compatible with surrounding industrial uses.

LAND USE Table 3
Zoning Designations Within One Mile of the Project Site

Jurisdiction	Zoning
City of Industry	Industrial with a Manufacturing-Commercial Overlay
City of La Puente	One-Family Residential (R-1), Multiple Family Low Residential (R-2), Multiple Family Medium Residential (R-3), Multiple Family High Residential (R-4), One-Family Residential Estate (R-E), One-Family Residential Suburban (R-S); General Commercial (C-2), Commercial Manufacturing (C-M); Light Manufacturing (M-1); Downtown Business District (DBD); Office Business Park (OBP); Open Space (OS)
Los Angeles County	Single-Family Residential Zone (R-1-6000), Limited Multiple Residence Zone (R-3), Residential Agricultural Zone (R-A-7500 and R-A-10000), Residential Planned Development Zone (RPD-6000-15U); Restricted Business Zone (C-1), Unlimited Commercial Zone (C-2-BE and C-3-BE), Commercial Planned Development (CPD); Light Agricultural Zone (A-1-6000 and A-1-7500)

Source: City of Industry, City of La Puente, Los Angeles County cited in WCEP AFC.

ASSESSMENT OF IMPACTS AND DISCUSSION OF MITIGATION

METHOD AND THRESHOLD FOR DETERMINING SIGNIFICANCE

State/CEQA

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

- conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project adopted for the purpose of avoiding or mitigating an environmental effect;
- disruption or division of the physical arrangement of the established community;
- conversion of Important Farmland, Prime Farmland, Farmland of Statewide Importance, Farmland of Local Importance, and Unique Farmland, as shown on the maps pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural uses.

A project may also have a significant impact on land use if it would create unmitigated noise, dust, public health hazard or nuisance, traffic, or visual impacts, or when it precludes or unduly restricts existing or planned future uses. Please see the **PUBLIC HEALTH**, **TRAFFIC and TRANSPORTATION**, and **VISUAL RESOURCES** sections of this document for a detailed discussion of project impacts and mitigation.

DIRECT/INDIRECT IMPACTS AND MITIGATION

The proposed project is situated in an industrial setting on land designated and zoned for industrial use by the City of Industry. The site is currently being used for industrial purposes and would most likely continue to be used for industrial purposes, based on the goals and objectives of the City of Industry General Plan. Industrial uses in the vicinity of the site include a high voltage transmission line easement, drainage channel, Southern Pacific railroad yard, and warehouse industrial development. As such, the proposed use is compatible with the existing surrounding uses.

The City of Industry does not have an approved habitat conservation plan or natural community conservation plan. Therefore, the project would not conflict with the goals of such a plan.

Neither the size nor nature of the WCEP would result in a physical division or disruption of an established community. No new physical barriers would be created by the project, and no existing roadways or pathways would be blocked.

There are no areas used for agricultural production within a one-mile radius of the project site. The soils in the area are considered unsuitable for commercial crop production because of the industrial, commercial, and residential development in the area. The project site and surrounding areas are designated as “Urban and Built-Up

Land" by the California Department of Conservation, and as such, are not designated The applicant stated it will submit a development plan that demonstrates land use LORS conformance, prior to the Final Staff Assessment (FSA). Staff will update the discussion on LORS conformance once the development plan is received.
In addition, the project site is not located in an area that has a Williamson Act contract.

Implementation of the project would not result in the conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to nonagricultural use. In addition, project implementation would not bring about any other changes in the environment that could result in the conversion of farmland to nonagricultural use.

Staff has considered the minority and low-income populations (as identified in **Socioeconomics Figures 1 and 2**) in its impact analysis. There are no significant adverse land use impacts and therefore, no environmental justice issues.

The proposed project is consistent with the general plan land use designation but not consistent with the zoning. To be consistent with the Industrial zoning designation, the project will need a conditional use permit (COI 2006e). The conditional use permit is fully discussed in the **COMPLIANCE WITH LORS** section of this document.

Proximity of Existing Schools to the Proposed WCEP Site

As stated above, there are 13 schools (elementary, middle, and high) within a one-mile radius of the project site. The closest is an elementary school, located 0.26 mile to the southwest. Staff's analysis shows that the project will not disrupt or divide the physical arrangement of the schools. However, schools are considered, along with day-care facilities, hospitals, nursing homes, etc., sensitive receptors. Therefore, the analysis of potential health impacts to students within existing schools located within one mile of the project site would be in the **PUBLIC HEALTH** section of this document.

City of La Puente and Los Angeles County

As stated earlier, the City of La Puente and the Los Angeles County unincorporated community of Hacienda Heights are within one mile of the proposed project. Staff has contacted the Planning Departments of both agencies to determine whether they have any land use concerns regarding the project. As of this writing, staff has not received any comments from these agencies expressing project-related land use concerns. Staff will continue to work with both agencies should any concerns arise.

CUMULATIVE IMPACTS AND MITIGATION

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, section 15130.)

No areas in the vicinity of the proposed site are used for agricultural production. The soils in this area have been developed for industrial, commercial, or residential uses and are unsuitable for commercial crop production. Therefore, the project would not by

itself or cumulatively adversely affect lands designated Prime Farmland, Farmland of Statewide and Local Importance, or Unique Farmlands.

The AFC contained a list of 47 commercial projects filed with the City of Industry in the 18 months preceding the November 2005 submittal. The majority of these projects were approved by the City of Industry during 2004 and 2005. According to the City of Industry Planning Director, there are very few development opportunities in proximity to the proposed WCEP (Kissell 2006). The majority of the City's projects are proposed for construction in the 400-acre Commercial/Industrial Park located in the east end of the City.

The proposed project would not make a significant contribution to regional impacts related to new development and growth. The WCEP is planned to serve the City of Industry's existing and anticipated electrical needs. Further, the project is consistent with the general plan designation, and as conditioned will be consistent with the City of Industry's zoning designation. Therefore, staff finds that the project would not by itself or cumulatively have an adverse effect on land use.

Staff has considered the minority and low-income populations (as identified in **Socioeconomics Figures 1 and 2**) in its cumulative impact analysis. There are no significant adverse cumulative land use impacts and therefore, no environmental justice issues.

COMPLIANCE WITH LORS

City of Industry

In an April 18, 2006 letter (COI 2006e) the City of Industry Planning Department concluded that the WCEP is consistent with the City's zoning regulations as a conditional use provided a zone exception is obtained and certain conditions identified by the City are incorporated into the certification of the project. According to the City, a zone exception would exempt the project from the strict application of certain design standards in the Development Plan Standards of the City of Industry's Development Guidelines (City Code Section 17.03.060). A zone exception is a discretionary action taken by the City of Industry where development standards may be waived or modified as part of the plot plan or conditional use permit process if it is determined that the standard is inappropriate for the proposed use, and that the waiver or modification of the standard will not be contrary to public health and safety (City Code Chapter 17.48).

Because of the Energy Commission's jurisdiction and permitting authority, the City of Industry will not make a formal ruling on the conditional use permit or zone exception, but has provided staff with their opinion on the WCEP's consistency with local land use LORS (COI 2006e). The Planning Department further concludes that the zone exception would only be necessary for certain visual design standards in the Development Guidelines. Please refer to the **VISUAL RESOURCES** section of this document for a discussion on the project's conformance with applicable visual standards and zone exception criteria.

The WCEP is located in the Industrial Zone (Zone M) with a Manufacturing-Commercial Overlay Zone (M-C overlay). Section 17.16.025 of the City Zoning Code lists uses permitted in the Industrial Zone with a conditional use permit, including a "utility substation or operations base." The City of Industry has concluded that this use is substantially similar to the WCEP, and therefore is a conditionally permitted use in the Industrial Zone. The conditions identified in the April 18, 2006 letter have been incorporated in this document as Conditions of Certification LAND-1, TRAFFIC AND TRANSPORTATION-2 & 3, VISUAL-1,2 & 3, and SOIL AND WATER RESOURCES-3.

Prior to the approval or denial of a conditional use permit Section 17.48.050 of the City of Industry Municipal Zoning Code requires the Planning Commission make the following findings:

(A). Whether the proposed use is consistent with the goals and objectives of the general plan and any applicable redevelopment plan.

(B). Whether the site is adequate in size, shape, topography, and location for the proposed use and there will be adequate utilities to accommodate the proposed use.

(C). Whether there will be adequate street access, traffic circulation, and parking capacity for the proposed use.

(D). Whether the proposed use is compatible with the surrounding properties and uses; in making this finding, consideration shall be given to the potential for changes in the uses of the surrounding properties.

(E). Whether the proposed use will not be detrimental to the public health, safety, or general welfare.

Staff's conclusions regarding the project's conformance with the above criteria are stated below.

(A). The proposed WCEP is consistent with the following goals of the City of Industry General Plan:

1. Maintain and further develop an employment base in the San Gabriel Valley and the Los Angeles metropolitan area; and
2. Accelerate and maintain a tax base that can support the overall growth potential of the area.

(B). The size of the WCEP parcel is 11.48 acres or 500,069 square feet and the total square footage of buildings on the WCEP site is 6,400 or 1.3 percent of the parcel area. The WCEP site is located in an area designated in the City of Industry General Plan for industrial use and as conditioned, would be consistent with the zoning. The WCEP site is surrounded by other industrial uses. The proposed WCEP is a 500-megawatt peaking facility consisting of five natural gas-fired turbine-generators and associated equipment. The WCEP will connect to SCE's electrical transmission system at the Walnut Substation, about 250 feet south of the project site.

(C). There is adequate parking capacity on the site. The **TRAFFIC AND TRANSPORTATION** section of this document shows that there is adequate street access and traffic circulation. Please refer to this section for a detailed analysis of these issues.

(D). The proposed use is compatible with the surrounding properties and uses. The project site is situated in an industrial park that includes warehousing, manufacturing, and transportation (railroad and inter-modal rail/truck yard) uses, transmission lines, the San Jose Creek Flood Control Channel, and the Southern California Edison (SCE) Walnut Substation. The 11.48-acre project site is owned by the City of Industry Urban Development Agency, which has designated the parcel for redevelopment. The WCEP site is currently occupied by a large warehouse that will be demolished by the City of Industry to clear the site for development of the proposed WCEP. Given the City's commitment to industry and the infrastructure that supports such industry, it is unlikely that the industrial nature of the surrounding properties would change.

(E). The **WORKER SAFETY** and **PUBLIC HEALTH** sections of this document find that as conditioned, the proposed use would not be detrimental to the public health, safety, or general welfare of the population of the City of Industry. Please refer to these sections for a detailed discussion of these issues.

LAND USE Table 4 shows the development plan standards for land use and the City of Industry's and staff's determination of the project's consistency with these standards. The development standards listed in **LAND USE Table 4** would be the land use conditions the City of Industry would apply to the project, were it the permitting agency. Based on staff's independent review of the AFC and City Code 17.16 (Industrial Zone), and consideration of the City's conformity letter, staff has determined that the project would be in compliance with the City's land use LORS. Staff has proposed condition of certification **LAND-1** as a means of verifying that the project, if certified, is built in accordance with the City's standards.

LAND USE Table 4
Development Plan Standards and Consistency Determination for WCEP

Development Plan Standards of Development Guidelines City Code Section 17.03.060	Consistency Determination
All buildings and structures shall be set back a minimum of 30 feet from the curb line of all streets.	Consistent. The project would conform to this standard because all buildings and structures (as shown in Figure 2.1-1 in the AFC) would be set back beyond the minimum requirement of 30 feet from the curb line.
The maximum height of any building or structure permitted in any industrial zone shall be 150 feet.	Consistent. The project would conform to this standard because the tallest structures (turbine exhaust stacks) would be 90 feet high.
Lots or parcels consisting of 60,000 sq. ft. or more shall have a maximum building square footage of 50 percent of the total lot or parcel area.	Consistent. The size of the WCEP parcel is 11.48 acres or 500,069 sq. ft. The total square footage of buildings on the WCEP site is 6,400 or 1.3 percent of the parcel area. Therefore, the project would conform to this standard.
In the Industrial Zone (M), the number of parking spaces provided is 1 space per 500 sq. ft. of building floor area.	Consistent. The total square footage of buildings on the WCEP site is 6,400 sq. ft. For the project to conform to this standard 13 parking spaces would have to be provided. Figure L-1 of the Landscape Plan provided in the Supplement IV Data Request Responses shows 13 spaces. Therefore, the project would conform to this standard.
No industrial building shall be permitted to use more than one-third of its total floor area for office use.	Consistent. The project would conform to this standard because the WCEP administration building is 2,400 sq. ft. and would contain 800 sq. ft. of office space.

NOTEWORTHY PUBLIC BENEFITS

The WCEP is designed as a peaking facility to meet electric generation load in Southern California during periods of high demand that generally occur during summer daytime hours. The City of Industry expects the WCEP to provide needed generation to local industry and commercial uses. In addition, the WCEP will help achieve the City of Industry General Plan goals by maintaining and further developing an employment base in the Los Angeles metropolitan area.

RESPONSE TO AGENCY AND PUBLIC COMMENTS

The land use issues presented to Energy Commission staff in the City of Industry's letter are addressed under the heading **COMPLIANCE WITH LORS.**

CONCLUSIONS

Staff's analysis shows that as conditioned, the project would not conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project; disrupt or divide the physical arrangement of the established community; contribute to a cumulative adverse effect on land use; preclude or unduly restrict existing or planned future uses; or convert agricultural land or resources to non-agricultural uses, or have an adverse impact on an environmental justice community.

As verification that the project complies with the applicable criteria in the Development Plan Standards of the City of Industry's Development Guidelines, staff is proposing the following condition of certification. Should the Commission certify the project, staff recommends that the Commission adopt this condition of certification and make the findings in Section 17.48.050 of the City of Industry Municipal Zoning Code.

PROPOSED CONDITION OF CERTIFICATION

LAND-1 The project owner shall design and construct the project to the following design standards in the Development Plan Standards of the City of Industry's Development Guidelines (City Code Section 17.03.060):

1. All buildings and structures shall be set back a minimum of 30 feet from the curb line of all streets.
2. The maximum height of any building or structure permitted in any industrial zone shall be 150 feet.
3. Lots or parcels consisting of 60,000 sq. ft. or more shall have a maximum building square footage of 50 percent of the total lot or parcel area.
4. In the Industrial Zone (M), the number of parking spaces provided is one space per 500 sq. ft. of building floor area. The minimum size of each parking space shall be 9 feet in width by 19 feet in length; compact parking spaces which are at least 8 feet in width by 16 feet in length may constitute up to 20 percent of the required parking for all types of development. Parking and striping shall follow the Transportation Demand Management Ordinance.
5. No industrial building shall be permitted to use more than one-third of its total floor area for office use.
6. All buildings shall be provided with a minimum of one dock high loading door or one truck well with loading door. The required truck loading door shall be designed with sufficient size to permit truck trailer loading and unloading through the loading door.

Verification: At least sixty (60) days prior to the start of construction, the project owner shall submit to the Compliance Project Manager (CPM) written documentation including evidence of review by the City of Industry that the project conforms with the Development Plan Standards of the City of Industry's Development Guidelines (City Code Section 17.03.060).

REFERENCES

CEC 2006d – California Energy Commission/E. Knight (tn: 36396). Letter to Mike Kissell, City of Industry Planning Director, requesting the city's input on the project's compliance with city plans, policies, and regulations. 02/24/2006. Rec'd 02/24/2006.

CEC 2006e – California Energy Commission/E. Knight (tn: 36505). CEC Staff's Data Requests (1-97). POS. 03/10/2006. Rec'd 03/10/2006.

CEC 2006i — California Energy Commission/E. Knight (tn: 36803). Supplemental Data Requests (98 – 99). 04/20/06. Rec'd 04/20/06.

CH2MHILL 2006a – CH2MHILL/J. Carrier (tn: 36678). Applicant's Responses to CEC Staff Data Requests 1-97. POS. 04/10/2006. Rec'd 04/10/2006.

CH2MHILL 2006b – CH2MHILL/D. Davy (tn: 37046). Supplemental Data Responses (set 1-97), Responses to Workshop Questions, and Data Responses 98-99. 05/31/06. Rec'd 05/31/06.

COI 2006a – City of Industry (tn:36666). Initial Study for 911 Bixby Drive building demolition. 01/31/06. Rec'd 04/06/06.

COI 2006b – City of Industry (tn: 36667). Negative Declaration for demolition of 911 Bixby Drive warehouse. 02/01/06. Rec'd 04/06/06.

COI 2006c – City of Industry (tn: 36669). Notice of Determination of approval of demolition of 911 Bixby Drive warehouse. 02/23/06. Rec'd 04/06/06

COI 2006d – City of Industry/M. Kissell (tn: 36784). City of Industry Demolition Project. 04/18/06. Rec'd 04/19/06.

COI 2006e – City of Industry/M. Kissell (tn: 36801). City of Industry's review of Walnut Creek Energy Park Project's consistency with City laws, ordinances, and standards. 04/18/06. Rec'd 04/20/06.

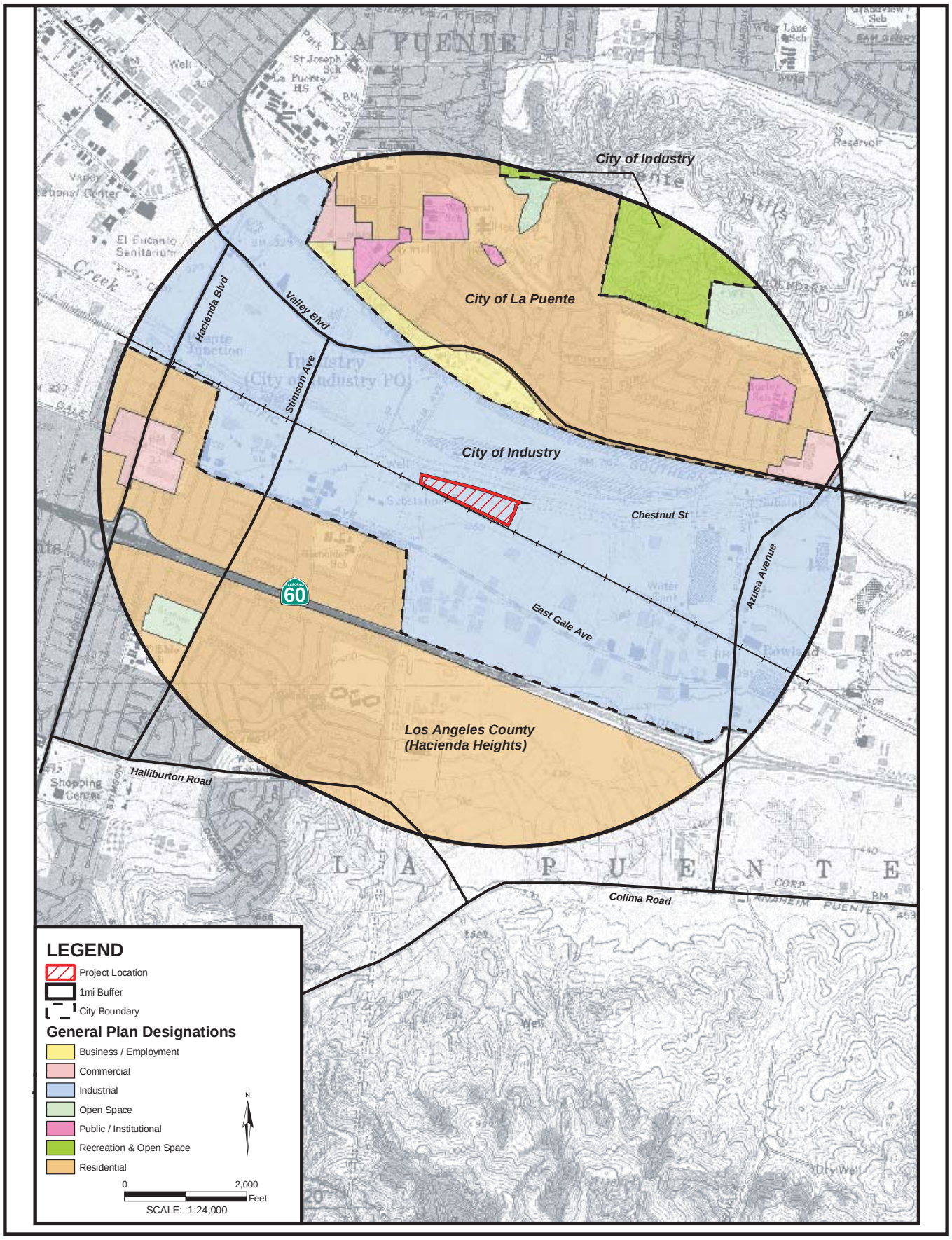
CEC 2006q – California Energy Commission/L. Prescott (tn: 37655). ROC with L.Prescott, E. Knight, L. DeCarlo, M. Kissell, and M. Vadon. Re City of Industry, Details Re Zone Exemption. 07/06/2006. Rec'd 08/14/2006.

EME 2005a – Edison Mission Energy/GPL:bpm (tn: 35950). Walnut Creek Energy Park AFC. 11/21/2005. Rec'd 11/22/2005.

EME 2006c – Edison Mission Energy/Scilacci (tn: 36210). Supplement in Response to CEC Staff's Data Adequacy Comments on the AFC for the Walnut Creek Energy Park. 01/12/2006. Rec'd 01/13/2006.

LAND USE - FIGURE 1

Walnut Creek Energy Park - General Plan Designations Within One Mile of Project Site

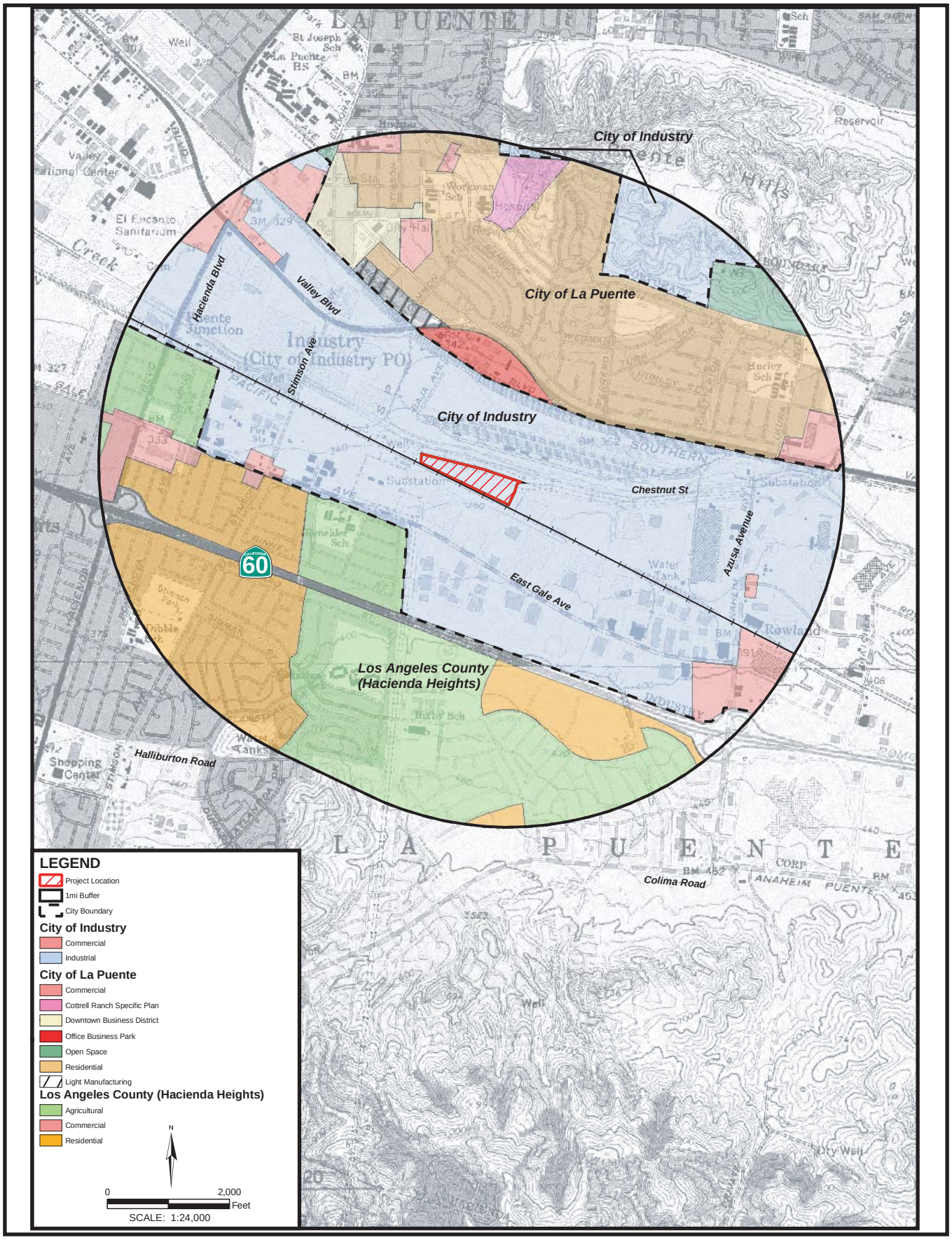


CALIFORNIA ENERGY COMMISSION, SYSTEMS ASSESSMENT & FACILITIES SITING DIVISION, DECEMBER 2006

SOURCE: AFC Figure 8.6-2

LAND USE - FIGURE 2

Walnut Creek Energy Park - Zoning Designations Within One Mile of Project Site



CALIFORNIA ENERGY COMMISSION, SYSTEMS ASSESSMENT & FACILITIES SITING DIVISION, DECEMBER 2006

SOURCE: AFC Figure 8.6-3

NOISE AND VIBRATION

Shahab Khoshmashrab

SUMMARY OF CONCLUSIONS

The Walnut Creek Energy Park project (WCEP) can be constructed and operated in compliance with all applicable laws, ordinances, regulations and standards (LORS). Operation of the WCEP will likely result in nighttime noise levels exceeding the LORS and will likely result in significant impacts at the noise-sensitive residential receptors. However, incorporation of the requirements embodied in staff's proposed conditions of certification would ensure that all necessary mitigation would be employed to reduce the noise levels to those consistent with the LORS. The incorporation of these requirements would also reduce the noise impacts to less than significant.

INTRODUCTION

The construction and operation of any power plant creates noise, or unwanted sound. The character and loudness of this noise, the times of day or night that it is produced, and the proximity of the facility to sensitive receptors combine to determine whether the facility would meet applicable noise control laws and ordinances, and whether it would cause significant adverse environmental impacts. In some cases, vibration may be produced as a result of power plant construction practices, such as blasting or pile driving. The ground-borne energy of vibration has the potential to cause structural damage and annoyance.

The purpose of this analysis is to identify and examine the likely noise and vibration impacts from the construction and operation of the WCEP, and to recommend procedures to ensure that the resulting noise and vibration impacts would comply with applicable LORS. For an explanation of technical terms employed in this section, please refer to **NOISE Appendix A**.

LAWS, ORDINANCES, REGULATIONS, AND STANDARDS

The following federal, state, and local LORS apply to noise. Staff's analysis examines the project's compliance with these requirements.

NOISE Table 1
Laws, Ordinances, Regulations and Standards (LORS)

Applicable Law	Description
Federal Occupational Safety and Health Act (OSHA): 29 U.S.C. § 651 et seq.	**Protects workers from the effects of occupational noise exposure**
State California Occupational Safety and Health Act (Cal-OSHA): Cal. Code Regs., tit. 8, §§ 5095-5099	**Protects workers from the effects of occupational noise exposure**
Local:	
Los Angeles County Code, Title 12 Environmental Protection, Chapter 12.08 Noise Control	**Quantifies exterior noise level limits at sensitive human receptors**
City of Industry General Plan	**Provides qualitative noise compatibility goals and policy**
City of La Puente Code of Ordinances, Title 4 Health and Sanitation, Chapter 4.34 Noise Regulations	**Does not specify quantitative noise level limits**

FEDERAL

Under the Occupational Safety and Health Act of 1970 (OSHA) (29 U.S.C. § 651 et seq.), the Department of Labor, Occupational Safety and Health Administration (OSHA) has adopted regulations (29 C.F.R. § 1910.95) designed to protect workers against the effects of occupational noise exposure. These regulations list permissible noise exposure levels as a function of the amount of time during which the worker is exposed (see **NOISE Appendix A, Table A4** immediately following this section). The regulations further specify a hearing conservation program that involves monitoring the noise to which workers are exposed, assuring that workers are made aware of overexposure to noise, and periodically testing the workers' hearing to detect any degradation.

There are no federal laws governing off-site (community) noise.

The Federal Transit Administration (FTA) has published guidelines for assessing the impacts of ground-borne vibration associated with construction of rail projects, which have been applied by other jurisdictions to other types of projects. The FTA-recommended vibration standards are expressed in terms of the "vibration level," which is calculated from the peak particle velocity measured from ground-borne vibration. The FTA measure of the threshold of perception is 65 VdB, which correlates to a peak particle velocity of about 0.002 inches per second (in/sec). The FTA measure of the threshold of architectural damage for conventional sensitive structures is 100 VdB, which correlates to a peak particle velocity of about 0.2 in/sec.

STATE

California Government Code section 65302(f) encourages each local governmental entity to perform noise studies and implement a noise element as part of its General Plan. In addition, the California Office of Planning and Research has published

guidelines for preparing noise elements, which include recommendations for evaluating the compatibility of various land uses as a function of community noise exposure.

The State of California, Office of Noise Control, prepared a Model Community Noise Control Ordinance, which provides guidance for acceptable noise levels in the absence of local noise standards. The model ordinance also contains a definition of a simple tone, or "pure tone," in terms of one-third octave band sound pressure levels that can be used to determine whether a noise source contains annoying tonal components. The Model Community Noise Control Ordinance further recommends that, when a pure tone is present, the applicable noise standard should be lowered (made more stringent) by five dBA.

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 (see **NOISE Appendix A, Table A4**).

LOCAL

The City of Industry General Plan contains noise goals and policy statements to encourage compatibility with surrounding communities, but does not set a quantitative noise standard. These goals are "to maintain a low profile of noise sources so that surrounding communities are not infringed by noises from sources other than transportation" (EME 2005a, §§ 1.5.3, 8.7.6.3). The monitoring locations M2 and M3 are located within the County of Los Angeles. Noise monitoring location M4 is located in the City of La Puente, also within the County of Los Angeles. The City of La Puente Noise Regulation does not specify numerical values for allowable noise level limits. Therefore, to evaluate the project noise impact from the operation and construction of the WCEP, staff uses the Noise Control Ordinance of the County of Los Angeles, which is the only applicable local code that quantifies exterior noise level limits at sensitive human receptors. The application of this code is also based on staff's consistent practice of using the most stringent applicable noise code, as evident in the previous CEC licensed power plant projects.

Noise Control Ordinance of the County of Los Angeles

Chapter 12.08 of the Noise Control Ordinance of the County of Los Angeles (LA County 2006a) is the applicable noise standard. The applicable noise standards for various uses during operations are expressed in Section 12.08.390, Exterior Noise Standards, and are summarized below in **NOISE Table 2**. These standards declare that noise impacts on noise-sensitive receptors shall be no greater than 50 dBA L_{50} during the daytime hours (7 a.m. to 10 p.m.), and no greater than 45 dBA L_{50} during the nighttime hours (10 p.m. to 7 a.m.).

NOISE Table 2
Exterior Noise Limits

Noise Limit (dBA) L_{50}		
Land Use	**Time Period**	
	7 a.m. to 10 p.m.	**10 p.m. to 7 a.m.**
Residential	**50**	**45**

Source: LA County 2006a, Section 12.08.390

SETTING

The project site lies in an industrialized neighborhood that is zoned Industrial (see **NOISE Figure 1**). The nearest sensitive noise receptors are residences near noise monitoring location M2 at the Corner of Folger Street and Fieldgate Avenue, approximately 1,130 feet south of the project site, within residentially zoned unincorporated Los Angeles County (see **NOISE Figure 2**) (EME 2005a, AFC § 8.7.2.2; Fig. 8.7-1). Other sensitive noise receptors include residences near monitoring location M4 at the corner of Inyo Street and Roxham Avenue in La Puente, approximately 1,720 feet northeast of the project site, within Los Angeles County; and Glenelder Elementary School on Folger Street, about 1,720 feet west-southwest of the project site at monitoring location M3 (EME 2005a, AFC § 8.7.2.2; Figures 8.6-1, 8.7-1).

The WCEP site is currently occupied by a large warehouse that will be demolished by the City of Industry to clear the site for development of the proposed power plant. The City of Industry has approved the demolition and has prepared an Initial Study and adopted a Negative Declaration pursuant to CEQA. The demolition will include removal of all pavement and vegetation occupying the site. Although the Energy Commission has no approval authority related to the demolition of the warehouse, because it will be torn down to allow the power plant to be built on the site, staff has determined that the demolition is part of the "whole of an action, which has a potential for resulting in either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment" (CEQA Guidelines, Cal. Code Regs., tit. 14, § 15378). Therefore, staff has considered the effects of the demolition in the analysis of the impacts of the proposed power project, deferring to the City of Industry's analysis where appropriate.

ASSESSMENT OF IMPACTS AND DISCUSSION OF MITIGATION

METHOD AND THRESHOLD FOR DETERMINING SIGNIFICANCE

California Environmental Quality Act

The California Environmental Quality Act (CEQA) requires that significant environmental impacts be identified and that such impacts be eliminated or mitigated to the extent feasible. Section XI of Appendix G of CEQA Guidelines (Cal. Code Regs., tit. 14, App. G) sets forth some characteristics that may signify a potentially significant noise impact. Specifically, a significant effect from noise may exist if a project would result in:

1. exposure of persons to, or generation of, noise levels in excess of standards established in the local General Plan or noise ordinance, or applicable standards of other agencies;
2. exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels;
3. substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project; or

4. substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.

The Energy Commission staff, in applying item 3 above to the analysis of this and other projects, has concluded that the potential for a significant noise impact exists where the noise of the project plus the background exceeds the background by 5 dBA or more at the nearest sensitive receptor, including those receptors that are considered to contain a minority population.

Staff considers it reasonable to assume that an increase in background noise levels up to 5 dBA in a residential setting is insignificant; an increase of more than 10 dBA is clearly significant. An increase of greater than 5 and up to 10 dBA should be considered adverse, but may be either significant or insignificant, depending on the particular circumstances of a case.

Factors to be considered in determining the significance of an adverse impact as defined above include:

1. the resulting noise level [1];
2. the duration and frequency of the noise;
3. the number of people affected;
4. the land use designation of the affected receptor sites; and
5. public concern or controversy as demonstrated at workshops or hearings, or by correspondence.

Noise due to construction activities is usually considered to be insignificant in terms of CEQA compliance if:

- the construction activity is temporary;
- use of heavy equipment and noisy activities is limited to daytime hours; and
- all industry-standard noise abatement measures are implemented for noise-producing equipment.

Staff uses the above method and threshold to protect the most sensitive populations including minority and low-income populations.

Ambient Noise Monitoring

In order to establish a baseline for comparison of predicted project noise to existing ambient noise, the applicant has presented the results of an ambient noise survey (EME 2005a, AFC § 8.7.2.2; Tables 8.7-3, 8.7-4, 8.7-5). This survey was performed on Wednesday, September 7 through Friday, September 9, 2005 (monitoring locations M1, M2 and M3) and on Wednesday and Thursday, November 2 and 3, 2005 (monitoring locations M2 and M4), using acceptable equipment and techniques. The noise survey

[1] For example, a noise level of 40 dBA would be considered quiet in many locations. A noise limit of 40 dBA would be consistent with the recommendations of the California Model Community Noise Control Ordinance for rural environments, and with industrial noise regulations adopted by European jurisdictions. If the project would create an increase in ambient noise no greater than 10 dBA at nearby sensitive receptors, and the resulting noise level would be 40 dBA or less, the project noise level would likely be less than significant.

monitored existing noise levels at the following four locations, shown on **NOISE Figure 2**:

1. Location M1: Within the boundary of the project site at a point closest to the nearest residential receptors. This location was monitored continuously approximately from 4:45 p.m. on September 7 through 7:00 a.m. on September 9, including the 25-hour span between 6:00 p.m. on September 7 and 7:00 p.m. on September 8.
2. Location M2: Near the closest residential receptors, 1,130 feet south of the project site. This location was monitored for 20 minutes during the night (3:30 a.m.) on September 8 and for a 25-hour span from 6:00 p.m. on November 2 to 6:00 p.m. on November 3.
3. Location M3: Glenelder Elementary School, about 1,720 feet from the project site. It was monitored for six hours from 10:12 p.m. on September 8 through 3:42 a.m. on September 9.
4. Location M4: Near sensitive residential receptors, approximately 1,720 feet northeast of the project site. It was monitored for the 25-hour span from 6:00 p.m. on November 2 through 6:00 p.m. on November 3.

NOISE Table 3 summarizes the ambient noise measurements (EME 2005a, AFC § 8.7.2.2; Tables 8.7-3, 8.7-4, 8.7-5) (results at M1 are not summarized and not evaluated because there are no sensitive receptors immediately adjacent to it).

NOISE Table 3
Summary of Measured Noise Levels

Measurement Sites	Measured Noise Levels, dBA				
	Average During Nighttime Hours [1]		Average During Daytime Hours [2] L_{eq}	Day-Night L_{dn}	Community Noise Equivalent Level (CNEL)
	L_{50}	L_{90}			
M2, Fieldgate Ave. and Folger St.	47	44	58	62	63
M3, Glenelder Elementary School	52	48	Not Recorded	Not Recorded	Not recorded
M4, Inyo St. and Roxham Ave.	48	44	61	64	64

Source: EME 2005a, AFC Tables 8.7-3, 8.7-4, 8.7-5
[1] Staff's calculations of average of the four quietest consecutive hours of the nighttime
[2] Staff's calculations of average of the four quietest consecutive hours of the daytime

In general, the noise environment in the vicinity of the project site is dominated by transportation-related sources that include State Route 60 (the Pomona Freeway), Gale Avenue, the Union Pacific Railway immediately south of the project site, and the Southern Pacific intermodal rail yard north of the project.

DIRECT IMPACTS AND MITIGATION

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

Construction Impacts and Mitigation

Construction noise is usually considered a temporary phenomenon. Construction of the WCEP is expected to be typical of other power plants in terms of schedule, equipment used, and other types of activities (EME 2005a, AFC § 8.7.3.2.1).

Compliance with LORS

Construction of an industrial facility such as a power plant is typically noisier than permissible under usual noise ordinances. In order to allow the construction of new facilities, construction noise during certain hours of the day is commonly exempt from enforcement by local ordinances. However, the Noise Control Ordinance of the County of Los Angeles (LA County 2006a, Section12.08.440) specifically addresses construction noise, limiting both the loudness and the time of day of construction noise. For single-family residential receptors (M2 and M4), it limits the loudness of noise from construction activities to 60 dBA L_{eq} from 7:00 a.m. to 8:00 p.m. on weekdays and Saturdays. It also limits the time of day during which noisy construction work may occur. Any construction work that creates noise disturbance across a residential or commercial property line shall occur only between weekday hours of 7:00 a.m. and 7:00 p.m. (with no work allowed at any time on holidays or Sundays), unless a special permit has been issued by the County.

The applicant has predicted construction noise levels; they are summarized here in **NOISE Table 4**. Note that, while the applicant provided estimates at distances of 375 feet, 1,500 feet and 3,000 feet, staff has translated these figures into predicted noise levels at 1,130 feet (M2) and 1,720 feet (M4), the two sensitive residential receptor locations:

NOISE Table 4: Predicted Construction Noise Levels

Receptor/Distance	**Highest Noise Level (dBA L_{eq})**
M2/1,130 feet	**61**
M4/1,720 feet	**58**

Source: EME 2005a, AFC Table 8.7-7; and staff calculations

While **NOISE Table 4** shows that construction noise, measured at M2, could exceed the limit in the County Noise Ordinance by 1 dBA, this table represents a rough and very conservative estimate. As noted by the applicant (EME 2005a, AFC § 8.7.3.2.1, p. 8.7-9), the source figures used to produce this estimate are from studies conducted about 30 years ago. Construction equipment has grown noticeably quieter in the intervening years. Staff thus believes that actual construction noise will, in fact, comply with the noise ordinance, that is, a limit of 60 dBA at single-family residential receptors.

At Glenelder Elementary School, near monitoring location M3, construction noise would be expected to be approximately 58 dBA L_{eq}, since this location is at the same distance from the project site as M4 (see **NOISE Table 4**). This is less than the LORS limit of

60 dBA L_{eq}. Thus, staff believes there would be no construction noise impacts at the school.

In the event that actual construction noise should exceed the County's limit and annoy nearby workers or residents, staff proposes conditions of certification **NOISE-1** and **NOISE-2**, which would establish a Noise Complaint Process that requires the applicant to resolve any problems caused by construction noise.

The applicant commits to performing noisy construction work during daytime hours as specified by the County noise ordinance, that is, 7 a.m. to 7 p.m. (EME 2005a, AFC § 8.7.3.2.1; City 2006a, § 3.11d, p. 40). This would be in compliance with the requirement of the noise ordinance. To ensure that these hours are, in fact, adhered to, staff proposes Condition of Certification **NOISE-6**.

CEQA Impacts

Since construction noise typically varies continually with time, it is most appropriately measured by, and compared to, the L_{eq} (energy average) metric. As seen in **NOISE Table 4** above, construction noise at the nearest sensitive receptor, the residential units at M2, may reach 61 dBA. The ambient daytime L_{eq} level at M2, as seen in **NOISE Table 3** above, is 58 dBA. The addition of construction noise to the ambient would result in 63 dBA, an increase of 5 dBA over the ambient level. Staff regards an increase of up to 5 dBA as a less than significant impact. Construction noise should not create an adverse impact at M2, the nearest sensitive receptor.

Construction noise at M4 would be quieter than at M2 due to its greater distance from the project site. The distance from the site to M4 is approximately 1,720 feet, compared to 1,130 feet from the site to M2. This would yield construction noise levels at M4 of 58 dBA, lower than the daytime L_{eq} at M4 of 61 dBA (**NOISE Table 3** and **NOISE Table 4**, above). Combining these yields 63 dBA, an increase of 2 dB. Such an increase is typically barely noticeable, and unlikely to cause annoyance. Staff thus concludes that project construction will create no significant adverse impacts at M4. To ensure this, staff proposes conditions of certification **NOISE-1** and **NOISE-2**, which would establish a Noise Complaint Process to resolve any complaints regarding construction noise.

Linear Facilities

New off-site linear facilities would include a 30-foot-long potable water pipeline, two connections to the sewer line within the project parcel, a 30-foot-long reclaimed water supply pipeline, a connection to the Southern California Gas Company's natural gas pipeline within the project parcel, and an approximately 1200-foot-long 230 kV transmission line connected with the nearby Walnut Substation (EME 2005a, AFC, § 1.1).

Construction of linear facilities typically moves along at a rapid pace, thus not subjecting any one receptor to noise impacts for more than two or three days. Further, the County Noise Ordinance (LA County 2006a, Section12.08.440) limits the hours of construction to daytime hours.

To ensure compliance with the LORS, staff proposes Condition of Certification **NOISE-6**.

Vibration

The only construction operation likely to produce vibration that could be perceived off-site would be pile driving. The applicant anticipates that pile driving will be required for construction of the WCEP (EME 2005a, AFC, § 8.7.3.2.2). The nearest sensitive receptors are 1,130 feet (0. 2 mile) distant at M2. The FTA establishes a vibration threshold of 0.2 in/sec for vibration induced structural damage. The highest anticipated level of vibration during the demolition of the existing warehouse at the project site (see below) will be 0.076 in/sec (COI 2006a, Table 2) at a distance of 25 feet. This level is comparable to vibration levels from pile driving and is well below the threshold of 0.2 in/sec. Thus, staff believes pile driving would not result in significant vibration impacts at the nearby commercial buildings or the nearest sensitive receptors.

Pile Driving

The applicant has stated that pile driving is anticipated. Impact tools will be equipped with applicable mufflers and shrouds, and such noisy work will be performed during the daytime hours (EME 2005a, AFC, § 8.7.3.2.2). Pile driving noise is predicted to reach 74 dBA at a distance of 1,500 feet (EME 2005a, AFC, Table 8.7-8); correcting this for the distance to the nearest residential receptors at M2, a distance of 1,130 feet, yields noise levels of approximately 76 dBA. Adjusted for the school (M3), a distance of 1,720 feet, the predicted level of 74 dBA yields approximately 73 dBA. These levels are substantially above the limit of 60 dBA specified in the County Noise Ordinance (see above). However, pile driving will occur during daytime hours, pile driving activities are considered temporary and short-lived, the predicted pile driving noise is based on the data obtained from older, noisier equipment, and the shielding effects of intervening structures are not included in the calculations. Therefore, the actual noise levels from the pile driving activities are expected to be considerably less than the above projections and with incorporation of the following conditions of certification, staff considers the impacts from pile driving less than significant and in compliance with the applicable LORS. To ensure that pile driving will take place during the daytime, staff proposes Condition of Certification **NOISE-6**. And, to ensure that the applicant will resolve any problems caused by pile driving noise, staff proposes Condition of Certification **NOISE-2**.

Worker Effects

The applicant has acknowledged the need to protect construction workers from noise hazards, and has recognized those applicable LORS that would protect construction workers (EME 2005a, AFC Table 8.7-11; §§ 8.7.3.2.3, 8.7.6.1.2, 8.7.6.2.1). To ensure that construction workers are, in fact, adequately protected, staff has proposed Condition of Certification **NOISE-3**.

Demolition of the Warehouse at 911 Bixby Drive

As described above (under Setting), the existing warehouse on the project site will be removed and the site cleared prior to start of the WCEP construction activities. In an Initial Study prepared pursuant to CEQA, the City of Industry conducted an analysis to

determine the environmental impacts of the demolition project. The noise analysis is covered in Section 3.11 of the Initial Study (COI 2006a). The demolition project will be temporary and will not create any long-term or permanent noise impacts in the project area. Therefore, any impact is regarded as temporary.

Demolition noise levels reported in *Noise from Demolition Equipment and Operations, Building Equipment, and Home Appliances* (EPA 1971) were used to estimate future demolition noise levels for this demolition project. The applicant has committed to complying with the County noise ordinance, as described in the City's Initial Study. At M2, the predicted noise level from these activities would be 57 dBA L_{eq} (COI 2006a, § 3.11d and Table 3). The County noise ordinance permits a maximum noise level from construction activity of 60 dBA at M2, the nearest sensitive receptor. The predicted noise level of 57 dBA L_{eq} would be less than this threshold and therefore would comply with the LORS. Staff recommends no mitigation measures.

The Initial Study restricts demolition activities to the time specified in the County noise ordinance. The applicant commits to performing noisy construction work during this time, that is, 7 a.m. to 7 p.m., with no construction activities allowed on Sundays or holidays (COI 2006a, § 3.11d, p. 40). This would be in compliance with the requirement of the noise ordinance.

The ambient daytime L_{eq} level at M2, as seen in **NOISE Table 3** above, is 58 dBA L_{eq}. This, combined with the predicted noise level from the demolition activities, or 57 dBA L_{eq}, would result in 61, 3 dBA above existing ambient. Staff regards an increase of up to 5 dBA as a less than significant impact. Staff believes that noise from the demolition project would not create any adverse impacts and thus, no mitigation is warranted.

Demolition activities would include tearing down the existing structure and pavement. Construction equipment used would produce vibration from vehicle travel as well as demolition activities (COI 2006a, § 3.11b). The anticipated level of vibration at the nearest sensitive receptors (near M2) will be less than 54 VdB or 0.0003 in/sec. The FTA threshold for human annoyance for infrequent activities is 80 VdB. The FTA also establishes a vibration threshold of 0.2 in/sec for vibration induced structural damage (COI 2006a, § 3.11b and Table 2). The highest anticipated level of vibration at a distance of 25 feet from the source will be 0.076 in/sec (COI 2006a, § 3.11b and Table 2). This is well below the threshold of 0.2 in/sec and would not result in any significant vibration impact at the nearby commercial buildings. As evidenced here, vibration levels produced by the demolition activities would not create structural damage to any offsite structures and would not cause human annoyance. Therefore, no significant vibration impacts would result from the demolition project.

Operation Impacts and Mitigation

The primary noise sources of the WCEP would include the gas turbine generators, gas turbine air inlets, exhaust stacks, wet cooling tower, natural gas fuel compressor, electrical transformers, and various pumps and fans. Staff compares the projected project noise with applicable LORS, in this case, the Noise Control Ordinance of the County of Los Angeles. In addition, staff evaluates any increase in noise levels at

sensitive receptors due to the project in order to identify any significant adverse impacts.

Proposed noise mitigation measures considered by the applicant include the following equipment for each of the five gas turbine generator units (EME 2005a, AFC § 8.7.3.3.3):

- additional noise barriers around gas turbine enclosures;
- inlet air filter/ventilation silencing;
- increased stack silencing;
- increased thickness of the selective catalytic reduction (SCR) plate steel;
- additional noise barriers around SCR inlet and expansion joint;
- low noise, slow speed cooling tower fans and motors;
- cooling tower noise barriers and/or splash noise attenuators;
- additional cooling tower noise barriers; and
- silencers and/or enclosures on auxiliary equipment.

In addition, the applicant plans to avoid the creation of annoying tonal (pure-tone) noises by balancing the noise emissions of various power plant features during plant design (EME 2005a, AFC § 8.7.3.3.4).

Compliance with LORS

The applicant performed noise modeling to determine the project's noise impacts on sensitive receptors (EME 2005a, AFC § 8.7.3.3.3, Table 8.7-10). Project operating noise at M2 (the nearest residence) is predicted not to exceed 52 dBA. Staff calculations estimate this to be 48 dBA at M4 (residential receptor to the northeast).

The nighttime ambient noise levels at M2 and M4 (residential receptors) are lower than the daytime levels at those locations, so staff compares nighttime levels, when people are sleeping and more likely to be bothered by excessive noise. Section 12.08.390 of the County Noise Ordinance limits nighttime exterior noise levels at residential receptors to 45 dBA L_{50} (**NOISE Table 2** above). This LORS states that if the existing ambient noise level exceeds this limit, then the ambient L_{50} becomes the new standard (LA County, § 12.08.390-B). The existing average ambient levels at M2 and M4, for the four quietest consecutive hours of the night, are 47 L_{50} (new standard) and 48 L_{50} (new standard), respectively (**NOISE Table 3**).

Combining the ambient noise level of 47 dBA L_{50} with the project noise level of 52 dBA at M2 will result in 53 dBA L_{50}, 6 dBA above the LORS. This violates the County Noise Ordinance and must be reduced to the acceptable level of 47 dBA L_{50} or less. Mitigation measures that the applicant could consider include employing quieter equipment, installation of sound walls, or other appropriate mitigation measures. To ensure compliance, staff proposes conditions of certification **NOISE-1, NOISE-2** and **NOISE-4**.

The project noise level of 48 dBA at M4 combined with the ambient level of 48 dBA L_{50} at this location will result in 51 dBA L_{50}, 3 dBA above the LORS. This increase violates the County Noise Ordinance and shall be mitigated to comply with the standard of 48 dBA L_{50}. To ensure compliance, staff proposes conditions of certification **NOISE-1, NOISE-2** and **NOISE-4**.

CEQA Impacts

Power plant noise is unique. A power plant operates as, essentially, a steady, continuous, broadband noise source, unlike the intermittent sounds that comprise the majority of the noise environment. As such, power plant noise contributes to, and becomes part of, the background noise level, or the sound heard when most intermittent noises cease. Where power plant noise is audible, it will tend to define the background noise level. For this reason, staff compares the projected power plant noise to the existing ambient background (L_{90}) noise levels at the affected sensitive receptors. If this comparison identifies a significant adverse impact, then feasible mitigation must be incorporated in the project to reduce or remove the impact.

In most cases, a power plant will be intended to operate around the clock for much of the year. Nighttime operation of a peaking power plant such as the WCEP, though rare, could occasionally occur which could annoy nearby residences. Staff evaluates project noise emissions by comparing them to the nighttime ambient background level; this assumes the potential for annoyance due to power plant noise is greatest at night when residents are trying to sleep. Nighttime ambient noise levels are typically lower than the daytime levels; differences in background noise levels of 5 to 10 dBA are common. Staff believes it is prudent to average the lowest nighttime hourly background noise level values to arrive at a reasonable baseline for comparison with the project's predicted noise level.

Adverse impacts, as defined in CEQA, can be detected by comparing predicted power plant noise levels to the ambient nighttime background noise levels at the nearest sensitive receptors, as shown in **NOISE Table 3**.

Combining the ambient noise level of 44 dBA L_{90} with the project noise level of 52 dBA at M2, will result in 53 dBA L_{90}, 9 dBA above the ambient. As described above (under Method and Threshold for Determining Significance), staff regards an increase of up to 5 dBA as a less than significant impact. An increase between 5 and 10 dBA should be considered adverse, but may be either significant or insignificant, depending on the particular circumstances of a case, such as the amount by which the ambient noise level will be exceeded and the land use designation of the affected receptor. An increase of 9 dBA, in a relatively quiet nighttime environment such as that encompassing M2, would typically represent a significant impact. Staff therefore believes that an increase of 9 dBA amounts to a significant impact and requires mitigation to an acceptable level. As described above, staff requires the applicant to reduce the combined L_{50} noise level at M2 by 6 dBA (under Compliance with LORS) by complying with the requirements of Condition of Certification **NOISE-4**. This will also mitigate the above level of 53 dBA L_{90} by a few decibels to a less than significant level at this location and no further mitigation will be required. The project noise level of 48 dBA at M4 when combined with the ambient level of 44 dBA L_{90} at this location will

result in 49 dBA L_{90}, 5 dBA above the ambient. Such an increase is barely noticeable. Staff therefore considers the impact of this increase to be less than significant.

Staff estimates the existing daytime ambient noise level at Glenelder Elementary School, monitoring location M3, to be between 54 and 58 dBA L_{90}. This estimation is based on the measured existing ambient noise levels at M1, M2 and M4, and evaluation of the existing noise regime in the project area. Staff calculations estimate the expected operational noise level of 52 dBA at M2 to be 48 dBA at M3. Combining this with the ambient level of 54 dBA L_{90}, results in 55 dBA L_{90}; an increase of 1 dBA over the ambient. This increase is barely noticeable. Combining 48 dBA with the ambient level of 58 dBA L_{90}, results in 58 dBA L_{90} (no increase over the ambient). Thus, the project operational noise impact at the school will be expected to be less than significant.

With implementation of the above mitigations, staff can conclude that the project operational noise will create no adverse impact at the most sensitive residential receptors.

Tonal Noises

One possible source of annoyance from a power plant would 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. Some sources of tonal noises within a power plant include combustion turbine air inlets, transformers, pump motors and cooling tower fan gearbox. The applicant plans to address overall noise in design, and to take appropriate measures, as necessary, to eliminate tonal noises as possible sources of annoyance (EME 2005a, AFC § 8.7.3.3.4). Selecting or designing the appropriate measures depends on the individual equipment emanating the tonal noise and the character of the noise generated. To ensure that tonal noises do not cause annoyance, staff proposes Condition of Certification **NOISE-4**.

Linear Facilities

All water and gas piping will lie underground, and will be silent during operation. Noise effects from the electrical interconnection line typically do not extend beyond the right-of-way easement of the line, and will thus be inaudible to any receptors.

Vibration

Vibration from an operating power plant could be transmitted by two chief means; through the ground (groundborne vibration), and through the air (airborne vibration).

The operating components of a simple cycle power plant consist of high-speed gas turbines, compressors, and various pumps. All of these pieces of equipment must be carefully balanced in order to operate; permanent vibration sensors are attached to the turbines and generators. The applicant explains that gas turbine generator facilities using the GE LM6000 machine have not resulted in ground or airborne vibration impacts and it is not anticipated that GE Energy's LMS100 technology would differ considerably in its ability to produce ground or airborne vibration (EME 2005a, AFC § 8.7.3.3.5). Energy Commission staff agrees with this estimate, and agrees with the applicant that groundborne vibration from the WCEP will be undetectable by any likely receptor.

Airborne vibration (low frequency noise) can rattle windows and objects on shelves, and can rattle the walls of lightweight structures. The WCEP's chief source of airborne vibration would be the gas turbines' exhaust. In a power plant such as the WCEP, however, the exhaust must pass through the SCR modules and the stack silencers before it reaches the atmosphere. The SCRs act as efficient mufflers; the combination of SCR units and stack silencers makes it highly unlikely that the WCEP would cause perceptible airborne vibration effects.

Worker Effects

The applicant has acknowledged the need to protect plant operating and maintenance workers from noise hazards, and has committed to comply with applicable LORS (EME 2005a, AFC § 8.7.3.3.1). Signs would be posted in areas of the plant with noise levels exceeding 85 dBA (the level that OSHA recognizes as a threat to workers' hearing), and hearing protection would be required. To ensure that plant operation and maintenance workers are, in fact, adequately protected, Energy Commission staff has proposed Condition of Certification **NOISE-5**.

CUMULATIVE IMPACTS AND MITIGATION

Section 15130 of the CEQA Guidelines (Cal. Code Regs., tit. 14) requires a discussion of cumulative environmental impacts when a project's incremental effect is cumulatively considerable. 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.

According to the AFC (EME 2005, AFC § 8.7.4), there is little or no land available for additional development and there are few major new projects planned within the City of Industry area surrounding the project site. In general, the noise sources in the vicinity of the project site are transportation-related, including State Route 60 (the Pomona Freeway), Gale Avenue, the Union Pacific Railway immediately south of the project site, the Southern Pacific intermodal rail yard north of the project, and some commercial and industrial sources. The effects of noise produced by those sources have been accounted for by the ambient noise level measurements, and the resulting noise levels are described in the noise level predictions for both the construction and operations, as listed above. It is therefore unlikely that the construction and operation of the WCEP, combined with other new noise producing developments, would produce significant cumulative noise impacts.

The demolition of the existing warehouse would occur prior to the start of the WCEP construction activities and thus would not create any cumulative noise impacts when combined with this project. Staff is not aware of any other major construction or demolition activities that, when combined with this demolition project, would cause significant cumulative noise impacts.

FACILITY CLOSURE

In the future, upon closure of the WCEP, all operational noise from the project would cease, and no further adverse noise impacts from operation of the WCEP would be

possible. The remaining potential temporary noise source is the dismantling of the structures and equipment, and any site restoration work that may be performed. Since this noise would be similar to that caused by the original construction, it can be treated similarly. That is, noisy work could be performed during daytime hours, with machinery and equipment properly equipped with mufflers. Any noise LORS that were in existence at that time would apply. Applicable conditions of certification included in the Energy Commission decision would also apply unless modified.

RESPONSE TO AGENCY AND PUBLIC COMMENTS

The applicant, as part of its response to staff's noise data requests DR-98 and DR-99 (CEC 2006i), submitted a letter from the City of Industry regarding the applicability of the Los Angeles County Noise Ordinance to the WCEP (COI 2006f). The letter states that, contrary to staff's interpretation of the City of Industry's Initial Study (COI 2006a), the City has not formally adopted the County noise ordinance. Subsequently, the applicant believes this ordinance does not apply to the WCEP for this reason. Staff disagrees with this and believes that the ordinance remains applicable to the project, particularly since some of the sensitive receptors are located in the County. Staff's conclusion is based on the following reasons.

1. It is the only local code applicable to the project that quantifies exterior noise level limits at sensitive human receptors.
2. It addresses the CEQA requirement, above, that states a significant effect from noise may exist if a project would result in exposure of persons to, or generation of, noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.
3. Even though the noise source (the power plant) is located outside the County limits, the sensitive receptors impacted by the noise (near monitoring locations M2, M3 and M4) are located within the County of Los Angeles.
4. Staff's conclusion is based on its consistent practice of using the most stringent applicable noise code, as evident in the previous Energy Commission licensed power plant projects.

CONCLUSIONS

The resulting noise levels from the operation of the WCEP would have to be mitigated to comply with the Noise Control Ordinance of the County of Los Angeles and CEQA requirements at the above identified sensitive residential receptors. Staff has proposed conditions of certification below in order to ensure the applicant's compliance with these mitigation measures.

The WCEP, if built and operated in conformance with these conditions, would comply with all applicable noise and vibration LORS for both operation and construction, and would produce no significant adverse noise impacts on people within the affected area, including the minority population, either directly or cumulatively.

Staff also concludes that the demolition of the warehouse located at 911 Bixby Drive would comply with the LORS and would not cause any significant adverse noise impacts, either directly or cumulatively.

PROPOSED CONDITIONS OF CERTIFICATION

NOISE-1 Prior to the start of ground disturbance, the project owner shall notify all residents within one-half mile of the site and 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. 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: At least 15 days prior to the start of ground disturbance, the project owner shall transmit to the Compliance Project Manager (CPM) a statement, signed by the project owner's project manager, stating that the above notification has been performed, and describing the method of that notification, verifying that the telephone number has been established and posted at the site, and giving that telephone number.

NOISE COMPLAINT PROCESS

NOISE-2 Throughout the construction and operation of the WCEP, 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;
- If the noise is project related, take all feasible measures to reduce the noise at its source; and
- Submit a report documenting the complaint and the actions taken. The report shall include: a complaint summary, including final results of noise reduction efforts; and if obtainable, a signed statement by the complainant, stating that the noise problem is resolved to the complainant's satisfaction.

Verification: Within five days of receiving a noise complaint, the project owner shall file a copy of the Noise Complaint Resolution Form, with the local jurisdiction and the

CPM, documenting the resolution of the complaint. If mitigation is required to resolve a complaint, and the complaint is not resolved within a 3-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. The noise control program shall be used to reduce employee exposure to high noise levels during construction and also to comply with applicable OSHA and Cal-OSHA standards.

Verification: At least 30 days prior to the start of ground disturbance, the project owner shall submit to the CPM the noise control program. The project owner shall make the program available to Cal-OSHA upon request.

NOISE RESTRICTIONS

NOISE-4 The project design and implementation shall include appropriate noise mitigation measures adequate to ensure that operation of the project will not cause noise levels due to plant operation plus ambient, during the four quietest consecutive hours of the nighttime, to exceed an average of 47 dBA L_{50} measured near the intersection of Fieldgate Avenue and Folger Street (monitoring location M2) and an average of 48 dBA L_{50} measured near the intersection of Inyo Street and Roxham Avenue (monitoring location M4).

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. However, notwithstanding the use of this alternative method for determining the noise level, the character of the plant noise shall be evaluated at the affected residential locations (M2 and M4) to determine the presence of pure tones or other dominant sources of plant noise.

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

A. When the project first achieves a sustained output of 90 percent or greater of rated capacity, the project owner shall conduct a 25-hour community noise survey at monitoring sites M2 and M4, or at a closer location acceptable to the CPM. This survey during power plant operation shall also include measurement of one-third octave band sound pressure levels to ensure that no new pure-tone noise components have been introduced.

B. If the results from the noise survey indicate that the power plant average noise level (L_{50}) at the affected receptor sites exceeds the above values during the four quietest consecutive hours of the nighttime, mitigation measures shall be implemented to reduce noise to a level of compliance with these limits.

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

Verification: The survey shall take place within 30 days of the project first achieving a sustained output of 90 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 limits, 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 first achieving a sustained output of 90 percent or greater of rated capacity, the project owner shall conduct an occupational noise survey to identify the noise hazardous areas in the facility.

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

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

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

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, unless a special permit has been issued by the City Director of Public Works:

Monday through Saturday	7 a.m. to 7 p.m.

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

Verification: Prior to ground disturbance, the project owner shall transmit to the CPM a statement acknowledging that the above restrictions will be observed throughout the construction of the project.

EXHIBIT 1 - NOISE COMPLAINT RESOLUTION FORM

Walnut Creek Energy Park
(05-AFC-2)

NOISE COMPLAINT LOG NUMBER _____

Complainant's name and address:

Phone number: _____

Date complaint received: _____
Time complaint received: _____

Nature of noise complaint:

Definition of problem after investigation by plant personnel:

Date complainant first contacted: _____

Initial noise levels at 3 feet from noise source _____ dBA Date: _____

Initial noise levels at complainant's property: _____ dBA Date: _____

Final noise levels at 3 feet from noise source: _____ dBA Date: _____

Final noise levels at complainant's property: _____ dBA Date: _____

Description of corrective measures taken:

Complainant's signature: _____ Date: _____

Approximate installed cost of corrective measures: $ _____
Date installation completed: _____
Date first letter sent to complainant: _____ (copy attached)
Date final letter sent to complainant: _____ (copy attached)

This information is certified to be correct:

Plant Manager's Signature: _____

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

REFERENCES

EME 2005a — Edison Mission Energy/GPL:bpm (tn:35950). Walnut Creek Energy Park AFC. 11/21/2005. Rec'd 11/22/05.

CEC 2006i — California Energy Commission/E. Knight (tn: 36803). Supplemental Data Requests (98 – 99). 04/20/06. Rec'd 04/20/06.

COI 2006a – City of Industry (tn:36666). Initial Study for 911 Bixby Drive building demolition. 01/31/06. Rec'd 04/06/06.

COI 2006f – City of Industry/M. Kissell (tn: 36844). Letter re: County Noise Standards Applicable to WCEP. 04/24/06. Rec'd 04/26/06.

LA County 2006a — Noise Control Ordinance of the County of Los Angeles, Title 12 Environmental Protection, Chapter 12.08 Noise Control.

NOISE APPENDIX A
FUNDAMENTAL CONCEPTS OF COMMUNITY NOISE

To describe noise environments and to assess impacts on noise sensitive areas, a frequency weighting measure, which simulates human perception, is customarily used. It has been found that A-weighting of sound intensities best reflects the human ear's reduced sensitivity to low frequencies and correlates well with human perceptions of the annoying aspects of noise. The A-weighted decibel scale (dBA) is cited in most noise criteria. Decibels are logarithmic units that conveniently compare the wide range of sound intensities to which the human ear is sensitive. **Noise Table A1** provides a description of technical terms related to noise.

Noise environments and consequences of human activities are usually well represented by an equivalent A-weighted sound level over a given time period (L_{eq}), or by average day and night A-weighted sound levels with a nighttime weighting of 10 dBA (L_{dn}). Noise levels are generally considered low when ambient levels are below 45 dBA, moderate in the 45 to 60 dBA range, and high above 60 dBA. Outdoor day-night sound levels vary over 50 dBA depending on the specific type of land use. Typical L_{dn} values might be 35 dBA for a wilderness area, 50 dBA for a small town or wooded residential area, 65 to 75 dBA for a major metropolis downtown (e.g., San Francisco), and 80 to 85 dBA near a freeway or airport. Although people often accept the higher levels associated with very noisy urban residential and residential-commercial zones, they nevertheless are considered to be levels of noise adverse to public health.

Various environments can be characterized by noise levels that are generally considered acceptable or unacceptable. Lower levels are expected in rural or suburban areas than what would be expected for commercial or industrial zones. Nighttime ambient levels in urban environments are about seven decibels lower than the corresponding average daytime levels. The day-to-night difference in rural areas away from roads and other human activity can be considerably less. Areas with full-time human occupation that are subject to nighttime noise, which does not decrease relative to daytime levels, are often considered objectionable. Noise levels above 45 dBA at night can result in the onset of sleep interference effects. At 70 dBA, sleep interference effects become considerable (Effects of Noise on People, U.S. Environmental Protection Agency, December 31,1971).

In order to help the reader understand the concept of noise in decibels (dBA), **Noise Table A2** has been provided to illustrate common noises and their associated sound levels, in dBA.

Noise Table A1 Definition of Some Technical Terms Related to Noise	
Terms	**Definitions**
Decibel, dB	A unit describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure, which is 20 micropascals (20 micronewtons per square meter).
Frequency, Hz	The number of complete pressure fluctuations per second above and below atmospheric pressure.
A-Weighted Sound Level, dBA	The sound pressure level in decibels as measured on a Sound Level Meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise. All sound levels in this testimony are A-weighted.
L_{10}, L_{50}, & L_{90}	The A-weighted noise levels that are exceeded 10%, 50%, and 90% of the time, respectively, during the measurement period. L_{90} is generally taken as the background noise level.
Equivalent Noise Level, L_{eq}	The energy average A-weighted noise level during the Noise Level measurement period.
Community Noise Equivalent Level, CNEL	The average A-weighted noise level during a 24-hour day, obtained after addition of 4.8 decibels to levels in the evening from 7 p.m. to 10 p.m., and after addition of 10 decibels to sound levels in the night between 10 p.m. and 7 a.m.
Day-Night Level, L_{dn} or DNL	The Average A-weighted noise level during a 24-hour day, obtained after addition of 10 decibels to levels measured in the night between 10 p.m. and 7 a.m.
Ambient Noise Level	The composite of noise from all sources, near and far. The normal or existing level of environmental noise at a given location.
Intrusive Noise	That noise that intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends upon its amplitude, duration, frequency, and time of occurrence and tonal or informational content as well as the prevailing ambient noise level.
Pure Tone	A pure tone is defined by the Model Community Noise Control Ordinance as existing if the one-third octave band sound pressure level in the band with the tone exceeds the arithmetic average of the two contiguous bands by 5 decibels (dB) for center frequencies of 500 Hz and above, or by 8 dB for center frequencies between 160 Hz and 400 Hz, or by 15 dB for center frequencies less than or equal to 125 Hz.

Source: Guidelines for the Preparation and Content of Noise Elements of the General Plan, Model Community Noise Control Ordinance, California Department of Health Services 1976, 1977.

Noise Table A2 Typical Environmental and Industry Sound Levels			
Noise Source (at distance)	A-Weighted Sound Level in Decibels (dBA)	Noise Environment	Subjective Impression
Civil Defense Siren (100')	140-130		Pain Threshold
Jet Takeoff (200')	120		Very Loud
Very Loud Music	110	Rock Music Concert	
Pile Driver (50')	100		
Ambulance Siren (100')	90	Boiler Room	
Freight Cars (50')	85		
Pneumatic Drill (50')	80	Printing Press Kitchen with Garbage Disposal Running	Loud
Freeway (100')	70		Moderately Loud
Vacuum Cleaner (100')	60	Data Processing Center Department Store/Office	
Light Traffic (100')	50	Private Business Office	
Large Transformer (200')	40		Quiet
Soft Whisper (5')	30	Quiet Bedroom	
	20	Recording Studio	
	10		Threshold of Hearing

Source: Handbook of Noise Measurement, Arnold P.G. Peterson, 1980

Subjective Response to Noise

The adverse effects of noise on people can be classified into three general categories:

- Subjective effects of annoyance, nuisance, dissatisfaction.
- Interference with activities such as speech, sleep, and learning.
- Physiological effects such as anxiety or hearing loss.

The sound levels associated with environmental noise, in almost every case, produce effects only in the first two categories. Workers in industrial plants can experience noise effects in the last category. There is no completely satisfactory way to measure the subjective effects of noise, or of the corresponding reactions of annoyance and dissatisfaction, primarily because of the wide variation in individual tolerance of noise.

One way to determine a person's subjective reaction to a new noise is to compare the level of the existing (background) noise, to which one has become accustomed, with the level of the new noise. In general, the more the level or the tonal variations of a new

noise exceed the previously existing ambient noise level or tonal quality, the less acceptable the new noise will be, as judged by the exposed individual.
With regard to increases in A-weighted noise levels, knowledge of the following relationships can be helpful in understanding the significance of human exposure to noise.

1 Except under special conditions, a change in sound level of one dB cannot be perceived.

2 Outside of the laboratory, a three dB change is considered a barely noticeable difference.

3 A change in level of at least five dB is required before any noticeable change in community response would be expected.

4 A ten dB change is subjectively heard as an approximate doubling in loudness and almost always causes an adverse community response. (Kryter, Karl D., The Effects of Noise on Man, 1970)

Combination of Sound Levels

People perceive both the level and frequency of sound in a non-linear way. A doubling of sound energy (for instance, from two identical automobiles passing simultaneously) creates a three dB increase (i.e., the resultant sound level is the sound level from a single passing automobile plus three dB). The rules for decibel addition used in community noise prediction are:

Noise Table A3
Addition of Decibel Values

When two decibel values differ by:	Add the following amount to the larger value
0 to 1 dB	3 dB
2 to 3 dB	2 dB
4 to 9 dB	1 dB
10 dB or more	0
Figures in this table are accurate to ± 1 dB.	

Source: Architectural Acoustics, M. David Egan, 1988

Sound and Distance

Doubling the distance from a noise source reduces the sound pressure level by six dB.

Increasing the distance from a noise source 10 times reduces the sound pressure level by 20 dB.

Worker Protection

OSHA noise regulations are designed to protect workers against the effects of noise exposure, and list permissible noise level exposure as a function of the amount of time to which the worker is exposed:

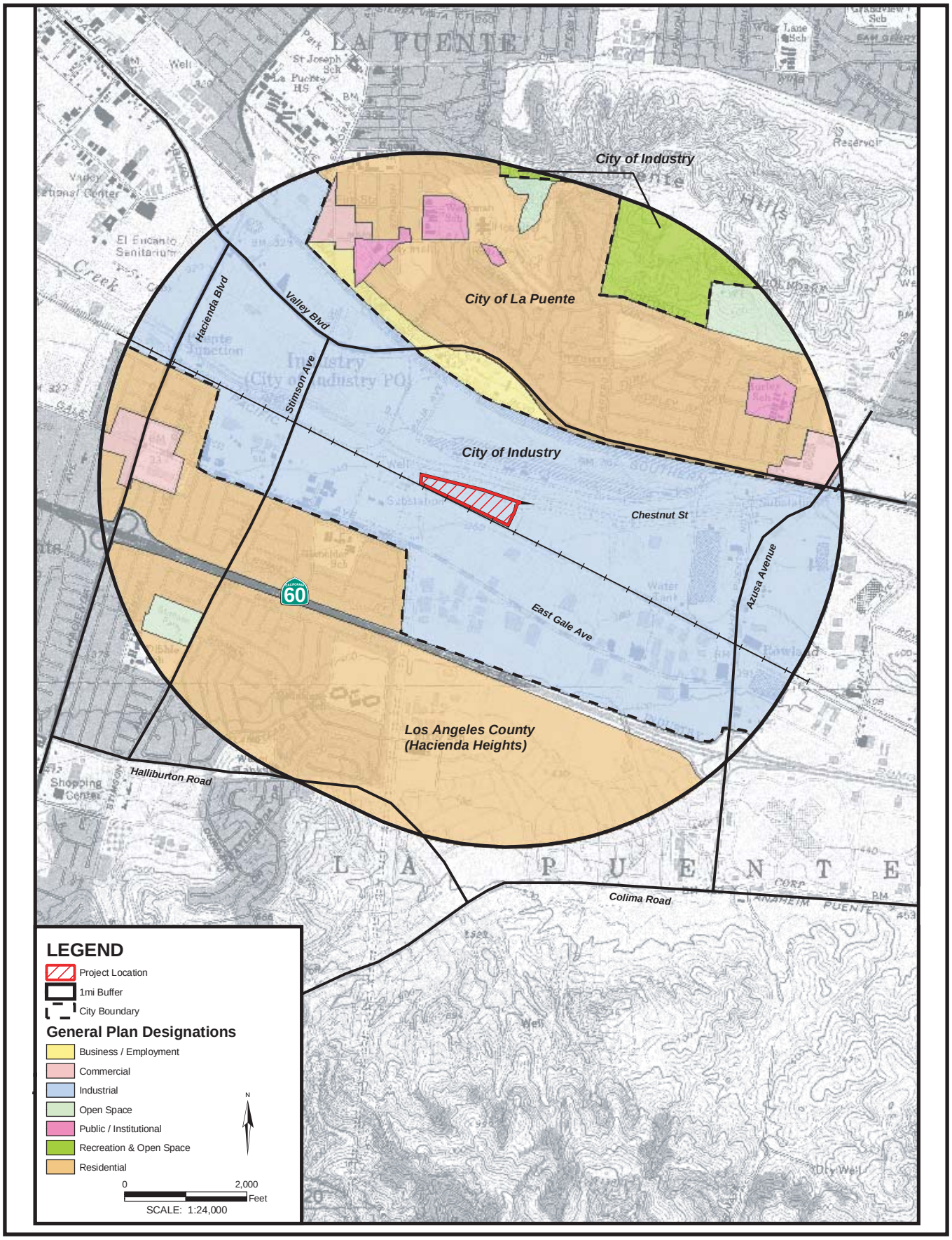
Noise Table A4
OSHA Worker Noise Exposure Standards

Duration of Noise (Hrs/day)	A-Weighted Noise Level (dBA)
8.0	90
6.0	92
4.0	95
3.0	97
2.0	100
1.5	102
1.0	105
0.5	110
0.25	115

Source: 29 C.F.R. § 1910.95

NOISE AND VIBRATION - FIGURE 1

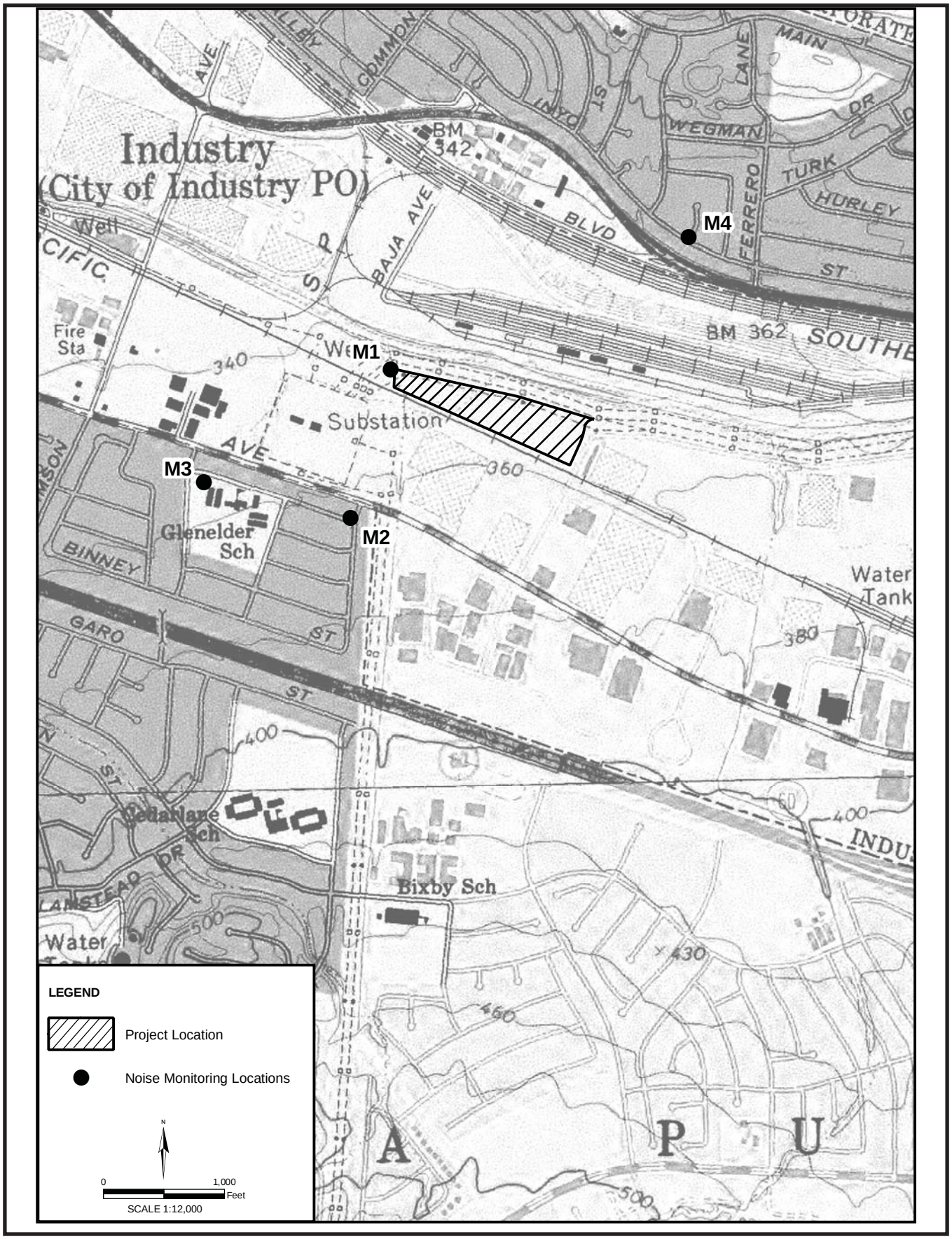
Walnut Creek Energy Park - General Plan Designations Within One Mile of Project Site



CALIFORNIA ENERGY COMMISSION, SYSTEMS ASSESSMENT & FACILITIES SITING DIVISION, DECEMBER 2006

SOURCE: AFC Figure 8.6-2

NOISE AND VIBRATION - FIGURE 2
Walnut Creek Energy Park - Noise Monitoring



CALIFORNIA ENERGY COMMISSION, SYSTEMS ASSESSMENT & FACILITIES SITING DIVISION, DECEMBER 2006
SOURCE: AFC Figure 8.7-1

PUBLIC HEALTH

Obed Odoemelam, Ph.D.

SUMMARY AND CONCLUSIONS

Staff has analyzed the potential public health risks from the toxic air pollutants associated with construction and operation of the proposed Walnut Creek Energy Park (WCEP) and does not expect that there would be any significant adverse cancer or short- or long-term health effects if the proposed conditions of certification in this section and the **Air Quality** section are implemented. These toxic pollutants (non-criteria pollutants) considered in this analysis are pollutants for which there are no established air quality standards. The potential for significant public health impacts from emission of the other group of pollutants for which there are specific air quality standards (criteria pollutants) will be discussed in the **Air Quality** section with particular regard to those for which existing area levels exceed their respective air quality standards. While the analysis in this **Public Health** section shows that the project-related toxic pollutants would not constitute a significant public hazard in the project area, staff considers it necessary to also consider the potential for below-standard exposure to the criteria air pollutants (in the **Air Quality** section) for any conclusions on the potential public health impacts of all the emissions from the proposed project.

INTRODUCTION

The purpose of this **Public Health** analysis is to determine if toxic emissions from the proposed Walnut Creek Energy Park project would have the potential to cause significant adverse public health impacts or violate standards for public health protection in the project area. Toxic pollutants (or non-criteria pollutants) are pollutants for which there are no specific air quality standards. The other pollutants for which there are such air quality standards are known as criteria pollutants. If potentially significant health impacts are identified for the non-criteria pollutants considered in this analysis, staff would evaluate mitigation measures to reduce such impacts to less than significant levels.

Although the emission and exposure levels for criteria air pollutants are addressed in the **Air Quality** section, staff has included **Attachment A** at the end of this **Public Health** section to provide specific information on the nature of their respective health effects. The discussion in the **Air Quality** section mainly focuses on the potential for above-standard exposure and the regulatory measures necessary to mitigate such exposures with particular emphasis on carbon monoxide, ozone, and particulate matter for which existing area levels exceed their respective air quality standards. Staff considers it is necessary to mitigate the impacts of these and the non-criteria pollutants to ensure overall public health protection when the project is operating. The impacts on public and worker health from accidental releases of hazardous materials are examined in the **Hazardous Materials Management** section while the health effects from electric and magnetic fields are addressed in the **Transmission Line Safety and Nuisance** section. Pollutants released from the project in wastewater streams are discussed in the

Soils and Water Resources section. Facility releases in the form of hazardous and non-hazardous wastes are addressed in the **Waste Management** section.

LAWS, ORDINANCES, REGULATION, AND STANDARDS

Public Health Table 1
Laws, Ordinances, Regulations, and Standards (LORS)

Applicable Law	Description
Federal	
Clean Air Act section 112 (42 U.S. Code section 7412)	Requires new sources which emit more than ten tons per year of any specified hazardous air pollutant (HAP) or more than 25 tons per year of any combination of HAPs to apply Maximum Achievable Control Technology (MACT).
State	
California Health and Safety Code sections 39650 et seq.	These sections mandate the California Air Resources Board (CARB) and the Department of Health Services to establish safe exposure limits for toxic air pollutants and identify pertinent best available control technologies. They also require that the new source review rule for each air pollution control district include regulations that require new or modified procedures for controlling the emission of toxic air contaminants.
California Health and Safety Code section 41700	This section states that “no person shall discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause injury or damage to business or property.”
California Code of Regulations, Title 22, Section 60306	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 re-circulating water to minimize the growth of Legionella and other micro-organisms.
Local	
South Coast Air Quality Management District Rules 1401 and 1470	Rule 1401 specifies the allowable risks for new or modified sources of toxic air contaminants. Implementation usually requires use of best Available Control Technology (BACT). Rule 1407 limits diesel particulate and other criteria emissions from identifiable sources.

ASSESSMENT OF IMPACTS AND DISCUSSION OF MITIGATION

The following describes staff's method of analyzing the potential health impacts of toxic pollutants together with the criteria used to determine their significance.

METHOD OF ANALYSIS

The toxic emissions addressed in this **Public Health** section are those to which the public could be exposed during project construction and routine operation. If such toxic contaminants are released into the air or water, people may come into contact with them through inhalation, dermal contact, or ingestion via contaminated food or water.

The ambient air quality standards for the criteria pollutants such as ozone, carbon monoxide, sulfur dioxide, or nitrogen dioxide are set to ensure the safety of everyone including those with heightened sensitivity to the effects of environmental pollution in general. Since non-criteria pollutants do not have such standards, a process known as a health risk assessment is used to determine if people might be exposed to them at unhealthy levels. The risk assessment procedure consists of the following steps:

- Identification of the types and amounts of hazardous substances that a source could emit into the environment;
- Estimation of worst-case concentrations of project emissions into the environment using dispersion modeling;
- Estimation of the amounts of pollutants to which people could be exposed through inhalation, ingestion, and dermal contact; and
- Characterization of the potential health risks by comparing worst-case exposures to safe standards based on known health effects.

For WCEP and other sources, a screening level risk assessment is initially performed using simplified assumptions intentionally biased toward protection of public health. That is, an analysis is designed that overestimates public health impacts from exposure to the emissions. In reality, it is likely that the actual risks from the project will be much lower than the risks estimated by the screening level assessment. This overestimation is accomplished by identifying conditions that would lead to the highest, or worst-case risks, and then assuming them in the study. The process involves the following:

- using the highest levels of pollutants that could be emitted from the source;
- assuming weather conditions that would lead to the maximum ambient concentration of pollutants;
- using the type of air quality computer models which predict the greatest plausible impacts;
- calculating health risks at the location where the pollutant concentrations are estimated to be highest;
- using health-based standards designed to protect the most sensitive members of the population (i.e., the young, elderly, and those with respiratory illnesses); and

- assuming that an individual's exposure to cancer-causing agents would occur over a 70-year lifetime.

A screening level risk assessment will, at a minimum, include the potential health effects from inhaling hazardous substances. Some facilities may also emit certain substances, which could present a health hazard from non-inhalation pathways of exposure (see California Air Pollution Control Officers Association (CAPCOA) 1993, Table III-5). When these substances are present in facility emissions, the screening level analysis is conducted to include the following additional exposure pathways: soil ingestion, dermal exposure, and mother's milk (CAPCOA 1993, p. III-19).

The risk assessment process addresses three categories of health impacts: acute (short-term) health effects, chronic (long-term) non-cancer effects, and cancer risk (also long-term). Acute health effects result from short-term (one-hour) exposure to relatively high concentrations of pollutants. Acute effects are temporary in nature, and include symptoms such as irritation of the eyes, skin, and respiratory tract.

Chronic health effects are those that result from long-term exposure to lower concentrations of pollutants. The exposure period is considered to be approximately from ten to one hundred percent of a lifetime (from seven to seventy years). Chronic health effects include diseases such as reduced lung function and heart disease.

The analysis for non-cancer health effects compares the maximum project contaminant levels to safe levels called "reference exposure levels" or RELs. These are amounts of toxic substances to which even sensitive people can be exposed and suffer no adverse health effects (CAPCOA 1993, p. III-36). This means that such exposure limits would serve to protect such sensitive individuals as infants, school pupils, the aged, and people suffering from illnesses or diseases, which make them more susceptible to the effects of toxic substance exposure. The RELs are based on the most sensitive adverse health effects reported in the medical and toxicological literature, and include specific margins of safety, which address the uncertainties associated with inconclusive scientific and technical information available at the time of standard setting. They are, therefore, intended to provide a reasonable degree of protection against hazards that research has not yet identified. Each margin of safety is designed to prevent pollution levels that have been demonstrated to be harmful, as well as to prevent lower pollutant exposures that may pose an unacceptable risk of harm, even if the risk is not precisely identified as to nature or degree. Health protection can be expected if the estimated worst-case exposure is below the relevant reference exposure level. In such a case, an adequate margin of safety is assumed to exist between the predicted exposure and the estimated threshold for toxicity.

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 conformance with CAPCOA guidelines, the health risk assessment assumes that the effects of the individual substances are additive for a given organ system (CAPCOA 1993, p. III-37). In those cases where the

actions may be synergistic (where the effects are greater than the sum), this approach may underestimate the health impact in question.

For carcinogenic substances, the health assessment considers the risk of developing cancer and conservatively includes the previously noted assumption that the individual would be continuously exposure 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 terms of chances per million of developing cancer and is a function of the maximum expected pollutant concentration, the probability that a particular pollutant will cause cancer (known as “potency factor”, and established by the California Office of Environmental Health Hazard Assessment), and the length of the exposure period. Cancer risks for individual carcinogens are added together to yield the total cancer risk from the source being considered. The conservative nature of the screening assumptions used means that actual cancer risks are likely to be considerably lower than those estimated.

The screening level analysis is performed to assess worst-case public health risks associated with the proposed project. If the screening analysis were to predict a risk of no significance, no further analysis would be necessary. However, if the risk were to be above the significance level, further analysis, using more realistic site-specific assumptions would be performed to obtain a more accurate estimate of the public health risk in question.

SIGNIFICANCE CRITERIA

Commission staff assesses the health effects of exposure to toxic emissions by first considering the impacts on the maximally exposed individual. This individual is the person hypothetically exposed to project emissions at a location where the highest ambient impacts were calculated using worst-case assumptions, as described above. If the potential risk to this individual is below established levels of significance, staff would consider the potential risk as also less than significant anywhere else in the project area. As described earlier, non-criteria pollutants are evaluated for short-term (acute) and long-term (chronic) non-cancer health effects, as well as cancer (long-term) health effects. The potential significance of project health impacts is determined separately for each of the three categories of health effects.

Acute and Chronic Non-Cancer Health Effects

Staff assesses the significance of non-cancer health effects by calculating a “hazard index” for the exposure being considered. A hazard index is a ratio obtained by comparing exposure from facility emissions to the reference (safe) exposure level for the toxicant. A ratio of less than one would signify a worst-case exposure below the safe level. The hazard indices for all toxic substances with the same types of health effect are added together to yield a total hazard index for the source being evaluated. This total hazard index is calculated separately for acute and chronic effects. A total hazard index of less than one indicates that the cumulative worst-case exposure would be within safe levels. Under these conditions, health protection would be assumed even for

sensitive members of the population. In such a case, staff would assume that there would be no significant non-cancer public health impacts from project operations.

Cancer Risk

Staff relies upon regulations implementing the provisions of Proposition 65, the Safe Drinking Water and Toxic Enforcement Act of 1986 (Health & Safety Code, §§ 25249.5 et seq.) for guidance in establishing the level of significance for its assessed cancer risks. Title 22, California Code of Regulations, section 12703(b) states in this regard, that "the risk level which represents no significant risk shall be one which is calculated to result in one excess case of cancer in an exposed population of 100,000, assuming lifetime exposure." This risk level is equivalent to a cancer risk of ten in one million, or $10x10^{-6}$. An important distinction from the provisions in Proposition 65 is that the Proposition 65 significance level applies separately to each cancer-causing substance, whereas staff determines significance based on the total risk from all cancer-causing chemicals from the source in question. Thus, the manner in which the significance level is applied by staff is more conservative (health-protective) than with Proposition 65.

As noted earlier, the initial risk analysis for a project is normally performed at a screening level, which is designed to overstate actual risks, so that health protection can be ensured. When a screening analysis shows the cancer risks to be above the significance level, refined assumptions would likely result in a lower, more realistic risk estimate. If facility risk, based on refined assumptions, were to exceed the significance level of ten in one million, staff would require appropriate measures to reduce risk to less than significant. If, after all risk reduction measures have been considered, a refined analysis still identifies a cancer risk of greater than ten in one million, staff would deem such risk to be significant, and would not recommend project approval.

SETTING

This section describes the environment in the vicinity of the proposed project site from the public health perspective. Features of the natural environment, such as meteorology and terrain, affect the project's potential for causing impacts on public health. An emission plume from a facility may affect elevated areas before lower terrain areas, because of a reduced opportunity for atmospheric mixing. Consequently, areas of elevated terrain can often be subjected to increased pollutant impacts. Also, the types of land use near a site influences population density and, therefore, the number of individuals potentially exposed to the project emissions. Additional factors affecting potential public health impacts include existing air quality and environmental site contamination.

SITE AND VICINITY DESCRIPTION

According to the information from the applicant, Edison Mission Energy (EME 2005a, pp. 1-1, 2-1, 8.1-1, 8.6-1 through 8.6-7, and 8.9-1), the proposed WCEP site within the City of Industry is an 11.48-acre parcel located in an industrial area where the nearest residential area is in the City of La Puente beyond the industrial areas adjacent to the project site.

The nearest of these residences is located approximately 0.21 miles south of the site in Hacienda Heights (EME 2005a, Figure 8.6-1, and p 8.9-1). The applicant (EME 2005a, p 8.9-2) provided a listing of the sensitive receptor locations within a one-mile radius of the site together with their respective directions and distances from the site. These are mostly schools and pre-schools. The applicant (EME 2005a, Appendix 8.1D) also provided a listing of sensitive receptor locations within a six-mile radius and identified them as mainly daycare centers, schools, nursing homes, medical centers, hospitals, colleges and a prison. A sensitive receptor location, for purposes of a public health analysis, is an establishment that houses sensitive individuals such as children, the elderly, school pupils and individuals with respiratory diseases. Since the individuals in these locations are more sensitive than the average individual to the effects of environmental pollutants, their response is specifically considered in establishing the safe exposure limits for such pollutants, as noted earlier. However, staff holds all projects to the same health standards, whether proposed for a major population center, with many sensitive receptors, or a sparsely populated area with relatively few.

As noted by the applicant (EME 2005a, Appendix 8.1E), the WCEP site is currently occupied by a large warehouse that will be demolished by the City of Industry to clear the site for development of the proposed power plant. The City of Industry has approved the demolition and has prepared a related Initial Study and adopted a negative Declaration pursuant to the California Environmental Quality Act (CEQA). The demolition will include removal of all pavement and covering vegetation. Although the California Energy Commission has no approval authority related to the proposed demolition, staff has determined that the demolition is a part of the “whole action”, given that it would occur before the power plant is built at the site. Such demolition has the potential to result in either a direct physical change in the environment or a reasonably foreseeable indirect change in the environment. Therefore, staff has considered the potential impacts of such demolition, deferring to the city of Industry’s analysis where appropriate.

The impacts of potential concern are the toxic pollutants from the exhaust emissions from all demotion-related equipment and transport vehicles, and fugitive dust from the demolition process. Given the mitigation measures available for minimizing the emissions of these pollutants, staff agrees with the City of Industry’s conclusion that any such pollutants would be emitted at environmentally less than significant levels.

METEOROLOGY

Meteorological conditions, including wind speed, wind direction, and atmospheric stability, affect the extent to which pollutants are dispersed into ambient air as well as the direction of pollutant transport. This, in turn, affects the level of public exposure to emitted pollutants and associated health risks. When wind speeds are low and the atmosphere is stable, for example, dispersion is reduced and localized exposure may be increased.

The proposed project site is within the South Coast Air Basin (basin), which is a coastal plain with connecting broad valleys and low hills. The topography of the site vicinity is essentially flat with an average elevation of 350 feet above sea level. Although the project is in an air basin with a semi-arid climate, the climate at the specific project site

is mild, as it is tempered by daytime onshore and nighttime offshore sea breezes. This moderating sea influence results in winter and summer temperatures that usually vary by less than 25°F. The mean temperature is 77°F. Rainfall occurs during the winter period with 85 percent occurring from November to March.

Because of winds of low speeds (with little seasonal variation), the atmosphere has a limited capacity to disperse the area's air contaminants horizontally within the basin. Strong atmospheric temperature inversions frequently occur within the basin, especially in the late mornings and early afternoons. These inversions severely limit vertical air mixing and result in the buildup of air pollutants by restricting their movement from the ground level to the upper atmosphere out of the basin.

Atmospheric stability is a measure of the turbulence that influences such pollutant dispersion. Mixing heights (the height above ground level below which the air is well mixed and in which pollutants can be effectively dispersed) are lower during the morning hours because of temperature inversions, which are followed by temperature increases in the warmer afternoons. Staff's **Air Quality** section presents a more detailed discussion of the area's meteorology.

EXISTING AIR QUALITY

The proposed site is within the jurisdiction of the South Coast Air Quality Management District (SQAQMD), which includes all or portions of Los Angeles, Orange, Riverside, and San Bernardino counties. Using data on average concentrations of toxic pollutants measured at specific air monitoring sites, the health risk from existing pollutant exposures can be evaluated for the South Coast Air Basin. For the toxic pollutants of specific concern in this analysis, the numerical cancer risk from such existing, or background exposures can be estimated from actual measurements. In March, 2000, SQAQMD published results from the Multiple Air Toxics Exposure Study II (MATES II), which together with the earlier MATES I was a comprehensive study of air pollution levels in Southern California through 1999. The background cancer risk calculated by SCAQMD using existing methods was reported as averaging 1400 in one million for the basin (SCAQMD 2000). The study showed that motor vehicles and other mobile sources contributed about 90% of the cancer risk with industries and stationary sources contributing about 10%. Diesel particulate accounted for the majority (71%) of the risk while benzene, 1, 3-butadiene, and formaldehyde accounted for 18%. Formaldehyde is emitted directly from vehicles and other combustion sources such as the proposed WCEP.

The MATES II results also showed from comparison with findings from the earlier MATES I (of basin-wide pollutant levels before 1990) that the measured background levels of the major pollutants in this group had decreased by between 44 % and 63% within the basin. This improvement is primarily from benzene, and 1, 3-butadiene reductions from the use of reformulated gasoline and secondarily from reduction in hexavalent chromium levels. Use of reformulated gasoline began in the second quarter of 1996. As noted by the applicant (EME 2005a, p 8.9-2) the 1990-2003 data from the California Air Resources Board (CARB) points to a continuing decrease in the background levels of these toxic pollutants of most concern in this analysis. These continued decreases reflect the continued effectiveness of existing SCAQMD control

programs. However, staff will work with SCAQMD and stakeholders to update the understanding of the ambient environment and evaluate additional studies and reports, as applicable.

The noted toxic pollutant-related background risk estimates can be compared with the normal background lifetime cancer risk (from all cancer causes) of one in four, or 250,000 in a million, as will be noted later. The potential risk from WCEP and similar sources should best be assessed in the context of their potential addition to these background risk levels.

The criteria pollutant-related air quality for the project area is assessed in the **Air Quality** section by adding the existing levels (as measured at area monitoring stations), adding them to the project-related levels, and comparing the resulting levels with the applicable air quality standards. Public health protection would be ensured only through specific control and administrative measures that ensure below-standard exposures when the project is operating. It is such a combination of measures that is addressed in the **Air Quality** section.

IMPACTS

POTENTIAL IMPACTS OF PROJECT'S NON-CRITERIA POLLUTANTS

The health impacts of the non-criteria pollutants of specific concern in this analysis can be assessed separately as construction-phase impacts and operational-phase impacts.

Construction Phase Impacts

Possible construction-phase health impacts, as noted by the applicant (EME 2005a pp. 8.1-45, 8.1-46, 8.9-6 and Appendix 8.1E), are those from human exposure to the windblown dust from site excavation and grading, and emissions from construction-related equipment. The dust-related impacts may result from exposure to the dust itself as PM10, or PM 2.5, or exposure to any toxic contaminants that might be adsorbed on to it. As previously noted, the proposed building demolition and materials removal process would not produce significant levels of the pollutants of concern in this analysis.

As more fully discussed in the Waste Management section, results of the applicant's site contamination assessments (EME 2005a, pp. 8.14-1 through 8.14-3) show the groundwater underneath the project site as likely contaminated from past area industrial activities likely unrelated to past activity at the site itself. Related groundwater monitoring and mitigation are continuing in compliance with specific requirements of the Los Angeles Regional Water Quality control Board. The procedure for the safe clean up and removal of any discovered contamination is discussed in the **Waste Management** section regarding the construction phase. As noted by the applicant (EME 2005a, Appendix 8.1E) the proposed WCEP would be erected at the site of an existing building, therefore, the site would (after demolition and removal of materials from the existing building) require only minimal grading and leveling before the facility is erected. Implementing conditions of certification are also recommended in that section. Staff

expects compliance with the specified measures to ensure public against significant exposure to any toxic contaminants.

The applicant has specified the mitigation measures necessary to minimize construction-related fugitive dust as required by SCAQMD Rule 403. The only soil-related construction impacts of potential significance would result from the possible impacts of PM10, or PM 2.5 as a criteria pollutant for the 12-month construction period. As mentioned earlier, the potential for significant impacts from criteria pollutants is assessed in the **Air Quality** section where the requirements for the identified mitigation measures are presented as specific conditions of certification.

The exhaust from diesel-fueled construction and other equipment has been established as a potent human carcinogen. Thus, construction-related emission levels should be regarded as possibly adding to the carcinogenic risk of specific concern in this analysis. Appendix 8.1E-1 (EME 2005a), presents the diesel emissions from the different types of equipment to be used in the construction phase. The maximum theoretical cancer risk from such diesel exhaust was calculated by the applicant as 0.38 in a million at the maximum impact location at the project fence line. Staff considers the recommended control measures specified in **Air Quality** Condition of Certification (AQ-SC3) as adequate to minimize the cancer risk during the relatively short (12-month) construction period.

Operational Impacts

The main health risk from WCEP operations would be associated with emissions from its combustion turbines, testing of the emergency power generator and fire pump, and evaporative cooling tower. In addition to the toxic substances emitted from the cooling tower, there is specific concern that bacterial growth in the cooling water could lead to potential health effects from human exposure. This is discussed below in the section on cooling tower operation and risk of Legionnaires' disease.

Public Health Table 1 lists the project's toxic emissions and shows how each contributes to the risk estimated from the health risk analysis. For example, the first row shows that oral exposure to acetaldehyde is not of concern but, if inhaled, may have cancer and chronic (long-term) non-cancer health effects, but not acute (short-term) effects.

As noted in a publication by the South Coast Air Quality Management District (SCAQMD 2000, p. 6), one property that distinguishes the air toxics of concern in this analysis from the criteria pollutants is that the impacts from air toxics tend to be highest in close proximity to the source and quickly drop off with distance. This means that the levels of WCEP's air toxics would be highest in the immediate area and would decrease rapidly with distance. One purpose of this analysis, as previously noted, is to determine whether or not such exposures would be at levels of possible health significance as established using existing assessment methods.

The applicant's estimates of WCEP's potential contribution to the area's carcinogenic and non-carcinogenic pollutants were obtained from a screening-level health risk assessment conducted according to procedures specified in the 1993 CAPCOA

guidelines. The results from this assessment (summarized in staff's **Public Health Table 2**) were provided to staff along with documentation of the assumptions used (EME 2005a pp. 8.1-67 through 8.1-69, 8.9-9 and 8.9-10 and Appendices 8.1-D). This documentation included:

- pollutants considered;
- emission levels assumed for the pollutants involved;
- dispersion modeling used to estimate potential exposure levels;
- exposure pathways considered;
- the cancer risk estimation process;
- hazard index calculation; and
- characterization of project-related risk estimates.

Staff has found these assumptions to be acceptable and has validated the applicant's findings with regard to the numerical public health risk estimates expressed either in terms of the hazard index for each non-carcinogenic pollutant, or a cancer risk for estimated levels of the carcinogenic pollutants. These analyses were conducted to establish the maximum potential for acute and chronic effects on body systems such as the liver, central nervous system, the immune system, kidneys, the reproductive system, the skin and the respiratory system.

Public Health Table 1
Types of Health Impacts and Exposure Routes Attributed to Toxic Emissions

Substance	Oral Cancer	Oral Non-cancer	Inhalation Cancer	Non-cancer (Chronic)	Non-cancer (Acute)
Acetaldehyde			✔	✔	
Acrolein				✔	✔
Ammonia				✔	✔
Arsenic	✔	✔	✔	✔	✔
Benzene			✔	✔	✔
1,3-Butadiene			✔	✔	
Cadmium		✔	✔	✔	
Chromium			✔	✔	
Copper				✔	✔
Ethylbenzene				✔	
Formaldehyde			✔	✔	✔
Hexane				✔	
Lead	✔	✔	✔	✔	
Mercury		✔		✔	✔
Naphthalene		✔		✔	
Nickel			✔	✔	✔
Polynuclear Aromatic Hydrocarbons (PAHs)	✔	✔	✔	✔	
Propylene				✔	
Propylene oxide			✔	✔	✔
Toluene				✔	✔
Xylene				✔	✔
Zinc				✔	

Source: Prepared by staff using reference exposure levels and cancer unit risks from CAPCOA Air Toxics "Hot Spots" Program Revised 1992 Risk Assessment Guidelines, October 1993, SRP 1998, and Office of Environmental Health Hazard Assessment Air Toxics Hot Spots Program Risk Assessment Guidelines.

As shown in **Public Health Table 2**, the chronic hazard index for the maximally exposed individual is 0.026 while the maximum hazard index for acute effects is 0.012. These values are well below staff's significance criterion of 1.0, suggesting that the pollutants in questions are unlikely to pose a significant risk of chronic or acute non-cancer health effects anywhere in the project area.

Public Health Table 2
Operation Hazard/Risk

Type of Hazard/Risk	Hazard Index/Risk	Significance Level	Significant?
Acute Noncancer	0.012	1.0	No
Chronic Noncancer	0.026	1.0	No
Individual Cancer	1.28×10^{-6} (a) 0.97×10^{-6} (b)	10.0×10^{-6}	No

Staff's summary of information from EME 2005a pp. 8.1-69 and 8.9-10 and Appendix 8.1D.
(a) Risk from normal project operations
(b) Risk from diesel emergency generator testing

The cancer risk to the maximally exposed individual from normal project operation is shown as 1.28 in a million, which is well below staff's significance criterion of 10 in one million for this screening level assessment. Thus, project-related cancer risk from routine operations would be less than significant for all individuals in the project area. Staff notes that the maximum risks from the assessed turbines and cooling towers occur at different locations, so adding these risk estimates together as done in this analysis further adds to the conservatism in the assessment process.

The risk from exposure to the diesel exhaust from testing the project's emergency diesel generator was calculated as 0.97 in one million. As with routine operations, this risk estimate is well below staff's noted cancer significance level of 10 in one million.

The conservatism in these assessments is further reflected in the noted fact that (a) the individual considered is assumed to be exposed at the highest possible levels to all the carcinogenic pollutants from the project for a 70-year lifetime, (b) all the carcinogens are assumed to be equally potent in humans and experimental animals, even when their cancer-inducing abilities have not been established in humans, and (c) humans are assumed to be as susceptible as the most sensitive experimental animal, despite knowledge that cancer potencies often differ between humans and experimental animals. Only a relatively few of the many environmental chemicals identified so far as capable of inducing cancer in animals have been shown to also cause cancer in humans.

Cooling Tower-Related Risk of Legionnaires' disease

Legionella is a bacterium that is ubiquitous in natural aquatic environments and is also widely distributed in man-made water systems. 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, since cooling water systems and their components can amplify and disseminate aerosols containing Legionella.

The State of California regulates recycled water that is used for cooling towers operations according to requirements in Title 22, Section 60303, California Code of Regulations. These

requirements mandate the use of chlorine or other biocides to an extent necessary to minimize the growth of Legionella and other microorganisms.

Legionella can grow symbiotically with other bacteria and can infect protozoan hosts. This provides Legionella with protection from adverse environmental conditions, including making it more resistant to water treatment with chlorine, biocides, and other disinfectants. Staff notes that most water treatment programs are designed to minimize scale, corrosion, and biofouling, and not necessarily to control Legionella.

Effective mitigation measures should include a cleaning and maintenance program to minimize the accumulation of bacteria, algae, and protozoa that may contribute to nutritional needs of Legionella. The American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE 1998) emphasizes the need for such programs in its specifications for Legionellosis prevention. Also, the Cooling Tower Institute has issued Guidelines for the Best Practices for Control of Legionella (CTI 2000). Preventive maintenance includes having effective drift eliminators, periodically cleaning the system as appropriate, maintaining mechanical components in working order, and maintaining an effective water treatment program with appropriate biocide concentrations.

Staff's recommended Condition of Certification **Public Health-1** is intended to ensure the effective maintenance and bactericidal action necessary during the operation of WCEP's cooling tower regardless of the source of the cooling water. This condition would specifically require the project owner to prepare and implement a cooling water management plan to ensure that bacterial growth is kept to a minimum in the cooling tower. With the use of an aggressive antibacterial program, coupled with routine monitoring and biofilm removal, the chances of Legionella growth and dispersal would be reduced to less than significant.

CUMULATIVE IMPACTS

As previously noted, the maximum impact location would be the spot where pollutant concentrations for the proposed WCEP would theoretically be highest. Even at this location, staff does not expect any significant change in lifetime risk to any person, given the calculated incremental cancer risk of 1.28 in one million, which staff regards as not potentially contributing significantly to the previously noted average lifetime individual cancer risk of 250,000 in one million. Modeled facility-related residential risks are much lower for more distant locations. Given the previously noted conservatism in the utilized calculation method, the actual risks would likely be much smaller. Therefore, staff does not consider the incremental risk estimate for WCEP's operation as pointing to a potentially significant contribution to the area's cancer risk.

The worst-case long-term non-cancer health impact from the project (represented as a chronic hazard index of 0.026) is well below staff's significance level of 1.0 at the location of maximum impact. At this level, staff does not expect any cumulative health impacts to be significant. As with cancer risk, long-term hazard would be lower at all other locations and cumulative impacts at other locations would also be less than significant.

COMPLIANCE WITH LORS

The toxic pollutant-related cancer and non-cancer risks from WCEP operation reflect the effectiveness of control measures (including an oxidation catalyst which reduces hazardous air pollutant emissions) proposed by the applicant. Since these risk estimates are much below the significance levels in the applicable LORS, staff concludes that the related operational plan would comply with these LORS.

RESPONSE TO AGENCY AND PUBLIC COMMENTS

Staff has received informal comments from the California Air Resources Board (ARB) on specific aspects of the analysis of the potential construction- and operation-related cancer risks. The applicant has resolved these mostly procedural issues to CARB's satisfaction.

CONCLUSIONS AND RECOMMENDATIONS

Staff has determined that the toxic air emissions from the construction and operation of the proposed natural gas-burning WCEP are at levels that do not require mitigation beyond that already proposed by the applicant from using reclaimed wastewater from the Rowland Wastewater District. The conditions for ensuring compliance with all applicable air quality standards will be specified in the **Air Quality** section for the area's criteria pollutants. Implementation of staff's proposed condition of certification to reduce the likelihood of Legionella growth would ensure that the risk of Legionella growth and dispersion is reduced to less than significant levels.

If the proposed project is approved, staff recommends the following Condition of Certification to address the risk from Legionella in the cooling tower.

PROPOSED 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 controlled 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.

Verification: At least 30 days prior to the commencement of cooling tower operations, the Cooling Water Management Plan shall be provided to the CPM for review and approval.

REFERENCES

American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE) 1998. Legionellosis: Position Paper. June 25.

American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE) IAQ Applications, spring 2000 Volume 1, No.2.)

CARB (California Air Resources Board) 1996. California Toxic Emissions Factors (CATEF) Database for Natural Gas-Fired Combustion Turbine Cogeneration, 1996

California Air Resource Board (CARB). 2002. California Air Quality Data, http://www.arb.ca.gov/aqd/aqd.htm.

California Air Pollution Control Officers Association (CAPCOA) 1993. CAPCOA Air Toxics “Hot Spots” Program Revised 1992 Risk Assessment Guidelines. Prepared by the Toxics Committee. October.

CAPCOA (California Air Pollution Control Officers Association) 1993. Air Toxics “Hot Spots” Program, Revised 1992 Risk Assessment Guidelines. Prepared by the Toxics Committee, October 1993.

Cooling Tower Institute (CTI). 2000. Guidelines: Best Practices for Control of Legionella.

Edison Mission Energy (EME) 2005a. Application for Certification of the Walnut Center Energy Project. Submitted to the California Energy Commission on November 22, 2005.

Scientific Review Panel on Toxic Air Contaminants (SRP) 1998. Findings of the Scientific Review Panel on the Report on Diesel Exhaust as adopted at the Panel’s April 22, 1998 Meeting.

South Coast Air Quality Management District (SCAQMD) 2000. An Air Toxics Control Plan for the Next Ten Years. March 2000. South Coast Air Quality Management District publication, 2002.

Title 22, California Code of Regulations, March 20, 2001.

ATTACHMENT A - CRITERIA POLLUTANTS

OZONE (O_3)

Ozone is not directly emitted from specific sources but is formed when reactive organic compounds (VOCs) interact with nitrogen oxides in the presence of sunlight. Heat speeds up the reaction, typically leading to higher concentrations in the relatively hot summer months. Ozone is a colorless, reactive gas with oxidative properties that allow for tissue damage in the exposed individual. The effects of such damage could be experienced as respiratory irritation that could interfere with normal respiratory function. Ozone can also damage plants and other materials susceptible to oxidative damage.

The U.S. EPA revised its federal ozone standard on July 18, 1997 (62 Fed. Reg. 38856), based on health studies that had became available since the standard was last revised in 1979. These new studies showed that adverse health effects could occur at ambient concentrations much lower than reflected in the previous standard, which was based on acute health effects experienced during heavy exercise. In proposing the new standard, the EPA identified specific health effects known to have been caused by short-term exposures (of one to three hours) and prolonged exposure (of six to eight hours) (61 Fed. Reg. 65719). However, a 1999 federal court ruling blocked implementation of the ozone 8-hour standard, which is yet to be implemented.

Acute health effects from short-term exposures include a transient reduction in pulmonary function, and transient respiratory symptoms including cough, throat irritation, chest pain, nausea, and shortness of breath with associated effects on exercise performance. Other health effects of short-term or prolonged O_3 exposures include increased airway responsiveness (which predisposes the individual to bronchoconstriction induced by external stimuli such as pollen and dust), susceptibility to respiratory infection (through impairment of lung defense mechanisms), increased hospital admissions and emergency room visits, and transient pulmonary inflammation.

Generally, groups considered especially sensitive to the effects of air pollution include persons with existing respiratory diseases, children, pregnant women, and the elderly. However, controlled exposure data on people in clinical settings have indicated that the population at greatest risk of acute effects from ozone exposures as children and adults engaged in physical exercise. Children are most at risk because they are active outside, playing and exercising, during summer when ozone levels are highest. Adults who are outdoors and engaging in heavy exertion in the summer months are also among the individuals most at risk. This happens because such exertion increases the amount of O_3 entering the airways and can cause O_3 to penetrate to peripheral regions of the lung where lung tissue is more likely to be damaged. These individuals, as well as those with respiratory illnesses, such as asthma, can experience a reduction in lung function and increased respiratory symptoms, such as chest pain and cough, when exposed to relatively low ozone levels during periods of moderate exertion.

CARBON MONOXIDE (CO)

Carbon monoxide is a colorless, odorless gas, which is a product of inefficient combustion. It does not persist in the atmosphere, being quickly converted to carbon dioxide. However, it can reach high levels in localized areas, or "hot spots".

CO reduces the oxygen carrying capacity of the blood, thereby disrupting the delivery of oxygen to the body's organs and tissues. Persons sensitive to the effects of carbon monoxide include those whose oxygen supply or delivery is already compromised. Thus, groups potentially at risk to carbon monoxide exposure include persons with coronary artery disease, congestive heart failure, obstructive lung disease, vascular disease, and anemia, the elderly, newborn infants, and fetuses (CARB 1989, p. 9). In particular, people with coronary artery disease were found to be especially at risk from carbon monoxide exposure (CARB 1989, p. 9). Tests conducted on patients with confirmed coronary artery disease indicated that exposure to low levels of carbon monoxide during exercise can produce significant cardiac effects. These effects include chest pain (angina) and electrocardiographic changes indicative of effects on the heart muscle (CARB 1989, p. 6). Such changes can limit the ability of patients with coronary artery disease to exert themselves even moderately. Therefore, the statewide carbon monoxide one-hour and eight-hour standards were adopted in part to prevent aggravation of chest pain. Additionally, however, the standards are intended to prevent decreased exercise tolerance in persons with peripheral vascular disease and lung disease, impaired central nervous system functions, and effects on the fetus (Cal. Code Regs. Tit. 17, sec. 70200).

PARTICULATE MATTER (PM)

Particulate matter is a generic term for particles of various substances, which occur as either liquid droplets or small solids of a wide range of sizes. Particles with the most potential to adversely affect human health are those less than 10 micrometers (millionths of a meter) in diameter (known as PM10), which may be inhaled and deposited within the deep portions of the lung (PM10). PM may originate from anthropogenic or natural sources such as stationary or mobile combustion sources or windblown dust. Particles may be emitted directly to the atmosphere or result from the physical and chemical transformation of gaseous emissions such as sulfur oxides, nitrogen oxides, and volatile organic compounds. PM10 may be made up of elements such as carbon, lead, and nickel; compounds such as nitrates, organics, and sulfates; and complex mixtures such as diesel exhaust and soil fragments. The size, chemical composition, and concentration of ambient PM10 can vary considerably from area to area and from season to season within the same area.

PM10 can be grouped into two general sizes of particles, fine and coarse, which differ in formation mechanisms, chemical composition, sources, and potential health effects. Fine-mode particles are those with a diameter of 2.5 micrometers or less (PM2.5), while the coarse-mode fraction of PM consists of particles ranging from 10 micrometers down to 2.5 micrometers in diameter.

Coarse-mode PM10 is formed by crushing, grinding, and abrasion of surfaces, and in the course of reducing large pieces of materials to smaller pieces. Coarse particles consist mainly of soil dust containing oxides of silicon, aluminum, calcium, and iron; as

well as fly ash, particles from tires, pollen, spores, and plant and insect fragments. Coarse particles normally have shorter lifetimes (minutes to hours) and only travel over short distances (of less than tens of kilometers). They tend to be unevenly distributed across urban areas and have more localized effects than the finer particles.

PM2.5 is derived both from combustion by-products, which have volatilized and condensed to form primary PM2.5, and from precursor gases reacting in the atmosphere to form secondary PM2.5. Components include nitrates, organic compounds, sulfates, ammonium compounds, and trace elements (including metals) as well as elemental carbon such as soot. Major sources of PM2.5 are fossil fuel combustion by electric utilities, industry and motor vehicles, vegetation burning, and the smelting or other processing of metals. Dry deposition of fine mode particles is slow allowing such particles to often exist for long periods of time (of from days to weeks) in the atmosphere and travel hundreds to thousands of kilometers. They tend to be uniformly distributed over urban areas and larger regions and are removed from the atmosphere primarily by forming cloud droplets and falling out within raindrops.

The health effects of PM10 from any given source usually depend on the toxicity of its constituent pollutants. The size of the inhaled material usually determines where it is deposited in the respiratory system. Coarse particles are deposited most readily in the nose and throat area while the finer particles are more likely to be deposited within the bronchial tubes and air sacs, with the greatest percentage deposited in the air sacs. Until recently, PM10 particles had been considered to be the major fraction of airborne particulates responsible for various adverse health effects. The PM10 fraction is known to be capable of penetrating the thoracic and alveolar regions of the human and animal lungs. The PM2.5 fraction, however, was found to pose a significantly higher risk for health. This is due to their size and associated deposition and retention characteristics in the respiratory tract, enabling it to penetrate and deposit within the deeper alveolar regions of the lung. The following aspects of PM2.5 deposition all contribute to the more serious health effects attributed to smaller particles:

- The deposition of PM2.5 favors the periphery of the lungs, which is especially vulnerable to injury for anatomical reasons.
- Clearance of the PM2.5 from within the deeper reaches of the lungs is a much slower process than from the upper regions. Consequently, the residence time is longer, implying longer exposure, and hence greater risk.
- The human anatomy further allows the penetration of the superficial tissues by PM2.5 and entry into the bodily circulation without much effort in the periphery of the lungs.

Many epidemiological studies have shown exposure to particulate matter capable of inducing a variety of health effects, including premature death, aggravation of respiratory and cardiovascular disease, changes in lung function and increases in existing respiratory symptoms, effects on lung tissue structure, and impacts on the body’s respiratory defense mechanisms. The underlying biological mechanisms are still poorly understood. Based on their review of a number of these epidemiological studies (as published after 1987 when the federal standards were revised), together with suggestion of PM2.5 concentrations as a more reliable surrogate for the health impacts

of the finer fraction of PM than PM10, the U.S. EPA concluded that the then-current standards were not sufficiently stringent to protect against significant effects in exposed humans. Therefore, federal PM standards were revised on July 18, 1997 (62 Fed. Reg. 38652) to add new annual and 24-hour PM2.5 standards to the existing annual and 24-hour PM10 standards. Taken together, these new standards were meant to provide additional protection against a wide range of PM-related health effects, including premature death, increased hospital admissions and emergency room visits, primarily among sensitive individuals such as the elderly, children and individuals with cardiopulmonary diseases such as asthma. Other impacts include decreased lung function (particularly in children and asthmatics), and alterations in lung tissue and structure.

California has also had 24-hour and annual standards for PM10 (CARB 1982, pp. 81, 84). These studies were aimed at establishing the PM10 levels capable of inducing asthma, premature death and bronchitis-related symptoms. They were set to protect against such impacts in the general population as well as sensitive individuals such as patients with respiratory disease, declines in pulmonary function, especially as related to children (Tit. 17, Cal. Code Regs. §70200). These standards were set to be more stringent than the federal standard, which the ARB regarded as inadequate for the protection desired (CARB 1991, p. 26).

On June 20, 2002, the ARB approved the adoption of a lower annual state standard for PM10, as well as a new annual standard for PM2.5 (CARB 2002). The new standards took effect on July 5, 2003. The 24-hour PM10 standard was not changed. The standards were established to prevent excess death, illnesses such as respiratory symptoms, bronchitis, asthma exacerbation, and cardiac disease, and restrictions in activity from short- and long-term exposures (Title 17, Cal. Code Regs. §70200).

NITROGEN DIOXIDE (NO_2)

Nitrogen dioxide is formed either directly or indirectly when oxygen and nitrogen in the air combine together during the combustion. It is a relatively insoluble gas, which can penetrate deep into the lungs, its principal site of toxicity. Its toxicity is thought to be due to its capacity to initiate free radical-mediated reactions while oxidizing cellular proteins and other biomolecules (CARB 1992, Appendix A, p. 4).

Sub lethal exposures in animals usually produce inflammations and varying degrees of tissue injury characteristic of oxidant damage (Evans in CARB 1992, Appendix A, and p 5). The changes produced by low-level acute or sub chronic exposures appear to be reversible when the animal study subject is allowed to recover in clean air.
Health effects of particular concern in relation to low-level nitrogen dioxide exposure include: (1) effects of acute exposure on some asthmatics and possibly on some persons with chronic bronchitis, (2) effects on respiratory tract defenses against infection, (3) effects on the immune system, (4) initiation or facilitation of the development of chronic lung disease, and (5) interaction with other pollutants (CARB 1992, Appendix A, p. 5).

Several groups, which may be especially susceptible to nitrogen dioxide-related health effects have been identified from human studies (CARB 1992, Appendix A, and p. 3).

These include asthmatics, persons with chronic bronchitis, infants and young children, cystic fibrosis and cancer patients, people with immune deficiencies, and the elderly.

Studies involving brief, controlled exposures on sensitive individuals have shown an increase in bronchial reactivity or airway responsiveness of some asthmatics, as well as decreased lung function in some patients with chronic obstructive lung disease (CARB 1992, Appendix A, p. 2). In general, bronchial hyper reactivity (an increased tendency of the airways to constrict) is markedly greater in asthmatics than in non-asthmatics upon exposure to initiating respiratory irritants (CARB 1992a, p. 107). At exposure concentrations of specific relevance to the current one-hour ambient standard, there appears to be little, if any, effect on respiratory symptoms of asthmatics (CARB 1992a, p. 108).

SULFUR DIOXIDE (SO_2)

Sulfur dioxide is formed when any sulfur-containing fuel is burned. SO_2 is highly soluble and consequently absorbed in the moist passages of the upper respiratory system. Exposure to sulfur dioxide can lead to changes in lung cell structure and function that adversely affect a major lung defense mechanism known as muco-ciliary transport. This mechanism functions by trapping particles in mucus in the lung and sweeping them out via the cilia (fine hair-like structures) also in the lung. Slowed mucociliary transport is frequently associated with chronic bronchitis.

Exposure to sulfur dioxide can produce both short- and long-term health effects. Therefore, California has established sulfur dioxide standards to reflect both short- and long-term exposure concerns. Based on controlled exposure studies of human volunteers, investigators have found that asthmatics comprise the group most susceptible to adverse health effects from exposure to sulfur dioxide (CARB 1994, p. V-1).

The primary short-term effect is bronchoconstriction, a narrowing of the airways, which results in labored breathing, wheezing, and coughing. The short-term (one-hour) standard is based on bronchoconstriction and associated symptoms (such as wheezing and shortness of breath) in asthmatics and is designed to protect against adverse effects from five to ten minute exposures. In the opinion of the California Office of Environmental Health Hazard Assessment, the short-term ambient standard is likely to afford adequate protection to asthmatics engaged in short periods of vigorous activity (CARB 1994, Appendix A, p. 16).

Longer-term exposure is associated with increased incidence of respiratory symptoms (such as coughing and wheezing) or respiratory disease, decreases in pulmonary function, and an increased risk of premature mortality (CARB 1991a, p. 12). The long-term (24-hour) standard is based upon increased incidence of respiratory disease and premature mortality. The standard includes a margin of safety based on epidemiological studies, which have shown adverse respiratory effects at levels slightly above the standard. Some of the studies indicate a sulfur dioxide threshold for effects, suggesting that no significant effects are expected from exposures to concentrations at the state standard (Ibid.).

ATTACHMENT A - REFERENCES

CARB. 1982. California Air Resources Board. California Ambient Air Quality Standard for Particulate Matter (PM10). December 1982.

CARB. 1989. California Air Resources Board. Adequacy of the Statewide Carbon Monoxide Ambient Air Quality Standard: The Impact of Recent Health Effects Studies. Staff Report. December 1989.

CARB. 1991. California Air Resources Board. Prospects for Attaining the State Ambient Air Quality Standards for Suspended Particulate Matter (PM10), Visibility Reducing Particles, Sulfates, Lead, and Hydrogen Sulfide. April 11, 1991.

CARB. 1991a. California Air Resources Board. Amendments to Regulations for the 24-Hour Ambient Air Quality Standard for Sulfur Dioxide. Staff Report, August 1991.

CARB. 1992. California Air Resources Board. Review of the One-Hour Ambient Air Quality Standard for Nitrogen Dioxide. Staff Report. December 1991.

CARB. 1992a. California Air Resources Board. Review of the One-Hour Ambient Air Quality Standard for Nitrogen Dioxide. Technical Support Document. December 1992.

CARB. 1994. California Air Resources Board. Review of the One-Hour Ambient Air Quality Standard for Sulfur Dioxide. Staff Report. December 27, 1994.

CARB. 2002. California Air Resources Board. Resolution 02-24. June 20, 2002.

FDA. 1985. United States Food and Drug Administration. Federal Register. Vol. 50, No. 243. December 18, 1985.

Kleinman et al. 1989. Effects on Human Health of Pollutants in the South Coast Air Basin. Final Report to the South Coast Air Quality Management District. June 1989.

SOCIOECONOMICS

Joseph Diamond

SUMMARY OF CONCLUSIONS

The 500 megawatt Walnut Creek Energy Project (WCEP) would require a construction period of twelve months to complete. The project owner would use largely local labor. This would not create any significant negative socioeconomic impacts on the area's schools, housing, law enforcement, emergency services, hospitals, or utilities. Public benefits from the construction of the project include capital costs, construction payroll, property and sales taxes, and the value of locally purchased materials and supplies.

INTRODUCTION

The California Energy Commission staff socioeconomics impact analysis evaluates the project induced changes on community services and/or infrastructure, and related community issues such as Environmental Justice (EJ). Staff discusses the potential direct, indirect and cumulative impacts of the construction and operation of the WCEP on local communities, community resources, and public services.

LAWS, ORDINANCES, REGULATIONS, AND STANDARDS

California Government Code, Sections 65996-65997

These sections include provisions for school district levies against development projects. As amended by SB 50 (Stats. 1998, ch. 407, sec. 23), these sections state that except for those fees established under Education Code Section 17620, public agencies may not impose fees, charges, or other financial requirements to offset the cost for school facilities.

SETTING

The WCEP is located in the City of Industry. The City of Industry has over 2,300 businesses that employ almost 85,000 workers (CEC 2006f). This would be the first power plant to be built in the City of Industry.

For a full description of the socioeconomic setting please refer to Sections 8.10 Socioeconomics and 8.10.1.1 of the WCEP Application For Certification (AFC). The study area (affected area) defined by the WCEP applicant in the socioeconomics section of the AFC and by staff includes: Los Angeles County, the City of Los Angeles, the City of Industry and 86 other cities in Los Angeles County.

The WCEP site is currently occupied by a large warehouse that will be demolished by the City of Industry to clear the site for development of the proposed power plant. The City of Industry has approved the demolition and has prepared an Initial Study and adopted a Negative Declaration pursuant to California Environmental Quality Act (CEQA). The demolition will include removal of all pavement and vegetation occupying

the site. Because the warehouse will be torn down to allow the power plant to be built on the site, staff has determined that the demolition is part of the "whole of an action that has a potential for resulting in either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment" (CEQA Guidelines, Cal. Code Regs., tit. 14, § 15378). Therefore, staff has considered the effects of the demolition in the analysis of the impacts of the proposed power project, deferring to the City of Industry's analysis where appropriate.

Communities within the project study area are within a two-hour one-way commute distance of the power plant site, and are where construction and operations workers may live. Staff agrees with the applicant's conclusion that during construction most workers could potentially be drawn from these areas, or if non-local workers are required for the project, they would likely relocate to these communities during construction (EME 2005a). Therefore, staff utilized this labor market area for its evaluation of construction worker availability and community services and infrastructure impacts from the WCEP construction.

Los Angeles County was used as the study area by staff in identifying fiscal and non-fiscal (private sector) benefits and other potential socioeconomic impacts from the WCEP.

DEMOGRAPHIC SCREENING

The purpose of an environmental justice screening analysis is to determine whether a below poverty level and/or minority population exists within the potentially affected area of the proposed site. Staff conducts screening analyses in accordance with the "Final Guidance for Incorporating Environmental Justice Concerns in EPA's (Environmental Protection Agencies') NEPA (National Environmental Policy Act) Compliance Analysis," Guidance Document (EPA 1998). Minority populations, as defined by this Guidance Document, are identified where either:

- The minority population of the local area is greater than fifty 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 census blocks in the local area have a minority population greater than fifty percent.

In 1997, the President's Council on Environmental Quality issued Environmental Justice Guidance that defines minority as individuals who are members of the following population groups: American Indian or Alaskan Native, Asian or Pacific Islander; Black not of Hispanic origin; or Hispanic. Low-income populations are identified with the annual statistical poverty thresholds from the Bureau of the Census's Current Population Reports, Series P-60 on Income and Poverty (OMB 1978).

Staff has reviewed Census 2000 information that shows the minority population by census block is 78.70 percent and 88.53 percent within a six-mile and one-mile radius of the proposed WCEP, which exceeds staff's threshold of greater than fifty percent.

(See **SOCIOECONOMICS Figure 1**). Census 2000 by census block group information shows that the below poverty population is 13.0 percent within the six-mile radius and 16.2 percent within the one-mile radius. Poverty status excludes institutionalized people, people in military quarters, people in college dormitories, and unrelated individuals under 15 years old.

ASSESSMENT OF IMPACTS

Staff reviewed the WCEP socioeconomic section in the AFC and other socioeconomic data. Staff used the socioeconomic data provided and referenced from governmental agencies, trade associations and its own independent analysis.

METHOD AND THRESHOLD FOR DETERMINING SIGNIFICANCE

In this analysis staff uses fixed percentage criteria for housing and environmental justice in evaluating potential impacts. For housing, staff considers a vacancy rate of five percent or less of permanent available housing as an indicator of a tight housing market with higher prices and possible overcrowding. For environmental justice, staff uses a threshold of greater than 50 percent for minority/below poverty population as a subset of the total population in the local area. Criteria for subject areas such as fire protection, water supply and wastewater disposal are analyzed in other sections of this staff assessment. Educational impacts are subjectively determined, as described later. Impacts on medical services, law enforcement, and community cohesion, and cumulative impacts are based on subjective judgments or input from local and state agencies. Typically, substantial employment of people who come from regions outside the study area has the potential to result in significant adverse socioeconomic impacts.

DIRECT IMPACTS AND MITIGATION

Preconstruction

The Planning Center, a consulting firm, did an initial study for the City of Industry Urban Development Agency's demolition of one industrial building totaling 250,695 square feet, where 90 full-time employees work. This site will be used for construction of the WCEP.

It is expected that the affected business (the industrial warehouse) may relocate somewhere in Southern California, the Industry Urban Development Agency will pay for the demolition and there will be no relocation costs paid by The City of Industry or the Industry Urban Development Agency as the contract (i.e., the short-term lease) will have expired. There is no estimate of the number of construction workers that will demolish the industrial warehouse (CEC 2006h). Because of the robust nature of the Los Angeles County, related cities and the City of Industry's housing and labor market, and availability of community services, staff agrees with the initial study that there would be no negative socioeconomic impacts (i.e. for population, housing, public services and recreation) (COI 2006a). Indeed, the socioeconomic impact analysis for the WCEP has a similar finding based on similar factors and it will be explained in more depth later in this staff assessment.

Population And Employment

The applicant provided a conservative analysis that shows 88 construction workers may be non-local (from outside of Los Angeles County). This is 40 percent of the average construction workforce or seven percent of the peak construction workforce. Assuming a household size of 3.1 for the 88 non-local workers (3.1 is the average household size for Los Angeles County in 2005) (California Department of Finance (DOF) 2005a), the total population increase associated with the WCEP could be about 272 persons during the 12-month construction period. However, since dependents do not usually accompany non-local construction workers to the site, the population increase should reflect the applicant's estimates of 88 workers.

The following **SOCIOECONOMICS Table 1** shows that the availability of labor, by skill, in Los Angeles County is considerable when compared to the needs of the WCEP. It shows there is ample labor supply for the WCEP.

SOCIOECONOMICS Table 1
Labor by Skill in Los Angeles County By Craft/Skill Versus Project Labor Needs

Craft	Total Number of Workers in Los Angeles County 2002*	Maximum Number of Workers Needed for the Project**
Insulation Workers	600	43
Steel Workers/Ironworkers**	760	54
Carpenters	16,820	29
Electricians	11,230	73
Laborers	17,590	54
Millwrights	2,380	72
Other Construction Equipment Operators/Operating Engineers**	3,500	21
Painters**/Construction and Maintenance	9,090	14
Pipe fitters	910	72
Brick Masons & Block Masons-Bricklayers/Masons**	1,570	11
Sheet metal Workers	2,940	16
Surveyors	530	7
Truck Drivers, Heavy and Tractor Trailer-Teamsters**	28,450	18

Source: State of California, California Employment Development Department 2004.

* Data from the State of California, Employment Development Department (EDD), Labor Market Information, Occupational Employment Projects 2002-2012. The year 2002 represents the best available current information.

** The maximum number of workers by each craft would be needed at different points in time during project construction. Refer to Table 8.10-10 in the WCEP AFC.

The Impact Analysis For Planning (IMPLAN) model (an input-output model), used in the WCEP AFC to estimate employment impacts from the project on the affected area, is widely used and therefore acceptable to staff. The University of California at Berkeley uses the IMPLAN model for regional economic assessment, and it has been used to assess other generating projects. Employment multipliers refer to the total additional employment stimulated by new economic activity. IMPLAN is a disaggregated type of model that divides the (regional) economy into sectors and provides a multiplier for each sector (Lewis et al. 1979). Multipliers vary by location (Meek 2000). An employment multiplier of 2.1 to 2.4 was used for construction (i.e., each new construction job supports approximately 1.1 to 1.4 indirect and induced jobs in the regional economy). The income construction multiplier ranged from 1.4 to 1.5.

The WCEP construction period is expected to be 12 months with an estimated start-up date of Spring 2007 and an online date of Spring 2008. The average number of construction workers will range from 21 in the first month of construction to a peak of approximately 408 workers in the 8th month of construction.

The total employment, estimated by the WCEP using an IMPLAN multiplier of approximately 2.1 to 2.4 for construction, is the equivalent of 464 to 524 jobs (which includes 244 to 304 secondary jobs) based on an average of 220 project-related construction jobs (EME 2005a). With construction income multipliers of approximately 1.4 to 1.5 the WCEP construction income of $23,160,000 to $26,160,000 would result in secondary impacts of approximately $9,585,300 to $11,829,160 and total impacts of approximately $32,745,330 to $37,989,160.

For operations, an employment multiplier of approximately 5.6 yields applied to nine direct operations jobs yields 42 jobs as secondary impacts for a total of about 51 jobs. The operations income multiplier is approximately 1.3, and as applied to the $7,630,000 annual operations income yields a secondary impact of approximately $1,957,330.

These multipliers are acceptable. Many economists often cite multipliers of 1.2 to 2.5 over the long run (Moss et al. 1994). Therefore, staff considers these projected beneficial impacts to be reasonable.

Housing

According to federal standards, permanent housing is considered to be in short supply if the vacancy rate is less than five percent (Cleary 1989). Staff does not expect any housing to be displaced from this project. Sufficient vacant housing exists to accommodate any workers that elect to temporarily relocate to the study area. As of January 1, 2005, there were approximately 3,341,548 housing units in Los Angeles County including single family, multi-family, and mobile homes. The vacancy rates for this housing were approximately 4.2 percent or 140,358 units for January 1, 2005 (California Department of Finance (EME 2005a). This would be below the federal standard of five percent.

Temporary housing includes hotel/motels, campgrounds, and rooming houses. For the year ending in July 2005, the hotel/motel vacancy rate was 26.5 percent or 25,248 rooms in Los Angeles County which includes 979 hotels/motels and 95,953 total rooms.

According to this most recent data there are 10 recreational vehicle (RV) parks within 10 miles of the WCEP (EME 2005a).

Again, most of the construction workforce is expected to come from Los Angeles County residents. Staff finds there is an adequate supply of temporary housing since hotels/motels and RV parks are available to accommodate the estimated 88 non-local construction workers who may relocate (most likely on a week-to-week basis). Staff does not expect any housing to be displaced (moved) as a result of this project.

Fiscal and Non-Fiscal Effects

Estimated fiscal (having to do with the public treasury) impacts (all dollars are 2005) of the WCEP are (CH2MHILL 2006a):

- First year property tax revenues: $3,938,000 to $4,475,000. WCEP is expected to bring property tax revenues to the City of Industry (Urban Development Agency, City of Industry, which is a redevelopment agency) and Los Angeles County[1]. The project life is thirty years.
- Construction sales and use tax: $14.8 million associated with the initial purchase of the equipment and materials with local sales taxes of $495,000 to $742,500.
- Operation local sales tax: $247,500 each year of WCEP.

Non-fiscal (private sector) impacts (all dollars are 2005) include:

- Total capital costs are estimated at $230 million.
- Total construction payroll: $28.6 million over twelve months with $17.2 million to Los Angeles County. Operation payroll of $630,000 annually to the region.
- Approximately $6 to $9 million would be spent on local construction equipment and materials and $3 million on locally purchased materials each operation year of the WCEP project. Also, there is a $4 million annual operations maintenance budget (EME 2005a and EME 2006c).

Public Services

Education

Staff agrees with the applicant that construction workers will commute up to two hours one-way to a project site, so parts of Orange, Riverside, and San Bernardino may attract construction workers. Furthermore, non-local construction workers would not likely relocate family members for the relatively short duration of construction.
Staff has assessed the applicant's case scenario of 88 non-local construction workers outside of Los Angeles County, using an average household size of 3.1 for Los Angeles County in January 1, 2005 (DOF 2005) results in 97 school-aged children being added to Los Angeles County school enrollment. Of the school districts close to the WCEP,

[1]" Once an RDA (Redevelopment Agency) forms a project area, most of the increase in property taxes in that area goes to the RDA (Public Policy Institute of California 1998). Also, and this property that we're (Edison Mission Energy/WCEP) building on is part of the urban redevelopment agency (City of Industry). So under the state's urban development rules, for the first ten years the tax increment …the incremental value that we add to the site stays here within the community (CEC 2006f)".

Basset, Hacienda La Puente, Rowland, and Walnut Valley are not considered overcrowded, except the Hurley Elementary School within the Rowland Unified School District (EME 2005a and CEC 2005a). Note that non-local construction workers might locate in any part of Los Angeles County which had 1,734,040 students enrolled at 1,894 schools, and a slightly higher pupil-teacher ratio for 2004-2005 than in California. The number of school children added as a result of this relocation is equivalent to less than one percent of Los Angeles County school enrollment for the entire county for 2004-2005 which staff considers to be a very small impact (California Department of Education State of California Education Profile 2005).

During the operations phase, a workforce of nine with an average family size of 4.46 for the City of Industry (DOF 2005) would result in a worst-case scenario of 22 school children, if the workers were to relocate to the City of Industry. If these children were to go to school districts close to the WCEP, which had an enrollment of 64,329 for 2004-2005, it would be less than one percent which is a small impact (EME 2005a).

Education Code section 17620 authorizes a school district to levy a fee against any construction within the district. Local and state agencies are precluded from imposing additional fees or other required payments on development projects for the purpose of mitigating possible enrollment impacts to schools.

No school impact fees are applicable to this project since the project is located in the Hacienda La Puente School District which does not assess school impact fees for any development (EME 2005a).

Law Enforcement

Law enforcement of the City of Industry is provided by a station of the Los Angeles County Sheriff's Department which has 200 sworn and 34 civilian personnel. The station serves the City of Industry and two other contract cities and areas. If required, it can draw on the 11,000 personnel of the Sheriff's Department. The nearest substation is at 150 North Hudson Avenue, about 2.6 miles from the WCEP site. For an emergency, response time is five minutes or less and for a non-emergency it is five to thirty minutes. Finally, City of Industry highways and roads are handled by the California Highway Patrol (CHP) (EME 2005a). The WCEP would not significantly increase the demand for law enforcement. Staff finds the law enforcement resources adequate.

Public Utilities

The City of Industry's electricity is supplied by Southern California Edison (SCE) and natural gas is supplied by Southern California Gas Company (SoCalGas) (City of Industry Website 2006). WCEP will be connected to the SCE system 600 feet from the project site. Natural gas will be supplied by SoCalGas via a gas pipeline that runs in a utility easement within the project site (EME 2005a). Staff finds the electric and gas construction needs of the WCEP will not create any adverse socioeconomic impacts.

Water and wastewater discharge is discussed in the **Soil and Water Resource** section, solid waste removal is discussed in the **Waste Management** section, and supplies of electricity and natural gas are discussed in the **Reliability** section of this report.

Medical Services

Emergency medical services are provided by the City of Industry Police and Fire Departments which have a mutual aid pact with Los Angeles County. Response time for ambulance service is two minutes (EME 2005a).

There are two hospitals within seven miles. Citrus Valley Medical Center is at 1115 South Sunset in West Covina, about 5.9 miles from the WCEP site. It has 300 beds with emergency care. The other hospital is Inter-Community Campus located at 210 West Bernardino Road in Covina, about seven miles from the WCEP site. It has 220 beds and many hospital services including emergency care (EME 2005a).

Staff finds that the medical services available for the WCEP would be adequate, and that the WCEP would not cause a significant adverse impact to these services.

CUMULATIVE IMPACT

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, section 15130.)

Cumulative impacts may occur when more than one project has an overlapping construction schedule that creates a demand for workers that cannot be met by local labor, resulting in an influx of non-local workers and their dependents.

In addition to the WCEP, another power plant project in Los Angeles County has filed an Application for Certification with the Energy Commission: Vernon Power Project, a 943 MW project in the City of Vernon. See **SOCIOECONOMICS Table 2** below.

SOCIOECONOMICS Table 2
Cumulative Analysis of WCEP & Vernon Power Project Workforces
2007* – 2008

2007	WCEP	Vernon Power Project**	Total
September	326	22	348
October	362	80	442
November	408	80	488
December	292	100	392
2008			
January	229	110	339
February	175	140	315
March	84	190	274

Source: WCEP AFC 2006 and Vernon Power Project AFC 2006.
* This data includes an assumption that the WCEP project construction will begin in spring of 2007, with peak employment months during fall of 2007. However, note that construction start date may be later, in which case the peak labor period would be adjusted. In either case, the Los Angeles labor market is large enough to accommodate any potential overlap between the WCEP and Vernon construction periods.
** Includes generation and project linear facilities such as sewer line, natural gas pipeline, and transmission lines.

The City of Industry will demolish a large industrial warehouse that employs 90 workers to make way for the WCEP. Construction of the WCEP is anticipated to begin in Spring 2007. The WCEP project would average 220 workers per month and 408 during the peak month, for twelve months from approximately Spring 2007 to Spring 2008. The peak for cumulative construction in **SOCIOECONOMICS Table 2** is 488 during November 2007. Because the Los Angeles County labor market is so large with a construction sector of 139,400 in 2004 (EME 2005a), no significant cumulative socioeconomic impacts are expected to occur.

NOTEWORTHY PUBLIC BENEFITS

Important public benefits discussed under the fiscal and non-fiscal effects section are: capital expenditures, construction payroll, annual property taxes and sales taxes, and the value of locally purchased construction and operation equipment and materials. (See **SOCIOECONOMICS Table 3** below for details).

The applicant states that the WCEP will upgrade electric power reliability and prevent outages when compared to the no project alternative. The City of Industry Chamber of Commerce asserts that for 2,300 businesses and close to 85,000 employees, the construction of the WCEP would curtail plant shutdowns and loss of employment, prevent loss of firms, and provide for future economic growth and development. Also, the City Manager of the City of Industry indicated that the WCEP would make the City of Industry less dependant on outside energy generation (CEC 2006f). For more information on electric power reliability, see the **Reliability** section of this report.

CONCLUSIONS

Estimated gross public benefits from the WCEP project include increases in property and sales taxes, employment, and income for Los Angeles County. For example, there are estimated to be an average of 220 direct project-related construction jobs for the twelve months of construction. The WCEP project is estimated to have total capital costs of $230 million. The construction payroll is estimated at $28.6 million for twelve months of construction and the operation payroll is $630,000. Property taxes are estimated at $3,938,000 to $4,475,000 for the first year for a project life of 30 years. The estimated total sales and use tax during construction is $14.8 million and during operation the local sales tax is $247,500 annually over the life of the project. An estimated $6 to 9 million would be spent locally for materials and equipment during construction, and an additional $3 million budget would be spent annually for operations.

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

The WCEP project, as proposed, is consistent with applicable socioeconomic LORS.

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

PROPOSED CONDITIONS OF CERTIFICATION

None.

SOCIOECONOMIC DATA AND INFORMATION - TABLE 3[2]	
Total Project Capital Costs	$230 million
Estimate of Local Expenditures	
Construction	$6-9 million locally on materials and supplies.
Operation	$3 million operation budget and $4 million maintenance budget.
Estimated Annual Property Taxes	$3,938,000 to $4,475,000 annually. Project life is for a minimum of 30 years.
Estimated School Impact Fees	N/A
Direct Employment	
Construction (average)	220 jobs
Operation	9 permanent employees.
Secondary Employment	
Construction	244 to 304 jobs
Operation	42
Direct Income (payroll, materials and supplies)	
Construction	Approximately $23,166,000 to $26,160,000
Operation	$7,630,000
Secondary Income	
Construction	Approximately $9,585,330 to $11,829,160
Operation	$1,957,330
Payroll	
Construction	A total of $28.6 million for 12 months with $17.2 million for Los Angeles County.
Operation	$630,000 annually to the region.
Estimated Sales and Use Taxes	
Construction	Total sales tax is $14.8 million with a local sales tax of $495,000 to $742,500.
Operation	Local sales tax of $247,500 annually.
Existing /Projected Unemployment Rates	Existing – Preliminary estimate for 5.1 percent in November 2005 (not seasonally adjusted for Los Angeles County). Projected - Not available.
Percent Minority Population (6 mile radius)	78.7 percent based on the 2000 Census.
Percent Poverty Population (6 mile radius)	13.0 percent based on the 2000 Census.

[2] Construction is for twelve months, and the WCEP project life is planned for 30 years. Economic impacts (in 2005 dollars) and unemployment are for Los Angeles County, the study area. Population data/information is for a 6 mile radius from the project site.

REFERENCES

California Department of Education. 2005. State of California Profile-Fiscal Year: 2004-05. December 7, 2005. http://www.ed-data.k12.ca.us

California Department of Finance (DOF). 2005. Table 2: E-5 City/County Population and Housing Estimates, January 1, 2005.

California Employment Development Department (EDD). 2004. Labor Market Information, Occupational Employment Projections 2002-2012. Los Angeles-Long Beach Metropolitan Statistical Area (Los Angeles County).

California Energy Commission Statewide Transmission & Power Plant Maps 2005 Census 2000 PL-Matrix PL2.

CEC 2005e - California Energy Commission/J. Diamond (tn: 36096). ROC between Joe Diamond, CEC, and Fred Diamond, Rowland United School Dist., re:Impacts on Education. 12/14/ 2005. Received, December 16, 2005.

CEC 2006f – California Energy Commission/E. Knight (tn: 2069). Excerpt from transcript, Public Informational Hearing and Site Visit: Statement by Edison Mission Energy staff, February 28, 2006.

CEC 2006h-California Energy Commission/J. Diamond. ROC between Joseph Diamond, CEC, and Mike Kissell, City of Industry, Planning Department, re: WCEP/Warehouse Demolition and Socioeconomics. April 4, 2006. Received, April 6 2006.

CH2MHILL 2006a-CH2MHILL/J. Carrier (tn:36678). Applicant's Responses to CEC Staff Data Requests 1-97. POS. April 10, 2006. Received, April 10, 2006.

COI 2006a-City of Industry (tn:36666). Initial Study for 911 Bixby Drive Building Demolition. January 31, 2006. Received, April 6, 2006.

City of Industry Website. 2006. Industry Fact Page. February 16, 2006. http://www.cityof industry.org/dex_14.html

City of Vernon, 2006, Vernon Power Plant AFC. August 29, 2006. Received, June 30, 2006.

Cleary, Cam. 1989. California Department of Housing and Community Development, Telephone conversation with Gary D. Walker, Commission Staff. November 14, 1989.

EME 2005a – Edison Mission Energy/GPL:bpm (tn: 35950). Walnut Creek Energy Park AFC. November 12, 2005. Received November 22, 2005.

EME 2006c – Edison Mission Energy/Scilacci (tn:36210). Supplement in Response to CEC Staff's Data Adequacy Comments on the AFC for the Walnut Creek energy Park. January 12, 2006. Received, January 13, 2006.

Lewis, Eugene, Russell Youmans, George Goldman, Garnet Premer. 1979. Economic Multipliers: Can a rural community use them? Western Rural Development Center 24.

Meek, Alfie. 2000. Economic Models for Decision Making Georgia Economic Development Association. November, 2000.

Moss, Steven J., Richard J. McCann, and Marvin Feldman. 1994. A Guide for Reviewing Environmental Policy Studies. Spring.

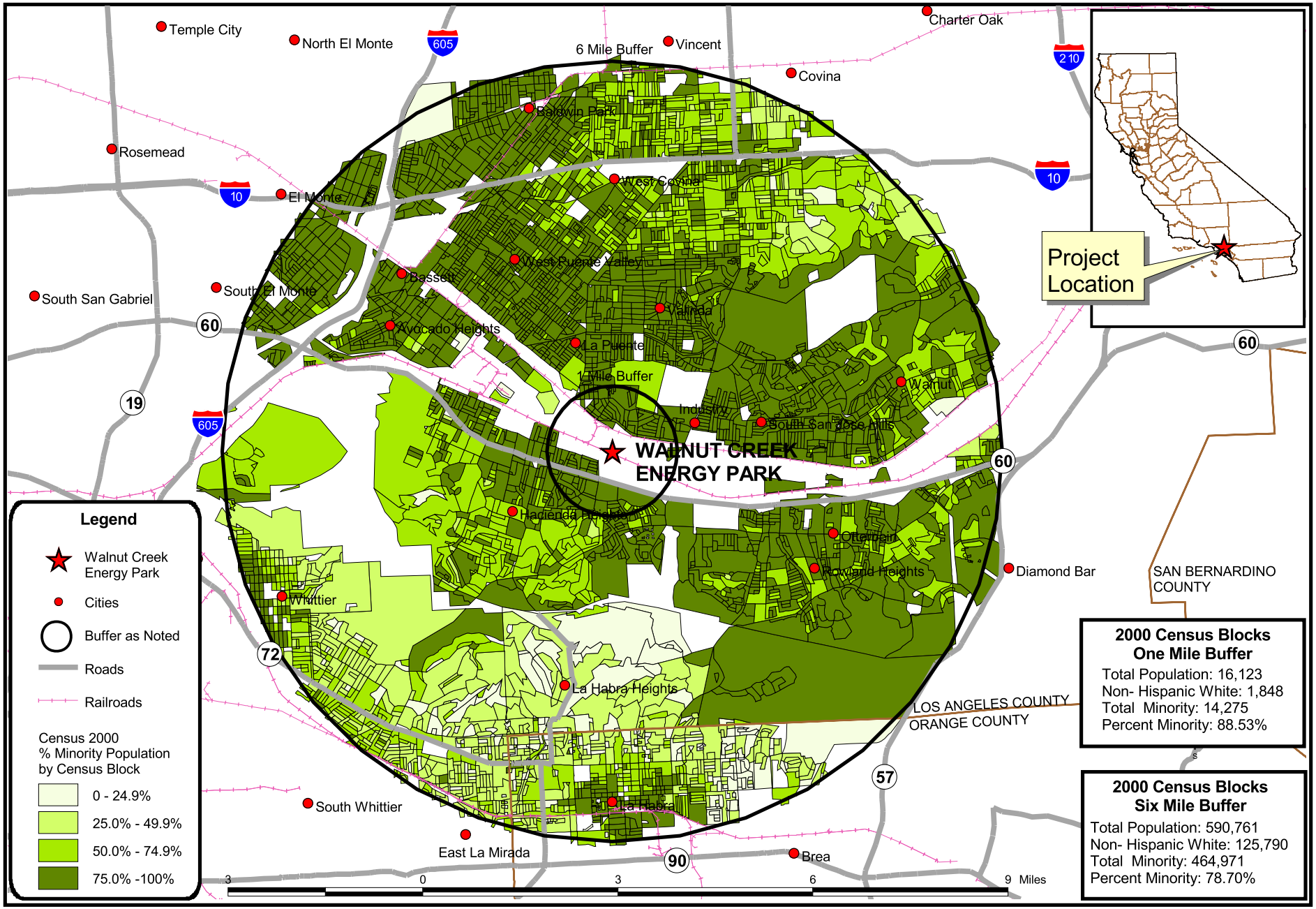
Public Policy Institute of California, 1998. Redevelopment and the Property Tax Revenue Debate. February.

U. S. Environmental Protection Agency (EPA), Office of Federal Activities. 1998. Final Guidelines for Incorporating Environmental Justice Concerns in EPA's NEPA Compliance.

U. S. Office of Management and Budget (OMB). 1978. Current Population Reports, Series P-60 on Income and Poverty.

SOCIOECONOMICS - FIGURE 1

Walnut Creek Energy Park - Census 2000 Minority Population by Census Block - One and Six Mile Buffers

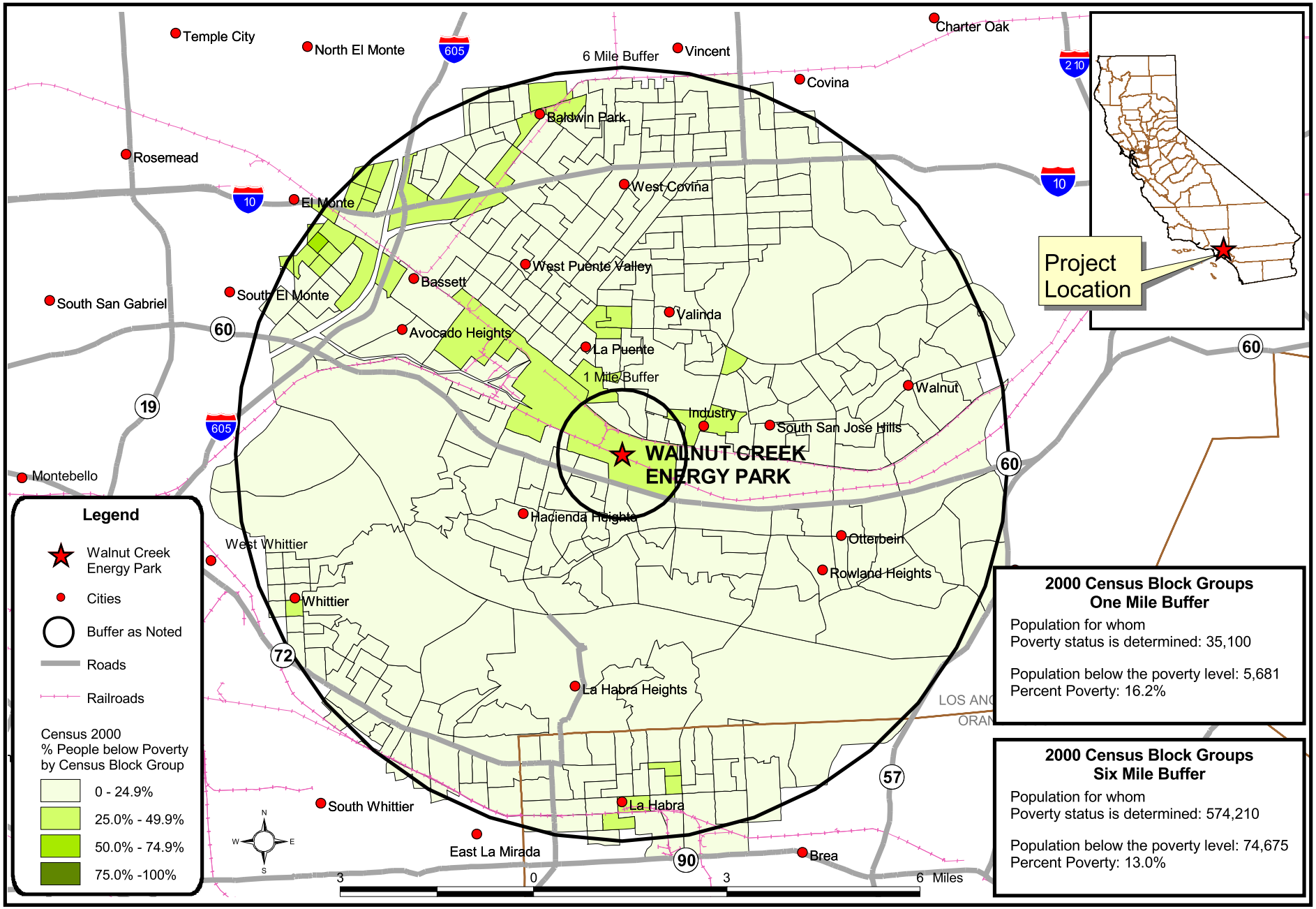


CALIFORNIA ENERGY COMMISSION, SYSTEMS ASSESSMENT & FACILITIES SITING DIVISION, DECEMBER 2006

SOURCE: California Energy Commission Statewide Transmission & Power Plant Maps 2005, Census 2000 PL 94-171 Data - Matrix PL2

SOCIOECONOMICS - FIGURE 2

Walnut Creek Energy Park - Census 2000 Percentage of People below Poverty by Census Block Group - One and Six Mile Buffer



CALIFORNIA ENERGY COMMISSION, SYSTEMS ASSESSMENT & FACILITIES SITING DIVISION, DECEMBER 2006

SOURCE: California Energy Commission Statewide Transmission & Power Plant Maps 2005, Census 2000 SF3

SOIL AND WATER RESOURCES

Michael Stephens, CEG, C.HG, REA II and John Kessler, P.E.

SUMMARY OF CONCLUSIONS

Staff has determined the proposed project would result in a less than significant impact to soil and water resources. The Walnut Creek Energy Park (WCEP) would comply with all applicable soil and water resource laws, ordinances, regulations, and standards (LORS). Potentially significant impacts would be mitigated through the preparation of construction and operation plans and the use of Best Management Practices (BMPs) that would mitigate problems related to soil erosion, contamination to surface and groundwater, use of potable water supplies, or non-compliance with wastewater treatment and discharge requirements.

INTRODUCTION

In this section staff analyzed potential significant adverse impacts to soil and water resources associated with construction and operation of Walnut Creek Energy Park. This analysis focuses on the following items, and whether:

- the project's demand for water could affect surface or groundwater supplies or local groundwater quality;
- construction or operation could lead to accelerated wind or water erosion and sedimentation;
- the project's wastewater management practices would lead to degradation of surface or ground water quality;
- project construction or operation could lead to degradation of surface water quality or drainage;
- the project has taken precautions to avoid adverse surface water impacts during operations, i.e. from flooding; and
- the project would comply with all applicable laws, ordinances, regulations and standards.

Where the potential for impacts is identified, mitigation and Conditions of Certification have been proposed.

LAWS, ORDINANCES, REGULATION, AND STANDARDS

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

Federal LORS	
Clean Water Act (33 U.S.C. Section 1257 et seq.)	The Clean Water Act (33 USC § 1257 et seq.) requires states to set standards to protect water quality, which includes regulation of stormwater discharges during construction and operation of a facility. These are normally addressed through a general National Pollutant Discharge Elimination System (NPDES) permit. For WCEP, regulation of water quality is administered by the Los Angeles Regional Water Quality Control Board (LARWQCB).
Resource Conservation and Recovery Act	The Resource Conservation Recovery Act (RCRA) of 1976 (40 CFR Part 260 et seq.) seeks to prevent surface and groundwater contamination, sets guidelines for determining hazardous wastes, and identifies proper methods for handling and disposing of those wastes.
State LORS	
Water Code Section 13260	Requires filing with the appropriate Regional Board 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.
Water Code Section 13524	Requires that no person shall recycle water or use recycled water for any purpose until water recycling requirements have been established pursuant to this article or a regional board determines that no requirements are necessary.
Water Code Section 13552.6	Specifically identifies the use of potable domestic water for cooling towers, if suitable reclaimed water is available, as a waste or unreasonable use of water. The availability of reclaimed water is determined based on criteria listed in Section 13550 by the State Water Resources Control Board. (SWRCB). Those criteria include provisions that the quality and quantity of the reclaimed water are suitable for the use, the cost is reasonable, the use is not detrimental to public health, and the use will not impact downstream users or biological resources.
Local LORS	
Los Angeles County Building Code	The Los Angeles County Building Code adopts Chapter 33 of the Uniform Building Code (UBC) and the California Building Code (CBC), which establishes excavation, grading and erosion control standards. The standards include specifications pertaining to excavation of fills for buildings or structures, grading associated with construction of utilities, and stormwater drainage.
Los Angeles County Sanitation District Wastewater Ordinance, Section 401	Regulates all discharges to the County's sewer system, including industrial users.
Los Angeles County Code Title 12.	Regulates all discharges of water to the County's stormwater system. Includes discharges from unincorporated areas into the storm drain system and receiving waters covered by a NPDES municipal stormwater permit.

State Policies and Guidance	
California Constitution, Article X, Section 2	This section 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.
Title 23, California Code of Regulations, Chapter 15, Division 3	These regulations require that the Regional Water Quality Control Board (Regional Board) issue Waste Discharge Requirements specifying conditions for protection of water quality as applicable.
California Code of Regulations, Title 17	Title 17, Division 1, Chapter 5, addresses the requirements for backflow prevention and cross connections of potable and non-potable water lines.
California Code of Regulations, Title 22	Title 22, Division 4, Chapter 15, requires the California Department of Health Services (DHS) to review and approve the wastewater treatment systems to ensure they meet tertiary treatment standards allowing use of reclaimed water for industrial processes such as steam production and cooling water.
California Code of Regulations, Title 23	Title 23, Division 3, Chapter 15, requires the Regional Board issue Waste Discharge Requirements specifying conditions for protection of water quality as applicable. And also Chapter 26, Wastewater Treatment Plant Classification, Operator Certification, and Contract Operator Registration Program which protects public health and the environment by providing for the effective operation of wastewater and water recycling treatment plants through the certification of wastewater treatment plant operators.
Resolution 75-58	The SWRCB has adopted policies that provide guidelines for water quality protection. The principal policy of the SWRCB that specifically addresses the 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, 1975 as Resolution 75-58). This policy states that fresh inland waters should only be used for power plant cooling if other sources or other methods of cooling would be environmentally undesirable or economically unsound. This SWRCB policy requires that power plant cooling water should come from, in order of priority: wastewater being discharged to the ocean, ocean water, and brackish water from natural sources or irrigation return flow, inland waste waters of low total dissolved solids, and other inland waters. This policy also includes cooling water discharge prohibitions such as land application.
SWRCB Resolution 77-1	State Water Resources Control Board Resolution 77-1 encourages and promotes reclaimed water use for non-potable purposes.
SWRCB Water Quality Order 92-08	Requires the SWRCB to regulate industrial stormwater discharge from construction projects affecting areas greater than 1 acre to protect state waters. Under Order 92-08 the RWQCB will issue NPDES permits for construction activities based upon an acceptable Storm Water Pollution Prevention Plan (SWPPP) submitted by the applicant.
California Water Code Section 100	Requires the water resources of the State be put to beneficial use to the fullest extent of which they are capable, and the waste or unreasonable use or unreasonable method of use of water be prevented, and that the conservation of such water is to be exercised with a view to the reasonable and beneficial use thereof in the interest of the people and for the public welfare.
California Water Code Section 100.5	Declares to be the established policy of the State that conformity of a use, method of use, or method of diversion of water with local custom shall not be solely determinative of its reasonableness, but shall be considered as one factor to be weighed in the determination of the reasonableness of the use, method of use, or method of diversion of water, within the meaning of

	Article X, Section 2 of the California Constitution.
California Water Code Section 1254	Specifies that the SWRCB in acting upon applications to appropriate water shall be guided by the policy that domestic use is the highest use and irrigation is the next highest use of water.
California Water Code Section 13146	Requires that state offices, departments and boards in carrying out activities which affect water quality, shall comply with state policy for water quality control unless otherwise directed or authorized by statute, in which case they shall indicate to the State Water Resources Control Board in writing their authority for not complying with such policy.
California Water Code Section 13247	Requires that state offices, departments, and boards, in carrying out activities which may affect water quality, shall comply with water quality control plans (i.e., Basin Plans) approved or adopted by the State Water Resources Control Board unless otherwise directed or authorized by statute, in which case they shall indicate to the appropriate Regional Water Quality Control Boards in writing their authority for not complying with such plans.
California Water Code Section 13523	Requires that a Regional Board, shall prescribe water reuse requirements for water, which is to be used or proposed to be used as recycled water after consultation with and upon receipt of recommendations from the State Department of Health Services, and if it determines such action to be necessary to protect the public health, safety, or welfare.
California Water Code Section 13550	Requires the use of reclaimed water for industrial purposes subject to reclaimed water being available and upon a number of criteria including: provisions that the quality and quantity of the reclaimed water are suitable for the use, the cost is reasonable, the use is not detrimental to public health, and the use will not impact downstream users or biological resources.
California Water Code Section 13552.8	States that any public agency may require the use of reclaimed water in cooling towers if reclaimed water is available, meets the requirements set forth in Section 13550, that there will 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.
SWRCB Resolution 88-63	The Regional Water Quality Control Boards (Regional Boards) shall assure that the beneficial uses of municipal and domestic supply are designated for protection wherever those uses are presently being attained, and assure that any changes in beneficial use designations for waters of the State are consistent with all applicable regulations adopted by the Environmental Protection Agency. Where a body of water is not currently designated as but, in the opinion of a Regional Board, is presently or potentially suitable, the Regional Board shall include in the beneficial use designation. All surface and groundwater of the State are considered to be suitable, or potentially suitable, for municipal or domestic water supply and should be so designated by the Regional Boards with the exception of certain defined surface and groundwater suitable for exception as a source of drinking water.
SWRCB Resolution 68-16	This resolution (the “Anti-Degradation Policy”) declares that it is the State’s policy for maintaining existing high quality waters to the maximum extent possible. The existing high water quality must be maintained until demonstrated to the State that any proposed change will be consistent with the maximum benefit to the people of the state and will not unreasonably affect present or future beneficial uses.
The California Safe Drinking Water and Toxic	This Act (California Health & Safety Code Section 25249.5 et seq.) prohibits actions contaminating drinking water with chemicals known to cause cancer

Enforcement Act	or possessing reproductive toxicity. The Regional Water Quality Control Board administers the requirements of the Act.
Recycling Act of 1991 (Water Code 13575 et. esq.)	States that retail water suppliers, reclaimed water producers, and wholesalers should promote the substitution of reclaimed water for potable and imported water in order to maximize the appropriate cost-effective use of reclaimed water in California.
Integrated Energy Policy Report (Public Resources Code, Div. 15, Section 25300 et esq.)	In the 2003 IEPR, consistent with State Water Resources Control Board Policy 75-58 and the Warren-Alquist Act, the Energy Commission adopted a policy stating they will approve the use of fresh water for cooling purposes by power plants it licenses only where alternative water supply sources and alternative cooling technologies are shown to be "environmentally undesirable" or "economically unsound."

SETTING

The proposed WCEP site is located in the City of Industry, situated within a valley of East Los Angeles County in an industrial development area. Beyond the industrial development are residences, identified as the City of La Puente located about 0.3 miles to the north, and the community of Hacienda Heights located about 0.2 miles south of the WCEP (EME 2005a, Fig. 8.6-1). The project would replace a large warehouse on a narrow 11.5-acre industrial parcel bordered on its north side by a Southern California Edison electric transmission corridor. Beyond the corridor is the San Jose Creek Flood Control Channel. Large warehouses border the site to the south and east. On the short western border lies a vegetated drainage channel that conveys local storm water runoff to the San Jose Creek Flood Control Channel, with more warehouses located farther west of the channel (EME 2005a, Section 8.6-1 & Fig. 8.2-1). The site is covered in asphalt paving, and there is no agricultural land use in the vicinity. Beneath the pavement and underlying aggregate, exploratory borings reveal two distinct soil types. These soil types include expansive clay and silty loam (EME 2005a, App. 10G). The applicant would take possession of the site after the asphalt is removed and the warehouse has been demolished by the current owner, the Industry Urban Development Agency. Construction laydown would occur on about 1.9 acres, located on the east end of the parcel, adjacent to Bixby Drive and on Southern California Edison's transmission line right-of-way (EME 2005a, Section 2.0 & Figure 2.1-1).

SOIL

Soils of Yolo Association, a silty loam, were found on the southern portion of the site, opposite the flood control channel. Expansive clays of the Cropley Association were found close to the flood control channel, with the clays highly mixed with Yolo soil at the eastern end of the site. Yolo Association soils typically form in alluvial fans at medium-to-low elevations. This moderately permeable soil consists of silty loam and extends deep into the subsurface. Yolo Association soils have moderate permeability, with slow to medium runoff characteristics. Cropley Association soils are typically present at valley floors and level alluvial plains at low elevations. Cropley Associated soils are composed of a highly expansive, low permeable clay surface and a clay-dominated subsurface, with medium to very high runoff characteristics. There is no agricultural production land use within 1 mile of either the WCEP or its linear facilities (EME 2005a, Section 8.11.1 & Table 8.11-1).

SURFACE HYDROLOGY AND FLOODING

The project is located along San Jose Creek, part of the 689-square-mile San Gabriel River Watershed. The watershed is highly urbanized, with only the 25 percent located in Angeles National Forest contributing non-urban runoff. The main channel of the San Gabriel River is about 58 miles long, and discharges into the Pacific Ocean at the Los Angeles/Orange County border. San Jose Creek and the San Gabriel River are both receiving waters to stormwater runoff and discharges from wastewater treatment plants (EME 2005a, Section 8.15.1).

San Jose Creek is an unlined drainage channel flowing into the San Gabriel River approximately 5 miles downstream from the WCEP site. This creek was modified by the US Army Corps of Engineers to provide 100-year flood protection to the City of Industry. The entire City of Industry, including the project site, is currently classified as a moderate, minimal hazard area. This zoning is given to areas where the flood hazard is undetermined, and usually for sparsely populated areas. Annual precipitation in LA County averages 15 inches, with significant seasonal and local variations.

The project is not located in an area where a potential tsunami could affect the site.

GROUNDWATER

The WCEP site is situated in the San Gabriel Valley and overlays the 177,000-acre Central Subbasin portion of the greater Los Angeles Coastal groundwater basin. The Central Subbasin contains low levels of shallow pollutants consisting of Volatile Organic Compounds (VOCs). The pollutants are being addressed under the US EPA's San Gabriel Valley Superfund Site which has undergone investigations and remediation for groundwater contaminated with VOCs. Groundwater sampling at the site conducted in September 2005 revealed four chemicals to be slightly above Maximum Contaminant Limits. These chemicals included two VOCs perchlorate and tetrachloroethane (PCE), along with chemical elements chromium, and lead. It is unlikely that past activities on the WCEP parcel contributed to the presence of these chemicals in the groundwater at the site. It is expected that the direction of groundwater flow is to the west, and thus the source of contaminants likely originated to the east of the WCEP site. The WCEP site has not been listed as a responsible party to the Superfund Site, but the site is under the Well Investigation Program of the Los Angeles Regional Water Quality Control Board. Exploratory boring at the WCEP site's owner, the City of Industry encountered groundwater at depths of 20-25 feet. Seasonal fluctuation of the groundwater level is known to occur in wells at nearby facilities, with depths ranging from 15 to 50 feet (EME 2005a, Sections 8.14.1 & 8.15-1, App. 8.14).

PROJECT WATER SUPPLY

The WCEP facility operations require non-potable water for power plant processes including cooling, nitrogen oxide (NO_x) emission control, compressor evaporative cooling, equipment washing and for landscape irrigation. Potable water is necessary for domestic and sanitary uses, fire protection and backup process water supply. Rowland Water District (RWD) would supply both the process and potable water supply to the project. Potable water will be provided via a 4-inch diameter pipeline extending 30 feet beyond the project boundary, connecting to RWD's 12-inch diameter potable water

main in Bixby Drive. Water for fire suppression will also be provided from RWD's potable system via an on-site connection to their 10-inch diameter dedicated fire water system. Process and landscape irrigation water would consist of tertiary-treated reclaimed wastewater blended with impaired groundwater (referred to in this Soil and Water Resources Section as reclaimed water for both) and will be served via a 12-inch diameter pipeline extending 30-feet beyond the project boundary, connecting to RWD's 12-inch diameter reclaimed water pipeline in Bixby Drive. Reclaimed water would be supplied from RWD's San Jose Creek Wastewater Reclamation Plant, and would make-up about 84% of the average annual supply to WCEP. Impaired well water would be supplied from RWD's two wells which discharge into the RWD reclaimed water conveyance system, and would make-up about 16% of the average annual supply to WCEP. Reclaimed water would be used for all cooling and process water demand, and landscape irrigation. The project's annual volume of reclaimed water use would average about 885 acre-feet/year (AFY) and would peak at about 1,074 AFY. Instantaneous rates of reclaimed water supply are estimated to average about 1,450 gallons per minute (gpm) and peak at about 1,984 gpm. Potable water use is estimated to average an instantaneous rate of about 3 gpm, amounting to an annual volume of about 5 AFY, if none is needed for backup process water supply (CH2MHILL 2006d, Sections 2.0, 2.1 & 7.0).

The WCEP would provide chlorine treatment of the reclaimed water, utilizing a 180,000 gallon tank to provide a minimum of 90 minutes contact time for disinfection. An additional 180,000 gallon tank would store the treated reclaimed water for WCEP's process uses, and provide approximately 1.5 hours of onsite operational storage if reclaimed water supply were disrupted (CH2MHILL 2006d, Section 2.1). In the event of a disruption in reclaimed water supply, WCEP would also benefit from storage within RWD's system which consists of 5 million gallons currently, with plans to expand to 9 million gallons by 2008 (CH2MHILL 2006b, DR 67).

Based on the typical composition of reclaimed water supply, made-up of 84% tertiary-treated reclaimed wastewater and 16% impaired well water, the quality and constituents of the proposed reclaimed water supply are characterized in **Soil & Water Table 2**.

SOIL & WATER TABLE 2
Estimated Reclaimed Water Supply Quality

Constituent	Recycled Water (mg/L except as noted)
Alkalinity-Bicarbonate	195
Alkalinity-Total	185
Arsenic	0.0005
Boron	0.42
Cadmium	0.00045
Calcium	79.0
Chloride	143
Chromium	ND
Copper	0.02
Fluoride	0.34
Hardness-Calcium	329
Iron	0.09
Lead	0.0019
Magnesium	22.6
Manganese	0.03
Mercury	0.0002
Nickel	0.017
Nitrate Nitrogen	17.0
pH, pH units	6.9 – 7.3
Polynuclear aromatic Hydrocarbons (PAHs)	0.16
Polychlorinated biphenyls	0.10
Potassium	11.9
Silver	0.0023
Sodium	127
Sulfate	162
Total Dissolved Solids	722
Total recoverable oil and grease	<5
Total Suspended Solids	<3
Turbidity, NTU	0.2
Zinc	0.07
Temperature	20 °C

Source: CH2MHILL 2006d, Table 7.2-1

WASTEWATER

Process and sanitary wastewater would be discharged to Los Angeles County Sanitation District's (LACSD's) 48-inch diameter trunk sewer line via a 4-inch diameter pipeline from WCEP within the project boundary. The sewer system is subject to the regulations of, and permitted under, the National Pollutant Discharge Elimination System (NPDES) program of the Clean Water Act for the treatment and disposal of wastewater. Wastewater from WCEP would travel by LACSD's collection system to the San Jose Creek Wastewater Treatment Plant, and be regulated under LACSD's Wastewater Ordinance - Section 401, as well as the Federal Clean Water Act (CH2MHILL 2006d, Section 8.15). Wastewater discharge rates would range from about 281 gpm during normal operations up to 447 gpm during peak operations (CH2MHILL 2006d, Figures 7.1-1 & 7.1-2).

The quality of the wastewater proposed for discharge from the WCEP into the LACSD sewer system compared to LACSD's Industrial Discharge Limits is summarized in **Soil & Water Table 3** as follows:

SOIL & WATER TABLE 3
Comparison of WCEP's Wastewater Discharge Quality at Maximum Concentration Versus LACSD's Discharge Limits

Constituent	Discharge Quality	Discharge Limits
TICH	0.009 mg/L	-
pH	6.9 to 7.3	>6.0
Total Suspended Solids	<50 mg/L	-
Total Dissolved Solids	3,684 mg/L	-
Temperature	79 °F	114 °F
Arsenic	0.0026 mg/L	3.0 mg/L
Cadmium	0.0023 mg/L	15.0 mg/L
Chromium	<0.05 mg/L	10.0 mg/L
Copper	0.08 mg/L	15.0 mg/L
Lead	0.0095 mg/L	40.0 mg/L
Mercury	<0.0012 mg/L	2.0 mg/L
Nickel	<0.08 mg/L	12.0 mg/L
Silver	<0.0118 mg/L	5.0 mg/L
Zinc	0.38 mg/L	25.0 mg/L

Sources: CH2MHILL 2006d, Table 8.15-4
Notes:
1) TICH = Total Identifiable Chlorinated Hydrocarbons
2) WCEP's maximum wastewater concentrations are based on 5.1 cycles of concentration for cooling water.

STORMWATER

The existing warehouse site is paved, and stormwater flows to a drain located in the facility parking lot. The drain empties into the storm drainage system managed by Los Angeles County Department of Public Works (LACDPW), which eventually discharges into San Jose Creek located to the north of the project site. Once the site is developed for the WCEP, stormwater runoff would continue to drain into the storm drainage system managed by LACDPW, including ultimately discharging into San Jose Creek. WCEP's drainage plans are to collect stormwater at both the northwest and northeast corners of the site, where the WCEP drainage would be conveyed into the LACDPW's stormwater system. The County's stormwater system is regulated overall under a NPDES Permit as issued by the Los Angeles Regional Water Quality Control Board (LARWQCB). During construction, WCEP would control the stormwater drainage in accordance with a SWPPP for Construction Activity as regulated by the LARWQCB, and a Drainage Erosion and Sediment Control Plan (DESCP) as administered by the Energy Commission. During operation, WCEP would manage stormwater according to a SWPPP for Industrial Activity and in accordance with a Water Quality Agreement as issued by LACDPW (CH2MHILL 2006d, Sections 8.15.2.3, 8.15.5 & 8.15.6)

ASSESSMENT OF IMPACTS AND DISCUSSION OF MITIGATION

METHOD AND THRESHOLD FOR DETERMINING SIGNIFICANCE

This project was analyzed to determine if it complies with LORS, meets CEQA standards, and will not result in a significant adverse impact. The threshold of significance is based upon the ability of the project to be built and operated without violating erosion, sedimentation, flood, surface or groundwater quality, water supply, or wastewater discharge standards. The LORS and Policies presented in **Soil & Water Table 1** were used to determine the threshold of significance for this proceeding. The following LORS and Policies are of particular relevance for determining the significance of a potential impact. For those impacts that exceed the published standards, or do not conform to the established practices, mitigation will be proposed by staff to reduce or eliminate the impact.

- The Clean Water Act requires states to set standards to protect water quality through the regulation of point source and certain non-point source discharges to surface water.
- The Resource Conservation Recovery Act of 1976 seeks to prevent surface and groundwater contamination.
- Under Title 17 of the California Code of Regulations, the Department of Health Services reviews and approves Dual Plumbing Plans for reclaimed and potable water supply systems to ensure proper backflow and cross-connection preventions are designed and constructed.
- Los Angeles County Public Works Code, Title 12 regulates all stormwater discharges.

IMPACTS AND MITIGATION

Impact and mitigation discussion presented below is divided into a discussion of impacts related to construction and operation. For each potential impact discussed, the applicant's proposed mitigation is presented and staff's determination of the adequacy of the proposed mitigation is analyzed. If necessary, staff presents additional mitigation measures and refers to specific conditions of certification related to a potential impact and the required mitigation measures.

Construction Impacts and Mitigation

Construction of the WCEP facility will include soil excavation, grading, and installation of necessary connection to linear facilities for the WCEP site. Potential impacts evaluated include the potential for increased runoff flow rates and volumes discharged from WCEP; and if this could increase flooding downstream of the WCEP site. Potential construction-related impacts to soil, stormwater, groundwater, wastewater and water quality, including proposed mitigation measures, are discussed below.

Soils

Construction activities can lead to adverse impacts to soil resources including increased soil erosion, soil compaction, loss of soil productivity, and disturbance of saturated soils

if proper best management practices (BMPs) are not implemented. Activities that expose and disturb the soil leave soil particles vulnerable to detachment by wind and water. Soil erosion results in the loss of topsoil and increased sedimentation of surface waters downstream of the WCEP. The magnitude, extent and duration of these impacts would depend on several factors, including the proximity of the WCEP site to surface water, the soils affected, and the method, duration, and time of year of activities. Prolonged periods of precipitation, or high intensity and short duration runoff events coupled with earth disturbance activities can result in on-site erosion, eventually increasing the sediment load within nearby receiving waters. In addition, high winds during grading and excavation activities can result in wind borne erosion leading to increased particulate emissions that adversely impact air quality. Implementing appropriate erosion control measures will help conserve soil resources, maintain water quality, protect property from erosion damage, prevent accelerated soil loss, and protect air quality.

The WCEP site would be constructed on 11.5 acres, which includes an approximately 2-acre construction laydown area. The relatively flat site and surrounding developed areas, and the use of construction BMPs reduce the potential for soil loss and erosion to a negligible level. BMPs for WCEP identified by the applicant could include mulching, physical stabilization, dust suppression, berms, ditches, and sediment barriers. The applicant estimated that from water erosion, approximately 6.53 tons of soil could be eroded during construction and an additional 8.25 tons of soil could be eroded during grading, for a total soil loss of 14.78 tons if proposed BMPs are not implemented. The potential for greatest soil loss is from the Silty Loam, because it is more susceptible to erosion than clayey soils, and is the predominant soil type making-up about 90% of the project area for both the site and linear areas. With the implementation of BMPs to limit erosion and trap eroded sediments, the applicant estimated that the soil loss from the WCEP site as a result of water erosion would be reduced to approximately 0.0095 tons per year (EME 2005a, Section 8.11.2.4, Table 8.11-2).

The Draft Construction Drainage Erosion and Sediment Control Plan/Stormwater Pollution Prevention Plan (DESCP/SWPPP) submitted by the applicant provides erosion control BMPs to address soil erosion (CH2MHILL 2006a, Attach. S&W-1). Staff believes that implementation of an approved DESCP will limit erosion and control drainage to avoid significant adverse impacts to soils and water quality in conformance with Condition of Certification **Soil and Water-1**. The applicant will also prepare a SWPPP for Construction Activity for control of runoff from the WCEP site in conformance with Condition of Certification **Soil and Water-2**. Primary earth-disturbing construction activities with potential for erosion impacts, would be scheduled during spring through fall, when rain and stormwater runoff conditions are the least. The construction BMPs would include implementing silt fences, sand bags, hay bales, geotextiles, fiber rolls, dust control, and stockpile management. The laydown area would be covered with gravel to accommodate all-weather use and to protect the ground surface.

Wind erosion can lead to adverse soil impacts through the loss of topsoil, and fugitive dust, degrading air quality. The applicant proposes to employ BMPs including watering the WCEP site daily and to enclose, cover, water, or treat soil stock piles to limit soil loss due to wind erosion; consistent with Condition of Certification **Soil and Water-1**.

Staff believes that these recommendations are sufficient to mitigate soil loss due to wind erosion.

As part of the applicant's updating of the Phase I Environmental Site Assessment and Phase II Groundwater Monitoring performed in September 2005, composite soil samples from the WCEP site were analyzed for inorganic chemicals contamination. The results of the analysis indicated that all Title 22 metal concentrations were either not detected, or below their respective Total Threshold Limit Concentrations (TTLC) as specified under California's regulations for toxicity (EME 2005a, App. 8.14b). Therefore, staff does not believe there is a potential to encounter soil contamination during the course of WCEP construction, or potential for a significant adverse impact related to soil contamination.

Staff believes the proposed construction scheduling and methods for erosion and drainage control, including the development of a Final DESCP consistent with Condition of Certification **Soil and Water-1** and a SWPPP for Construction Activity in accordance with Condition of Certification **Soil and Water-2** , will avoid significant adverse impacts from soil loss and erosion during WCEP construction.

Surface Hydrology and Flooding

WCEP site construction would not alter the existing drainage patterns and not result in increased runoff volumes. Because the WCEP site would discharge stormwater runoff, it must comply with the Los Angeles County General NPDES Permit and Stormwater Management Plan. The NPDES Permit regulates stormwater effluent limitations, specifies monitoring and reporting requirements, and requires preparation and implementation of a SWPPP for construction activities. Staff does not believe that construction will have an adverse impact on surface water hydrology or exacerbate flooding, if recommended BMP's are implemented and LORs are followed during the construction process.

Groundwater

Groundwater will not be used for a water supply source for project construction, with the exception of the impaired groundwater that will be used as a reclaimed water source, from Rowland Water District. Because of the depth to groundwater at the WCEP, no groundwater dewatering is anticipated to be needed as part of the construction. No structures will be constructed to such a depth at the WCEP to result in natural groundwater flow interference. Maximum depth of excavations is expected to be about 8 feet, compared to a normal depth of groundwater below ground surface of about 20 to 25 feet below the surface.

As part of the applicant's updating of the Phase I Environmental Site Assessment and Phase II Groundwater Monitoring performed in September 2005, groundwater was sampled from three temporary test wells on the WCEP site. The test wells were bored to a depth of 35 feet. The groundwater was analyzed for VOC contamination. The results of the analysis indicated that four chemicals are slightly above Maximum Contaminant Limits. These chemicals included the VOCs, perchlorate, tetrachloroethane (PCE), and the chemicals chromium, and lead. It is unlikely that past activities on the WCEP parcel contributed to the presence of these chemicals in the

groundwater at the site. As part of the EPA Superfund Site cleanup, current plans for pumping and treating contaminated groundwater do not involve remediation activities from the WCEP site.

Staff believes that there will not be a significant adverse impact on groundwater, or potential to spread contaminants in the groundwater, as a result of construction of the WCEP.

Water Supply

During construction, WCEP would use less than 12,000 gallons per day of reclaimed water, primarily for dust control. Water will be supplied by Rowland Water District under a temporary construction service. Reclaimed water will be available for the project prior to the start of construction activities. Given the small amount of water that will be used during construction, and the fact that this water will be reclaimed water, staff does not believe that construction will have an adverse impact on water supply.

Wastewater

Construction wastewater generated onsite may include stormwater runoff, groundwater from dewatering, equipment washdown water, and water from pressure testing the service utilities. Improper handling or containment of construction wastewater could cause a broader dispersion of contaminants to soil, groundwater or surface water. During construction, construction wastewater and stormwater runoff will be managed to maintain compliance with the required Drainage, Erosion and Sediment Control Plan and Construction SWPPP, consistent with Conditions of Certification **Soil and Water-1** and **Soil and Water-2**. The discharge of any non-hazardous or hazardous wastewater during construction other than stormwater must be in compliance with regulations for discharge. Staff concludes that no significant impact to wastewater will occur if the above mentioned mitigation measures are implemented.

Stormwater

WCEP's drainage plans are to collect stormwater at both the northwest and northeast corners of the site, where the WCEP drainage would be conveyed into the LACDPW's stormwater system. LACDPW's stormwater system is regulated overall under a NPDES Permit as issued by the LARWQCB. During construction, WCEP would manage stormwater by implementing BMPs in accordance with a SWPPP for Construction Activity as regulated by the LARWQCB, and in accordance with a DESCP as administered by the Energy Commission.

During construction, stormwater runoff at the WCEP site has a greater potential to erode soils that have been recently uncovered from the removed warehouse and paving, and disturbed by grading and excavation. Construction BMPs would include implementing silt fences, sand bags, hay bales, geotextiles, fiber rolls, dust control, and stockpile management. The laydown area would be covered with gravel to accommodate all-weather use and to protect the ground surface. Hazardous materials used during construction would be properly stored and contained, and any spills occurring during handling, would be promptly cleaned-up to avoid contamination of stormwater.

Staff believes the proposed construction scheduling and methods for erosion and drainage control, including the development of a Final DESCP consistent with Condition of Certification **Soil and Water-1** and a SWPPP for Construction Activity in accordance with Condition of Certification **Soil and Water-2**, will avoid significant adverse impacts from stormwater during WCEP construction.

Operation Impacts and Mitigation

Operation of the WCEP should not significantly impact soil, stormwater runoff, water quality, water supply, and wastewater, if conditions of certification are implemented. Water quality and soils would not be impacted by the discharge of hazardous materials released during operation because secondary containment structures associated with hazardous materials located at the site would preclude contact with soils, groundwater, and surface water. Water supply for plant processes and cooling would not lead to impacts to existing water sources. Wastewater discharge could lead to potential impacts if WCEP discharges wastewater with constituent concentrations beyond discharge limits. Potential impacts related to the operation of the WCEP including the applicant's proposed mitigation measures and staff's proposed mitigation measures are discussed below.

Soils

During operation of the WCEP, the WCEP site would be primarily covered with paving and gravel, or landscaped so that soil exposure to wind and water is minimized. Further protecting the limited exposure of soils would be the implementation of stormwater drainage BMPs, as the project owner would need to comply with the requirements of the General NPDES Permit for Discharges of Stormwater Associated with Industrial Activity. Under this permit as specified in Condition of Certification **Soil and Water-3**, the project owner would develop and implement a SWPPP for the operation of the entire WCEP site (Operational SWPPP). Staff believes adverse impacts to soil, and the potential for soil erosion, would not be significant during WCEP operation

Surface Hydrology and Flooding

Surface flow at the facility is currently directed towards San Jose Creek. Although San Jose Creek is listed as a 303d listed impaired water body by the SWRCB, with algae listed as the impairing element, it does not appear that the WCEP will discharge anything to San Jose Creek, at any concentration, that would contribute to further San Jose Creek water quality degradation.

The WCEP site would be covered by paving and gravel surfaces with a small amount of landscaping. The quantity of post-condition runoff from the WCEP site would not exceed pre-condition runoff at the WCEP site. The City of Industry is considered a moderate to minimal flood hazard. The site is not within a 100 –year flood zone. The site is not in a tsunami danger zone. Staff does not believe operation of WCEP would cause any significant adverse impact from surface hydrology or exacerbate flooding.

Groundwater

Depth to groundwater can range from 15 to 50 feet below ground surface. The project will not use groundwater withdrawn from the site or alter groundwater flow. Surface spills will not impact groundwater because solid wastes and small amounts of hazardous waste that are generated would be properly contained, accounted for, tracked, handled, and disposed of off-site using licensed transporters and disposal facilities. For further details, see the Hazardous Waste Section. Staff believes that there will not be a significant adverse impact on groundwater, or potential to spread contaminants in the groundwater, as a result of operation of the WCEP.

Project Water Supply

WCEP will primarily use reclaimed water for plant operations, consisting typically of a blend of disinfected tertiary treated recycled water and impaired groundwater at an average ratio of 84% and 16% respectively. In considering the availability of reclaimed water supply for WCEP, the Rowland Water District (RWD) has provided two Will-Serve letters indicating their ability to meet the water supply needs of the WCEP. In their letter dated October 31, 2005, RWD stated that their facilities during normal operating conditions were adequate to meet the water system requirements of WCEP (EME 2005a, App. 7A). In a subsequent letter dated May 24, 2006, RWD clarified that the capacity of their reclaimed water system that would serve WCEP will be expanded to about 6,000 gpm sometime in 2008 in accordance with their Recycled Water Master Plan. RWD indicated that their reclaimed water system will be capable of meeting the demands of WCEP and other anticipated reclaimed water customers (CH2MHILL 2006b, Attach. S&W-2). The Applicant has proposed commercial operation in August 2008. Considering RWD's expansion was under bid for construction as of the date of their May 2006 letter, staff believes it is reasonable to expect RWD's reclaimed water supply would be available sometime in 2008, before the WCEP would likely start commercial operation.

Use of reclaimed water satisfies State LORS, policies and guidance, including the Energy Commission's water conservation policy adopted in its 2003 Integrated Energy Policy Report related to conserving potable water supplies. Water use for cooling represents about 99% of the WCEP's water demands on both an average and peak basis, and will consist of reclaimed water. It is anticipated that this usage will average 1,450 gallons per minute (gpm) with a maximum of 1,984 gpm required. On an annual basis the applicant indicates that WCEP will use an average of 885 acre-feet and a maximum of 1,074 acre-feet of reclaimed water.

WCEP would use potable water delivered from Rowland Water District to supply domestic uses, for fire suppression, and to serve as a back-up water supply for the process needs normally supplied by reclaimed water. Normally, the WCEP is anticipated to use an average of 3 gpm and a maximum of 8 gpm potable water for domestic uses. Potable water use as a backup to reclaimed water would likely be minimal. Historically, during a 5-year period, from 2001 – 2005, interruptions in RWD's recycled water supply ranged from a minimum of 0 hours/year to a maximum of 58 hours/year, with an average of 15 hours/year. Most of the outages (70 of 75 total hours) were associated with planned maintenance occurring during the night which is when WCEP's power peaking demands (and thus water demands) would be the least. The

balance of outages (5 of 75 hours) were associated with high inflows from stormwater infiltration to the sewer system, which also coincides with periods when WCEP's power demands would typically be less (CH2MHILL 2006b, DR68).

WCEP would have on-site storage of 180,000 gallons, which alone would be capable of maintaining WCEP's operation during a reclaimed water supply interruption of 2 hours during average and 1.5 hours during peak conditions. In addition, WCEP would likely be able to draw on some of RWD's reclaimed water system storage. Staff believes a reasonable estimate of RWD's additional storage available to WCEP would be about 3 million gallons of the total 9 million gallons of RWD's projected storage capacity (CH2MHILL 2006b, DR67). This estimate is based on the assumption WCEP could draw on 33% of the total storage based on the ratio of WCEP's peak demands of 1,984 gpm vs. the total 6,000 gpm capacity of the reclaimed water delivery system for all customers. With RWD's additional reclaimed water storage, WCEP may have capability to maintain operation during a reclaimed water supply interruption for about 36 hours during average conditions, and about 26 hours during peak conditions.

Considering the historical reliability and redundancies in the reclaimed water system, staff believes the reclaimed water supply would be highly reliable for WCEP operation. Staff has also confirmed RWD's ability to provide potable water for WCEP cooling as an emergency backup water supply without adverse effects to RWD's system (CEC 2006r). Condition of Certification **Soil and Water-7** would limit the use of potable water as a backup to reclaimed water to 95 acre-feet/year (about a 1 month supply), and requires reporting disruptions to the reclaimed water service in the annual compliance report, including the cause and associated volume of potable water used. Staff believes that limiting the project's use of potable water is warranted because use of potable water is considered a waste or unreasonable use for power plant cooling, when reclaimed water is reasonably available.

If the WCEP is approved by the Energy Commission, staff would propose that WCEP be required to verify actual water use consistent with the proposed project. Therefore, staff recommends the project owner be required to submit water use data in accordance with Condition of Certification **Soil and Water-6**. In order to complete this task, the WCEP project owner would install and maintain metering devices as part of the water supply and distribution system to separately monitor and record use of reclaimed and potable water. An summary of water use by the WCEP would be submitted to the CPM in the Annual Compliance Report.

Since reclaimed water would be used for cooling tower makeup, other process water, and equipment wash water, the reclaimed water must meet the California Code of Regulations, Title 22, Division 4 requirements. All reclaimed water pipelines, storage tanks, and ancillary facilities would need to be constructed in compliance with Titles 17 and 22 of the CA Code of Regulations. Title 17 addresses the requirements for backflow prevention and cross connections, while Title 22 addresses public health and use restrictions. Condition of Certification **Soil and Water-5** requires the project owner to prepare a Dual Plumbing Plan for the use of both reclaimed and potable water at WCEP. Rowland Water District and Los Angeles County Department of Health Services would review and comment on the Dual Plumbing Plan, and the CPM would review and approve it. The Dual Plumbing Plan would demonstrate the adequacy of separation

between the reclaimed and potable water systems, and prevent the potential for cross-connection or backflow, thereby protecting the health of WCEP personnel.

In order to demonstrate WCEP's entitlement to water supply for reliable operation, prior to commercial operation, Condition of Certification **Soil and Water-8** requires the project owner to secure a Water Supply Service Agreement for reclaimed and potable water service from Rowland Water District. The project owner is to report to the CPM any incidents of non-compliance with the service agreement (e.g. exceeding maximum delivery rates or annual volumes of potable and reclaimed water supply), corrective measures to avoid recurrence, and the results of implementing any corrective measures.

No impacts are anticipated from the selection of reclaimed water as the primary water source, or from the use of potable water as the back-up water source. Staff believes that if the above mentioned conditions of certification are implemented by WCEP, then water supply and usage by the project will not result in a significant adverse impact.

Wastewater

Wastewater would consist of effluent from both process and sanitary sources. The WCEP would generate plant wastewater from discharges of cooling tower and process blowdown, backwash from filtration of reclaimed water, and sanitary wastewater. Disposal of this wastewater would be through a discharge from the plant wastewater sump to the sewer system. The average discharge is expected to be 280 gpm, with a maximum of 445 gpm. Wastewater discharges to the sewer system from WCEP must comply with the limits set forth by the LACSD. Each waste stream would be checked as part of the routine maintenance procedures to ensure that the discharge to the existing sewer is within required LACSD discharge limits, as listed in **Soil & Water Table 3.**

Circulating (or cooling) water system blowdown would consist of reclaimed water that has been concentrated by approximately five cycles of concentration and will also contain the residue of the chemicals added to treat the circulating water. Cooling water treatment will require the addition of a pH control agent, a mineral scale dispersant, corrosion inhibitors, and biocides. These chemicals control scaling and biological growth in cooling towers and corrosion of the circulating water piping and condenser tubes. The waste stream would be returned to the sanitary sewer system.

Miscellaneous plant drainage would consist of process water drainage, equipment leakage, and drainage from facility containment areas. Water from those areas would be collected in a system of floor drains, sumps, and pipes within the WCEP, pass through an oil/water separator and discharged to the sewer system.

Estimated wastewater quality data, which includes the combined process waste streams summarized above, indicate the WCEP would be able to meet the LACSD discharge standards. This is evident in reviewing **Soil & Water Table 3** - Comparison of WCEP's Wastewater Discharge Quality at Maximum Concentration versus LACSD's Discharge Limits. The estimated wastewater discharge of up to 445 gpm is also within the capacity of LACSD's pipeline and treatment capacity. LACSD has provided the applicant with verbal confirmation that it can accept the quantity and quality of the

WCEP wastewater, while the permit application is being processed (CH2MHILL 2006d, Section 7.4).

Sanitary wastewater generated from sinks, toilets and other sanitary facilities at the WCEP will also discharge to the sewer system. The predicted average daily sanitary wastewater discharge is 1 gpm, with a maximum of 2 gpm. The effluent load is within the treatment, conveyance, and disposal capacities.

No significant adverse impacts are expected from any WCEP wastewater discharge after adoption and implementation of staff's recommended Condition of Certification **Soil and Water-9**, and if the project is operated in compliance with applicable LORS. **Soil and Water-9** requires the Applicant to obtain a Permit for Industrial Wastewater Discharge from LACSD in accordance with their Wastewater Ordinance, and comply with all permit conditions including discharge limitations, pretreatment requirements, peak flow restrictions, dewatering discharges, payment of fees and monitoring and reporting requirements (CH2MHILL 2006d, Table 8.15-5).

Stormwater

WCEP's drainage plans are to collect stormwater at both the northwest and northeast corners of the site, where the WCEP drainage would be conveyed into the LACDPW's stormwater system, which ultimately drains into San Jose Creek. LACDPW's stormwater system is regulated overall under a National Pollution Discharge Elimination System (NPDES) Permit as issued by the Los Angeles Regional Water Quality Control Board (LARWQCB).

WCEP's drainage would be accomplished by gravity flow. Most of the site would be graded to a minimum slope of 0.5 %, which would direct runoff overland to inlets of the underground drainage system. The largest portion of the stormwater system capable of discharging runoff into San Jose Creek would collect runoff from WCEP roads, other paved or gravel-surfaced areas and landscaped areas. Stormwater and drainage within hazardous material containment areas and around plant equipment convey to an independent collection system, treating drainage by passing through an oil/water separator. Oil-free drainage would then be recycled to the cooling tower basin, thereby protecting water quality in San Jose Creek.

The WCEP's stormwater system would be designed for a 1-hour, 25-year storm event that would yield runoff from the WCEP site at a rate of about 28 cubic feet per second (cfs) (EME 2005a, App. 7c). The existing WCEP site is currently 100% covered by impervious surfaces, consisting of the large warehouse and paving. Comparatively, the proposed WCEP would be covered by about 28% impervious surfaces consisting of paving, concrete and equipment, and about 72% semi-pervious surfaces consisting of gravel and landscaping. Therefore, the WCEP would have a positive effect by reducing the rate of stormwater runoff from the 11.5 acre site compared to existing conditions.

The project owner would comply with the requirements of the General National Pollutant Discharge Elimination System (NPDES) Permit for Discharges of Stormwater Associated with Industrial Activity. The project owner would develop and implement a Storm Water Pollution Prevention Plan (SWPPP) for the operation of the entire WCEP

site (Operational SWPPP) in accordance with Condition of Certification **Soil and Water-3.** During operation, WCEP would also manage stormwater in accordance with a Water Quality Agreement as issued by LACDPW in accordance with Condition of Certification **Soil and Water-4**.

Cumulative Impacts and Mitigation

Activities related to the WCEP project would not result in cumulative impacts to water and soil resources. In regard to the incremental effect of RWD serving primarily reclaimed water with an emergency backup of potable water supply to WCEP, RWD has indicated that it will have the capacity for meeting the demands of WCEP and other anticipated water customers before WCEP would become operational (CH2MHILL 2006b, Attach. S&W-2). The WCEP project would be replacing an existing industrial facility, and would result in a lower rate of stormwater runoff than occurs on the site currently associated with the existing warehouse and paving. Staff is not aware of any other existing projects occurring in the area that combined with WCEP, would result in cumulative impacts to soil and water resources. Further, staff is not aware of any reasonably foreseeable future projects that, together with the WCEP incremental effects, would result in a significant adverse impact to soil and water resources.

NOTEWORTHY PUBLIC BENEFITS

The WCEP would have a positive effect by reducing the rate of stormwater runoff from the 11.5 acre site compared to existing conditions.

CONCLUSIONS

With the information provided to date, staff has not identified any unmitigated significant impacts to soil and water resources provided that all of the Conditions of Certification are met. The WCEP would comply with all applicable soil and water resources LORS, and avoid potentially significant adverse impacts through the preparation and implementation of various construction and operating plans. The construction and operation of WCEP would not affect surface water and groundwater supplies and quality, lead to accelerated erosion and sedimentation, exacerbate flooding by impairing drainage conditions, or allow wastewater to be discharged in a manner that would degrade surface or ground water quality.

PROPOSED CONDITIONS OF CERTIFICATION

SOIL & WATER-1 Prior to site mobilization, the project owner shall obtain CPM approval for a site-specific Drainage, Erosion and Sedimentation Control Plan (DESCP) that ensures protection of water quality and soil resources of the WCEP site and all linear facilities for both the construction and operational phases of the project. This plan shall address appropriate methods and actions, both temporary and permanent, for the protection of water quality and soil resources, demonstrate no increase in off-site flooding potential, meet local requirements, and identify all monitoring and maintenance activities. The plan shall be consistent with the grading and drainage plan as required by

condition of certification **CIVIL-1** and may incorporate by reference any Storm Water Pollution Prevention Plan (SWPPP) developed in conjunction with any NPDES permit. The DESCP shall contain the following elements:

- Vicinity Map – A map shall be provided indicating the location of all project elements with depictions of all significant geographic features including swales, storm drains, and sensitive areas.
- Site Delineation – The Project, which includes the actual facility, lay down area, all linear facilities, and other project elements, shall be delineated showing boundary lines of all construction areas and the location of all existing and proposed structures, pipelines, roads, and drainage facilities.
- Watercourses and Critical Areas – The DESCP shall show the location of all nearby watercourses including swales, storm drains, and drainage ditches. Indicate the proximity of those features to the WCEP construction site; lay down area, and all pipeline and transmission line construction corridors.
- Drainage – The DESCP shall provide a topographic site map showing all existing, interim and proposed drainage systems; drainage area boundaries and water shed size(s) in acres; the hydraulic analysis to support the selection of Best Management Practices (BMPs) to divert off-site drainage around or through the WCEP site and laydown areas. On the map, spot elevations are required where relatively flat conditions exist. The spot elevations and contours shall be extended off-site for a minimum distance of 100 feet in flat terrain.
- 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 extents of all proposed grading as shown by contours, cross sections or other means. The locations of any disposal areas, fills, or other special features shall also be shown. Illustrate existing and proposed topography tying in proposed contours with existing topography. The DESCP shall include a statement of the quantities of material excavated or filled for each element of the WCEP (project site, lay down area, transmission corridors, and pipeline corridors), whether such excavations or fill is temporary or permanent, and the amount of such material to be imported or exported.
- 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, project element excavation and construction, and final grading/stabilization). Separate BMP implementation schedules shall be provided for each project 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 project element excavation and construction, final grading/stabilization, and following construction. BMPs shall include measures designed to control dust and stabilize construction access roads and entrances. BMPs shall include measures designed to prevent wind and water erosion in areas with existing soil contamination. The maintenance schedule should include post-construction maintenance of erosion control BMPs.

- Erosion Control Drawings -- The erosion control drawings and narrative must be designed and sealed by a professional engineer/erosion control specialist.

Verification: No later than 90 days prior to start of site mobilization, the project owner shall submit a copy of the plan to the City Of Industry Public Works Department for review and comment. No later than 60 days prior to start of site mobilization, the project owner shall submit the plan and comments to the CPM for review and approval. During construction, the project owner shall provide an analysis in the monthly compliance report on the effectiveness of the drainage, erosion and sediment control measures and the results of monitoring and maintenance activities. Once operational, the project owner shall provide in the annual compliance report information on the results of monitoring and maintenance activities demonstrating the adequacy of all BMPs.

SOIL & WATER-2 The project owner shall comply with the requirements of the General National Pollutant Discharge Elimination System (NPDES) Permit for Discharges of Stormwater Associated with Construction Activity. The project owner shall develop and implement a Storm Water Pollution Prevention Plan (SWPPP) for the construction of the entire WCEP site, lay down area, and all linear facilities (Construction SWPPP), and shall submit copies to the CPM of all correspondence between the project owner and the RWQCB about the General NPDES permit.

Verification: The project owner shall submit copies to the CPM of all correspondence between the project owner and the RWQCB about the General NPDES permit for the Discharge of Stormwater Associated with Construction Activities within 10 days of its receipt (when the project owner receives correspondence from the RWQCB) or within 10 days of its mailing (when the project owner sends correspondence to the RWQCB). This information shall include copies of the Notice of Intent and Notice of Termination for the project. The project owner shall notify the CPM of any reported non-compliance with the Construction SWPPP.

SOIL & WATER-3 The project owner shall comply with the requirements of the General National Pollutant Discharge Elimination System (NPDES) Permit for Discharges of Stormwater Associated with Industrial Activity. The project owner shall develop and implement a Storm Water Pollution Prevention Plan (SWPPP) for the operation of the entire WCEP site (Operational SWPPP), and shall submit copies to the CPM of all correspondence between the project owner and the RWQCB about the General NPDES permit.

Verification: At least 60 days prior to commercial operation, the project owner shall submit copies to the CPM of the Operational SWPPP for the entire WCEP site for review and approval. This information shall include a copy of the Notice of Intent. Following the commercial operation date, the project owner will notify the CPM of any reported non-compliance with the SWPPP, any associated corrective measures, and the results of implementing those measures. In addition, the project owner shall submit copies to the CPM of all correspondence between the project owner and the RWQCB about the General NPDES permit.

SOIL & WATER-4 The project owner shall obtain a Water Quality Agreement for commercial connection of the WCEP's operational stormwater system to the County's flood control system from Los Angeles County Flood Control District/Department of Public Works. WCEP shall comply with all stormwater discharge requirements, including pretreatment, peak flow restrictions, payment of fees, and monitoring and reporting requirements as applicable. The CPM shall be notified in writing of any reported non-compliance with the Water Quality Agreement's discharge requirements, including corrective measures for non-compliance and the results of implementing those measures.

Verification: At least 30 days prior to WCEP commercial operation, the project owner shall provide the CPM with a copy of its Water Quality Agreement for commercial connection to the County's flood control system from Los Angeles County Flood Control District/Department of Public Works. The CPM shall be notified in writing within 10 days of any reported non-compliance with the Water Quality Agreement's discharge requirements, including corrective measures for non-compliance and the results of implementing those measures.

SOIL & WATER-5 Prior to site mobilization, the project owner shall submit a Dual Plumbing Plan for using reclaimed and potable water to Rowland Water District and Los Angeles County Department of Health Services for review and comment, and to the CPM for review and approval. The Dual Plumbing Plan shall be prepared in accordance with Los Angeles County Department of Health Services requirements and Title 22 of the State Water Code. The project owner shall comply with any reporting and inspection requirements set forth by the County Department of Health Services to fulfill statutory requirements. Following site mobilization, the project owner shall submit a written summary in the Monthly Compliance Reports, reporting the status of the Dual Plumbing Plan's review by Rowland Water District and Los Angeles County Department of Health Services, and the plan's implementation.

Verification: At least 90 days prior to the start of any site mobilization activities, the project owner shall submit the Dual Plumbing Plan to the Rowland Water District and Los Angeles County Department of Health Services for review and comment, and to the CPM for review and approval. Following site mobilization, the project owner shall submit a written summary in the Monthly Compliance Reports, reporting the status of the Dual Plumbing Plan's review by Rowland Water District and Los Angeles County Department of Health Services, and the plan's implementation following approval by the CPM.

SOIL & WATER-6 The project owner shall use reclaimed water as its primary water supply for cooling, process, and other approved non-potable uses. Any proposed changes in water supply that could cause an increase in WCEP's potable water use in excess of the limit specified in **SOIL & WATER-7** must first be approved by the Energy Commission. Prior to commercial operation, the project owner shall install and maintain metering devices as part of the WCEP reclaimed and potable water supply and distribution system to monitor and record in gallons per day the total volumes of water supplied to the

WCEP from each water source. Those metering devices shall be operational for the life of the project.

The project owner shall prepare an annual Water Use Summary, which will include the monthly range and monthly average of daily potable and reclaimed water usage in gallons per day, and total water used by the project on a monthly and annual basis in acre-feet. For subsequent years, the annual Water Use Summary shall also include the yearly range and yearly average water use by the project. The annual summary shall be submitted to the CPM as part of the annual compliance report, and shall include a report on the servicing, testing and calibration of the metering devices.

Verification: At least 60 days prior to commercial operation of the WCEP, the project owner shall submit to the CPM proof that metering devices have been installed and are operational on the reclaimed and potable water supply distribution systems to WCEP. Water use may be based on metering or billings from the supplier. Any proposed changes in water supply that could cause an increase in WCEP's potable water use in excess of the limit specified in **SOIL & WATER-7** must first be approved by the Energy Commission.

The project owner shall submit a Water Use Summary to the CPM in the annual compliance report. The summary report shall distinguish between recorded water use of reclaimed and potable water. Included in the summary report of water use, the project owner shall submit copies of meter records documenting the quantities of reclaimed water provided. The project owner shall provide a report on the servicing, testing and calibration of the metering devices in the annual compliance report.

SOIL & WATER-7 The project owner shall not exceed 95 AF of potable water use per calendar year as emergency backup water supply, without written authorization from the CPM. The project owner shall monitor the use of emergency backup water and report estimated usage prior to any planned reclaimed water system outages, and report total usage to the CPM immediately after any occurrence when potable water is used as a backup water source. Potable water shall not be used for cooling, process, and other approved non-potable uses when reclaimed water is available. When necessary to use potable water for emergency backup supply, it shall not exceed the minimum amount required to allow for the re-introduction of reclaimed water as the main water supply source following disruption of reclaimed water service. The project owner will report all disruptions to the reclaimed water service in the annual compliance report, including the cause, associated volume of potable water used, and the total annual use for the year and for two years prior.

Verification: At least 30 days prior to any planned interruption in reclaimed water supply, the project owner shall notify the CPM in writing of the potential use of emergency backup potable water and provide an estimate of the volume required to continue normal power generation. During any unplanned outages in reclaimed water supply, the project owner shall notify the CPM that emergency backup potable water is being used. The project owner will document total usage for each service interruption where potable water was used as an emergency backup. The project owner shall report

all disruptions to the reclaimed water service in the annual compliance report, including the cause, associated volume of potable water used, and the total annual use for the year and for two years prior. The project owner shall not exceed 95 AF of potable water use per calendar year as emergency back-up water supply, without written authorization from the CPM.

SOIL & WATER-8 The project owner shall secure a Water Supply Service Agreement for reclaimed and potable water service from Rowland Water District. The project owner shall report to the CPM any incidents of non-compliance with the service agreement (e.g. exceeding maximum delivery rates or annual volumes of potable and reclaimed water supply), corrective measures to avoid recurrence, and the results of implementing those measures.

Verification: At least 30 days prior to WCEP commercial operation, the project owner shall provide the CPM with a copy of its Water Service Agreement with Rowland Water District. The CPM shall be notified within 10 days of any incidents of non-compliance with the terms of the Water Service Agreement, including proposed corrective measures to avoid recurrence, and the results of implementing those measures.

SOIL & WATER-9 The project owner shall obtain a Permit for Industrial Wastewater Discharge and comply with the wastewater discharge limitations, pretreatment requirements, peak flow restrictions, dewatering discharges, payment of fees, and monitoring and reporting requirements of Los Angeles County Sanitation District.

Verification: At least 30 days prior to WCEP commercial operation, the project owner shall provide the CPM with a copy of its Permit for Industrial Wastewater Discharge from Los Angeles County Sanitation District. The CPM shall be notified in writing within 10 days of any reported non-compliance with Los Angeles County Sanitation District's discharge requirements, including corrective measures for non-compliance and the results of implementing those measures.

REFERENCES

CEC 2006r – California Energy Commission /J.Kessler (tn:36678). Report of Conversation with Ken Deck – General Manager of Rowland Water District, to confirm potable water availability to backup reclaimed water supply.11/29/2006

CH2MHILL 2006a – CH2MHILL/J.Carrier (tn:36678). Applicant's Responses to CEC Staff Data Requests 1 – 97. POS 4/10/2006. Rec'd 4/10/2006.

CH2MHILL 2006b – CH2MHILL/D.M. Davy, Ph.D. (tn:37046). Supplemental Data Responses (Set 1 – 97), Responses to Workshop Questions, and Data Responses 98 – 99. 5/31/2006. Rec'd 5/31/2006.

CH2MHILL 2006c – CH2MHILL/D.M. Davy, Ph.D. (tn:37317). Supplement II in Response to Data Request 1 – 104 and April 25 Workshop queries in support of the Application for Certification for the Walnut Creek Energy Park. 7/07/2006. Rec'd 7/07/2006.

CH2MHILL 2006d – CH2MHILL/D.M. Davy, Ph.D. (tn:37786). Supplement III in Response to Data Request 1 – 104 and April 25 Workshop queries in support of the Application for Certification for the Walnut Creek Energy Park. 9/01/2006. Rec'd 9/01/2006.

EME 2005a – Edison Mission Energy/GPL:bpm (tn:35950). Walnut Creek Energy Park AFC. 11/21/2005. Rec'd 11/22/05.

TRAFFIC AND TRANSPORTATION

Mark R. Hamblin

SUMMARY OF CONCLUSIONS

Staff has analyzed the traffic related information provided in the Application For Certification (AFC) and other sources to determine the potential for the Walnut Creek Energy Park (WCEP) to have significant traffic and transportation impacts, and has assessed the availability of mitigation measures that could reduce or eliminate the significance of these impacts.

The effective implementation of the mitigation measure(s) identified by the applicant and staff's recommended condition(s) of certification would prevent an adverse significant traffic and transportation impact, and ensure that the project complies with applicable laws, ordinances, regulations, and standards (LORS) pertaining to traffic and transportation.

INTRODUCTION

In the Traffic and Transportation section, staff addresses the extent to which the proposed WCEP may affect the traffic and transportation system within the vicinity of the project site. This analysis focuses on whether construction and operation of the WCEP would cause traffic and transportation impact(s) under the California Environmental Quality Act (CEQA) and whether the project would be in compliance with applicable LORS.

LAWS, ORDINANCES, REGULATION, AND STANDARDS

TRAFFIC AND TRANSPORTATION Table 1 provides a general description of adopted federal, state, and local LORS pertaining to traffic and transportation applicable to the project.

TRAFFIC AND TRANSPORTATION Table 1
Laws, Ordinances, Regulations, and Standards

Applicable Law	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.
CFR, 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	Includes regulations pertaining to licensing, size, weight and load

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	upon vehicles operated on highways, safe operation of vehicles, and the transportation of hazardous materials.
California Streets and Highway Code, Division 1 & 2, Chapter 3 & Chapter 5.5	Includes regulations for the care and protection of State and County highways, and provisions for the issuance of written permits.
Local	
Los Angeles County Code – Title15, Title 16, Title 32	Title 15 includes standards for vehicle and traffic operations. Title 16 includes permit requirements for work in a highway right-of-way. Title 32 adopts the California Fire Code and Uniform Fire Code, includes regulations regarding ingress/egress access for circulation of traffic and emergency response vehicles for development projects.
City of Industry General Plan – Circulation Element (circa 1980), and LOS standards	The Circulation Element provides direction and guidance relating to the transportation network that serves the City. It identifies the City's circulation system, policies, obstacles and problems, and improvement proposals.
City of Industry Municipal Code includes Development Plan Standards, and Zoning Ordinance –"Industrial Zone"	Development Plan Standards includes standards for ingress/egress access, truck loading and parking areas for new development projects. The Zoning Ordinance includes permitted uses and development requirements for the "Industrial Zone" designation on the project site.
City of Industry Transportation Demand Management Ordinance	Requires employee vehicle trip reduction measures for development projects that are 25,000 square feet or more.

SETTING

The WCEP is to be built in the City of Industry in Los Angeles County, California. The City of Industry is home to over 2,200 businesses, employing more than 80,000 people. The City's major land use is industrial. Its zoning is 92% "Industrial" and 8% "Commercial" (COI 2006i). Residential areas are small and located throughout the City. They were developed when the City was still an agricultural area prior to 1960. The City has a population of 800 (2005).

The City of Industry does not operate a traditional public works department. The City's Engineering Department provides construction management, survey support, and

inspection services for storm drains, sidewalks, curbs and gutters, traffic signals, street lights, and vehicular, bike and pedestrian projects within the City's public right-of-way. The Los Angeles County Department of Public Works provides street repair, maintenance, and construction services, and issues encroachment and excavation permits for activities within the City's right-of-way. The California Department of Transportation (Caltrans) manages, maintains, repairs, and improves highways and bridges within the State's right-of-way.

The City of Industry's traffic/transportation system is connected to regional airports, freeways, railroad service, and public transit that serve Los Angeles, Orange, Riverside and San Bernardino counties.

The City of Industry is located 18 miles from Ontario International Airport and approximately 40 miles from both Los Angeles International and John Wayne Airports. Private aircraft facilities are available at El Monte Airport eight miles northwest of the City, and Brackett Field in La Verne 11 miles northeast.

The City of Industry is surrounded by four major highways; State Route 60 (the Pomona Freeway), U.S. Interstate 605 (the San Gabriel River Freeway), State Route 57 (the Orange Freeway), and U.S. Interstate 10 (the San Bernardino Freeway).

The City is served by both the Union Pacific and Southern Pacific railroads, both run westerly to Los Angeles and easterly towards Riverside. Southern Pacific operates a mainline switching yard and major intermodal (piggy-back) facility in the City north of the project site.

Local bus service is provided by the Metropolitan Transit Authority, and Foothill Transit. A Foothill Transit stop for bus number 281 – Glendora, Route 66/Grand; and bus number 285 – Beach & La Habra is one block south of the project site (corner of S. Bixby Drive/E. Gale Ave). Foothill Transit also operates a 200 space park and ride lot in the City. Metrolink, a regional rail line provides commuter and other passenger services to nearby communities; operates a station in the city. State and nationwide service is available through Greyhound and Continental Trailways.

The Los Angeles County Metropolitan Transportation Authority operates approximately 475 miles of bikeways for commuter and recreational purposes within the greater metropolitan Los Angeles region. There are no designated bike paths shown within the immediate vicinity of the project site on the Metro Bike Map dated April 2006.

CRITICAL ROADS AND FREEWAYS

TRAFFIC AND TRANSPORTATION Table 2 identifies the critical roads and freeways in the vicinity of the project, and the functioning characteristics of each roadway. **TRAFFIC AND TRANSPORTATION Figure 1 and Figure 2** show existing traffic situations as presented by the applicant in the AFC.

TRAFFIC AND TRANSPORTATION Table 2
Characteristics of Critical Roadways in Project Vicinity

Name	Classification	Hourly Design Capacity [a]	Average Daily Traffic Volume [b, c, d]	Truck Traffic [b]	Peak Hour Volume [b, c]
Regional Roadways					
SR-60 (post mile 17.97)	Freeway	17,800	225,000	8%	14,800
I-605 (post mile 17.41)	Freeway	17,000	254,000	15%	16,200
SR-57 (post mile 4.52)	Freeway	17,800	199,000	8%	13,800
I-10 (post mile 36.5)	Freeway	17,900	240,000	7%	15,800
Local Roadways					
South Azusa Avenue	Arterial	5,100	55,600	-	3,750
South Hacienda Boulevard	Arterial	5,100	44,700	-	2,980
East Gale Avenue	Collector Road	3,400	27,300	-	2,260
East Chestnut Street	Local Road	1,700	3,260	-	169
South Bixby Drive	Local Road	1,700	1,440	-	160

[a] Vehicles/hour (both directions). Source: Highway Capacity Manual, Transportation Research Board (TRB), 2000
[b] Source: State of California, Department of Transportation, 2004
[c] Source: Los Angeles County Department of Public Works, Traffic Volumes
[d] City of Industry, Planning Department, 1997, Traffic Counts
Source: EME 2005a, page 8.12-7.

LEVEL OF SERVICE

"Level of Service" (LOS) is a qualitative measure describing operational conditions within a traffic stream. The LOS is a term used to describe and quantify the congestion level on a particular roadway or intersection, and generally describes these conditions in terms of such factors as speed, travel time, and delay. The Highway Capacity Manual[1] (HCM) defines six levels of service for roadways or intersections ranging from LOS A representing the best operating conditions and LOS F the worst. A more detailed description of LOS is found in **TRAFFIC AND TRANSPORTATION APPENDIX A.**

The City of Industry uses the LOS criteria, as defined by the Highway Capacity Manual, to qualitatively measure operational characteristics of local roadways. For local roadways within the City of Industry the LOS must be "D" or better.

[1] The *Highway Capacity Manual* (HCM) is the most widely used resource for traffic analysis. The Highway Capacity Manual is prepared by the Transportation Research Board, Committee on Highway Capacity and Quality of Service. The current edition was published in 2000.

For intersections, traffic impacts are analyzed by peak hour intersection capacity and operations, rather than daily roadway capacity. The measure of effectiveness for an intersection with traffic controls is control delay. An intersection LOS is identified through a letter designation, varying from LOS A (up to 10 seconds of delay) to LOS F (greater than 80 seconds of delay). For urban settings, LOS E (delays of 55 to 80 seconds) is considered to be the limit of acceptable delay. LOS F represents the worst condition with gridlock and is typically unacceptable. See **TRAFFIC AND TRANSPORTATION APPENDIX A** for further discussion.

TRAFFIC AND TRANSPORTATION Table 3 summarizes the existing LOS for intersections in the project vicinity. The intersections that are near the project, South Azusa Avenue/East Gale Avenue and East Gale Avenue/South Bixby Drive, currently operate at LOS D and LOS A, respectively.

A freeway LOS analysis was prepared for State Route 60 (SR-60) between Hacienda Boulevard and Azusa Avenue for 1992, 1998 and 2004. The analysis indicated that the peak operation LOS on SR-60 has consistently been between LOS E and LOS F (EME 2005a, pg. 8.12-9). Caltrans considers LOS D to be the limit of acceptable delay for state routes.

TRAFFIC AND TRANSPORTATION Table 3
Level of Service Summary for Existing Conditions

Level of Service Summary for Existing Conditions			
		Existing	
Intersection	**Peak Hour**	**LOS**	**Delay***
SR-60 Eastbound off ramp/South Azusa Avenue	Morning	D	35
	Evening	E	56
SR-60 Westbound off ramp/South Azusa Avenue	Morning	B	13
	Evening	A	9
South Azusa Avenue/East Gale Avenue	Morning	D	51
	Evening	D	36
East Gale Avenue/South Bixby Drive	Morning	A	9
	Evening	A	6
East Gale Avenue/South Hacienda Boulevard	Morning	C	31
	Evening	D	37

* Delay in seconds per vehicle.
Source: EME 2005a, pg. 8.12-7.

ACCIDENT HISTORY

The California Highway Patrol provided staff a three-year collision history from 2003 to 2005 for local roadways and regional highways in the proximity of the project. The data includes collisions at the intersection and 500 feet from it (see **TRAFFIC AND TRANSPORTATION Table 4**).

TRAFFIC AND TRANSPORTATION Table 4
Accident History of Surrounding Roadways in Project Vicinity 2003-2005

Intersection	Number of Accidents for 3-Year Period
Bixby Drive/Chestnut Street	2
Gale Avenue/Bixby Drive	16
Gale Avenue/South Azusa Avenue	75
South Azusa Avenue/SR-60	315
Chestnut Street/Anaheim Puente Road	6
Anaheim Puente Road/South Azusa Avenue	19
SR-60/Hacienda Boulevard	269
SR-60/I-605 [2]	457
I-10/I-605 [2]	391

Source: Roberta Tanger, California Highway Patrol, Accident Reports, June 1, 2006

ASSESSMENT OF IMPACTS AND DISCUSSION OF MITIGATION

METHOD AND THRESHOLD FOR DETERMINING SIGNIFICANCE

To determine whether there is a potentially significant impact generated by a project, staff reviews the project using the criteria found in the CEQA Guidelines Appendix G Environmental Checklist pertaining to Traffic and Transportation. Specifically, staff analyzed whether the proposed project would do the following:

- Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections);
- Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways;
- Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks;
- Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment);
- Result in inadequate emergency access;
- Result in inadequate parking capacity, and;
- Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks).

Although not included as Appendix G Traffic and Transportation items, staff also discusses potential traffic and transportation impacts pertaining to nearby school

[2] Typically, highway accident rates are calculated based on number of accidents per 100 million vehicles.

operations, ground level fogging of roads and highways, and the transportation of hazardous materials.

DIRECT/INDIRECT IMPACTS AND MITIGATION

Construction Impacts and Mitigation

Construction Workforce Traffic

Facility construction is projected to take place over 12 months from spring 2007 to spring 2008. The project's construction workforce requirements would be minimal during the mobilization and site grading period (during the first 3 months of the construction period) and during the startup and testing period (during the last 3 months of the construction period). Commercial operation is expected to commence by August 2008.

Construction activities would generally occur between the hours of 7 a.m. and 7 p.m., Monday through Friday. Peak commute hours in the vicinity of the project are 7:00 a.m. to 9:00 a.m. and 4:00 p.m. to 6:00 p.m.

The construction workforce (e.g., boilermakers, electricians, ironworkers, carpenters, et cetera) is expected to come from Los Angeles County. The workforce travel route is expected to use the following roadways: SR-60, South Azusa Avenue, East Gale Avenue, and South Bixby Drive. The primary access to the site is on South Bixby Drive.

The total on-site construction workforce for the project would average 220 workers per month for 12 months with a peak total workforce of 408 workers. The peak construction workforce level is expected to last from the sixth through ninth month of the construction period.

Construction Truck Traffic

Truck deliveries during the construction period would supply construction materials and power plant equipment. The truck route to the project site includes traveling on SR-60, South Azusa Avenue, East Gale Avenue, and South Bixby Drive. During the construction period the applicant estimates an average of 10 truck and heavy vehicle trips daily to the site with a peak of 18 deliveries. No truck trips are to occur during the morning and evening peak commute hours.

TRAFFIC AND TRANSPORTATION Table 5 summarizes the estimated average daily and peak trips to be generated during the construction period.

TRAFFIC AND TRANSPORTATION Table 5
Estimated Trip Generation During Average and Peak Construction Period

Vehicle Type	Average Daily Trips	Peak Daily Trips	Average Morning Peak Hour		Average Evening Peak Hours	
			In	Out	In	Out
Construction personnel [a]	220	408	220	0	0	220
Delivery Trucks [b]	5	8	0	0	0	0
Heavy Vehicles and Trucks [b]	5	10	0	0	0	0
Total	230	426	220	0	0	220

[a] Approximately 10 construction personnel trips (5 inbound and 5 outbound) associated with lunch and other business-related trips would occur from 9:00 a.m. to 4:00 p.m. (outside of peak hours).
[b] Delivery and other truck trips would occur from 9:00 a.m. to 4:00 p.m. (outside of peak hours)
Source: EME 2005a, Table 8.12-4, pg. 8.12-12

TRAFFIC AND TRANSPORTATION Table 6 shows the predicted change to critical intersection LOS levels during construction of the WCEP project.

TRAFFIC AND TRANSPORTATION Table 6
Level of Service Existing and Estimated at Peak Construction

Intersection	Peak Hour	Existing Condition		Estimate Peak Construction	
		LOS	Delay* (sec)	LOS	Delay* (sec)
SR-60 Eastbound off ramp/South Azusa Avenue	A.M.	D	35	D	47
	P.M.	E	56	E	57
SR-60 Westbound off ramp/South Azusa Avenue	A.M.	B	13	C	30
	P.M.	A	9	B	15
South Azusa Avenue/East Gale Avenue	A.M.	D	51	D	51
	P.M.	D	36	E	56
East Gale Avenue/South Bixby Drive	A.M.	A	9	B	13
	P.M.	A	6	B	15
East Gale Avenue/South Hacienda Boulevard	A.M.	C	31	C	32
	P.M.	D	37	D	36

* Delay in seconds per vehicle.
Source: EME 2005a Table 8.12-3, pg. 8.12-9 and Table 8.12-5, pg. 8.12-12

As shown in **TRAFFIC AND TRANSPORTATION Table 6** the project is expected to cause a reduction in the LOS at the intersections for westbound SR-60 and South Azusa Avenue and East Gale Avenue and South Bixby Drive during both morning and evening, and evening only for the intersection of South Azusa Avenue and East Gale Avenue. The intersection of the SR-60 eastbound off-ramp and South Azusa Avenue currently operates at LOS E and would remain at LOS E during peak construction (EME 2005a. pg. 8.12-12 -13), (**TRAFFIC AND TRANSPORTATION Figure 3** – aerial photo of South Azusa Avenue/East Gale Avenue intersection).

During evening peak hours (4:00 p.m. to 6:00 p.m.) the intersection of South Azusa Avenue/East Gale Avenue would degrade from LOS D to LOS E during the construction period, below the LOS D standard established by the City of Industry. The applicant has stated that trip reduction strategies could be implemented, such as staggering the construction workforce start and end times (EME 2005a. pg. 8.12-17).

As shown in **TRAFFIC AND TRANSPORTATION Table 6** the intersection of SR-60/South Azusa currently operates at an LOS E during the evening commute peak hours. In addition, SR-60 is expected to be congested throughout the day as a result of Caltrans highway construction projects. Caltrans is currently closing portions of SR-60 in the cities of Diamond Bar, Industry and Rowland Heights for a pavement replacement project. The project is estimated for completion in winter of 2008.

The applicant states that the construction contractor will be required to prepare a construction traffic control plan and construction management plan, also known as a Traffic Management Plan (TMP). The TMP would address timing of heavy equipment and building material deliveries, potential street and/or lane closures, signing, lighting, and traffic control device placement. Damage to any roadway opened during construction will be restored to or near its preexisting condition. The construction contractor will work with the local agency's engineer to prepare a schedule and mitigation plan for the roadways along the construction routes (EME 2005a. pg. 8.12-17). Staff concurs with the applicant's proposed preparation of a TMP as mitigation. Staff has proposed condition of certification **TRANS-3** which provides for the preparation of a construction traffic control and implementation plan. The applicant's proposed TMP would fulfill this condition.

Los Angeles County Code, Title16, section 16.06.200 requires the permittee to restore that portion of the public right-of-way damaged by the permittee's activity. Staff has proposed condition of certification **TRANS-4** to require the applicant to repair affected public rights-of-way (e.g., highway, road, bicycle path, pedestrian path, et cetera) to original or near original condition that have been damaged due to construction activities conducted for the project.

Hazards Due To A Street Design Feature

The primary access apron (driveway) to the WCEP is on South Bixby Drive at a bend in the road that transitions into East Chestnut Street. The posted speed along this segment of road is 15 miles per hour. The driveway is proposed to be 28 feet wide. The apron would be located approximately 415 feet from an active railroad crossing that is signalized and has safety crossing arms. The driveway location is not visually obstructed for at least 1,000 feet to the south along South Bixby Drive (absent any train), and to the east along East Chestnut.

Staff visited the project site on the afternoons of December 22, 2005 and November 2, 2006. Staff concludes that with the existing visually unobstructed distance from the project's proposed driveway, the operating signalized and safety crossing arms, the posted speed limit, and the current curb to curb street diameter at this location there would be a less than significant hazard affecting construction related traffic to the site.

Linear Facilities

Natural gas would be supplied to the proposed power plant by a connection to an existing 30-inch pipeline located on the project site. Industrial process water and potable water would be supplied to the site by connection to two underground pipelines located in South Bixby Drive adjacent to the site. The applicant would have to obtain an encroachment permit from the Los Angeles County Department of Public Works for work conducted within the City's public right-of-way. Staff has proposed condition of certification **TRANS-1** which requires the applicant to secure an encroachment permit in compliance with Los Angeles County Code, Title 16, section 16.06.010.

The WCEP would connect to the power grid by way of the Southern California Edison Walnut Substation. Southern California Edison has identified two generation tie-line alignment options to the substation. Both proposed 230 kV transmission tie-line options require overhead transmission lines to cross a row of four active Union Pacific railroad tracks that run along the south side of the project site. General Order No. 95 of the California Public Utilities Commission, 1998, requires that the minimum allowable vertical clearance of wires above railroad track thoroughfares for 230 kV supply conductors is 34 feet. The 230 kV transmission line towers are approximately 90 feet tall and would not affect railroad operations. Both transmission tie-line alignments would then travel approximately 1,200 feet west to a connection point located on the northwest corner of the substation property. The two transmission tie-line alignments do not cross any public surface streets.

Construction Workforce Parking and Laydown Area

The applicant states that the laydown area and construction worker parking areas would be located on the project site and the adjoining Southern California Edison easement north of the site (EME 2005a. pg. 8.12-13). The applicant's AFC did not provide a conceptual construction parking area diagram showing the size and exact location of the parking area including ingress/egress access, and parking lot circulation. According to the applicant, the available parking area would consist of 240,000 square feet (CH2 2006).

Southern California Edison (SCE), an Edison International Company, owns and maintains the SCE transmission right-of-way easement. Walnut Creek Energy, LLC (the applicant) is a wholly-owned subsidiary of Edison International. On March 28, 2006 Logistics Terminals, Inc. (LTI) entered into a lease option agreement with the applicant to use a portion of the SCE transmission easement adjoining the north boundary of the proposed WCEP site to construct a trailer and container storage area for LTI. The LTI lease option agreement is valid until December 31, 2011 (LTI 2006a). The applicant did not provide a copy of the executed LTI leasehold agreement.

Property owners in the easement area are responsible for maintaining their property in accordance with applicable government regulations; such as the City of Industry Municipal Code.

The construction of the container storage area would result in asphalt paving on approximately 20 acres of the SCE transmission right-of-way easement lying beneath the transmission lines in the City of Industry. No buildings are being proposed on the

container storage area. LTI expects to begin using the container storage area by mid-2007. Because the WCEP applicant may need space for parking and additional laydown area during construction, LTI has stated they will allow the applicant to utilize their leasehold for the container storage area on a temporary basis. Under the terms of their lease option agreement WCEP will have access to the container storage area for a period not to exceed 14 consecutive months from the effective date (LTI 2006a). Containers are to be transported to the storage area by tractor trailer possibly using South Bixby Drive or East Chestnut Street.

In order to estimate a possible area size for the temporary construction worker parking area, staff used the parking space calculation required for buildings with a parking lot found in City of Industry Development Plan Standard "K." Development Plan Standard "K" requires that a parking space have a minimum size of 9 feet by 19 feet (standard parking space), and 8 feet by 16 feet for compact spaces. Compact spaces are to account for no more than 20 percent of the required parking. The minimum travel lane width is 26 feet. Staff used a conservative assumption. If one 9' X 19' parking space were provided for each of the 408 peak workforce construction workers, the applicant would need an approximate 70,000 square foot area (1.6 acres) plus a 26-foot wide travel lane(s) to serve it. In comparison, a proposed 240,000 square foot (5.5 acres) parking area noted by the applicant would be of a size sufficient to address the project's peak construction workforce parking.

Staff has proposed condition of certification **TRANS-2** which requires the applicant to provide a parking plan to show the specific location, size, ingress/egress access and circulation for the proposed 240,000 square foot construction parking area, and to address potential project parking and circulation interference with the existing traffic flow on South Bixby Drive and East Chestnut Street.

Proximity To School

Glenelder Elementary School is the closest school to the WCEP site, approximately 1,500 feet away. It is located in a residential neighborhood southeast of the project site in Hacienda Heights, one-block south of East Gale Avenue and three-blocks west of South Bixby Drive on the south side of East Folger Street. The proposed construction workforce travel route is exclusively located in the City's industrial area. The construction route does not enter the residential neighborhood or pass Glenelder school. Staff drove the construction route on both December 22, 2005 and November 2, 2006 and did not see an identified school bus stop along it.

Operation Impacts and Mitigation

Operation Workforce Traffic

The proposed WCEP project would employ nine permanent workers spread over a 24-hour period when the project becomes operational. These employees are estimated to generate three trips during the morning peak hour and three trips during the evening peak hour.

The existing operating on-site warehouse leased by the ARC/Coastal Group Corporation is to be demolished, thereby allowing for the construction of the proposed

power plant. The warehouse operation currently employs 90 people. South Bixby Drive to East Gale Avenue has an LOS A at the current time.

The estimated WCEP employee trips would result in a tenfold reduction in total trip generation when compared to employee trips generated by the current warehouse operation. Therefore, trips by the WCEP operation employees would not result in a significant adverse impact to traffic and transportation.

Truck Traffic

The estimated truck trips for the WCEP at operation, including delivery of hazardous materials and removal of wastes will be a maximum of three truck trips per day with an average of two or fewer trips per day. This number of truck trips would not significantly impact the existing LOS for area roads.

On-site Parking

The City of Industry Development Plan Standard "K" provides the calculation for the number of permanent parking spaces for a building with a parking lot that are to be provided. The calculation is based upon the square footage of the proposed building. A building 25,000 square feet in area or less is required to provide one space for each 500 square feet of floor area.

The City has calculated the proposed WCEP's control/administration/switchgear building to be 2,400 square feet, and the warehouse/maintenance building to be 4,000 square feet. The project would be required to provide a minimum of 13 parking spaces (COI 2006e). Thirteen 9' X 19' parking spaces plus a 26-foot wide travel lane would require an approximate 2,500 square foot area. The approximate 11-acre project site would have sufficient area to provide on-site parking. Staff has proposed condition of certification **TRANS-2** which requires the applicant to provide an operation parking plan to demonstrate compliance with the City's Development Plan Standard "K".

Airports

The El Monte Airport is the closest airport to the WCEP. The El Monte Airport is a private airport located eight-miles northwest of the project site, one-mile north of the City of El Monte. Three hundred thirty-five aircraft are based on the field. Almost all of the aircraft using the airport are relatively small one or two engine propeller or jet aircraft. The airport averages 392 daily aircraft operations. The airport's pattern altitude for a landing is 1,296 feet MSL (mean sea level).

Aircraft approaching or departing the El Monte Airport do not fly over the proposed power plant, and therefore would not experience potential turbulence caused by thermal plumes emitted from the cooling towers and its heat recovery steam generator stacks. In addition, the proposed facility is not located within 20,000 feet of a runway at the El Monte Airport, or other general aviation facility.

The Los Angeles County Sheriff's Department Aero Bureau operates a heliport approximately 2,200 feet east of the project site. The Department operates a single helicopter at this location. The helicopter is used to support Sheriff's Department ground units involved in law enforcement activity. Though the project is within 5,000 feet of a

heliport, because the Sheriff's heliport is not available for public use, the applicant is not required to file a "Notice of Proposed Construction or Alteration" with the Federal Aviation Administration (FAA). In addition the WCEP does not have any structure exceeding 200 feet in height which also triggers a notification to the FAA.

As a result of the very high plume buoyancy from the proposed power plant's turbines and cooling towers; light aircraft and helicopters should stay a minimum of 500 feet above the ground level over the power plant.

Staff suggests that the applicant send a written notification (courtesy) to the Sheriff's Department Aero Bureau advising them of the power plant prior to the start of commercial operation, and that potential turbulence caused by thermal plumes emitted from the cooling towers and heat recovery steam generator stacks may adversely affect aircraft flying directly over the power plant.

Emergency Services Vehicle Access

The Los Angeles County Fire Department provides 24-hour fire protection and emergency medical services to the City of Industry. Although the County Fire Department operates three fire stations in the City, all Fire Department emergency response units are dispatched as needed to an incident anywhere in their service territory. Station 118 is the closest station to the project site. It's approximately 0.9 miles away. A response time from this station to the site is about three minutes. The emergency services vehicle access (also the primary vehicle access) to the project site would be on South Bixby Drive. For a more detailed discussion on emergency services serving the facility read the **WORKER SAFETY AND FIRE PROTECTION** section in this Preliminary Staff Assessment (PSA).

The WCEP emergency services vehicle access is proposed to be 28 feet in width. City of Industry Development Plan Standard "O" requires that all driveways have a minimum of 26 feet in width. The City of Industry Engineering Department found the proposed vehicle access adequate for entry of emergency services vehicles to the proposed facility. On-site, emergency services vehicles would use a paved internal travel lane to approach buildings and equipment.

In accordance with Los Angeles County Code, Title 32, section 100 – California Fire Code and Uniform Fire Code, and City of Industry Development Plan Standard "O", the emergency services vehicle access for the WCEP is to be examined during a building fire plan check review conducted by the Los Angeles County Fire Department. An August 7, 2006 letter from David R. Leininger, Chief, Forestry Division Prevention Services Bureau of the Los Angeles County Fire Department states that the "proposed project may necessitate multiple ingress/egress access for circulation of traffic, and emergency response issues" (LCFD 2006a).

Staff has proposed conditions of certification **TRANS-2** and **TRANS-3** which include provisions requiring access for emergency services vehicles to the project site in compliance with the Los Angeles County Code and the City of Industry Municipal Code.

Ground Level Fogging of Roads and Highways

Seasonal and Annual Cooling Tower Impact (SACTI) modeling results for the proposed project's cooling tower during operation indicate a very low potential for ground level fogging, as a result of vapor plumes vented from the cooling towers under certain conditions (for example, cold winter days). Ground level fogging to the east southeast is predicted to reach as far as 3,200 feet, but short of SR-60. A very small frequency of ground level fogging would reach East Gale Avenue and South Bixby Drive (0.5 hours out of over 43,000 hours [5 years modeled]), and East Johnson Drive (0.2 hours out of over 43,000 hours). Ground level fogging is not predicted in the direction of Glenelder Elementary School. Ground level fogging is not shown to reach any residential area, or go beyond the commercial/industrial area of the City where the power plant is to be built. The very limited occurrence (frequency and duration) of ground level fogging created by the project's cooling towers would generate a less than significant impairment of visibility to motorists on nearby public roads and highways.

Transportation of Hazardous Materials

The applicant states that there would be deliveries of hazardous materials to the project site. Generally, only small qualities of hazardous materials would be used during the construction period (e.g. cleaning solvents, paint, asbestos containing materials, et cetera). No acutely toxic hazardous materials would be used on-site during construction.

During operation, trucks would periodically deliver and haul away aqueous ammonia, sulfuric acid, cleansing chemicals, lubricating oil and filters, oily rags, oil absorbent, water treatment chemicals and laboratory waste. The applicant estimates a maximum of three truck trips per day, with an average of two or less truck trips per day to the site

Specific sections of the California Vehicle Code and the California Streets and Highways Code ensure that the transportation and handling of hazardous materials are done in a manner that protects public safety. Enforcement of these statutes is under the jurisdiction of the California Highway Patrol.

The California Department of Motor Vehicles specifically licenses all drivers who carry hazardous materials. Drivers are required to check weight limits and conduct periodic brake inspections. Commercial truck operators handling hazardous materials are required to take instruction in first aid and procedures on handling hazardous waste spills. Drivers transporting hazardous waste are required to carry a manifest, which is available for review by the California Highway Patrol at inspection stations along major highways and interstates.

For a more detailed discussion on the handling and disposal of hazardous substances, see the **HAZARDOUS MATERIALS MANAGEMENT** section of this PSA.

CUMULATIVE IMPACTS AND MITIGATION

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 (California Code Regulation, Title 14, section 15130.).

The applicant states in the AFC "There is little or no land available for additional development and there are few major new projects planned within the City of Industry within this half-mile area" (EME 2005a, pg. 8.7-13). "Currently, there are no other large planned industrial developments in the general project area being considered" (EME 2005, pg. 8.12-16).

The applicant has identified projects filed within the City of Industry, City of Puente, and Hacienda Heights in the past eighteen months in AFC Appendix 8.6A, Table 8.6A-1, pages 8.6A-1 through 7. Twenty-seven projects were filed in the City of Industry. Sixteen of the projects have been approved by the City. The estimated vehicle trip generation count by each of these projects was not provided in the AFC and is unknown to staff at this time. The 16 projects would generate additional vehicle trip demands on regional and local roadways.

The estimated vehicle trips generated by the project at operation, in addition to the 16 approved projects may be accommodated by the City of Industry's roadway system pending the submittal of vehicle trip generation information about these projects by the applicant or the City. In the Final Staff Assessment, staff will provide the complete cumulative impact assessment.

COMPLIANCE WITH LORS

TRAFFIC AND TRANSPORTATION Table 7 provides a general description of applicable statutes, regulations and standards adopted by the federal government, the State of California, the County of Los Angeles, and the City of Industry pertaining to traffic and transportation that the project is required to comply. Conditions of Certification were established to make the project consistent with a LORS where it was not already mandated by federal or state regulations.

TRAFFIC AND TRANSPORTATION Table 7
Project Compliance With Adopted Traffic and Transportation LORS

Applicable Law	LORS Description and Project Compliance Assessment
Federal	
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.
	Though the project is within 5,000 feet of a heliport, because the heliport is not available for public use, the applicant is not required to file a "Notice of Proposed Construction or Alteration" with the FAA. In addition the project does not have any structure exceeding 200 feet in height which also triggers a notification to the FAA.

CFR, 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.
	Enforcement is conducted by state and local law enforcement agencies, and through state agency licensing and ministerial permitting (e.g., California Department of Motor Vehicles licensing, Caltrans permits), and/or local agency permitting (e.g., Los Angeles County Department of Public Works, or City of Industry Engineering Department permits).
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	Includes regulations pertaining to licensing, size, weight and load upon vehicles operated on highways, safe operation of vehicles, and the transportation of hazardous materials.
	Enforcement is provided by state and local law enforcement agencies, and through ministerial state agency licensing and permitting, and/or local agency permitting.
California Streets and Highway Code, Division 1 & 2, Chapter 3 & Chapter 5.5	Includes regulations for the care and protection of State and County highways, and provisions for the issuance of written permits.
	Enforcement is provided by state and local law enforcement, and through ministerial state agency licensing and permitting, and/or local agency permitting.
Local	
Los Angeles County Code – Title15, Title 16, Title 32	Title 15 includes standards for vehicle and traffic operations. Title 16 includes permit requirements for work in a highway right-of-way. Title 32 adopts the California Fire Code and Uniform Fire Code, includes regulations regarding ingress/egress access for circulation of traffic and emergency response vehicles for development projects.
	Energy Commission staff has proposed the following conditions of certification for the project: **TRANS-1** the applicant is to secure an encroachment permit in accordance with Los Angeles Code, Title 16, section 16.06.010; **TRANS-2** the applicant is to show ingress/egress access, and circulation on a parking plan for the project in accordance to Title 32, section 100, and the City's Development Plan Standards "K" and "O", and; **TRANS-4** requires the applicant to repair affected public rights-of-way in accordance to Title 16, section 16.06.200.
City of Industry General Plan – Circulation Element (circa	The Circulation Element provides direction and guidance relating to the transportation network that serves the City. It identifies the City's circulation system, policies, obstacles and problems, and improvement proposals.

1980), and LOS standards	Energy Commission staff has proposed condition of certification **TRANS-3** which requires the preparation of a construction traffic control and implementation management plan. This plan includes the timing of heavy equipment and building materials deliveries, the scheduling of the construction workforce start and end times, and ridesharing which will help the project to address the City's LOS D standard at the intersection of South Azusa Avenue and East Gale Avenue during the evening peak hours.
City of Industry Municipal Code includes Development Plan Standards, and Zoning Ordinance –"Industrial Zone"	Development Plan Standards includes standards for ingress/egress access, truck loading and parking areas for new development projects. The Zoning Ordinance includes permitted uses and development requirements for the "Industrial Zone" designation on the project site.
	Energy Commission staff has proposed condition of certification **TRANS-2** which requires the applicant to provide a parking plan for the project to address the City of Industry Development Plan Standards "K" and "O."
City of Industry Transportation Demand Management Ordinance	Requires employee vehicle trip reduction measures for development projects that are 25,000 square feet or more.
	The total combined square footage of the proposed control/administration building and the warehouse/maintenance building is less than 10,000 square feet.

NOTEWORTHY PUBLIC BENEFITS

The on-site warehouse currently employs 90 workers. The proposed WCEP is to employ nine workers. At operation the proposed WCEP would result in an approximate ten-fold reduction in the number of employees and their generated daily vehicle trips, when compared to the employee vehicle trips generated by the existing warehouse.

RESPONSE TO AGENCY AND PUBLIC COMMENTS

As of this PSA, no agency or public comments have been received on this section.

CONCLUSIONS

Staff has analyzed the potential construction and operation impacts generated on the regional and local traffic and transportation system by the proposed project and concludes the following:

1. The City of Industry has a large number of people that commute to work in the City. The City has over 2,200 businesses employing more than 80,000 people. The City has a population of 800 people.
2. During construction and operation, the project does not generate commuter or truck traffic trips through a residential area.

3. During project construction, the LOS at the intersection of South Azusa Avenue and East Gale Avenue would fail to comply with the LOS D standard adopted by the City of Industry during the evening peak hours due to WCEP construction-related traffic.
4. The construction parking area's specific location, size, ingress/egress access, circulation, and its availability for construction workers' use has not been clearly identified. Insufficient parking and circulation could interfere with the existing traffic flow on South Bixby Drive and East Chestnut Street. The project at operation would have sufficient on-site parking area.
5. During construction and operation, the project's proposed primary vehicle access is at a location that provides an unobstructed viewing distance of 1,000 feet in both directions.
6. The proposed primary vehicle access (also emergency services vehicle access) is to be 28 feet in width complies with the City of Industry Development Plan Standards for driveway width. The project may be required to have multiple ingress/egress access for circulation of traffic and emergency services vehicle response by the Los Angeles County Fire Department pending their review of the facility's building plan(s).
7. Aircraft approaching or departing a nearby general aviation facility and the Los Angeles County Sheriff's Department heliport would not fly over the proposed power plant, and therefore would not experience potential turbulence caused by thermal plumes emitted from the cooling towers and its heat recovery steam generator stacks.
8. During operation, traffic generated by the project when considered alone, or cumulatively with other projects, when added to existing traffic volumes may exceed capacity thresholds of an affected intersection or roadway, contributing to an unacceptable LOS, or exacerbate an existing congested condition.

The construction and operation of the WCEP as proposed with the effective implementation of the applicant's mitigation measures, and the staff's recommended conditions of certification below would ensure that the project's direct adverse traffic and transportation impacts are less than significant, and potentially its cumulative impacts pending the submittal of additional traffic related information, and ensure that the project complies with applicable LORS regarding traffic and transportation.

PROPOSED CONDITIONS OF CERTIFICATION

TRANS-1 Prior to any ground disturbance within the public right-of-way (e.g., highway, road, bicycle path, pedestrian path, et cetera), the project owner or its contractor(s) shall secure an encroachment permit demonstrating compliance with the applicable requirements of the City of Industry, the County of Los Angeles (if applicable), and Caltrans (if applicable) for encroachment into the public right-of-way.

Verification: Prior to ground disturbance in the public right-of-way the project owner shall provide to the CPM copies of the City of Industry Engineering Department, the Los Angeles County Department of Public Works, and Caltrans' issued/approved encroachment permit(s). In addition, the project owner shall retain copies of the

issued/approved permit(s) and supporting documentation in its compliance file for a minimum of 180 calendar days after the start of commercial operation.

TRANS-2 The project owner shall comply with the applicable parking standards of the City of Industry, and the County of Los Angeles (if applicable). The project owner shall prepare and submit to the CPM for approval a parking plan(s) for the construction and operation phases of the project in consultation with the City of Industry Engineering and Planning Departments, the Los Angeles County Department of Public Works (if applicable), and the Los Angeles County Fire Department (if applicable).

The parking plan(s) shall show the location of the proposed parking area(s), a plot plan (diagram) with dimensions with an accurate portrayal of the number of parking spaces in accordance to the sizes stipulated in the applicable parking standards by the City of Industry Engineering and Planning Departments, and the Los Angeles County Department of Public Works. The plan shall also show ingress/egress access (including emergency services vehicle access), parking lot circulation, car/van pool loading and unloading area(s) and any other item(s) that are requested by the City of Industry Engineering and Planning Departments, the Los Angeles County Department of Public Works, and the Los Angeles County Fire Department subject to approval by the CPM.

The parking plan shall include a policy to be enforced by the project owner stating all project-related parking occurs on-site or in designated off-site parking areas as shown on the plan.

Verification: The project owner shall submit the proposed parking plan to the City of Industry Engineering and Planning Departments, the Los Angeles County Department of Public Works, and the Los Angeles County Fire Department for review and comment. The project owner shall provide to the CPM a copy of the transmittal letter submitted to the City of Industry Engineering and Planning Departments, the Los Angeles County Department of Public Works, and the Los Angeles County Fire Department requesting their review of the parking plan. The project owner shall provide any comment letters to the CPM for review.

The City of Industry Engineering and Planning Departments, the Los Angeles County Department of Public Works, and the Los Angeles County Fire Department shall have 30 calendar days to review the parking plan and provide written comments to the project owner. The project owner shall provide a copy of the City of Industry Engineering and Planning Departments, the Los Angeles County Department of Public Works, and the Los Angeles County Fire Department written comments and a copy of the parking plan(s) to the CPM for review and approval.

At least 30 calendar days prior to site mobilization, the project owner shall provide a copy of the construction phase parking plan to the CPM for review and approval.

Prior to the start of commercial operation, the project owner shall provide a copy of the operation phase parking plan to the CPM for review and approval.

TRANS-3 The project owner shall prepare a construction traffic control and implementation plan for the project and its associated facilities. The project owner shall consult with the City of Industry Engineering and Planning Departments, the Los Angeles County Department of Public Works (if

applicable), and Caltrans (if applicable) in the preparation of the traffic control and implementation plan. The project owner shall provide a copy of the City of Industry Engineering and Planning Departments, the Los Angeles County Department of Public Works, and Caltrans written comments and a copy of the traffic control and implementation plan to the CPM for review and approval.

The traffic control and implementation plan shall include and describe the following minimum requirements:

- Timing of heavy equipment and building materials deliveries;
- Redirecting construction traffic with a flag person;
- Signing, lighting, and traffic control device placement if required;
- Construction work hours and arrival/departure times outside of peak traffic periods;
- Haul routes;
- Procedures for safe access to the main entrance;
- Ensure access for emergency services vehicles to the project site;
- Temporary travel lane closure;
- Ensure access to adjacent residential and commercial property during the construction of all linears, and;
- Provide a construction workforce ridesharing plan.

Verification: The project owner shall submit the proposed traffic control and implementation plan to the City of Industry Engineering and Planning Departments, the Los Angeles County Department of Public Works, and Caltrans for review and comment. The City of Industry Engineering and Planning Departments, and the Los Angeles County Department of Public Works, and Caltrans shall have 30 calendar days to review the plan and provide written comments to the project owner. The project owner shall provide to the CPM a copy of the transmittal letter submitted to the City of Industry Engineering and Planning Department, the Los Angeles County Department of Public Works, and Caltrans requesting their review of the traffic control and implementation plan. The project owner shall provide any comment letters to the CPM for review.

At least 30 calendar days prior to site mobilization, the project owner shall provide a copy of the traffic control and implementation plan to the CPM for review and approval.

TRANS-4 The project owner shall repair affected public rights-of-way (e.g., highway, road, bicycle path, pedestrian path, et cetera) to original or near original condition that has been damaged due to construction activities conducted for the project and its associated facilities.

Prior to start of site mobilization, the project owner shall notify the City of Industry Engineering Department, and the Los Angeles County Department of Public Works (if applicable), and Caltrans (if applicable) about their schedule for project construction. The purpose of this notification is to request the City of Industry Engineering Department, and the Los Angeles County Department

of Public Works (if applicable), and Caltrans (if applicable) to consider postponement of public right-of-way repair or improvement activities until after project construction has taken place and to coordinate construction-related activities.

Verification: Prior to the start of site mobilization, the project owner shall photograph, or videotape the following public right-of-way segment(s) (includes intersections): SR-60, South Azusa Avenue, East Gale Avenue, and South Bixby Drive. The project owner shall provide the CPM, the City of Industry Engineering Department, the Los Angeles County Department of Public Works, and Caltrans with a copy of these images.

Within 60 calendar days after completion of construction, the project owner shall meet with the CPM, the City of Industry Engineering Department, the Los Angeles County Department of Public Works, and Caltrans to identify sections of public right-of-way to be repaired, to establish a schedule to complete the repairs and to receive approval for the action(s). Following completion of any public right-of-way repairs, the project owner shall provide to the CPM a letter signed by the City of Industry Engineering Department, and the Los Angeles County Department of Public Works, and Caltrans stating their satisfaction with the repairs.

REFERENCES

CA DOT 2006a – CA Dept. Transportation/IGR/CEQA/Powell (tn: 36155). Comments of the CA Dept. of Transportation on the Walnut Creek Energy Park AFC, 01/04/2006. Rec'd 01/06/2006.

CA DOT 2006b – CA Dept. Transportation. Traffic and Vehicle Data Systems Unit, http://www.dot.ca.gov/hq/traffops/saferesr/trafdata/index.htm, date accessed 03/03/2006.

CA DOT 2006c – CA Dept. of Transportation. FAQ, http://www.dot.ca.gov/hq/paffairs/faq/faq92.htm, date accessed 04/10/2006.

CA DOT 2006d – CA Dept. of Transportation. Current highway projects in District 7, http://www.dot.ca.gov/dist07/aboutdist7/currproj/index.php, date accessed 04/10/2006.

CHP 2006 - California Highway Patrol. E-mail from CHP, Roberta Tanger, re: Accident Reports, 03/26/06. Rec'd 03/26/06.

CH2 2006 - CH2M Hill. ROC between Dmitri Smith, CEC and Doug Davey, CH2M Hill, re: Construction Parking, 06/01/2006.

COI 2006e – City of Industry/M. Kissell (tn: 36801). City of Industry's review of Walnut Creek Energy Park Project's consistency with City laws, ordinances, and standards. 04/18/2006. Rec'd 04/20/2006.

COI 2006g – City of Industry/J. Ballas (tn: 36963). Fax from J. Ballas, City of Industry Engineer, to D. Smith, CEC Staff Re: roadway LOS thresholds and copy of City's LOS Standards, 04/13/06. Rec'd 05/18/06.

COI 2006i - City of Industry. City's official website. http://www.cityofindustry.org/dex_8.htm.

CPUC – California Public Utilities Commission. General Order No. 956, 1998.

EME 2005a – Edison Mission Energy/GPL:bpm (tn: 35950). Walnut Creek Energy Park AFC, 11/21/2005. Rec'd 11/22/2005.

LCFD 2006a - Los Angeles County Fire Department/David R. Leininger. Letter from David R. Leininger, Chief, Forestry Division Prevention Services Bureau to Eric Knight, CEC Staff Re: fire protection and emergency medical service availability, 08/07/06. Docketed 08/11/06.

LTI 2006a – Logistics Terminals, Inc./T.F. Newcomer (tn: 37254). Letter informing E. Knight that LTI entered into a lease option agreement with Walnut Creek Energy, LLC. 06/26/2006. Rec'd 07/07/2006.

TRB - Transportation Research Board. Highway Capacity Manual 2000. Washington, D.C.

HIGHWAY CAPACITY MANUAL

The Highway Capacity Manual is prepared by the Transportation Research Board, Committee on Highway Capacity and Quality of Service. It represents a concentrated, multi-agency effort by the Transportation Research Board, the Federal Highway Administration, the American Association of Highway and Transportation Officials, and other traffic/transportation related agencies. It is the most widely used resource for traffic analysis. Several versions of the Highway Capacity Manual (HCM) have been published. The current edition was published in 2000. It contains concepts, guidelines, and computational procedures for computing the capacity and quality of service of various highway facilities, including freeways, signalized and unsignalized intersections, rural highways, and the effects of transit, pedestrians, and bicycles on the performance of these systems.

LEVEL OF SERVICE

The description and procedures for calculating capacity and level of service are found in the Highway Capacity Manual 2000. The Highway Capacity Manual 2000 represents the latest research on capacity and quality of service for transportation facilities.

Quality of service requires quantitative measures to characterize operational conditions within a traffic stream. Level of service (LOS) is a quality measure describing operational conditions within a traffic stream, generally in terms of such service measures as speed and travel time, freedom to maneuver, traffic interruptions, and comfort and convenience.

Six levels of service are defined for each type of facility that has analysis procedures available. Letters designate each level, from A to F, with level of service A representing the best operating conditions and level of service F the worst. Each level of service represents a range of operating conditions and the driver’s perception of these conditions. Safety is not included in the measures that establish service levels. A general description of service levels for various types of facilities is shown in **Table A**.

Table A
Level of Service Description

Facility Type	Uninterrupted Flow	Interrupted Flow
	Freeways Multi-lane Highways Two-lane Highways Urban Streets	Signalized Intersections Unsignalized Intersections - Two-way Stop Control - All-way Stop Control
Level of Service		
A	Free-flow	Very low delay
B	Stable flow. Presence of other users noticeable.	Low delay
C	Stable flow. Comfort and convenience starts to decline.	Acceptable delay
D	High density stable flow	Tolerable delay
E	Unstable flow	Limit of acceptable delay
F	Forced or breakdown flow	Unacceptable delay
Source: Highway Capacity Manual 2000		

Interrupted Flow
One of the more important elements limiting, and often interrupting the flow of traffic on a highway is the intersection. Flow on an interrupted facility is usually dominated by points of fixed operation such as traffic signals, stop and yield signs. These all operate quite differently and have differing impacts on overall flow.

Signalized Intersections
The capacity of a highway is related primarily to the geometric characteristics of the facility, as well as to the composition of the traffic stream on the facility. Geometrics are a fixed, or non-varying, characteristic of a facility.

At the signalized intersection, an additional element is introduced into the concept of capacity: time allocation. A traffic signal essentially allocates time among conflicting traffic movements seeking use of the same physical space. The way in which time is allocated has a significant impact on the operation of the intersection and on the capacity of the intersection and its approaches.

Level of service for signalized intersections is defined in terms of control delay, which is a measure of driver discomfort, frustration, fuel consumption, and increased travel time. The delay experienced by a motorist is made up of a number of factors that relate to control, traffic and incidents. Total delay is the difference between the travel time actually experienced and the reference travel time that would result during base conditions (i.e., in the absence of traffic control, geometric delay, any incidents, and any other vehicles). Specifically, level of service criteria for traffic signals is stated in terms of average control delay per vehicle, typically for a 15-minute analysis period. Delay is a complex measure and depends on a number of variables, including the quality of progression, the cycle length, the ratio of green time to cycle length and the volume to capacity ratio for the lane group.

For each intersection analyzed the average control delay per vehicle per approach is determined for the peak hour. A weighted average of control delay per vehicle is then determined for the intersection. A level of service designation is given to the control delay to better describe the level of operation. Descriptions of levels of service for signalized intersections can be found in **Table B**.

Table B
Description of Level of Service for Signalized Intersections

Level of Service	Description
A	Very low control delay, up to 10 seconds per vehicle. Movement forward (progression) is extremely favorable, and most vehicles arrive during the green phase. Many vehicles do not stop at all. Short cycle lengths may tend to contribute to low delay values.
B	Control delay greater than 10 and up to 20 seconds per vehicle. There is good progression or short cycle lengths or both. More vehicles stop causing higher levels of delay.
C	Control delay greater than 20 and up to 35 seconds per vehicle. Higher delays are caused by fair progression or longer cycle lengths or both. Individual cycle failures may begin to appear. Cycle failure occurs when a given green phase does not serve a waiting line of vehicles, and overflow occurs. The number of vehicles stopping is significant, though many still pass through the intersection without stopping.
D	Control delay greater than 35 and up to 55 seconds per vehicle. The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high volumes. Many vehicles stop, the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.
E	Control delay greater than 55 and up to 80 seconds per vehicle. The limit of acceptable delay. High delays usually indicate poor progression, long cycle lengths, and high volumes. Individual cycle failures are frequent.
F	Control delay in excess of 80 seconds per vehicle. Unacceptable to most drivers. Oversaturation, arrival flow rates exceed the capacity of the intersection. Many individual cycle failures. Poor progression and long cycle lengths may also be contributing factors to higher delay.
Source: Highway Capacity Manual 2000	

The use of control delay, often referred to as signal delay, was introduced in the 1997 update to the Highway Capacity Manual. It represents a departure from previous updates. In the third edition of the Highway Capacity Manual, published in 1985 and the 1994 update to the third edition, delay only included stop delay. Thus, the level of service criteria listed in Table B differs from earlier criteria.

Unsignalized Intersections

The current procedures on unsignalized intersections were first introduced in the 1997 update to the Highway Capacity Manual and represent a revision of the methodology published in the 1994 update to the 1985 Highway Capacity Manual. The revised procedures use control delay as a measure of effectiveness to determine level of service. Delay is a measure of driver discomfort, frustration, fuel consumption, and

increased travel time. The delay experienced by a motorist is made up of a number of factors that relate to control, traffic and incidents. Total delay is the difference between the travel time actually experienced and the reference travel time that would result during base conditions (i.e., in the absence of traffic control, geometric delay, any incidents, and any other vehicles). Control delay is the increased time of travel for a vehicle approaching and passing through an unsignalized intersection, compared with a free-flow vehicle if it were not required to slow or stop at the intersection.

Two-Way Stop Controlled Intersections

Two-way stop controlled intersections in which stop signs are used to assign the right-of-way, are the most prevalent type of intersection in the United States. At two-way stop-controlled intersections the stop-controlled approaches are referred as the minor street approaches and can be either public streets or private driveways. The approaches that are not controlled by stop signs are referred to as the major street approaches.

The capacity of movements subject to delay is determined using the "critical gap" method of capacity analysis. Expected average control delay based on movement volume and movement capacity is calculated. A level of service designation is given to the expected control delay for each minor movement. Level of service is not defined for the intersection as a whole. Control delay is the increased time of travel for a vehicle approaching and passing through an all-way stop-controlled intersection, compared with a free-flow vehicle if it were not required to slow or stop at the intersection. A description of levels of service for two-way stop-controlled intersections is found in **Table C**.

Table C
Description of Level of Service for Two-Way Stop Controlled Intersections

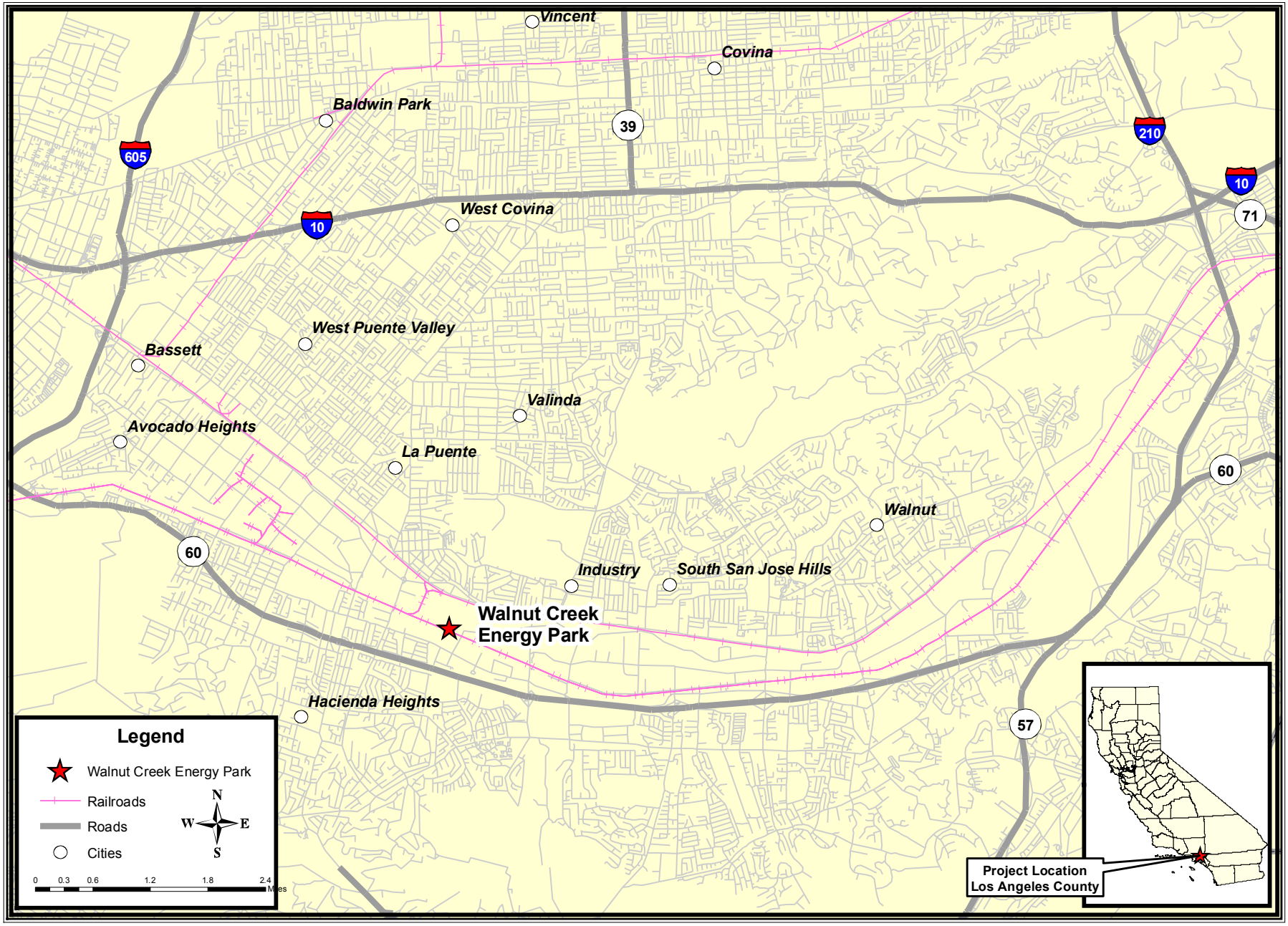
Level of Service	Description
A	Very low control delay less than 10 seconds per vehicle for each movement subject to delay.
B	Low control delay greater than 10 and up to 15 seconds per vehicle for each movement subject to delay.
C	Acceptable control delay greater than 15 and up to 25 seconds per vehicle for each movement subject to delay.
D	Tolerable control delay greater than 25 and up to 35 seconds per vehicle for each movement subject to delay.
E	Limit of acceptable control delay greater than 35 and up to 50 seconds per vehicle for each movement subject to delay.
F	Unacceptable control delay in excess of 50 seconds per vehicle for each movement subject to delay.
Source: Highway Capacity Manual 2000	

REFERENCE

Transportation Research Board. Highway Capacity Manual 2000. Washington, D.C.

TRAFFIC AND TRANSPORTATION - FIGURE 1

Walnut Creek Energy Park - Regional Transportation Setting

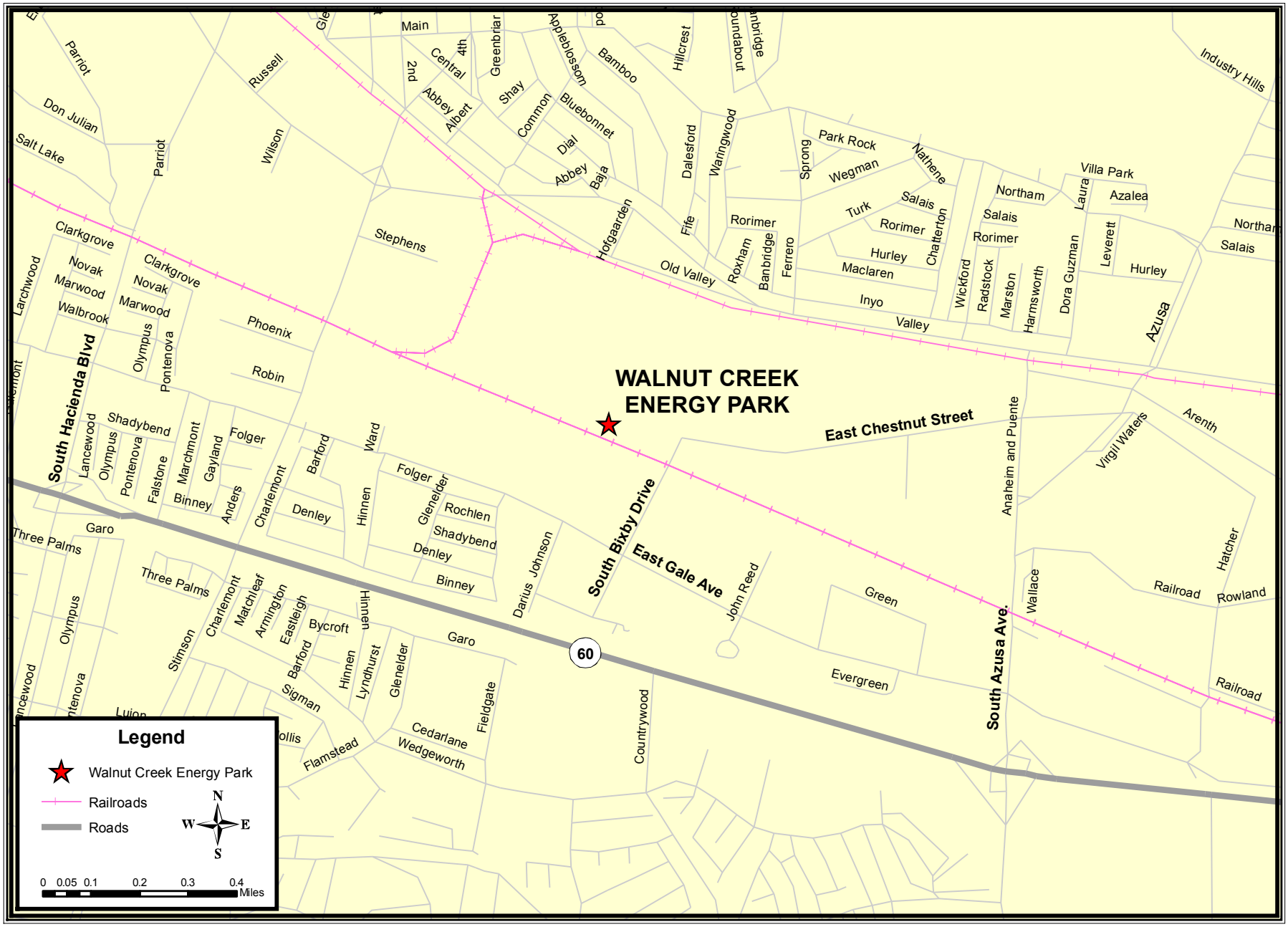


CALIFORNIA ENERGY COMMISSION, ENERGY FACILITIES SITING DIVISION, DECEMBER 2006

SOURCE: California Energy Commission Statewide Transmission & Power Plants Maps 2006

TRAFFIC AND TRANSPORTATION - FIGURE 2

Walnut Creek Energy Park - Local Transportation Setting



DECEMBER 2006

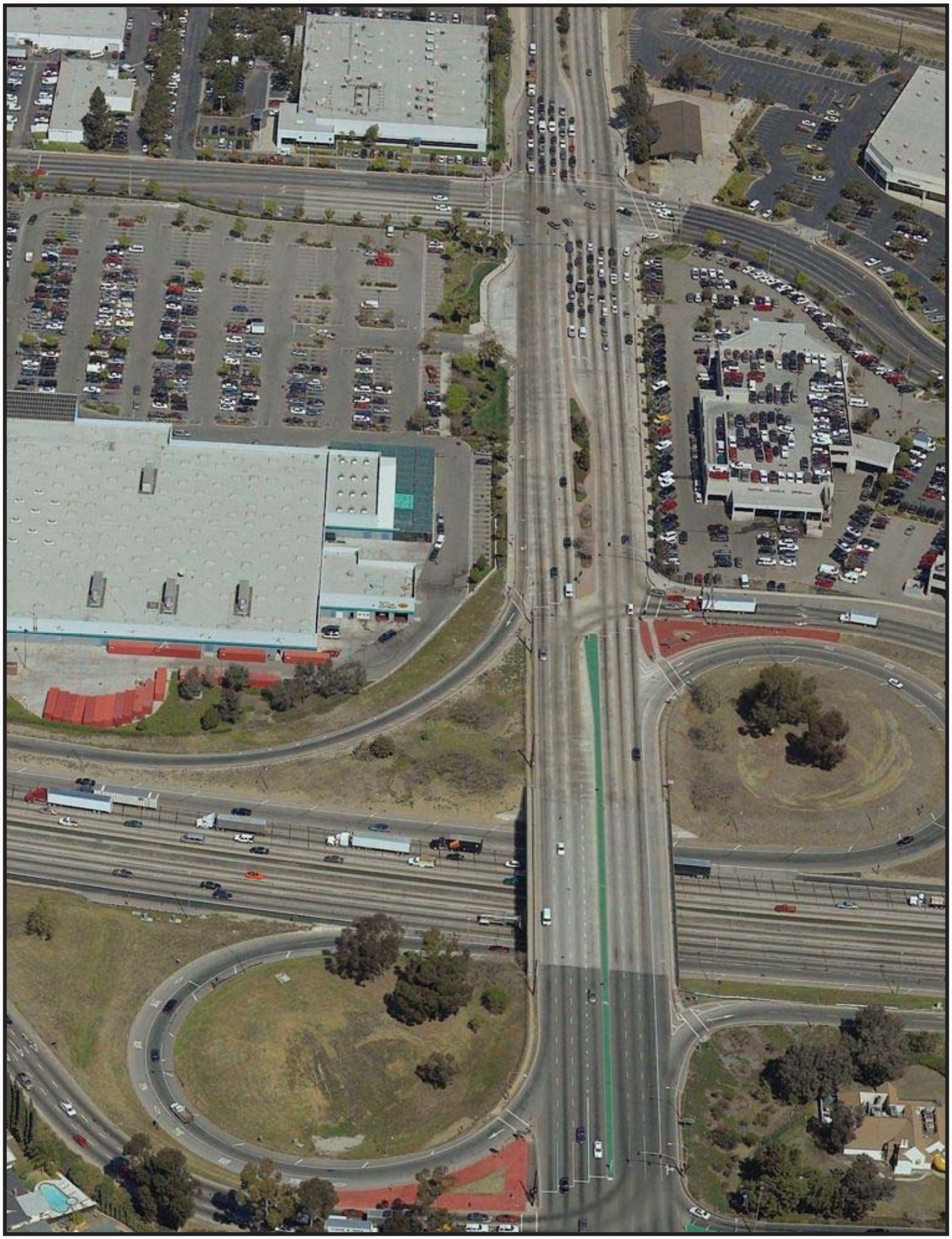
TRAFFIC AND TRANSPORTATION

CALIFORNIA ENERGY COMMISSION, ENERGY FACILITIES SITING DIVISION, DECEMBER 2006

SOURCE: California Energy Commission Statewide Transmission & Power Plants Maps 2006

TRAFFIC AND TRANSPORTATION - FIGURE 3

Walnut Creek Energy Park - Intersection of South Azusa Avenue and East Gale Avenue



CALIFORNIA ENERGY COMMISSION, ENERGY FACILITIES SITING DIVISION, DECEMBER 2006

SOURCE: Virtual Earth Beta 2006

TRANSMISSION LINE SAFETY AND NUISANCE

Obed Odoemelam, Ph.D.

SUMMARY OF CONCLUSIONS

The applicant, Walnut Creek Energy LLC (WCE) proposes to transmit the power from the proposed Walnut Creek Energy Park (WCEP) to the Southern California Edison (SCE) electric transmission grid through a new 1200-foot, WCEP overhead 230-kilovolt (kV) transmission line connecting the facility with the SCE's existing Walnut Substation immediately to the south. The proposed line would traverse a mostly industrial area with no nearby residences, thereby eliminating the potential for residential electric and magnetic field exposures that in recent years have raised concern about human health effects. The proposed line's design, erection, operation, and maintenance plan would be according to standard SCE practices, which conform with applicable laws, ordinances, regulations and standards (LORS). The line's field and non-field impacts would be similar to SCE lines of the same design and current-carrying capacity. Staff, therefore, recommends approval of the proposed line with five proposed conditions of certification, which would ensure that any transmission line-related safety and nuisance impacts would be less than significant.

INTRODUCTION

The purpose of this analysis is to assess the proposed line design and operational plan to determine whether its related field and non-field impacts would constitute a significant environmental hazard in the area around the proposed route. All related health and safety laws LORS are currently aimed at minimizing such hazards. Staff's analysis focuses on the following issues as related primarily to the physical presence of the line, or secondarily to the physical interactions of its electric and magnetic fields:

- aviation safety;
- interference with radio-frequency communication;
- audible noise;
- fire hazards;
- hazardous shocks;
- nuisance shocks; and
- electric and magnetic field (EMF) exposure.

The following federal, state, and local laws and policies apply to the control of the field and non-field impacts of electric power lines. Staff's analysis examines the project's compliance with these requirements.

LAWS, ORDINANCES, REGULATIONS AND STANDARDS

TRANSMISSION LINE SAFETY AND NUISANCE (TLSN) TABLE 1
Laws, Ordinances, Regulations and Standards (LORS)

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	Not to exceed applicable local noise ordinances – (no design-specific federal or state regulations for noise from transmission lines).
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.

Applicable LORS	Description
National Electrical Safety Code	Specifies grounding procedures to limit nuisance shocks. Also specifies minimum conductor ground clearances.
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.

SETTING

As noted in the **Project Description** section, the site for the proposed WCEP is an 11.48-acre parcel within the City of Industry approximately 250 feet to the north of SCE’s Walnut Substation. The site was chosen mostly for its proximity to the Walnut Substation, to which the project would be connected. Such proximity would reduce the length of the connecting transmission line. The project site and the proposed line route are within an industrial area, with the nearest residential neighborhood located approximately 0.21 miles to the south (EME 2005a, p. 8.6-3). This distance to residences would serve to minimize the potential for any of the residential field exposure mostly responsible for the health concern of recent years. The only project-related EMF exposures of potential significance are the short-term exposures of plant workers, regulatory inspectors, maintenance personnel, visitors, or individuals in the immediate

vicinity of the line. These types of exposures are short term and well understood as not significantly related to the health concern.

PROJECT DESCRIPTION

The proposed WCEP transmission line will consist of the segments listed below:

- An overhead 230-kV line extending approximately 1200 feet from the project's 230-kV switchyard to the connection point at SCE's Walnut Substation to the south; and
- The project's on-site 230-kV switchyard from which the conductors would extend to the connection points at the Walnut Substation.

The proposed line's conductors would be SCE-standard low-corona cables erected on single-circuit support towers typical of SCE lines of similar voltage and current-carrying capacity. The applied design and construction would be in keeping with SCE guidelines necessary to ensure line safety and efficiency together with reliability, and maintainability. SCE has proposed two generation tie-line options to interconnect WCEP to the Walnut substation. (WCEP DRR supplement, Figure WSQ-11)

- Option 1 runs due west from the WCEP switchyard within the existing SCE transmission corridor for about 700 feet, then turns south to cross the Union Pacific Railroad and connect with the northwest corner of the Walnut substation. The proposed 1170 feet long 230kV line with 1590ACSR conductor would be built on five support towers along SCE's existing transmission corridor adjacent to Walnut substation.
- Option 2 would run first south from the WCEP switchyard, across the railroad, then turn west to run just north of the northern boundary of the substation to the northwest corner of the substation, turning south to connect. The proposed 1220 feet long 230kV line with 1590ACSR conductor would be built on five support towers along SCE's existing transmission corridor adjacent to Walnut substation.

ASSESSMENT OF IMPACTS AND DISCUSSION OF MITIGATION

METHODS AND THRESHOLDS FOR DETERMINING SIGNIFICANCE

The potential magnitude of the line impacts of concern in this staff analysis depends on compliance with the listed LORS whose related mitigation measures have been established as adequate to maintain such impacts below levels of potential significance. Thus, if staff determines that the project would comply with applicable LORS, we would conclude that any transmission line-related safety and nuisance impacts would be less than significant. The nature of these individual impacts is discussed below together with the potential for compliance with the LORS that apply.

DIRECT IMPACTS AND MITIGATION

Aviation Safety

Any potential hazard to area aircraft would relate to the potential for collision in the navigable airspace and the need to file a "Notice of Proposed Construction or Alteration"

(Form 7640) with the FAA as noted in the LORS section. The need for such a notice depends on factors related to the height of the structure, the slope of an imaginary surface from the end of nearby runways to the top of the structure, and the length of the runway involved.

As noted by the applicant (EME 2005a, pp. 5-7 and 5-12), the height of the proposed line support towers would, at 90 feet, be much less than the 200 feet regarded by the FAA as triggering the concern about aviation safety. Furthermore, the line would be in an area with several other SCE lines some of which are of similar voltage and structural dimensions. The nearest public airport is the El Monte Airport more than 7 miles away and thus, farther than the 20,000 feet that triggers FAA notification. Given these conditions, staff considers the proposed line structures as not posing an obstruction-related aviation hazard to area aircraft as defined using current FAA criteria. Therefore, no FAA "Notice of Construction or Alteration" would be required.

Interference with Radio-Frequency Communication

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 proposed line would be built and maintained according to 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 the proposed 230-kV line. The 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. Since these existing lines do not currently cause the corona-related complaints along their existing routes, staff does not expect any corona-related radio-frequency interference or related complaints in the general project area. However, staff recommends Condition of Certification **TLSN-2** to ensure mitigation as required by the FCC in the unlikely event of complaints.

Audible Noise

The noise-reducing designs related to electric field intensity are not specifically mandated by federal or state regulations in terms of specific noise limits. As with radio noise, such noise is limited instead through design, construction or maintenance practices established from industry research and experience as effective without

significant impacts on line safety, efficiency, maintainability, and reliability. Audible noise usually results from the action of the electric field at the surface of the line conductor and could be perceived as a characteristic crackling, frying, or hissing sound or hum, especially in wet weather. Since the noise level depends on the strength of the line electric field, the potential for perception can be assessed from estimates of the field strengths expected during operation. Such noise is usually generated during rainfall, but mainly from overhead lines of 345-V or higher. It is, therefore, not generally expected at significant levels from lines of less than 345-kV as proposed for WCEP. Research by the Electric Power Research Institute (EPRI 1982) has validated this by showing the fair-weather audible noise from modern transmission lines to be generally indistinguishable from background noise at the edge of a right-of-way of 100 feet or more. Since the low-corona designs are also aimed at minimizing field strengths, staff does not expect the proposed line operation to add significantly to current background noise levels in the project area. For an assessment of the noise from the proposed line and related facilities, please refer to staff's analysis in the **Noise and Vibration** section.

Fire Hazards

The fire hazards addressed through the related LORS in **TLSN Table 1** are those that could be caused by sparks from conductors of overhead lines, or that could result from direct contact between the line and nearby trees and other combustible objects.

Standard fire prevention and suppression measures for all SCE lines would be implemented for the proposed project line (EME 2005a, pp. 5-12, 5-13, and 5-15). The applicant's intention to ensure compliance with the clearance-related aspects of GO-95 would be an important part of this mitigation approach. Moreover, the line would be located in a mostly industrial area without trees that could pose a fire hazard from line contact. **TLSN-4** is recommended to ensure compliance with important aspects of the fire prevention measures.

Hazardous Shocks

Hazardous shocks are those that could result from direct or indirect contact between an individual and the energized line, whether overhead or underground. Such shocks are capable of serious physiological harm or death and remain a driving force in the design and operation of transmission and other high-voltage lines.

No design-specific federal regulations have been established to prevent hazardous shocks from overhead power lines. Safety is assured within the industry from compliance with the requirements specifying the minimum national safe operating clearances applicable in areas where the line might be accessible to the public.

The applicant's stated intention to implement the GO-95-related measures against direct contact with the energized line (EME 2005a, pp. 5-12, 5-14 and 5-15) would serve to minimize the risk of hazardous shocks. Staff's recommended Condition of Certification **TLSN-1** would be adequate to ensure implementation of the necessary mitigation measures.

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. Such electric charges are induced in different ways by the line's electric and magnetic fields.

There are no design-specific federal or state regulations to limit nuisance shocks in the transmission line environment. For modern overhead high-voltage lines, such shocks are effectively minimized through grounding procedures specified in the National Electrical Safety Code (NESC) and the joint guidelines of the American National Standards Institute (ANSI) and the Institute of Electrical and Electronics Engineers (IEEE). For the proposed project line, the applicant will be responsible in all cases for ensuring compliance with these grounding-related practices within the right-of-way.

The potential for nuisance shocks around the proposed line would be minimized through standard industry grounding practices (EME 2005a, p. 5-12). Staff recommends Condition of Certification **TLSN-5** to ensure such grounding.

Electric and Magnetic Field Exposure

The possibility of deleterious health effects from EMF exposure has increased public concern in recent years about living near high-voltage lines. Both electric and magnetic fields occur together whenever electricity flows, hence the general practice of describing exposure to them together as EMF exposure. The available evidence as evaluated by the CPUC, other regulatory agencies, and staff, has not established that such fields pose a significant health hazard to exposed humans. There are no health-based federal regulations or industry codes specifying environmental limits on the strengths of fields from power lines. Most regulatory agencies believe, as staff does, that health-based limits are inappropriate at this time. They also believe that the present knowledge of the issue does not justify any retrofit of existing lines.

Staff considers it important, as does the CPUC, to note that while such a hazard has not been established from the available evidence, the same evidence does not serve as proof of a definite lack of a hazard. Staff, therefore, considers it appropriate in light of present uncertainty, to recommend reduction of such fields as feasible without affecting safety, efficiency, reliability and maintainability.

While there is considerable uncertainty about EMF health effects, the following facts have been established from the available information and have been used to establish existing policies:

- Any exposure-related health risk to the exposed individual will likely be small.
- The most biologically significant types of exposures have not been established.
- Most health concerns are about the magnetic field.
- The measures employed for such field reduction can affect line safety, reliability, efficiency, and maintainability, depending on the type and extent of such measures.

State

In California, the CPUC (which regulates the installation and operation of high-voltage lines) has determined that only no-cost or low-cost measures are presently justified in any effort to reduce power line fields beyond levels existing before the present health concern arose. The CPUC has further determined that such reduction should be made only in connection with new or modified lines. It requires each utility within its jurisdiction to establish EMF-reducing measures and incorporate such measures into the designs for all new or upgraded power lines and related facilities within their respective service areas. The CPUC further established specific limits on the resources to be used in each case for field reduction. Such limitations were intended by the CPUC to apply to the cost of any redesign to reduce field strength or relocation to reduce exposure. Publicly owned utilities, which are not within the jurisdiction of the CPUC, voluntarily comply with these CPUC requirements. This CPUC policy resulted from assessments made to implement CPUC Decision 93-11-013.

In keeping with this CPUC policy, staff requires a showing that each proposed overhead line would be designed according to the EMF-reducing design guidelines applicable to the utility service area involved. These field-reducing measures can impact line operation if applied without appropriate regard for environmental and other local factors bearing on safety, reliability, efficiency, and maintainability. Therefore, it is up to each applicant to ensure that such measures are applied in ways that prevent significant impacts on line operation and safety. The extent of such applications would be reflected by ground-level field strengths as measured during operation. When estimated or measured for lines of similar voltage and current-carrying capacity, such field strength values can be used by staff and other regulatory agencies to assess the effectiveness of the applied reduction measures. These field strengths can be estimated for any given design using established procedures. Estimates are specified for a height of one meter above the ground, in units of kilovolts per meter (kV/m), for the electric field, and milligauss (mG) for the companion magnetic field. Their magnitude depends on line voltage (in the case of electric fields), the geometry of the support structures, degree of cancellation from nearby conductors, distance between conductors and, in the case of magnetic fields, amount of current in the line.

Since each new line in California is currently required by the CPUC to be designed according to the EMF-reducing guidelines of the electric utility in the service area involved, its fields are required under this CPUC policy to be similar to fields from similar lines in that service area. Designing the proposed project line according to existing SCE field strength-reducing guidelines would constitute compliance with the CPUC requirements for line field management.

The CPUC is currently revisiting the EMF management issue to assess the need for policy changes to reflect the available information on possible health impacts. The findings to this point have not pointed to a need for changes to existing field management policies.

Industrial Standards

The present focus is on the magnetic field because only it can penetrate the soil, buildings and other materials to potentially produce the types of health impacts at the

root of the health concern of recent years. As one focuses on the strong magnetic fields from the more visible overhead transmission and other high-voltage power lines, staff considers it important, for perspective, to note that an individual in a home could be exposed to much stronger fields while using some common household appliances (National Institute of Environmental Health Services and the U.S. Department of Energy, 1995). The difference between these types of field exposures is that the higher-level, appliance-related exposures are short-term, while the exposure from power lines are lower level, but long-term. Scientists have not established which of these types of exposures would be more biologically meaningful in the individual. Staff notes such exposure differences only to show that high-level magnetic field exposures regularly occur in areas other than around high-voltage power lines.

As with similar SCE lines, specific field strength-reducing measures would be incorporated into the design of the proposed line to ensure the field strength minimization currently required by the CPUC in light of the concern over EMF exposure and health.

The field reduction measures to be applied include the following:

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

Since optimum field-reducing measures would be incorporated into the proposed line design, staff considers further mitigation to be unnecessary, but would seek to validate the applicant's assumed reduction efficiency from the field strength measurements recommended in Condition of Certification, **TLSN-3**.

CUMULATIVE IMPACTS AND MITIGATION

Since the proposed project transmission line and switchyard would be designed according to applicable field-reducing SCE guidelines (as currently required by the CPUC for effective field management), staff expects the resulting fields to of the same intensity as fields from SCE lines of the same voltage and current-carrying capacity. Any contribution to cumulative area exposures should be at similar levels. It is this similarity in intensity that constitutes compliance with current CPUC requirements on EMF management. The actual field strengths and contribution levels for the proposed line design would be assessed from the results of the field strength measurements specified in Condition of Certification **TLSN-3**.

COMPLIANCE WITH LORS

As previously noted, current CPUC policy on safe EMF management requires that any high-voltage line within a given area be designed to incorporate the field strength-reducing guidelines of the main area utility lines to be interconnected. The utility in this case is SCE. Since the proposed project line and related switchyard would be designed

according to the respective requirements of GO-95, GO-52, GO-131-D, and Title 8, Section 2700 et seq. of the California Code of Regulations, and operated and maintained according to current SCE guidelines on line safety and field strength management, staff considers the presented design and operational plan to be in compliance with the health and safety LORS of concern in this analysis. The actual contribution to the area's field exposure levels would be assessed from results of the field strength measurements required in Condition of Certification **TLSN-3**.

RESPONSE TO AGENCY AND PUBLIC COMMENTS

Staff received no public or agency comments.

CONCLUSIONS

Since the proposed lines and related facilities are not close enough to the nearest airport to pose an aviation hazard according to current FAA criteria, staff does not consider it necessary to recommend location changes on the basis of a potential hazard to area aviation.

The potential for nuisance shocks would be minimized through grounding and other field-reducing measures to be implemented in keeping with current SCE guidelines (reflecting standard industry practices). These field-reducing measures would maintain the generated fields within levels not associated with radio-frequency interference or audible noise. The potential for hazardous shocks would be minimized through compliance with the height and clearance requirements of PUC's General Order 95. Compliance with Title 14, California Code of Regulations, Section 1250, will minimize fire hazards while the use of low-corona line design, together with appropriate corona-minimizing construction practices, would minimize the potential for corona noise and its related interference with radio-frequency communication in the area around the proposed route.

Since electric or magnetic field health effects have neither been established nor ruled out for the proposed WCEP and similar transmission lines, the public health significance of any related field exposures cannot be characterized with certainty. The only conclusion to be reached with certainty is that the proposed line's design and operational plan would be adequate to ensure that the generated electric and magnetic fields are managed to an extent the CPUC considers appropriate in light of the available health effects information. The long-term, mostly residential magnetic exposure of health concern in recent years would be insignificant for the proposed line given the general absence of residences along the proposed route. On-site worker or public exposure would be short term and at levels expected for SCE lines of similar design and current-carrying capacity. Such exposure is well understood and has not been established as posing a significant human health hazard.

Since the proposed project line would be designed to minimize the health, safety, and nuisance impacts of concern to staff, while located along a route without nearby residences, staff recommends approval of the proposed design and operational plan. If such approval were granted, staff would recommend that the Energy commission adopt

the conditions of certification specified below since they would be necessary to ensure the field strength reduction and line safety specified by the applicant.

PROPOSED CONDITIONS OF CERTIFICATION

TLSN-1 The project owner shall construct the proposed transmission lines according to the requirements of California Public Utility Commission's GO-95, GO-52, 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 thirty days before starting construction of 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 project-related lines and associated switchyards. The project owner shall maintain written records for a period of five years, of all complaints of radio or television interference attributable to plant operation together with the corrective action taken in response to each complaint. All complaints shall be recorded to include notations on the corrective action taken. Complaints not leading to a specific action or for which there was no resolution should be noted and explained. The record shall be signed by the project owner and also the complainant, if possible, to indicate concurrence with the corrective action or agreement with the justification for a lack of action.

Verification: All reports of line-related complaints shall be summarized for the project-related lines and included during the first five years of plant operation in the Annual Compliance Report.

TLSN-3 The project owner shall hire a qualified consultant to measure the strengths of the electric and magnetic fields from the line before and after it is energized. The measurements shall be made according to the American National Standard Institute/Institute of Electrical and Electronic Engineers (ANSI/IEEE) standard procedures at the locations of maximum field strengths along the proposed route. These measurements shall be completed not later than six months after the start of operations.

Verification: The project owner shall file copies of the pre-and post-energization measurements and 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 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 five 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. In the event of a refusal by any property owner to permit such grounding, the project owner shall so notify the CPM. Such notification shall include, when possible, the owner's written objection. Upon receipt of such notice, the CPM may waive the requirement for grounding the object involved.

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

REFERENCES

Electric Power Research Institute (EPRI) 1982. Transmission Line Reference Book: 345 kV and Above.

Edison Mission Energy (EME) 2005a. Application for Certification. Volumes I and II. Submitted to the California Energy Commission on November 22, 2005.

National Institute of Environmental Health Services 1998. An Assessment of the Health Effects from Exposure to Power-Line Frequency Electric and Magnetic Fields. A Working Group Report, August 1998.

VISUAL RESOURCES

David Flores

SUMMARY OF CONCLUSIONS

Staff concludes that the proposed project would not cause significant adverse visual impacts. Effective implementation of staff's recommended conditions of certification would ensure that the project complies with applicable laws, ordinances, regulations, and standards (LORS) regarding visual resources.

INTRODUCTION

Visual resources are the viewable natural and man-made features of the environment. This analysis focuses on whether construction and operation of the Walnut Creek Energy Park (WCEP) would cause significant adverse visual impact(s) under the California Environmental Quality Act (CEQA) and whether the project would comply with applicable LORS.

LAWS, ORDINANCES, REGULATIONS, AND STANDARDS

Staff has provided in **VISUAL RESOURCES Table 1** a general listing of the applicable LORS staff has evaluated to determine the proposed project's conformance. The project's consistency with specific LORS is discussed in **VISUAL RESOURCES Table 2** in this analysis.

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

Jurisdiction & Applicable LORS	LORS Description
Federal	The proposed project is not located on federally administered public lands and is not subject to federal regulations pertaining to visual resources.
State	There are no officially designated State Scenic Highways or Scenic Routes within the project viewshed. There are no state regulations pertaining to scenic resources applicable to the project.
Local *City of Industry General Plan* *City of Industry Zoning Ordinance*	The general plan contains objectives for improving the City's overall image and design through a landscape and streetscape program. Some of the program's more relevant objectives include: separating areas of incompatible land uses, screening unsightly outdoor storage and work areas, and providing a pleasant and shaded environment throughout the City. Development Plan Standards and Guidelines contained in the City's Zoning Ordinance address the architectural and physical design, screening, visual compatibility, and visual enhancement of new development. Landscape and Irrigation Plan Standards and Requirements contained in the City's Zoning Ordinance address the location, coverage, and composition of landscaping and screening materials for new development.

SETTING

REGIONAL SETTING

The WCEP is proposed for a site in the City of Industry, which is located in the Puente Valley, approximately 16 miles to the east of downtown Los Angeles. The Puente Valley is a narrow one- to two-mile wide valley that extends for approximately 15 miles from El Monte on the west to Pomona on the east. The valley is framed by the San Jose Hills on the north, and the Puente Hills to the south.

The valley is an important transportation corridor. The Pomona Freeway (State Route 60) travels along the valley's southern edge; a Union Pacific rail line travels down the center of the valley; and a Southern Pacific line travels along the valley's northern edge.

Within the City of Industry, which occupies much of the valley floor, the valley is largely built out with a development pattern that includes rail yards and large buildings devoted to warehousing and light manufacturing. Because of the City's development codes, these industrial uses generally have an orderly appearance and lie along streets lined with trees and other landscaping (EME 2005a).

Part of the flat valley area lying to the south of the City includes unincorporated areas of Los Angeles County that have been developed with single-family residential housing. The area to the south of the City near the project site is known as Hacienda Heights. The hills that frame the Puente Valley on the north have also been developed with residential uses. To the north, in the nearby City of La Puente, there is a mixture of single- and multi-family housing on the hillsides overlooking the valley and project site. Views from these residential areas are dominated by commercial and industrial development with noticeable but sparsely distributed trees.

The WCEP site is a long, narrow, 11.5-acre parcel. The parcel fronts on Bixby Drive at its intersection with Chestnut Street. The parcel is bounded on the north by a Southern California Edison (SCE) transmission corridor containing two double-circuit 66-kV transmission lines carried on lattice steel towers, San Jose Creek, which is contained in a deep concrete-lined channel, and a large Southern Pacific inter-modal truck-rail transfer yard. On the south the parcel is bounded by the Union Pacific rail line that travels down the center of the valley. The areas to the east and south of the project site are developed with large low-rise buildings housing warehouse and light manufacturing operations. To the south of the parcel's far western end, there is a wide SCE transmission right-of-way that contains a double-circuit 230kV transmission line on lattice towers, which connects with SCE's Walnut Substation located immediately southwest of the project site (EME 2005a).

The WCEP site is currently occupied by a large warehouse that will be demolished by the City of Industry to clear the site for development of the proposed power plant. SCE has approved a lease agreement with Logistics Terminals, Inc. to use portions of the transmission corridor adjacent to the site for tractor-trailer and container storage purposes.

PROJECT, SITE, AND VICINITY DESCRIPTION

This section describes aspects of the proposed project that could potentially cause adverse impacts to visual resources.

Power Plant

The most visible components of the power plant would include: five 90-foot tall exhaust stacks; five 68-foot tall combustion silencer stacks (with five 47-foot tall inlet air filters); a 39-foot tall, 7,800 square-foot, five-cell cooling tower; five generator step-up transformers; a 5,400 square foot gas compressor building; a 3,200 square foot water treatment building; and three water storage tanks (EME 2005a).

To prepare the site for development, the City is proposing to demolish the existing warehouse building, remove paving, and clear all trees and landscaping from the site.

The applicant is proposing to surround the facility with an open chain link fence without any screening or landscaping of the project's view from the north, west, or south sides. The eastern side of the site along Bixby Drive, which would serve as the project's entrance, will be landscaped in accordance with the City's landscaping standards.

The exteriors of all project elements would be treated with a neutral gray finish that would optimize visual integration with the surrounding environment.

Construction activities for the project would occur during a 20-month period between May 2007 and December 2008. Construction activity on the site would largely occur between the hours of 7:00 a.m. to 7:00 p.m. but at times may continue 24 hours per day to make up for schedule deficiencies or to complete critical construction activities. During this time, construction equipment (including tall cranes and heavy machinery), stacks of building materials, piles of debris, construction trucks, and parked vehicles would be visible on the site.

Linear Facilities

The applicant has identified two transmission line tie-in options in connecting the project with SCE's Walnut Substation. Both of these options involve a connection to the northwest corner of the substation, rather than the southeast corner identified in the AFC. The transmission towers would consist of tubular steel poles, 90 feet in height, and each would have three arms with suspended insulators and conductors. The poles would be neutral gray in color with non-reflective insulators (EME 2005a). The only significant difference is that these options would require more towers than the original designed line, because of the need to the existing 66kV lines. The additional towers would have a negligible effect from a visual resources point of view, because the existing substation area is already congested with towers and transmission lines, and the new towers would not block any sensitive viewers or block scenic or protected viewsheds.

Construction Laydown Area

Construction of the project is anticipated to take place during the period extending from May, 2007 through December, 2008. During the construction period, the area from the

east side of the project parcel, extending 360 feet, would be used for parking for construction workers and storage of construction equipment. During this time, construction materials, construction equipment, trucks, and parked vehicles would be visible on the site. The applicant also proposes to use part of the SCE transmission corridor located along the site's northern boundary for additional construction laydown and workforce parking (EME 2005a). As provided under **VIS-5**, the applicant would be required to restore the laydown area to its original or better condition.

ASSESSMENT OF IMPACTS AND DISCUSSION OF MITIGATION

METHOD AND THRESHOLD FOR DETERMINING SIGNIFICANCE

Staff's approach for evaluating the visual impacts of proposed power plants includes measuring visual impact significance against the four aesthetic threshold measures contained in the CEQA guidelines and evaluating visual sensitivity and visual change from selected "Key Observation Points" (KOPs) near the proposed plant. The CEQA aesthetic measures consider:

- scenic vistas,
- scenic resources,
- visual character and quality,
- light and glare.

Please see **Appendix VR-1** for a complete description of staff's Visual Resources evaluation process.

As noted in **SOCIOECONOMICS Figure 1**, the minority population within a six-mile radius of the proposed facility is greater than 50 percent of the general population. However, because no significant adverse visual impacts were identified in the analysis that follows, staff has determined that no environmental justice issues exist relative to the project's visual impacts.

DIRECT/INDIRECT IMPACTS AND MITIGATION

The following is a discussion of the project's anticipated visual impacts organized around the four measures contained in the CEQA Guidelines pertaining to aesthetics, and based on staff's analysis from KOPs selected to represent the sensitive viewing areas for the proposed project.

VISUAL RESOURCES - Figure 1 (Map of KOPs) shows locations from which the project would be visible (project viewshed), and the location and view direction of the KOPs selected to represent sensitive viewing areas. All visual resources figures are presented at the end of this analysis.

SCENIC VISTAS

Staff's analysis addressed the first checklist question: "Would the project have a substantial adverse effect on a scenic vista?" Staff has determined that there are no

scenic vistas in the proposed project area (for discussion of how staff determines the presence of a scenic vista, see the CEQA Guidelines Section in Appendix VR-1). Therefore, the proposed project would not have a substantial adverse effect on a scenic vista.

SCENIC RESOURCES

Staff's analysis based on the second checklist question: "Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway corridor?" Staff has determined that there are no State scenic highway corridors in the project vicinity. Therefore, the proposed project would not substantially damage scenic resources within a state scenic highway corridor.

VISUAL CHARACTER OR QUALITY

Staff's analysis based on the third CEQA checklist question: "Would the project substantially degrade the existing visual character or quality of the site and its surroundings?" The project was evaluated under this criterion and included project construction, the power plant and transmission line structures, and visible water vapor plumes.

VIEWING AREAS AND KOPS

KOP 1 - Fieldgate Avenue (Hacienda Heights)

KOP 1 represents the view from several residences in a neighborhood of single-family homes located approximately 1,100 feet southwest of the proposed power plant (see **VISUAL RESOURCES Figure 2**). This neighborhood is within the unincorporated community of Hacienda Heights, and is the closest residential area to the project site. This KOP also represents the view to the north as would be seen by residents exiting their neighborhood on Fieldgate Avenue. The view from KOP 1 toward the proposed project site is more open than most views in the neighborhood because there are fewer foreground obstructions (EME 2005a).

The very near foreground of this view is residential in character, but the large-scale lattice-steel transmission towers in the SCE right-of-way to the north co-dominate the view. The corners and tops of several warehouse/light industrial buildings in the City of Industry's industrial corridor are visible as well. The background view includes a large area forested with eucalyptus trees, and partially interspersed with residential development, on the slopes across the valley.

Visual Sensitivity

The visual quality of the view from KOP 1 is considered moderately low. Due to the screening provided by backyard fences, structures, and vegetation in the foreground, the number of residential properties in this area from which the project has the potential to be visible (viewer exposure) is relatively small, probably numbering no more than about a dozen. However, the project has the potential to be seen to some degree from some short street segments, particularly the portion of Fieldgate Avenue seen in the KOP view. Because this view is from a residential neighborhood, the level of viewer

concern is considered high. However, due to the quality of the view and the small number of viewers, the overall visual sensitivity is considered moderately low.

Visual Change

The visual landscape from KOP 1 is dominated by the greenery of the plant nursery and the steel lattice transmission towers rising above the nursery in the foreground and the partially forested La Puente Hills in the background. The construction of the power plant would add industrial elements to the foreground view, including partial views of the proposed cooling tower, plant stacks, gas compressor building, and power transmission poles (see **VISUAL RESOURCES Figure 3**). The scale of these project features would be smaller than the existing lattice transmission towers and the neutral gray coloring would limit the visual contrast of these features with the setting. The proposed power plant would heighten the overall industrial nature of the view but the proposed power plant structures would not dominate the view. There would be a reduction in the overall level of visual quality but the reduction would not be substantial. The overall level of visual change is considered to be moderately low.

When considered within the context of the moderately low visual sensitivity of the existing landscape and view characteristics, and the moderately low visual change that would be perceived from this KOP, the project would not cause a significant adverse visual impact. Staff has proposed condition of certification **VIS-1** to ensure that the project's structures are painted in a neutral grey color as proposed and analyzed.

KOP 2 - Piermont Drive (Hacienda Heights)

KOP 2 represents a viewpoint on Piermont Drive, approximately 0.85 mile southwest of the project site (see **VISUAL RESOURCES Figure 4**). The view from this elevated viewpoint is intended to be representative of views toward the project site from Hacienda Heights' extensive single family residential areas located in the hills overlooking the Puente Valley. In this view, the proposed project would be partially visible with various obstructions in the view for more than 100 residences. The project site is identifiable as the area below and immediately left of a multi-story hotel facility, prominent on the ridgeline in the background view.

The foreground and near middleground of this view are characterized by single-family subdivisions and public open spaces. In the far middleground, the corridor of industrial uses in the City of Industry is visible. In the background, the single- and multi-family residential neighborhoods on the slopes of the San Jose Hills in La Puente can be seen (EME 2005a).

Visual Sensitivity

The visual quality of the view from KOP 2 is considered to be moderate. Because the view is from a residential neighborhood with more than 100 homes, viewer concern is considered high. However, since the proposed facility would only be partially visible from this KOP and the proposed site is more than one-half mile away, the project's visibility would be moderately low and overall viewer exposure would be moderate. Taken together, staff believes this information results in a moderate visual sensitivity overall.

Visual Change

From KOP 2, the project would be visible in the middleground and would be visually subordinate to other elements in the view (see **VISUAL RESOURCES Figure 5**). The neutral gray color for the surfaces of the project would reduce its visual contrast with the surrounding setting and allow for its absorption in the view. The view's overall level of visual quality should remain about the same and the overall visual change is considered to be low.

When considered within the context of the moderate visual sensitivity of the existing landscape and view characteristics, and the low visual change that would be perceived from this KOP, staff believes the project would not cause a significant adverse visual impact. Staff has proposed condition of certification **VIS-1** to ensure that the project's structures are painted in a neutral grey color as proposed and analyzed.

KOP 3 - Main Street (Puente Hills)

KOP 3 represents a viewpoint located on a residential street in La Puente (see **VISUAL RESOURCES Figure 6**). This viewpoint is located approximately 0.6 mile directly north of the project site, and is representative of views toward the project site from the neighborhoods of single- and multi-family dwellings on the hillsides overlooking the Puente Valley. There are a hundred or more residential properties in the northern hills that may have views toward the Puente Valley and the project site (EME 2005a). Views similar to KOP 3 are available from a number of locations along residential streets in the area.

From KOP 3, the project site is readily identifiable as the area occupied by the long, gray warehouse structure in the middle of the view. The foreground of this view is residential in character. In the middleground, where the City of Industry's industrial zone is located, the large area occupied by the Southern Pacific Railroad's intermodal rail and truck transport yard is clearly visible, as are the large warehouse and light industrial structures located in the areas to the south. Across the valley, the Puente Hills frame the southern horizon. Areas of residential development are evident on the lower slopes, while many of the upper portions of the slope are grasslands.

Visual Sensitivity

The visual quality of the KOP 3 view is considered to be moderate. In this view, the project would have moderately-high visibility. Since this KOP is in a residential neighborhood with approximately 100 homes that provides an unobstructed view and is relatively close to the proposed facility, viewer concern is high and viewer exposure is moderately high. Considering the moderate visual quality, moderately-high viewer exposure, and high viewer concern, staff has determined that overall visual sensitivity is moderately high.

Visual Change

Although the project's scale would be compatible with surrounding industrial land uses, the project's stacks, power plant transmission towers, and inlet air filters would be somewhat taller than surrounding land uses and add a degree of vertical contrast with the horizontal alignment of warehouse rooflines and rail-yard container cars throughout the middleground view (see **VISUAL RESOURCES Figure 7**). However, there are other

vertical elements in this view as well. The neutral-grey color of the project facilities would make them visually consistent with the surrounding industrial uses and background, but would create some degree of contrast with the lighter-colored warehouse rooflines. The project's presence would change the visual character of the view somewhat. The addition of prominently visible stacks, transmission towers, and other mechanical equipment of the project would make the view seem more industrial in nature but there should be little change in the overall visual quality of the view, and the overall visual change would be moderately low.

When considered within the context of the moderate high visual sensitivity of the existing landscape and view characteristics and the moderately low visual change that would be perceived from this KOP, the project would not cause a significant adverse visual impact. To ensure that the project's structures are painted in a neutral grey color as proposed an analyzed, staff has proposed condition of certification **VIS-1**.

Light or Glare

Staff's analysis is based on the fourth CEQA checklist question asks: "Would the project create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?" The response to this question is that there would not be an adverse visual impact.

During the project's construction and startup phases some activities would occur seven days a week, 24 hours a day. When nighttime construction activities are undertaken, illumination that meets State and Federal worker safety regulations would be required (EME 2005a). As a result, there may be times when the project would appear as a brightly-lit area clearly visible from the surrounding hillside residential areas. The recommended conditions of certification **VIS-2** would, to the extent feasible and consistent with worker safety codes, require that construction lighting be directed to the center of the facility and shielded to prevent light from straying offsite.

During the operational stage, the proposed power plant would require onsite nighttime lighting for safety and security purposes. The plant may periodically operate 24 hours a day, seven days a week. Lighting associated with the project stacks and open site areas would be visible from each of the KOPs. Those areas of the plant not occupied on a regular basis would be controlled by switches or motion detectors to light work areas only when needed (EME 2005a). The potential for daytime glare would be minimized by the proposed surface treatment of project structures and buildings contained in condition of certification **VIS-1**.

With staff's recommended conditions of certification **VIS-1, VIS-2** and **VIS-3**, the project would have limited effect on daytime or nighttime visual conditions. Offsite visibility and potential glare would be limited by requirements for use of non-glare fixtures and surface treatments, and control of lighting direction. Staff believes the overall change in ambient lighting as viewed from nearby locations and from vantage points in the hills overlooking the valley would be less than significant.

Impact of Cooling Tower and Combustion Exhaust Stack Plumes

The proposed WCEP is a 500 MW gas-fired peaking power plant that would include five 90-foot tall combustion exhaust stacks and a five-cell mechanical-draft cooling tower. Under certain weather conditions, visible water vapor plumes would emanate from the cooling towers. Because water vapor plumes are generally associated with heavy industrial land uses, they tend to be regarded negatively by sensitive observers and as such could have an adverse effect on visual resources in the vicinity of the project.

The severity of the impacts created by the project's visible plumes depends on several factors, including the duration, and physical size of the plumes, the sensitivity of the viewers who will see the plumes, the distance between the plumes and the viewers, the visual quality of the existing viewshed, and whether any scenic landscape features would be blocked by the plumes.

MODELING ANALYSIS

Staff used the Combustion Stack Visible Plume model and a five-year (1996-2000) Burbank meteorological data set, obtained from the National Climatic Data Center, to calculate the frequencies and sizes of the WCEP cooling tower and exhaust stack plumes. Please refer to **Appendix VR-2** at the end of this visual resources section for a more complete description of staff's Visible Plume Modeling Analysis. Staff has established a 20 percent threshold for plume frequency with plumes predicted to occur less than 20 percent of the time considered to be less than significant. When plume frequencies are 20 percent or greater, staff conducts a visual impact analysis.

Staff modeled two operational profiles for this project, the applicant's proposed 40 percent capacity during summer months, and staff's reasonable and likely future case with the plant operating at a 65 percent capacity factor with a split of 60 percent during the summer and 40 percent during the winter. Frequency information for both operational profiles is presented in the following sections. Staff's visual analysis is based only on the future case modeling. Staff believes the future case is a reasonable expectation for long-term operations as regional electricity demand grows and older plants retire.

Summer Operating Profile

The applicant has stated that "the facility will be designed to operate between 50 and 100 percent of base load, and will operate on the order of approximately 20 to 40 percent annual capacity factor" mostly during the summer. Staff's modeling of this level of operation predicted a plume frequency during the period of June through September of 22.8 percent (approximately 1,372 hours) during daylight, no rain/fog clear conditions. This frequency exceeds staff's 20 percent threshold (See **VISUAL RESOURCES Figure 8-Summer Visual Plume Simulation).**

Year-Round, Future Operating Profile

Staff has determined that a reasonable future operating profile (10-15 years from now) would be a 65 percent capacity factor, with the plant operating 60 percent of the time in the summer and 40 percent in the winter. As reflected in Appendix VR-2, this operating profile results in visible plumes predicted to occur 52 percent of clear daylight hours

during the months of November through April. This takes into consideration that the plant is anticipated to operate during the hours of 9am through 9pm.

As reflected in **VISUAL RESOURCES Figure 9-Visual Plume Simulation**, the winter plume dimensions would be slightly larger than summer plumes. The predicted plumes would not dominate the wide, panoramic views available for residences represented by KOP-3. Other than the sky and the silhouette of the mountain range in the backdrop, the plumes would not block observed or documented important views or landscaped features. The water vapor plumes are not dominant in size relative to the expanse of the landscape in the view and would not significantly degrade views from the existing established residential neighborhood. Furthermore, as shown in **VISUAL RESOURCES Figure 9**, many residences are oriented such that neighboring houses and mature trees and foliage would likely block most views in the direction of the WCEP site. Therefore, staff has determined the WCEP cooling tower water vapor plumes would have a less than significant impact on visual resources. To ensure that the visual impacts of cooling tower plumes remain less than significant, staff has proposed condition of certification **VIS-4** to verify the cooling tower design prior to construction.

CUMULATIVE IMPACTS AND MITIGATION

As defined in Section 15355 of the CEQA Guidelines (California Code of Regulations, Title 14), 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 projects taking place over a period of time. In other words, while any one project may not create a significant impact to visual resources, the combination of the new project with all existing or planned projects in an area may create significant impacts. The significance of the cumulative impact would depend on the degree to which (1) the viewshed is altered; (2) views of a scenic resource are impaired; or (3) visual quality is diminished.

The areas surrounding the project site are largely built out and consist of heavy and light industrial land uses compatible with the proposed project. Based upon land use and development permits filed or approved between March of 2004 and July of 2005, recent development in surrounding areas has largely been confined to small-scale infill projects and modifications to existing facilities and structures (EME 2005a).

Several businesses within a one-mile radius of the project site are involved in industrial processes that occasionally generate small steam plumes. As previously noted, the proposed WCEP would produce steam plumes when certain meteorological conditions are present.

Southern California Edison has executed a lease agreement with a cargo transportation company to potentially use the transmission corridor adjacent to the project site's northern boundary as a container storage area. The containers would be transported to the corridor area by truck and stored on trailers. This lease agreement is in affect, but no container storage units were seen during the last field inspection of the WCEP site in October of 2006. The height of the stored trailer and containers would be approximately

15 feet (EME 2006c). The storage of containers on this site might block a portion of the proposed facility visible from KOP 3 but not alter the industrial nature of the view.

Based on the visual resources analysis, staff found that neither construction nor operation of the proposed project would cause significant direct or cumulative visual impacts, therefore, there are no environmental justice issues related to visual resources.

Considering these factors, the proposed project would result in visual impacts that are less than cumulatively considerable.

COMPLIANCE WITH LORS

The proposed power plant and associated linear facilities would be constructed within the jurisdiction of the City of Industry. Therefore, the WCEP would be subject to the LORS for the protection and maintenance of visual resources found in the City's General Plan and Zoning Ordinance. **VISUAL RESOURCES Table 2** assesses the project's consistency with applicable local LORS.

VISUAL RESOURCES Table 2 Proposed Project's Consistency with Applicable Local LORS Specific To Visual Resources	
Protocol: **City of Industry** Protocol: **General Plan – Goals and Objectives**	
Provision Goals and Objectives 5: The perpetuation, in some instances, and instigation in others, of programs to beautify the City of Industry throughout, and to conserve its natural resources.	**Consistent:** The project would not adversely affect the City's ability to develop and implement programs to beautify the city and to conserve its natural resources.
Provision City Image: A landscape/streetscape program will effect a major change in the image of the City of Industry. The objectives of the program should be to: (1) Enhance and upgrade the visual quality of the city; (2) Separate areas of incompatible land uses; (3) Screen unsightly outdoor storage and work areas, as well as parking areas, from the circulation system; (4) Provide a pleasant shaded environment for eating and rest areas throughout the city; and (5) Implement a street lighting, signing, and graphics program.	**Consistent:** The project would add an additional element of heavy industry to an area with adjacent heavy industrial land lighter industrial (warehousing) land uses. The applicant has proposed neutral, non-reflective color treatments that would be visually harmonious with the surrounding developments. In addition, landscape screening, such as trees, and various plant species would assist in reducing the monotonous appearance of the power plant structures.
Protocol: **City of Industry** Protocol: **Zoning Ordinance – Development Plan Standards**	
Provision Development Guidelines – Development Plan Standards: New development or the alteration or enlargement of existing development shall be compatible with the character and quality of surrounding development and shall enhance the appearance of the area in which the development is located.	**Consistent:** The WCEP will be situated adjacent to the SCE Walnut Substation, a large-scale warehousing uses, the Union Pacific Railroad, a transmission utility corridor, and an intermodal rail terminal. The project would be compatible with the character and quality of surrounding developments; therefore would be consistent with this standard.
Provision Development Guidelines – Development Plan Standards: The location, size, configuration, and design of buildings and structures shall be visually harmonious	**Consistent:** The nature of the project would be inconsistent with the warehousing/manufacturing uses to the south and east but is compatible with the existing substation to the west and the transmission corridor and

with their sites and with surrounding sites, buildings, and structures and should not create pedestrian or vehicular traffic hazards.	rail yards to the north. The project would generate only a small amount of day-to-day traffic and would not create pedestrian or vehicular traffic hazards.
Provision Development Guidelines – Development Plan Standards: Architectural treatment shall be provided and may consist of, but shall not be limited to, the use of textured concrete, paint, glass panels, horizontal and/or vertical scorelines, doors, different forms of masonry construction, building layouts which include configurations other than squares and rectangles or, where applicable, distinguishing office areas from manufacturing areas by projecting office areas out from manufacturing structures. Variety in the design of buildings, structures and grounds and the use of architectural treatment to achieve such variety shall be required to avoid monotony in the external appearance.	**Consistent:** Electric generation and office and warehousing areas are clearly separated in the project design and layout. Materials and equipment configuration include various types and would avoid monotony in external appearance. The five-unit configuration of the facility also provides an architectural rhythm which would help avoid a monotonous external appearance.
Provision Development Guidelines – Development Plan Standards: Architectural treatment of buildings and structures and their materials and colors shall be visually harmonious with the natural environment, existing buildings and structures, and surrounding development, and shall enhance the appearance of the area.	**Consistent:** The applicant has proposed neutral, non-reflective color treatments that would be visually harmonious for the facility itself and, to the extent possible, with the variety of surrounding land uses.
Provision Development Guidelines – Development Plan Standards: Architecture and landscaping areas shall be innovative in design and shall be considered in the total graphic design to be harmonious and attractive. Review shall include materials, textures, colors, illumination and landscaping areas.	**Consistent:** Compliance with the City's landscaping standards for the eastern portion of the project site would provide conformity with this standard. The City of Industry has determined that a zone exception would be appropriate to provide relief from the City's landscaping standards for the balance of the project site. Staff has determined that excluding the balance of the project site from the City's landscaping standards would not create an adverse visual impact.
Provision Development Guidelines – Development Plan Standards: Garish, inharmonious or out-of-character colors shall not be used on any building, face, or roof visible from any public right-of-way or from an adjoining site. Exposed metal flashing or trim shall be anodized or painted to blend with the exterior colors of the building.	**Consistent:** The applicant would be using neutral, non-reflective color treatments designed to be visually harmonious with surrounding development. Therefore, the project would conform to this standard.
Provision Development Guidelines – Development Plan Standards: All mechanical equipment, towers, chimneys, roof structures, radio and television masts, and all other mechanical equipment external to the main or accessory structures shall be screened from public view, and such screening shall be of the same color as the main or accessory structure or, if screening is impracticable, as determined by the Planning Director, the applicant must paint such roof structures and mechanical equipment so as to be non-reflective and compatible with the main or accessory structures.	**Consistent:** According to the City of Industry, this standard is intended to apply to mechanical equipment situated atop buildings and would not apply to the power plants' mechanical equipment. The City indicates that screening of the power plant's mechanical equipment would be impracticable and is not needed to conform to this standard.
Provision Development Guidelines – Development Plan Standards: Rooflines on a building or structure should be compatible throughout the building or structure and with existing buildings and structures and surrounding development.	**Consistent:** The applicant proposes standard, low-angle rooflines for the buildings associated with the power plant that are consistent with existing buildings and surrounding development.

Provision Development Guidelines – Development Plan Standards: The design of accessory structures, fences, and walls shall be harmonious with the principal building and other buildings on the site. Insofar as possible, the same building materials should be used on all structures on a site.	**Consistent:** The applicant would be using mostly metal and metallic structures for major equipment and the plant's warehouse, administration and maintenance buildings. The buildings would be painted with a non-reflective color scheme that would be compatible with other structures and on-site mechanical equipment.
Provision Development Guidelines – Development Plan Standards: Boundary and other walls should generally be of decorative masonry and/or wrought iron which is complimentary in color, texture and material to the development as a whole, although it is recognized that these materials may not be appropriate in all situations.	**Consistent:** The applicant is not proposing to provide boundary walls for the site or to use decorative or wrought iron fencing. The City of Industry has determined that such decorative walls or fencing are not appropriate for this facility. The City of Industry has determined that a zone exception is appropriate to provide relief from the City's boundary wall standard for this project. Staff has determined that excluding the project from the City's boundary wall requirements would not create an adverse visual impact.
Provision Development Guidelines – Development Plan Standards: All on-premise signs and sign structures shall require approval from the City of Industry prior to their construction, installation, alteration, relocation, enlargement, or modification.	**Consistent:** The applicant would comply with the City's sign development and installation standards.
Provision Development Guidelines – Development Plan Standards: All buildings shall be constructed of concrete, concrete tilt-up, stucco, masonry, or brick. No metal buildings are permitted.	**Consistent:** The WCEP would consist mostly of metal and metallic structures for the plant's major power equipment and its warehouse, administration and maintenance buildings. According to the City, this standard was intended for typical warehouse and manufacturing buildings and it's appropriate for this project to use metal building materials as long as they are painted with non-reflective surfaces. The City of Industry has determined that a zone exception is appropriate to provide relief from the building material standards for this project. Staff has determined that excluding the project from the City's building material standards would not create an adverse visual impact.
Provision Development Guidelines – Development Plan Standards: Landscape areas shall constitute a minimum of twelve percent (12%) of the total lot area of each parcel. The configuration and location of such areas shall be such that they are effective in reducing, as far as possible, the monotonous appearance of buildings, structures and parking areas. A minimum of a three (3) foot wide landscape strip shall be provided along all side and rear property lines.	**Consistent:** The applicant is proposing to landscape only the eastern portion of the project site along the Bixby Drive frontage. The City of Industry has determined that a zone exception is appropriate to provide relief from the 3-foot wide perimeter landscaping standard for this project. Staff does not object to this determination. Staff has determined that excluding the project from the City's perimeter landscaping standard would not create an adverse visual impact.
Provision Development Guidelines – Development Plan Standards: Truck loading docks which are located on the front or side of a building shall be adequately screened by an eight (8) foot high masonry wall, accessory structures, or landscaping and foliage so that such truck loading docks are not visible, to the greatest extent practical, from any public right-of-way. Whenever possible, truck loading docks should be located at the rear of the building. A minimum of one-hundred (100) feet unobstructed clearance, measuring perpendicularly from the face of the truck loading docks, shall be provided for such truck loading docks.	**Consistent:** Truck loading areas would be located 400 feet from the Bixby Drive street frontage and would be screened from public view (from the east) by the storage tanks, buildings and other equipment on the site. The City of Industry has determined that a zone exception is appropriate to provide relief from the 8' high masonry wall standard for this project. Staff has determined that excluding the project from the City's masonry wall standard would not create an adverse visual impact.

Provision Development Guidelines – Development Plan Standards: Electrical transformers shall be screened with landscaping whenever possible.	**Consistent:** The City indicates that the transformers would not be visible from public right-of-ways and has, therefore, determined that screening of the transformers is not needed to conform to this standard. The project's electrical transformers would be located along the southern boundary of the project site adjacent to the Union Pacific railway. In addition to freight trains, this railway carries six Metrolink passenger trains with an average of 4,800 passengers per day. Staff agrees with the applicant's proposal to erect chain link fencing without landscaping or screening of the transformers, views for railway passengers would be brief and therefore, no adverse visual impact is anticipated.
Provision Development Guidelines – Development Plan Standards: All exterior doors, except glass doors, of all buildings shall be painted to match the adjacent wall of the building.	**Consistent:** The applicant would comply with this standard.
Provision Landscape and Irrigation Plan Standards and Requirements: Landscape areas shown on the site plan must be landscaped and automatically irrigated. A current California licensed landscape architect must prepare and sign all landscape and irrigation plans in excess of 5,000 square feet of landscaping. All landscape areas shall be provided with trees, shrubs, ground cover or lawn. Gravel, bark, redwood chips, concrete and/or other non-plant material in landscape areas is prohibited. Street trees shall be provided along all street frontages and located behind the required sidewalk. Street trees shall be 24" box in size, planted 30 feet on center. The type of street tree required varies with each street. All trees shall be provided with support stakes. Care should be taken in the selection of landscaping materials that are compatible with the City of Industry environment. Materials proposed on the plan should be materials which are readily available from wholesale nurseries.	**Consistent:** The applicant would comply with these landscaping and irrigation standards for the eastern portion of the site along the Bixby Drive frontage. The City of Industry has determined that a zone exception is appropriate to provide relief from the 3-foot wide perimeter landscaping standard for this project. Staff has determined that excluding the project from the City's perimeter landscaping standard would not create an adverse visual impact.

CONCLUSIONS

The visual analysis focused on two main issues; (1) would construction and operation of the project cause visual impacts; and (2) would the project comply with applicable local LORS. The construction and operation of the WCEP as proposed, with effective implementation of staff's recommended conditions of certification outlined below, would ensure that direct and cumulative visual impacts from the project are less than significant and ensure that the project complies with all applicable LORS regarding visual resources.

PROPOSED CONDITIONS OF CERTIFICATION

SURFACE TREATMENT OF PROJECT STRUCTURES AND BUILDINGS

VIS-1 The project owner shall color and finish the surfaces of all 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. 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. 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;

E. A specific schedule for completing the treatment; and

F. 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 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 treatment plan to the CPM for review and approval and simultaneously to the City of Industry 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 treatment plan must be submitted to the CPM for review and approval.

Within ninety (90) days after the start of commercial operation, the project owner shall notify the CPM that surface treatment of all listed structures and buildings has been completed and is ready for inspection; and shall submit one set of electronic color photographs from 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-2 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 direct light trespass (direct light extending outside 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 General Conditions section 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-3 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) the plan complies with local policies and ordinances.

The project owner shall submit a lighting mitigation plan to the CPM for review and approval and simultaneously to the City of Industry Planning Department for review and comment that includes the following:

A. A process for addressing and mitigating complaints received about potential lighting impacts;

B. Location and direction of light fixtures shall take the lighting mitigation requirements into account;

C. Lighting design shall consider setbacks of project features from the site boundary to aid in satisfying the lighting mitigation requirements;

D. Lighting shall incorporate commercially available fixture hoods/shielding, with light directed downward or toward the area to be illuminated;

E. Light fixtures shall not cause obtrusive spill light beyond the project boundary;

F. All lighting shall be of minimum necessary brightness consistent with operational safety and security; and

G. 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 Industry Planning Department 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 completed and is ready for inspection. If after inspection the CPM notifies the project owner that modifications to the lighting are needed, within 30 days of receiving that notification the project owner shall implement the modifications and notify the CPM that the modifications have been completed and are ready for inspection.

Within 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.

PLUMES

VIS-4 To ensure that the cooling tower plumes will not cause significant visual impacts, the project owner shall ensure that the cooling tower is designed and operated as certified.

The cooling tower shall be designed and operated so that that the exhaust air flow rate per heat rejection rate (1) will not be less than 5.6 kilograms per second per megawatt when the ambient conditions are 20 degrees F and 60 percent relative humidity ambient, (2) will not be less than 8.0 kilograms per second per megawatt when the ambient conditions are 59 degrees F and 60 percent relative humidity, and (3) will not be less than 9.2 kilograms per second per megawatt when the ambient conditions are 95 degrees F and 60 percent relative humidity.

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

The project owner shall provide written documentation in each Annual Compliance Report to demonstrate that the cooling towers have consistently been operated within the above-specified design parameters, except as necessary to prevent damage to the cooling tower. If determined to be necessary to ensure operational compliance, based on legitimate complaints received or other physical evidence of potential non-compliant operation, the project owner shall monitor the cooling tower operating parameters in a manner and for a period as specified by the CPM. For each period that the cooling tower operation monitoring is required, the project owner shall provide to the CPM the cooling tower operating data within 30 days of the end of the monitoring period. The project owner shall include with this operating data an analysis of compliance and shall provide proposed remedial actions if compliance cannot be demonstrated.

SITE SURFACE RESTORATION

VIS-5 The project owner shall remove all evidence of the laydown area and linear-facility construction activities and shall restore the ground surface to its original or better condition. Unless precluded by the project's configuration, the project owner shall replace any vegetation or paving removed or damaged during project construction. The project owner shall submit a surface restoration plan to the CPM for review and approval.

Verification: At least 60 days prior to the start of commercial operation, the project owner shall submit the surface restoration plan to the CPM for review and approval.

If the CPM notifies the project owner that revisions to the surface restoration plan are needed, the project owner shall submit a revised plan to the CPM within 30 days.

The project owner shall complete surface restoration within 90 days after the start of commercial operation. The project owner shall notify the CPM within seven days after completion of surface restoration that the restoration is ready for inspection.

REFERENCES

EME 2005a - Edison Mission Energy/GPL:bpm (tn: 35950). Walnut Creek Energy Park AFC. 11/21/2005. Rec'd 11/22/2005.

EME 2006c - Edison Mission Energy/Scilacci (tn: 36210). Supplement in Response to CEC Staff's Data Adequacy Comments on the AFC for the Walnut Creek Energy Park. 01/12/2006. Rec'd 01/13/2006.

CEC 2006e – California Energy Commission/E. Knight (tn: 36505). CEC Staff's Data Requests (1-97). POS. 03/10/2006. Rec'd 03/10/2006.

CEC 2006d – California Energy Commission/E. Knight (tn: 36396). Letter to Mike Kissell, City of Industry Planning Director, requesting the City's input on the project's compliance with city plans, policies, and regulations. 02/24/2006. Rec'd 02/24/2006.

CH2MHILL 2006a –CH2MHILL/J. Carrier (tn:36678). Applicant's responses to CEC Staff Data Requests 1-97. POS. 04/10/2006. Rec'd 04/10/2006.

CH2MHILL 2006b – CH2MHILL/D. Davy (tn: 37046). Supplement IV in Response to Data Requests and Workshops Queries. Rec'd 10/06.

COI 2006e – City of Industry (tn: 36801). City of Industry review of the Walnut Creek Energy Park's consistentcy with City laws, ordinances, regulations and standards. 04/18/2006. Rec'd 04/20/2006.

City of Industry, 2005. "Development Guidelines" issued by the City of Industry Planning Department. Downloaded from the City of Industry's website on December 12, 2005.

City of Industry, 2005a. "Landscape & Irrigation Plan Standards & Requirements" issued by the City of Industry Planning Department. Downloaded from the City of Industry's website on December 12, 2005.

Smardon, Richard, 1986. Foundations for Visual Project Analysis

APPENDIX VR-1: STAFF'S VISUAL RESOURCES EVALUATION METHODOLOGY

Visual resources analysis has an inherent subjective aspect. Use of generally accepted criteria for determining environmental impact significance and a clearly described analytical approach aid in developing an analysis that can be readily understood.

Staff's methodology is based on the California Environmental Quality Act (CEQA) Guidelines. The methodology includes an evaluation of the visual characteristics of the existing setting, the visual characteristics of the proposed project, the circumstances affecting the viewer, and the degree of visual impact that the proposed project would cause.

ELEMENTS OF THE METHODOLOGY

Key Observation Points

A proposed project is potentially visible from a number of areas in a viewshed. Energy Commission staff evaluate the visual impact of the project using a Key Observation Point[1], or KOP. One or more KOPs are selected to be representative of the most critical locations from which the proposed project would be seen. A KOP is representative of a location from which to conduct a detailed analysis of the project, and includes an existing condition/setting photograph, and simulation of the proposed project using the existing condition photograph.

Prior to application submittal, staff participates in a site visit to select appropriate KOP(s) for the analysis. Other photos to demonstrate the general landscape character of the project area are also included, as appropriate.

LORS Consistency

Energy Commission staff consider federal, state, and local laws, ordinances, regulations, and standards (LORS) relevant to visual resources. Conflicts with such LORS can constitute significant visual impacts. For example visual staff examines land use planning documents, such as local government General Plans and Specific Plans, and zoning ordinances applicable to the project site and surrounding area to gain insight as to the type of land uses intended for the area, and the guidelines given for the protection or preservation of visual resources.

Visible Water Vapor Plume Frequency

Energy Commission staff model the estimated turbine plume frequency and dimensions for the cooling tower and turbine exhaust using the Combustion Stack Visible Plume (CSVP) model, and a multi-year meteorological data set obtained for the area where the project is proposed.

[1] The use of KOPs or similar view locations is common in visual resource analysis. The US Bureau of Land Management and the US Forest Service use such an approach.

A plume frequency of 20 percent of seasonal (typically from November through April) daylight no rain/fog high visual contrast (i.e. “clear”) hours is used to determine potential plume impact significance. If it is determined that the seasonal daylight clear hour plume frequency is greater than 20 percent, then plume dimensions are determined and a significance analysis is included in the Visual Resources section of the Staff Assessment for the proposed project. Plume frequencies of less than 20 percent have been determined to generally have a less than significant impact.

California Environmental Quality Act Guidelines

The CEQA Guidelines define a “significant effect on the environment” to mean a “substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including . . . objects of historic or aesthetic significance” (California Code of Regulations, Title 14, Section 15382).

Appendix G Environmental Checklist Form of the CEQA Guidelines, under Aesthetics, lists the following four questions to be addressed regarding whether the potential impacts of a project are significant:

1. Would the project have a substantial adverse effect on a scenic vista?
2. Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?
3. Would the project substantially degrade the existing visual character or quality of the site and its surroundings?
4. Would the project create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?

Staff answers each of the four checklist questions for the proposed project, including any related facility such as a transmission line or gas pipeline; and for both construction and operation phases.

The visual analysis typically distinguishes between three different impact durations: temporary impacts, typically lasting no longer than two years; short-term impacts, generally last no longer than five years; and long-term impacts, which are impacts with a duration greater than five years. In general, short-term impacts are not considered significant.

To help make these determinations, visual resource professionals often answer a series of questions developed to help focus the analysis, and examine various ways that the project could create an impact to scenic vistas. The Energy Commission’s Visual Resources staff has developed such a list for each of the four CEQA guideline questions, drawing upon published methodologies and academic resources (Smardon, et al.), as well as on past experience with other power plant siting cases.

To answer the first checklist question (Would the project have a substantial adverse effect on a scenic vista?), staff must determine if any such scenic vista exists within the viewshed of the various aspects of the project, and then determine if the project would have a substantial adverse effect on that vista.

Questions developed to help determine whether the project would significantly affect a scenic vista include:

1. Is the project located in the scenic view of a local/state/federal-designated scenic vista?
2. Is there compelling evidence to show that the view is designated/valued by the local community?
3. Will the project eliminate or block views of valuable visual resources?
4. Would the project create a water vapor plume that could have an adverse effect on a state/federal/local-designated scenic vista?

To help answer the second CEQA checklist question above (Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?), staff developed the following questions:

1. Is the project located in the scenic view from a local/state/federal-designated scenic highway?
2. Does the project site or its immediate vicinity contain scenic resources, such as trees, rock outcroppings, or historic structures that could be damaged by the project?
3. Would the project create a water vapor plume that could have an adverse effect on the view from a local/state/federal-designated scenic highway?

To answer the third CEQA question (Would the project substantially degrade the existing visual character or quality of the site and its surroundings?), staff assesses the existing visual character and quality of the project area, and then determines how the project would affect the character and quality of the project viewshed. To assess whether the project has the potential to substantially degrade the present visual character or quality, staff uses personal observation and tools such as visual simulations to determine if an impact is significant and mitigation is required to reduce the impact to a less-than-significant level. To make that determination, staff examines many factors, such as: how many viewers can see a particular view and for how long, collectively called “viewer exposure;” and to what degree would the project change the aspects of a given view, such as whether the project’s components would block a particular view.

To help determine how the community rates and values the visual character and quality of a given site, and whether the project would substantially alter the present visual character or quality, staff developed the following questions:

1. How many residential, recreational, and traveling (motorist) viewers would have views of the project?
2. Is the project site properly zoned?
3. Would a conditional use permit and/or height variance have been required from the city/county (if so what conditions would the city/county place on the power plant)?

4. Does the project conform to the clear written declarations of local/state/federal agencies to protect designated visual resources of importance or the valued aesthetic character of a neighborhood (said declaration must be clear, concise, and uncompromised by conflicting declarations, and be an official action of the governing body (City Council/Board of Supervisors) such as a General Plan element, zoning ordinance, or design guideline)?
5. Will the project substantially alter the existing viewshed, including any changes in natural terrain?
6. Does the project substantially change the existing setting?
7. Has the applicant proposed landscaping?
8. Would the project create a water vapor plume that could have an adverse effect on a KOP view?

The process of answering these questions includes an examination of the present views within the project viewshed in terms of aesthetics (quality of a view), followed by an assessment of how the view would be affected by the project. This could be described as an analysis of how well the project area can absorb the project into the landscape.

Staff attempts to determine if the local community values a particular view that may be affected by the project. To do this, staff searches applicable planning documents covering the project area produced by local public agencies, and information prepared by community groups. The Energy Commission gives due deference to official statements by elected governmental bodies concerning the value of visual resources within the project area.

To answer the fourth CEQA Guidelines checklist question (Would the project create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?), staff analyzes the project's lighting plans to ensure they fit with established norms for low-impact lighting designs, and then answers the following questions to determine if a potential for impact from night-lighting exists:

1. With the Energy Commission's standard condition of certification for lighting control, would light or glare be reduced to acceptable levels?
2. Will the project result in significant amounts of backscatter light into the nighttime sky?

APPENDIX VR-2: VISIBLE PLUME MODELING ANALYSIS

William Walters

INTRODUCTION

The following provides the assessment of the Walnut Creek Energy Project (WCEP) cooling tower and gas turbine exhaust stack visible plumes. Staff completed a modeling analysis for the applicant's proposed unabated cooling tower and turbine design based on data provided by the applicant.

PROJECT DESCRIPTION

The proposed project will utilize five General Electric LMS100 gas turbines which will be operated in simple-cycle mode. The applicant has also proposed a five-cell mechanical-draft cooling tower. Because of the intercooler characteristic of the LMS100 type gas combustion turbine, the gas turbine cooling load is significantly larger than the gas turbine cooling load for other simple-cycle gas turbines. The intercooler removes heat from the gas turbine inlet air after it has been compressed in the gas turbine compressor's low pressure section and before it is fed into the gas turbine compressor's high pressure section. The intercooler closed-loop cooling water in turn is cooled by the cooling tower's recirculating water flow in a non-contact heat exchanger. The applicant has not proposed to use any methods to abate visible plumes from the cooling towers.

VISIBLE PLUME MODELING METHODS

PLUME FREQUENCY AND DIMENSION MODELING

The Combustion Stack Visible Plume (CSVP) model was used to estimate plume frequency and plume dimensions for the cooling tower exhaust. This model provides conservative estimates of both plume frequency and plume size. This model uses hourly cooling tower exhaust parameters and hourly ambient condition data to determine the plume frequency. This model is based on the algorithms of the Industrial Source Complex model (Version 2), that determine temperatures at the plume centerline, but this model does not incorporate building downwash.

The modeling method combines the cooling tower cell exhausts into an equivalent single stack. This method may overestimate cooling tower plume size (particularly height) during plume hours with higher winds due to little cell interaction and the potential for building downwash, but will be more accurate during low wind and calm periods when the exhausts from the cooling tower cells will combine into one coherent body. Wind speeds are set to 1 m/s during calm hours and an urban land classification was used in the modeling analysis.

CLOUD COVER DATA ANALYSIS METHOD

A plume frequency of 20 percent of seasonal (November through April) daylight no rain/fog high visual contrast (i.e. “clear”) hours is used to determine potential plume impact significance. The methodology used to determine high visual contrast hours is provided below:

> The Energy Commission has identified a “clear” sky category during which plumes have the greatest potential to cause adverse visual impacts. For this project the meteorological data set[2] used in the analysis categorizes total sky cover as “clear”, “scattered”, “broken”, “overcast”, “partially obscured”, and obscured”. For the purpose of estimating the high visual contrast hours staff has included in the “Clear” category a) all hours with total sky cover defined as “clear” plus b) half of the non-obscured hours with unlimited ceiling height (i.e. hours with a sky opacity equal to or less than 50%). The rationale for including these two components in this category is as follows: a) plumes typically contrast most with sky under clear conditions and b) for a substantial portion of the time when total sky cover is not clear or obscured the opacity of the sky cover is relatively low (equal to or less than 50%), and these clouds do not substantially reduce contrast with plumes. Staff has estimated that approximately half of the hours with a sky opacity of less than 50% can be considered high visual contrast hours and are included in the “clear” sky definition.

If it is determined that the seasonal daylight clear hour plume frequency is greater than 20 percent then plume dimensions are calculated, and a significance analysis of the plumes is included in the Visual Resources section of the Staff Assessment.

COOLING TOWER VISIBLE PLUME MODELING ANALYSIS

COOLING TOWER DESIGN AND OPERATING PARAMETERS

The following cooling tower design characteristics, presented below in VISIBLE PLUME Table 1, were determined through a review of the applicant’s AFC (EME 2005a, Appendix 8.1) and data responses (CH2MHILL 2006c, Data Response #85). The data presented in VISIBLE PLUME Table 1 was used to model the cooling tower plume frequency and dimensions.

[2] This analysis uses a Burbank TD3280 meteorological data set obtained from the National Climatic Data Center (NCDC). Other previously formatted multiple year meteorological data sets were available, such as data from Long Beach, Fullerton and Riverside. However, a comparison of representative normal ambient conditions and the completeness of the meteorological data sets indicated that the Burbank data set was as representative of site conditions as the other available data sets and more complete, including all weather and cloud cover data necessary to determine “clear” hours.

VISIBLE PLUME Table 1
Cooling Tower Operating and Exhaust Parameters

Parameter		Cooling Tower Design Parameters		
Number of Cells		5 (1 x 5)		
Cell Height		40 feet (12.19 meters)		
Cell Stack Diameter		22.01 feet (6.71 meters)		
Case	**Inlet Air Ambient Condition**	**Heat Rejection Rate (MW)**	**Exhaust Flow Rate (lbs/hr)**	**Exhaust Temperature (°F)**
1	20°F, 60% RH	145	6,489,194	107
2	59°F, 60% RH	160	10,182,154	102
3	95°F, 60% RH	176	12,961,031	111

Source: CH2MHILL 2006c, Data Response #85, with height updated using subsequent applicant response.

The cooling tower design for this project is markedly different than the dozens of cooling towers evaluated for siting cases from 2001 to present. Specifically, this cooling tower employs a much higher "range", which is the difference in the temperature of the incoming and returning water flows into and out of the cooling tower, and also employs a very low air flow to heat rejection ratio (i.e. the amount of air flow through the cooling per quantity of heat rejected from the cooling tower). The range for this cooling tower is designed to be 40°F, while the range for combined cycle cooling tower is more typically designed to be about 17°F. The hotter incoming water allows the cooling tower to be designed smaller and use less air, but this increases the amount of heat and water emitted per unit air volume and that causes an increase in the plume formation potential from the cooling tower.

A comparison of the mass air flow/heat rejection ratio for this cooling tower versus other recent Southern California siting case cooling towers is as follows:

Walnut Creek – 5.6 to 9.3 kg/s/MW
Inland Empire – 13.6 to 16.2 kg/s/MW (duct firing), 16.1 to 32.8 (base load)
Vernon – 13.7 to 13.9 (duct firing), 18.1 to 18.5 kg/s/MW (base load)

The Walnut Creek cooling tower is designed to have less than one-half of the comparative relative air flow at low temperatures and less than 70 percent of the comparative relative air flow at high temperatures.

COOLING TOWER VISIBLE PLUME MODELING RESULTS

VISIBLE PLUME Table 2 provides the CSVP model visible plume frequency results for year round full load operation using a five-year (1996-2000) Burbank meteorological data set, obtained from NCDC.

VISIBLE PLUME Table 2
Predicted Hours with Cooling Tower Visible Plumes
Year Round Full Load Operation Case
Burbank 1996-2000 Meteorological Data

Case	Available (hr)	Plume (hr)	Percent
All Hours	43,848	36,948	84.3
Daylight Hours	22,204	15,870	71.5
Daylight No Rain No Fog	20,293	14,004	69.0
Seasonal Daylight No Rain No Fog*	9,031	7,315	81.0
Daylight Clear Hours	13,716	8,306	**60.6**
May-Oct Daylight Clear	8,309	4,258	**51.2**
Seasonal Daylight Clear*	5,407	4,048	**74.9**

*Seasonal conditions occur anytime from November through April.

The plant design, incorporating several conservative operating assumptions indicates that the cooling tower plume frequency potential (assuming year round full load operation, 100 percent capacity factor) will be significantly greater than the 20 percent threshold trigger. The annual capacity factor for this facility is expected to be less than 100 percent. The applicant has estimated that their initial operation will be limited to 40 percent of summer hours. For the purposes of modeling that was assumed to be June through September, and an evaluation of daily load profiles then suggests normal daily operating hours of roughly 11 am to 9 pm would provide the 40 percent summer capacity factor. The CSVP modeling results were modified to only assume these particular operating hours and VISIBLE PLUME Table 3 provides the resulting daily clear hour plume frequencies.

VISIBLE PLUME Table 3
Predicted Hours with Cooling Tower Visible Plumes
Applicant Summer Only Operation Case
Burbank 1996-2000 Meteorological Data

Case	Available (hr)	Plume (hr)	Percent
Daylight Clear Hours	13,716	1,372	10.0
May-Oct Daylight Clear Hours	8,309	1,372	16.6
June-Sep Daylight Clear Hours	6,011	1,372	**22.8**

The applicant summer only operations case results in significantly lower daylight clear plume frequencies due to the resulting assumption that the plant will not be operating during the early morning hours and will only operate during the peak of summer. While the May to October period plume frequency is lower than 20 percent, even with the restriction in operating hours, the plume frequency during the operating period of June through September was found to be greater than 20 percent.

The applicant's estimate of power plant operations may be reasonable for the short-term; however, staff believes that this power plant's operation will increase significantly over time. The CEC Electricity Analysis Office estimated that over the long term a reasonable annual capacity factor for this facility would be 65 percent. Additionally, a review of 2005 SCE load data provided by the CEC Electricity Analysis Office shows an overall power demand split of 60/40 between the May to October vs. November to April periods. Combining the annual capacity factor and the seasonal power demand splits results in an estimated seasonal capacity factor of 78 percent from May to October and

52 percent from November through April. An evaluation of normal daily load profiles from the 2005 SCE load data then suggests normal daily operating hours of 6 am through 1 am for May through October and 9 am through 9 pm for November through April. The CSVP modeling results were modified to only assume these particular operating hours and VISIBLE PLUME Table 4 provides the resulting daily clear hour plume frequencies for these two seasonal periods.

VISIBLE PLUME Table 4
Predicted Hours with Cooling Tower Visible Plumes
Future 65 Percent Annual Capacity Operation Case
Burbank 1996-2000 Meteorological Data

Case	Available (hr)	Plume (hr)	Percent
Daylight Clear Hours	13,716	6,718	**50.0**
May-Oct Daylight Clear Hours	8,309	3,918	**47.2**
Seasonal Daylight Clear Hours*	5,407	2,800	**51.8**

*Seasonal conditions occur anytime from November through April.

The plume frequencies remain well over 20% of the seasonal (from November through April), daylight clear hours, therefore the seasonal cooling tower plume dimensions were estimated. These dimensions are estimated by the CSVP model and presented in VISIBLE PLUME Table 5.

VISIBLE PLUME Table 5
Predicted Cooling Tower Visible Plume Dimensions

	Cooling Tower Seasonal "Clear" Hours Plume Dimensions Meters (feet)		
Percentile	**Length**	**Height**	**Width**
1%	66 (217)	157 (516)	47 (154)
5%	43 (140)	86 (282)	34 (112)
10%	33 (108)	58 (191)	29 (96)
20%	**23 (74)**	**38 (125)**	**26 (87)**
30%	16 (52)	28 (92)	24 (79)
40%	10 (33)	22 (71)	21 (68)

Results include the cooling tower stack height, see VISIBLE PLUME Table 1.

TURBINE EXHAUST VISIBLE PLUME ASSESSMENT

The temperature of the turbine exhaust exceeds 700°F under normal operating conditions. From staff's experience gas turbines with exhaust temperatures of this magnitude would not form visible steam plumes under any meteorological conditions that might exist at the project site. Therefore, staff did not analyze the turbine exhaust stack further for potential visible plumes.

COOLING TOWER PLUME ABATEMENT METHODS

The WCEP cooling towers due to their particular design create a higher plume frequency than typically seen for power plant cooling towers. There at least four methods that could be employed to lower the plume frequency or eliminate plumes altogether.

Increase Cooling Tower Air Flow

Increasing the cooling tower air flow will lower the exhaust temperature and reduce the plume frequency. This could include a redesign of the intercooler heat exchangers, the cooling tower, or both. The cost of the cooling system would be increased due to an increase in the cooling tower size to accommodate the additional air flow. The overall reduction in plume frequency would result from the increase in air flow, but would not eliminate the potential for visible water vapor plumes under all conditions.

A comparison of the Magnolia Power Plant case (01-AFC-6) indicates that an increase in air flow rate that results in an air flow versus heat reduction ratio of approximately 15 kg/s/MW would approximately halve the plume frequency and that an increase to approximately 24 kg/s/MW would reduce the seasonal daylight no rain no fog plume frequency by more than a factor of four. This would reduce the seasonal daylight clear hour plume frequency below the 20 percent trigger threshold criteria for additional plume analysis. However, any specific cooling tower redesign needs to be fully modeled to determine the effective final plume frequency reductions.

Wet/Dry Cooling Tower

The cooling tower could be redesigned to allow the addition of a dry section to create a wet/dry cooling tower. This type of cooling tower reduces plume formation by adding heat to the saturated wet cooling section exhaust to reduce its saturation level. The amount of plume reduction that can be accomplished by this type of system can vary from a relatively moderate reduction in visible plume frequency, such as the Palomar Energy Project (01-AFC-24) wet/dry cooling tower design, or a significant reduction in visible plumes such as the Metcalf Energy Center (99-AFC-3) wet/dry cooling tower design. In addition to the cost of the dry section, including its piping and controls, additional cooling tower structural stability costs are incurred. The relatively hot incoming water temperature for this project would increase the dry section efficiency and reduce the relative size and cost of the dry section. The specific wet/dry design would be based on the desired degree of plume reduction.

Wet Surface Air Condenser

The wet surface air condenser (WSAC) technology is similar to a wet/dry cooling tower. Where this system is different is that it could eliminate the need for a heat exchanger. The cooling fluid(s) used for the intercooler and any auxiliary cooling systems could be piped directly into the WSAC which can operate as a non-contact heat rejection system which uses water sprays over the cooling pipes to increase the heat rejection when necessary. The expected hot temperature of the cooling fluid would increase the efficiency of this type of system. There may still be the potential for plumes under high cooling load periods during certain ambient conditions, but the WSAC could be designed to maintain a minimal plume frequency well below 20 percent of seasonal daylight clear hours.

Only one reasonably large WSAC system has been proposed recently for a CEC jurisdictional power plant. However, that system, proposed for auxiliary cooling loads at the Otay Mesa Power Plant, has not yet been built. A WSAC system would increase the capital cost of the plant and an appropriately sized WSAC system may require more space than is available at the site.

Dry Cooling

The replacement of the cooling tower with an air cooled condenser would eliminate visible water vapor plumes. This is the most costly of the plume abatement methods and would create a large and tall permanent structure. Additionally the air cooled condenser may require more space than is available at the site.

CONCLUSIONS

Visible water vapor plumes from the proposed WCEP cooling tower are expected to occur greater than 20 percent of seasonal daylight clear hours. Therefore, further visual impact analysis of the expected plume frequencies and plume sizes has been completed.

The cooling tower plume frequency can be reduced significantly by the redesign of the cooling tower to increase air flow, by redesigning the cooling tower to include wet/dry plume abatement, or by redesigning the cooling system to use an air cooled condenser or WSAC.

Visible water vapor plumes are not expected to form at the proposed WCEP turbine exhaust stacks under any meteorological conditions that might exist at the project site.

REFERENCES

EME 2005a – Edison Mission Energy/GPL:bpm (tn: 35950). Walnut Creek Energy Park AFC. 11/21/2005. Rec'd 11/22/2005.

CH2MHILL 2006c – CH2MHILL/J. Carrier (tn: 36678). Applicant's Supplemental Responses to CEC Staff Data Requests 1-80 for the **Sun Valley Energy Project** (05-AFC-3). May 19, 2006.

VISUAL RESOURCES - FIGURE 1

Walnut Creek Energy Park - Key Observation Point Photo Locations

CALIFORNIA ENERGY COMMISSION, SYSTEMS ASSESSMENT & FACILITIES SITING DIVISION, DECEMBER 2006

SOURCE: AFC Figure DR87-1

VISUAL RESOURCES - FIGURE 2

Walnut Creek Energy Park - KOP 1 - Existing view toward the project site from Fieldgate Avenue at the corner of Folger Street

SOURCE: AFC Figure 8.13-2A

VISUAL RESOURCES - FIGURE 3

Walnut Creek Energy Park - KOP 1 - Simulated view of the proposed project as seen from Fieldgate Avenue at the corner of Folger Street

CALIFORNIA ENERGY COMMISSION, SYSTEMS ASSESSMENT & FACILITIES SITING DIVISION, DECEMBER 2006

SOURCE: AFC Figure 8.13-2B

VISUAL RESOURCES - FIGURE 4

Walnut Creek Energy Park - KOP 2 - Existing view toward the project site from a viewpoint on South Piermont Drive in Hacienda Heights

CALIFORNIA ENERGY COMMISSION, SYSTEMS ASSESSMENT & FACILITIES SITING DIVISION, DECEMBER 2006

SOURCE: AFC Figure 8.13-3A

VISUAL RESOURCES - FIGURE 5

Walnut Creek Energy Park - KOP 2 - Simulated view of the proposed project as seen as South Piermont Drive viewpoint

CALIFORNIA ENERGY COMMISSION, SYSTEMS ASSESSMENT & FACILITIES SITING DIVISION, DECEMBER 2006

SOURCE: AFC Figure 8.13-3B

VISUAL RESOURCES - FIGURE 6

Walnut Creek Energy Park - KOP 3 - Existing view toward the project site from a viewpoint on Main Street in La Puente

CALIFORNIA ENERGY COMMISSION, SYSTEMS ASSESSMENT & FACILITIES SITING DIVISION, DECEMBER 2006

SOURCE: AFC Figure 8.13-4A

VISUAL RESOURCES - FIGURE 7

Walnut Creek Energy Park - Key Observation Point 3 - Simulated view of the proposed project as seen from the Main Street viewpoint

SOURCE: AFC Figure 8.13-4B

VISUAL RESOURCES - FIGURE 8

Walnut Creek Energy Park - Key Observation Point 3 - Summer Visual Plume Simulation

SOURCE: AFC Figure 8.13-4B

VISUAL RESOURCES - FIGURE 9

Walnut Creek Energy Park - Key Observation Point 3 - Year-Round Visual Plume Simulation

CALIFORNIA ENERGY COMMISSION, SYSTEMS ASSESSMENT & FACILITIES SITING DIVISION, DECEMBER 2006

SOURCE: AFC Figure 8.13-4B

WASTE MANAGEMENT

Ellie Townsend-Hough

SUMMARY OF CONCLUSIONS

Management of the waste generated during construction and operation of the Walnut Creek Energy Park (WCEP) or those associated with remediation of existing on-site contamination would not result in any significant adverse environmental impacts if the measures and remediation proposed in the Application for Certification (AFC) and Staff's proposed Conditions of Certification are implemented.

INTRODUCTION

This Preliminary Staff Assessment (PSA) presents an analysis of issues associated with managing wastes generated from constructing and operating the proposed WCEP and any hazardous wastes already existing on-site because of past activities. Staff has evaluated the proposed waste management plans and mitigation measures designed to reduce the risks and environmental impacts associated with handling, storing, and disposing of project-related hazardous and nonhazardous wastes. Staff also evaluates the potential for site remediation. The technical scope of this analysis encompasses solid wastes existing on-site and those generated during facility construction and operation. Wastewater is more fully discussed in the **Soil and Water Resources** section of this document.

Energy Commission staff's objectives in its waste management analysis are to ensure that:

- The management of the wastes would be in compliance with all applicable laws, ordinances, regulations, and standards (LORS). Compliance with LORS ensures that wastes generated during the construction and operation of the proposed project would be managed in an environmentally safe manner.
- The disposal of project wastes would not result in significant adverse impacts to existing waste disposal facilities.
- Upon project completion, the site is managed such that contaminants would not pose a significant risk to humans or the environment.

LAWS, ORDINANCES, REGULATION, AND STANDARDS

The following framework of federal, state, and local environmental LORS exists to ensure the safe and proper management of hazardous waste from generation to disposal to reduce the risks of accidents that might impact worker and public health and the environment. Their provisions have established the basis for staff's determination regarding the significance and acceptability of the WCEP with respect to management of waste.

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

Applicable Law	Description
Federal	
42 U.S.C. § 6922 Resource Conservation and Recovery Act (RCRA)	The RCRA establishes requirements for the management of hazardous wastes from the time of generation to the point of ultimate treatment or disposal. Section 6922 requires generators of hazardous waste to comply with requirements regarding: • Record keeping practices which identify quantities of hazardous wastes generated and their disposition, • Labeling practices and use of appropriate containers, • Use of a manifest system for transportation, and • Submission of periodic reports to the U.S. Environmental Protection Agency (EPA) or authorized state agency.
Title 40, Code of Federal Regulations, part 260	These sections contain regulations promulgated by the EPA to implement the requirements of RCRA as described above. Characteristics of hazardous waste are described in terms of ignitability, corrosivity, reactivity, and toxicity, and specific types of wastes are listed.
State	
California Health and Safety Code §25100 et seq. (Hazardous Waste Control Act of 1972, as amended)	This act creates the framework under which hazardous wastes must be managed in California. It mandates the State Department of Health Services (now the Department of Toxic Substances Control (DTSC) under the California Environmental Protection Agency (Cal EPA)) to develop and publish a list of hazardous and extremely hazardous wastes, and to develop and adopt criteria and guidelines for the identification of such wastes. It also requires hazardous waste generators to file notification statements with Cal EPA and creates a manifest system to be used when transporting such wastes.
Title 14, California Code of Regulations, §17200 et seq. (Minimum Standards for Solid Waste Handling and Disposal)	These regulations set forth minimum standards for solid waste handling and disposal, guidelines to ensure conformance of solid waste facilities with county solid waste management plans, as well as enforcement and administration provisions.
Title 22, California Code of Regulations, §66262.10 et seq. (Generator	These sections establish requirements for generators of hazardous waste. Under these sections, waste generators must determine if their wastes are hazardous according to either specified characteristics or lists of wastes. As in the federal program, hazardous waste generators must obtain EPA identification numbers, prepare manifests before transporting

Standards)	the waste off-site, and use only permitted treatment, storage, and disposal facilities. Additionally, hazardous waste must only be handled by registered hazardous waste transporters. Generator requirements for record keeping, reporting, packaging, and labeling are also established and are enforced by the Cal-EPA Department of Toxic Substances Control.
Title 22, California Code of Regulations, §67100.1 et seq.	Hazardous Waste Source Reduction and Management Review. These sections establish reporting requirements for generators of certain hazardous and extremely hazardous wastes in excess of specified limits. The required reports must indicate the generator's waste management plans and performance over the reporting period.
The Asbestos Airborne Toxic Control Measure	The California Air Resources Board (CARB) adopted the Asbestos Airborne Toxic Control Measure (ATCM) for Construction, Grading, Quarrying, and Surface Mining Operations. The ATCM requires specific mitigation measures to prevent off-site migration of asbestos-containing dust.
Title 8 California Code of Regulations §1529 and §5208	These are regulations requiring the proper removal of asbestos containing materials and are enforced by California Occupational Safety and Health Administration (Cal-OSHA).
Local	
Los Angles County General Plan, Safety Element, Policy Thirteen	Provides guidance for local management of hazardous waste and materials.
Los Angeles County Integrated Waste Management Plan	Provides guidance for local management of solid waste and household hazardous waste (incorporates the County's Source Reduction and Recycling Elements, which detail means of reducing commercial and industrial sources of solid waste).
City of Industry General Plan, Open Space and Conservation Element, Waste Management and Recycling, Section 6.6	Establishes City policies on reducing waste generation, meeting waste diversion goals, encouraging cleanup of contaminated sites, and ensuring adequate waste disposal capacity for the City's solid waste. Adopts Los Angeles County's Hazardous Waste Management Plan as City policy.
Los Angeles County, Title 32 Fire Code	Enforced by the local fire department, and includes a requirement that businesses obtain permits for the use and storage of specified hazardous materials. This permit must be obtained before storing regulated hazardous wastes at the project site.

SETTING

The proposed WCEP project site is located at 911 Bixby Drive, City of Industry, California. A large, commercial distribution warehouse slated for demolition presently occupies the project site, which is owned by the City of Industry Urban Development Agency (the City). The parcel lies within the San Gabriel Valley Superfund Site. The Superfund Site is listed on the National Priorities List. The parcel has undergone investigations and remediation for groundwater contaminated with volatile organic compounds (VOCs). The groundwater beneath the proposed site is contaminated by

industrial sources located within the Superfund Site. The US EPA and the Los Angeles Regional Water Quality Control Board determined that past activities at the project site were not responsible for groundwater contamination beneath the site (EME 2005a).

ASSESSMENT OF IMPACTS AND DISCUSSION OF MITIGATION

METHOD AND THRESHOLD FOR DETERMINING SIGNIFICANCE

Two issues are addressed in this Waste Management section: potential site contamination and the methods used to handle wastes (Class I hazardous wastes, Class II designated wastes, and Class III municipal solid wastes) during construction and operations. The methods staff uses and the thresholds for determining significance of impacts are different for these two issues.

For any site proposed for the construction of a power plant in California, the applicant must provide sufficient documentation about the nature of any contamination on the site. Staff requires that at the least, a Phase I Environmental Site Assessment (ESA) be prepared and submitted to the Energy Commission for staff's review and evaluation. A Phase I ESA provides a history of use of the site, often as far back as the mid-1800s, and a list of any hazardous waste release within a certain distance of the site. If there is a reasonable potential that the site contains hazardous waste, soil or groundwater would be sampled and analyzed as part of a Phase II ESA.

Staff may utilize either of two approaches or both for determining if hazardous waste present on the site would pose a risk to on-site workers (construction or operations) or the public. The first approach follows standards promulgated by Cal/EPA, principally by the Department of Toxic Substances Control (DTSC), the Office of Environmental Health Hazard Assessment (OEHHA), and the Regional Water Quality Control Boards (RWQCB). Staff would compare the levels of contaminants found on-site with established standards, such as OEHHA California Human Health Screening Levels (CHHSLs). If metals are suspected of being present at unsafe levels, staff would first compare those levels to levels that occur naturally in soil or water as tabulated by DTSC or other federal agencies.

The second approach involves the preparation of a site-specific Human Health Risk Assessment and/or Ecological Risk Assessment. The human health risk assessment would follow Cal/EPA guidelines and must address all affected populations including the most burdened and compromised receptors. Staff would require the applicant to prepare such an assessment and would require some form of remediation if the human health cancer risk exceeded one-in-one million or the non-cancer hazard index exceeded 1.0, per 42 U.S.C. Section 6922 (Resource Conservation and Recovery Act), and California Health and Safety Code Section 25100 et seq. (Hazardous Waste Control Act of 1972, as amended). An ecological risk screening evaluation or risk assessment would be required if contaminants might pose a risk to biological receptors. The applicant would also follow Cal/EPA and RWQCB guidelines and if the ecological risks were significant, appropriate mitigation might be required.

Regarding the management of wastes, staff reviews the applicant's proposed solid and hazardous waste management methods and determines if the methods meet the state standards for waste reduction and recycling. Staff then reviews the available off-site treatment and disposal sites and determines whether or not the proposed power plant's waste would have a significant impact on the disposal sites' allotted daily, yearly, or lifetime volume of waste it is allowed to receive. Staff uses a threshold of less than 10 percent impact on a waste disposal facility to determine if the impact would be significant.

DIRECT/INDIRECT IMPACTS AND MITIGATION

Existing Contamination

The AFC describes the proposed site as being occupied by a warehouse that is proposed for demolition (EME 2005a, page 2-1). Coastal Group/ARC is the current occupant of the warehouse. According to the AFC and the Phase I ESA (EME 2005A, Appendix 8.14a), Coastal Group/ARC leases the property for computer hardware packaging, warehousing, and distributing purposes (EME 2005a, page 8.14-1). The Phase I ESA Update and Phase II Groundwater Investigation (EME 2005a, Appendix 8.14b) states that the Coastal Group/ARC facility is a California Integrated Waste Management Board (CIWMB) approved Covered Electronic Waste Collector and Recycler. Appendix 8.14b states that the Coastal Group/ARC facility also operates as a large quantity generator and transporter of hazardous waste under U.S. EPA ID No. CAR000A45714, and DTSC, Cal/EPA ID No. CAL000273749. In addition, the Phase 1 ESA mentions the warehouse contains asbestos-laden materials (EME 2005a, Appendix 8.14A, page 12). The ESA recommends a complete asbestos survey prior to demolition of the facility.

Coastal Group/ARC dismantles electronic equipment for offsite metals recovery. The electronic equipment contains lead and chromium; there is no processing or metals reclamation. The dismantling and packaging of the electronic equipment takes place in a covered warehouse and on a concrete pad (CH2MHILL 2006a, data response 94).

The Phase I ESA determined that the proposed project site is located within the San Gabriel Valley Superfund Site. The San Gabriel Valley site includes multiple areas of contaminated groundwater. Over 30 square miles of groundwater under the valley may be contaminated by VOCs. The applicant does not intend to engage in onsite remediation of the Superfund site. If remediation were to take place, it would be the responsibility of the City of Industry (CH2MHILL 2006a data responses 95 and 96). However, the current owners were determined not to be responsible for the groundwater contamination according to the Los Angeles Regional Water Quality Control Board.

The DTSC reviewed the WCEP AFC and provided the Energy Commission with a memorandum that contained recommendations for the project site (DTSC 2006a). Staff incorporated DTSC's recommendations into the condition of certification **Waste-6** to ensure that the site is adequately characterized and remediated so that any workers, the public, and ecological receptors are not exposed to significant risks. The Phase I ESA Update and Phase II Groundwater Investigation commissioned by Edison Mission

Energy (EME) and completed by Environmental Strategies, Consulting, LLC, recommended that several near surface samples be collected along the north side of the building and analyzed for VOCs and Title 22 metals.

The City of Industry's Urban Development Agency plans to demolish the existing warehouse before Walnut Creek Energy, LLC (WCE) WCEP takes physical possession of the property. As the property owner and as the entity carrying out the demolition, the City will be entirely responsible for removing any asbestos or hazardous waste (CH2MHILL 2006a, data response 92 and 93). The City will be responsible for sampling soil and remediating any potential contamination. However, if soil samples are not taken as required this will become the responsibility of the project owner. In accordance with proposed condition of certification **Waste-6**, the project owner cannot begin construction before verifying that the project site has been properly remediated.

Construction Impacts and Mitigation

Site preparation and construction of the proposed generating plant and associated facilities would last approximately 12 months and generate both nonhazardous and hazardous wastes in solid and liquid forms. Before construction can begin, the project owner would be required to develop and implement a Construction Waste Management Plan as per proposed condition of certification **Waste-5**.

Metal debris from welding/cutting activities, packing materials, electrical wiring, and empty non-hazardous chemical containers would be generated during construction. One hundred and fifteen tons of nonhazardous solid wastes generated during construction would include wood, paper, glass, and plastic waste products comprised of excess lumber, packing materials, insulation, and empty non-hazardous chemical containers (EME 2005a, Section 8.14.1.2.1). All non-hazardous wastes would be recycled to the extent possible and non-recyclable wastes would be collected by a licensed hauler and disposed of in a solid waste disposal facility, per Title 14, California Code of Regulations, Section 17200 et seq. (Minimum Standards for Solid Waste Handling and Disposal) and Los Angeles County Integrated Waste Management Plan. Because the possible presence of contaminated groundwater beneath the property is a recognized environmental condition (EME 2005a, Appendix 8.14a), any contaminated water encountered during construction would be tested to determine how it should be disposed of and workers would wear the correct personnel protective equipment (CH2MHILL 2006a, data response 95). Furthermore, the applicant has indicated that the construction and excavation activities at the project site should not result in contact with the groundwater table (CH2MHILL 2006a, data response 95).

Nonhazardous liquid wastes would be generated during construction, and are discussed in the **Soil and Water Resources** section of this document. Storm water runoff would be managed in accordance with a Drainage, Erosion and Sediment Control Plan that would be prepared for the project and approved prior to construction. Other wastewaters would be sampled to determine their disposal.

Hazardous wastes anticipated to be generated during construction include welding materials, paint, flushing and cleaning fluids, solvents, asbestos containing materials, and lead-based paint. The quantities of flushing and cleaning fluids are estimated to be

once or twice the internal volume of the pipes cleaned (EME 2005a, Section 8.14.1.2.1). Approximately 3,000 pounds of hazardous waste will be generated from the project (CH2MHILL 2006a, data response 77).

The applicant would be considered the generator of hazardous wastes at this site during the construction period and therefore, prior to construction, the project owner would be required to obtain a unique hazardous waste generator identification number from DTSC in accordance with DTSC regulatory authority, pursuant to proposed condition of certification **Waste-3**. Wastes would be accumulated at satellite locations and then transported daily to the construction contractor's 90-day hazardous waste storage area located in the construction laydown area. The wastes thus accumulated would be properly manifested, transported and disposed of at a permitted hazardous waste management facility by licensed hazardous waste collection and disposal companies. Staff reviewed the disposal methods described in AFC Table 8.14-2 and concluded that all wastes would be disposed in accordance with all applicable LORS. Should any construction waste management-related enforcement action be taken or initiated by a regulatory agency, the project owner would be required by proposed condition of certification **Waste-4** to notify the Compliance Project Manager (CPM) whenever the owner becomes aware of this action.

Section 8.14.4 of the AFC states that handling and management of construction waste would follow the hierarchical approach of source reduction, recycling, treatment, and disposal.

Operation Impacts and Mitigation

The proposed WCEP would generate both nonhazardous and hazardous wastes in solid and liquid forms under normal operating conditions. Before operations can begin, the project owner would be required to develop and implement an Operations Waste Management Plan pursuant to proposed condition of certification **Waste-5**.

Nonhazardous Solid Wastes

Nonhazardous solid wastes anticipated to be generated during operation include up to 37 tons of waste annually, comprised of maintenance wastes and office wastes. Non-recyclable wastes would be regularly transported offsite to a solid waste disposal facility (EME 2005a, Sections 8.14.1.2.2).

Nonhazardous Liquid Wastes

Nonhazardous liquid wastes would be generated during facility operation, and are discussed in the **Soil and Water Resources** section of this document. Storm water runoff would be managed in accordance with a Drainage, Erosion and Sediment Control Plan. General facility drainage will consist of area washdown, sample drains, equipment leakage and drainage from facility equipment areas and would be discharged to the waste water collection system. Water from the plant wastewater collection system will be recycled in the cooling tower basin (EME 2005a, Section 8.14.1.2.2).

Area drains will be located by mechanical equipment where it is determined that oil could mix with rainwater or other water sources. The water collected by these drains will go to the oil-water separator, which separates out any oil before the effluent goes to the

collection tank via an underground drain line. The oil-contaminated fluid will be pumped out by a vacuum truck on an as-needed basis and disposed of at a facility specifically qualified to handle each waste.

Hazardous Wastes

The applicant would be considered the generator of hazardous wastes at this site during operations and thus the project owner's unique hazardous waste generator identification number obtained during construction would still be required for generation of hazardous waste, pursuant to proposed condition of certification **Waste-3**. Hazardous wastes anticipated to be generated during routine project operation include waste lubricating oil, lubrication oil filters from the combustion turbines, spent Selective Catalytic Reduction catalyst, oily rags, cooling tower sludge, laboratory analysis waste, oil sorbents, and chemical feed area drainage. Table 8.14-2 of the AFC provides a list of wastes, the amounts expected to be generated, and their disposal methods.

The amounts of hazardous wastes generated during the operation of WCEP would be minimal, and recycling methods would be used to the extent possible. The remaining hazardous waste would be temporarily stored on-site, pursuant to the California Fire Code and Title 22, California Code of Regulations, Section 66262.10 et seq., and disposed of by licensed hazardous waste collection and disposal companies in accordance with all applicable regulations, pursuant to Title 22, California Code of Regulations, Section 66262.10 et seq. Should any operations waste management-related enforcement action be taken or initiated by a regulatory agency, the project owner would be required by proposed condition of certification **Waste-4** to notify the CPM whenever the owner becomes aware of this action.

In Section 8.14.4 of the AFC, the applicant states that handling and management of operational waste would follow the hierarchical approach of source reduction, recycling, treatment, and disposal. Staff concludes the quantities of hazardous waste generated during operation would not significantly impact the treatment and disposal resources available in California.

Impact on Existing Waste Disposal Facilities

Nonhazardous Solid Wastes

Nonhazardous waste disposal sites suitable for discarding project-related construction and operation wastes are identified in Section 8.14.3 of the AFC (EME 2005a, Table 8.14-3). During construction of the proposed project, 115 tons of nonhazardous will be generated. The nonhazardous solid wastes generated yearly at WCEP would be recycled if possible, or disposed of in a Class III landfill.

The four landfills listed in Table 8.14-3 of the AFC all have adequate remaining capacity and tentative closure dates to make them all an adequate choice for disposing of solid waste. The total amount of nonhazardous waste generated from project construction and operation will contribute less than one percent of available landfill capacity. Staff finds that disposal of the solid wastes generated by WCEP can occur without significantly impacting the capacity or remaining life of any of these facilities.

Hazardous Wastes

Section 8.14.2.3.2 of the AFC discusses the three Class I landfills in California: the Clean Harbor Landfill in Kern County, the Westmoreland Landfill in Imperial County, and the Kettleman Hills Landfill in Kings County. The Kettleman Hills facility also accepts Class II and Class III wastes. In total, there is an excess of 16 million cubic yards of remaining hazardous waste disposal capacity at these landfills, with up to 16 years of remaining operating lifetimes. In addition, the Kettleman Hills facility is in the process of permitting an additional 15 million cubic yards of disposal capacity, and the Buttonwillow facility is not expected to reach its capacity until 2040 at current disposal rates (EME 2005a, Section 8.14.2.3.2). The amount of hazardous waste transported to these landfills has decreased in recent years due to source reduction efforts by generators and the transport of waste out of state that is hazardous under California law, but not federal law.

Most of the hazardous waste generated by the WCEP would be generated during facility construction and startup in the forms of flushing and cleaning liquids. The SCR catalysts would require regeneration every three to five years resulting in the generation of a total of 600 pounds per year of waste material that could require disposal in a Class I facility if recycling or regeneration proves not to be feasible. Approximately 100 pounds per year of cooling tower sludge would be generated during operation. Accordingly, staff's proposed condition of certification **Waste-7** requires that the cooling tower sludge be tested as per 22 CCR 66262.10 and reports the findings to the CPM. All hazardous wastes generated during both construction and operation would be transported offsite to a permitted treatment, storage, or disposal (TSD) facility for appropriate disposition, preferably recycling. The volume of hazardous waste from the WCEP requiring off-site disposal would be far less than staff's threshold of significance (10 percent of the existing combined capacity of the three Class I landfills) and would therefore not significantly impact the capacity or remaining life of any of these facilities.

In the **Socioeconomics** section of this staff analysis, staff presents census tract information that shows that there are minority populations within one mile and six miles of the project. Since staff has added Conditions of Certification that would reduce the risk associated with hazardous waste to an insignificant level, staff concludes that there will be no significant impact from construction or operation of the power plant on` minority populations. Therefore, there are no environmental justice issues for Waste Management.

CUMULATIVE IMPACTS AND MITIGATION

As proposed, the quantities of nonhazardous and hazardous wastes generated during construction and operation of the WCEP would add to the total quantities of waste generated in Los Angeles County and in the State of California. This facility would generate an estimated 115 tons of solid waste during construction and approximately 37 tons per year during operation. Overall, wastes would be generated in minimal quantities, recycling efforts would be prioritized wherever practical, and capacity is available in a variety of treatment and disposal facilities. Therefore, staff concludes that these added waste quantities generated by the WCEP would not result in significant cumulative waste management impacts.

COMPLIANCE WITH LORS

Energy Commission staff concludes that the WCEP would comply with all applicable LORS regulating the management of hazardous and non-hazardous wastes during facility construction and operation. The applicant is required to dispose of hazardous and non-hazardous wastes at facilities approved by the various departments within Cal/EPA. Because hazardous wastes would be produced during both project construction and operation, the WCEP project would be required to obtain a hazardous waste generator identification number from DTSC. Accordingly, WCEP would be required to properly store, package and label waste, use only approved transporters, prepare hazardous waste manifests, keep detailed records, and appropriately train employees. Pursuant to California Code of Regulations, Title 22, section 67100.1 et seq., a hazardous waste Source Reduction and Evaluation Review and Plan must be prepared by the WCEP.

RESPONSE TO AGENCY AND PUBLIC COMMENTS

Staff has not received any comments from the public on Waste Management issues. DTSC provided staff a memorandum outlining seven steps that would be necessary for safe construction and operation of WCEP (DTSC 2006a). DTSC recommended that a soil gas survey be conducted; an indoor air quality assessment be conducted; soil samples be collected and analyzed using various methods; and groundwater wells be installed. All but one of these recommendations is included in staff's proposed condition **Waste-6**. The remaining recommendation for an indoor air quality assessment will be referred to the City of Industry since they are the owners of the property and responsible for the demolition of the warehouse.

CONCLUSIONS

Management of the wastes generated during construction and operation of the WCEP project, and the proposed project located within an existing Superfund site would not result in any significant adverse impacts if the waste management measures proposed in the AFC and staff's proposed Conditions of Certification are implemented pursuant to the pertinent LORS.

If the project is approved, the applicant would prepare separate Waste Management Plans for the construction and operation of the WCEP. Those plans would include a description of each waste stream and the management methods planned for each waste. Proposed condition of certification **Waste-5** ensures that these plans would be submitted to the CPM for review and approval. Accordingly, staff proposes condition of certification **Waste-7** to require that the cooling tower sludge is tested as per 22 CCR 66262.10 and report the findings to the CPM in the monthly compliance report prior to site preparation. Staff believes that the project's compliance with all applicable LORS and the Conditions of Certification proposed by staff would adequately insure that no significant adverse environmental impacts would result from the management and disposal of project-related waste.

Staff has proposed Conditions of Certification **Waste-1** through **7** which require: **1**) the project owner have an experienced Registered Professional Engineer or Geologist available for consultation during soil excavation and grading activities in the event that contaminated soils are encountered; **2**) if potentially contaminated soil is unearthed during excavation at either the proposed site or linear facilities, the Registered Professional Engineer or Geologist shall inspect the site, determine the need for sampling nature, file a written report, and seek guidance from the CPM and the appropriate regulatory agencies; **3**) the project owner shall obtain a unique hazardous waste generator identification number from the DTSC in accordance with DTSC regulatory authority; **4**) the project owner shall notify the CPM whenever the owner becomes aware of any impending waste management-related enforcement action; **5**) the project owner shall prepare and submit waste management plans for all wastes generated during construction and operation of the facility and submit them to the CPM; **6**) site activities involving movement of soils shall not commence until the site is adequately characterized and remediated; and **7**) cooling tower sludge shall be tested.

With staff's proposed mitigation, potential waste management impacts have been reduced to less than significant for all people within the affected area, including the minority population.

PROPOSED CONDITIONS OF CERTIFICATION

WASTE-1 The project owner shall provide the resume of a Registered Professional Engineer or Geologist, who shall be available for consultation during soil excavation and grading activities, to the Compliance Project Manager (CPM) for review and approval. The resume shall show experience in remedial investigation and feasibility studies.

The Registered Professional Engineer or Geologist shall be given full authority by the project owner to oversee any earth moving activities that have the potential to disturb contaminated soil.

Verification: At least 30 days prior to the start of site mobilization, the project owner shall submit the resume to the CPM for review and approval.

WASTE-2 If potentially contaminated soil is unearthed during excavation at either the proposed site or linear facilities as evidenced by discoloration, odor, detection by handheld instruments, or other signs, the Registered Professional Engineer or Geologist shall inspect the site, determine the need for sampling to confirm the nature and extent of contamination, and file a written report to the project owner and CPM stating the recommended course of action.

Depending on the nature and extent of contamination, the Registered Professional Engineer or Geologist shall have the authority to temporarily suspend construction activity at that location for the protection of workers or the public. If, in the opinion of the Registered Professional Engineer or Geologist, significant remediation may be required, the project owner shall

contact representatives of the Department of Toxic Substances Control for guidance and possible oversight.

Verification: The project owner shall submit any final reports filed by the Registered Professional Engineer or Geologist to the CPM within 5 days of their receipt. The project owner shall notify the CPM within 24 hours of any orders issued to halt construction.

WASTE-3 The project owner shall obtain a hazardous waste generator identification number from the Department of Toxic Substances Control prior to generating any hazardous waste during construction and operations.

Verification: The project owner shall keep its copy of the identification number on file at the project site and notify the CPM via the relevant Monthly Compliance Report of its receipt.

WASTE-4 Upon becoming aware of any impending waste management-related enforcement action by any local, state, or federal authority, the project owner shall notify the CPM of any such action taken or proposed to be taken against the project itself, or against any waste hauler or disposal facility or treatment operator with which the owner contracts.

Verification: The project owner shall notify the CPM in writing within 10 days of becoming aware of an impending enforcement action. The CPM shall notify the project owner of any changes that will be required in the manner in which project-related wastes are managed.

WASTE-5 The project owner shall prepare a Construction Waste Management Plan and an Operation Waste Management Plan for all wastes generated during construction and operation of the facility, respectively, and shall submit both plans to the CPM for review and approval. The plans shall contain, at a minimum, the following:

- A description of all waste streams, including projections of frequency, amounts generated and hazard classifications; and
- Methods of managing each waste, including temporary onsite storage, treatment methods and companies contracted with for treatment services, waste testing methods to assure correct classification, methods of transportation, disposal requirements and sites, and recycling and waste minimization/reduction plans.

Verification: No less than 30 days prior to the start of site mobilization, the project owner shall submit the Construction Waste Management Plan to the CPM for approval.

The Operation Waste Management Plan shall be submitted to the CPM no less than 30 days prior to the start of project operation for approval. The project owner shall submit any required revisions within 20 days of notification by the CPM.

In the Annual Compliance Reports, the project owner shall document the actual waste management methods used during the year and provide a comparison of the actual methods used to those the planned management methods proposed in the original Operation Waste Management Plan.

WASTE-6 The project owner shall ensure that the site is properly characterized and remediated. The project owner shall ensure a work plan is developed following Department of Toxic Substances Control (DTSC) recommendations detailing the number and location of samples of soil, soil gas, and groundwater to be obtained and analyzed. The project owner shall assure this plan is submitted to the DTSC for review and comment, and to the CPM for review and approval. If contaminated soil is found to exist, the project owner shall assure that the City of Industry contacts DTSC for further guidance and possible oversight. In no event shall any project construction commence that involves either the movement of contaminated soil or construction on contaminated soil until the CPM has determined that all necessary remediation has been accomplished.

Verification: At least sixty (60) days prior to the start of site mobilization, the project owner shall provide any documentation that the site has been appropriately characterized and remediated to the CPM for review and approval. The project owner shall provide a copy of all correspondence with the DTSC to the CPM within 10 days of receipt. In the event that certain specific site activities need to start prior to full characterization and remediation, the project owner shall make such a request to the CPM for review and approval.

WASTE-7 The project owner shall ensure that the cooling tower sludge is tested pursuant to Title 22, California Code of Regulations, section 66262.10 and report the findings to the CPM.

Verification: The project shall include the results of sludge testing in a report provided to the CPM. If four consecutive tests show that the sludge is non-hazardous, the project owner may apply to the CPM to discontinue testing.

REFERENCES

CEC 2006e – California Energy Commission/E. Knight (tn: 36505). CEC Staff's Data Request (1-97). POS. 03/10/2006. Rec'd 03/10/2006.

CH2MHILL 2006a – CH2MHILL/J. Carrier (tn: 36678). Applicant's Responses to CEC Staff Data Requests 1-97. POS. 04/10/2006. Rec'd 04/06/06.

COI 2006b – City of Industry (tn: 36667). Negative Declaration for demolition of 911 Bixby Drive warehouse. 02/01/06. Rec'd 04/06/06.

DTSC 2006a – Department of Toxic Substances Control/C. Plotkin (tn: 36500). Review of Walnut Creek Energy Park Application for Certification and Appendices; Supplement to Application for Certification. 03/06/2006. Rec'd 03/09/2006.

EME 2005a – Edison Mission Energy/GPL: bpm (tn: 35950). Walnut Creek Energy Park AFC. 11/21/2005.

WORKER SAFETY AND FIRE PROTECTION

Geoffrey C Lesh, P.E. and Rick Tyler

SUMMARY OF CONCLUSIONS

Staff concludes that if the applicant for the proposed Walnut Creek Energy Park (WCEP) provides a Project Construction Safety and Health Program and a Project Operations and Maintenance Safety and Health Program, as required by conditions of certification **WORKER SAFETY -1, -2, -3, -4,** and **-5**, the project would incorporate sufficient measures to ensure adequate levels of industrial safety, and comply with applicable laws, ordinances, regulations, and standards (LORS). The proposed conditions of certification provide assurance that the Construction Safety and Health Program and the Operations and Maintenance Safety and Health Program proposed by the applicant will be reviewed by the appropriate agencies before implementation. The conditions also require verification that the proposed plans adequately assure worker safety and fire protection and comply with applicable LORS.

Staff also concludes that the proposed project would not have significant impacts on local fire protection services. The proposed facility would be located within an industrial area that is currently served by the local fire department. The fire risks of the proposed facility do not pose significant added demands on local fire protection services. Staff also concludes that the Los Angeles County Fire Department Hazmat Team is adequately equipped and staffed to respond to more serious hazardous materials incidents at the proposed facility with an adequate response time.

INTRODUCTION

Worker safety and fire protection is regulated through LORS, at the federal, state, and local levels. Industrial workers at the facility operate equipment and handle hazardous materials daily and may face hazards that can result in accidents and serious injury. Protection measures are employed to eliminate or reduce these hazards or to minimize the risk through special training, protective equipment and procedural controls.

The purpose of this Preliminary Staff Assessment (PSA) is to assess the worker safety and fire protection measures proposed by the Walnut Creek Energy, LLC (WCE) and to determine whether the applicant's proposed measures are adequate to:

- comply with applicable safety LORS;
- protect the workers during construction and operation of the facility;
- protect against fire; and
- provide adequate emergency response procedures.

LAWS, ORDINANCES, REGULATIONS, AND STANDARDS

The following federal, state, and local laws, ordinances, regulations, and standards (LORS)- apply to the protection of worker safety and fire protection. Staff's analysis examines the project's compliance with these requirements.

WORKER SAFETY AND FIRE PROTECTION Table 1
Laws, Ordinances, Regulations, and Standards (LORS)

Applicable Law	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 Code of Federal Regulations (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 California Code of Regulations (CCR) all applicable sections California Occupational Safety and Health Administration (Cal/OSHA) regulations	Require that all employers follow these regulations as they pertain to the work involved. This includes regulations pertaining to safety matters during construction, commissioning, and operations of power plants, as well as safety around electrical components, fire safety, and hazardous materials use, storage, and handling.
24 CCR section 3, et seq.	Incorporates the current edition of the Uniform Building Code.
Health and Safety Code section 25500, et seq.	Risk Management Plan requirements for threshold quantity of listed acutely hazardous materials at a facility.
Health and Safety Code sections 25500 to 25541	Requires a Hazardous Material Business Plan detailing emergency response plans for hazardous materials emergency at a facility
Local (or locally enforced)	
1998 Edition of California Fire Code and all applicable	NFPA standards are incorporated into the California Uniform Fire Code. The fire code contains general provisions for fire safety, including: 1) required road and building access; 2)

National Fire Protection Association (NFPA) standards (24 CCR Part 9)	water supplies; 3) installation of fire protection and life safety systems; 4) fire-resistive construction; 5) general fire safety precautions; 6) storage of combustible materials; 7) exits and emergency escapes; and 8) fire alarm systems. The California Fire Code incorporates current editions of the Uuniform Fire Code (UFC) standards.
California Building Code Title 24, California Code of Regulations (24 CCR § 3, et seq.)	Comprised of eleven parts containing the building design and construction requirements relating to fire and life safety and structural safety. The California Building Standards Code incorporates current editions of the Uniform Building Code and includes the electrical, mechanical, energy, and fire codes applicable to the project.

SETTING

Fire support services to the site will be under the jurisdiction of the Los Angeles County Fire Department (LACFD). The closest LACFD station is No. 118 located at 17056 Gale Avenue, approximately 0.9 miles away with a response time of about 8 minutes, and would provide first response to a fire at the project site. (EME 2005a Section 8.5.2.5).

The Los Angeles County Hazardous Materials Team located in Station No. 43 at 921 South Stimson Avenue, La Puente, approximately 1.1 miles from the project site is considered first responder for HazMat incidents, with a response time of about 8 minutes. Staff has concluded that the hazardous materials response time is adequate and that the LACFD HazMat Response Team is adequately trained and equipped to respond in a timely manner.

ASSESSMENT OF IMPACTS AND DISCUSSION OF MITIGATION

METHOD AND THRESHOLD FOR DETERMINING SIGNIFICANCE

Two issues are assessed in Worker Safety-Fire Protection:

1. The potential for impacts on the safety of workers during demolition, construction, and operations activities, and
2. Fire prevention/protection, emergency medical response, and hazardous materials pill response during demolition, construction, and operations.

Worker safety issues are a matter of adhering to the Cal-OSHA regulations. This is essentially a LORS compliance matter, and if all LORS are followed, workers will be adequately protected. Thus, the standard for staff's review and determination of significant impacts on workers is whether or not the applicant has demonstrated adequate knowledge about and dedication to implementing all pertinent and relevant Cal-OSHA standards.

Regarding fire prevention matters, staff reviews and evaluates the on-site fire-fighting systems proposed by the applicant and the time needed for off-site local fire departments to respond to a fire, medical, or hazardous material emergency at the proposed power plant site. If on-site systems do not follow established codes and

industry standards, staff recommends additional measures. Staff reviews and evaluates the local fire department capabilities in each area, the response time, and interviews the local fire officials to determine if they feel adequately trained, manned, and equipped to respond to the needs of a power plant. Staff then determines if the presence of the power plant would cause a significant impact on a local fire department. If it does, staff will recommend that the applicant mitigate this impact by providing increased resources to the fire department.

DIRECT/INDIRECT IMPACTS AND MITIGATION

Worker Safety

Industrial environments are potentially dangerous during construction and operation of facilities. Workers at the proposed project site will be exposed to loud noises, moving equipment, trenches, and confined space entry and egress problems. The workers may experience falls, trips, burns, lacerations, and numerous other injuries. They have the potential to be exposed to falling equipment or structures, chemical spills, hazardous waste, fires, explosions, and electrical sparks and electrocution. It is important for WCE to have well-defined policies and procedures, training, and hazard recognition and control at their facility to minimize such hazards and protect workers. If the facility complies with all LORS, workers will be adequately protected from health and safety hazards.

A Safety and Health Program will be prepared by the applicant to minimize worker hazards during construction and operation. Staff uses the phrase “Safety and Health Program” to refer to the measures that will be taken to ensure compliance with the applicable LORS during the construction and operational phases of the project.

Construction Safety and Health Program

The WCEP encompasses construction and operation of a natural gas fired-facility. Workers will be exposed to hazards typical of construction and operation of a gas-fired simple-cycle facility.

Construction Safety Orders are published at 8 CCR section 1502, et seq. These requirements are promulgated by Cal/OSHA and are applicable to the construction phase of the project. The Construction Safety and Health Program would include the following:

Construction Injury and Illness Prevention Program (8 CCR §1509)

Construction Fire Prevention Plan (8 CCR §1920)

Personal Protective Equipment Program (8 CCR §§514 - 1522)

Emergency Action Program and Plan

Additional programs under General Industry Safety Orders (8 CCR §§ 3200 to 6184), Electrical Safety Orders (8 CCR §§2299 to 2974) and Unfired Pressure Vessel Safety Orders (8 CCR §§ 450 to 544) will include:

Electrical Safety Program;

Motor Vehicle and Heavy Equipment Safety Program;

Forklift Operation Program;

Excavation/Trenching Program;

Fall Protection Program;

Scaffolding/Ladder Safety Program;

Articulating Boom Platforms Program;

Crane and Material Handling Program;

Housekeeping and Material Handling and Storage Program;

Respiratory Protection Program;

Employee Exposure Monitoring Program;

Hand and Portable Power Tool Safety Program;

Hearing Conservation Program;

Back Injury Prevention Program;

Hazard Communication Program;

Heat and Cold Stress Monitoring and Control Program;

Pressure Vessel and Pipeline Safety Program;

Hazardous Waste Program;

Hot Work Safety Program;

Permit-Required Confined Space Entry Program; and

Demolition Procedure (if applicable).

The AFC includes adequate outlines of each of the above programs (EME 2005a, Section 8.16.2.3). Prior to the start of construction of the WCEP, detailed programs and plans will be provided pursuant to the condition of certification **WORKER SAFETY-1**.

Operations and Maintenance Safety and Health Program

Prior to the start of operations at the WCEP, the Operations and Maintenance Safety and Health Program will be prepared. This operational safety program will include the following programs and plans:

Injury and Illness Prevention Program (8 CCR §3203);

Fire Prevention Program (8 CCR §3221);

Personal Protective Equipment Program (8 CCR §§3401 to 3411); and

Emergency Action Plan (8 CCR §3220).

In addition, the requirements under General Industry Safety Orders (8 CCR §§3200 to 6184), Electrical Safety Orders (8 CCR §§2299 to 2974) and Unfired Pressure Vessel Safety Orders (8 CCR §§450 to 544) will be applicable to the project. Written safety

programs for the WCEP, which the applicant will develop, will ensure compliance with the above-mentioned requirements.

The AFC includes adequate outlines of the Injury and Illness Prevention Program, Emergency Action Plan, Fire Prevention Program, and Personal Protective Equipment Program (EME 2005a, Section 8.16.2.3). Prior to operation of the WCEP, all detailed programs and plans will be provided pursuant to condition of certification **WORKER SAFETY-2**.

Safety and Health Program Elements

As mentioned above, the applicant provided the proposed outlines for both a Construction Safety and Health Program and an Operations Safety and Health Program. The measures in these plans are derived from applicable sections of state and federal law. The major items required in both Safety and Health Programs are as follows:

Injury and Illness Prevention Program (IIPP)

The IIPP will include the following components as presented in the AFC (EME 2005a):

- identity of person(s) with authority and responsibility for implementing the program;
- establishment of safety and health policy of the plan;
- definition of work rules and safe work practices for construction activities;
- system for ensuring that employees comply with safe and healthy work practices;
- system for facilitating employer-employee communications;
- procedures for identifying and evaluating workplace hazards and developing necessary program(s);
- methods for correcting unhealthy/unsafe conditions in a timely manner;
- determination and establishment of training and instruction requirements and programs; and
- specification of safety procedures.

Fire Prevention Plan

California Code of Regulations requires an Operations Fire Prevention Plan (8 CCR §3221). The AFC outlines a proposed Fire Prevention Plan which is acceptable to staff (EME 2005a, Section 8.16.2.3.1). The plan will include the following components:

- determination general program requirements;
- determination of fire hazard inventory, including ignition sources and mitigation;
- development of good housekeeping practices and proper materials storage;
- establishment employee alarm and/or communication system(s);
- provision portable fire extinguishers at appropriate site locations;
- location of fixed fire fighting equipment in suitable areas;

- specification of fire control requirements and procedures;
- establishment of proper flammable and combustible liquid storage facilities;
- identification of the location and use of flammable and combustible liquids;
- provision proper dispensing and determine disposal requirements for flammable liquids;
- establishment and determination training and instruction requirements and programs; and
- identify personnel to contact for information on plan contents.

Staff proposes that the applicant submit a final Fire Prevention Plan to the California Energy Commission Compliance Project Manager (CPM) for review and approval and to the LACFD for review and comment to satisfy proposed conditions of certification **WORKER SAFETY-1** and **WORKER SAFETY-2**.

Personal Protective Equipment Program

California regulations require Personal Protective Equipment (PPE) and first aid supplies whenever hazards are present that due to process, environment, chemicals or mechanical irritants, can cause injury or impair bodily function as a result of absorption, inhalation or physical contact (8 CCR §§3380 to 3400). The WCEP operational environment will require PPE.

All safety equipment must meet National Institute of Safety and Health (NIOSH) or American National Standards Institute (ANSI) standards and will carry markings, numbers, or certificates of approval. Respirators must meet NIOSH and Cal/OSHA standards. Each employee must be provided with the following information pertaining to the protective clothing and equipment:

- proper use, maintenance, and storage;
- when the protective clothing and equipment are to be used;
- benefits and limitations; and
- when and how the protective clothing and equipment are to be replaced.

The PPE Program ensures that employers comply with the applicable requirements for PPE and provides employees with the information and training necessary to protect them from potential workplace hazards.

Emergency Action Plan

California regulations require an Emergency Action Plan (8 CCR §3220). The AFC contains a satisfactory outline for an emergency action plan (EME 2005a, Section 8.16.2.3).

The outline identifies that the EAP will:

- establish emergency escape procedures and emergency escape route for the facility;

determine procedures to be followed by employees who remain to operate critical plant operations before they evacuate;

provide procedures to account for all employees and visitors after emergency evacuation of the plant has been completed;

specify rescue and medical duties for assigned employees;

identify fire and emergency reporting procedures to regulatory agencies;

develop alarm and communication system for the facility;

establish a list of personnel to contact for information on the plan contents;

provide emergency response procedures for ammonia release; and

determine and establish training and instruction requirements and programs.

Written Safety Program

In addition to the specific plans listed above, additional LORS called "safe work practices" would apply to the project. Both the Construction and the Operations Safety Programs would address safe work practices under a variety of programs. The components of these programs include, but are not limited to, the programs found under the heading Construction Safety and Health Program of this staff assessment. In addition, the project owner would be required to provide personal protective equipment and exposure monitoring for workers who are involved in activities on sites where contaminated soil and/or contaminated groundwater exist as per staff's proposed conditions of certification **WORKER SAFETY-1** and**-2**. These proposed conditions of certification would ensure that workers are properly protected from any hazardous wastes presently at the site.

Safety Training Programs

Employees will be trained in the safe work practices described in the above-referenced safety programs.

Additional Mitigation Measures

Protecting construction workers from injury and disease is among the greatest challenges in occupational safety and health. The following facts are reported by NIOSH:

More than 7 million persons work in the construction industry, representing 6 percent of the labor force. Approximately 1.5 million of these workers are self-employed.

Of approximately 600,000 construction companies, 90% employ fewer than 20 workers. Few have formal safety and health programs.

From 1980-1993, an average of 1,079 construction workers were killed on the job each year, more fatal injuries than in any other industry.

Falls caused 3,859 construction worker fatalities (25.6%) between 1980 and 1993.

15% of workers' compensation costs are spent on construction injuries.

Assuring safety and health in construction is complex, involving short-term work sites, changing hazards, and multiple operations and crews working in close proximity.

In 1990, Congress directed NIOSH to undertake research and training to reduce diseases and injuries among construction workers in the United States. Under this mandate, NIOSH funds both intramural and extramural research projects.

The hazards associated with the construction industry are thus well documented. These hazards increase in complexity in the multi-employer worksites typical of large complex industrial type projects such as the construction of gas-fired power plants. In order to reduce and/or eliminate these hazards, it has become standard industry practice to hire a Construction Safety Supervisor to ensure a safe and healthful environment for all personnel. This has been evident in the audits of power plants under construction recently conducted by the staff. The Federal Occupational Safety and Health Administration (OSHA) has also entered into strategic alliances with several professional and trade organizations to promote and recognize safety professionals trained as Construction Safety Supervisors, Construction Health and Safety Officers, and other professional designations. The goal of these partnerships is to encourage construction subcontractors to improve their safety and health performance; to assist them in striving for the elimination of the four hazards (falls, electrical, caught in/between and struck-by hazards) that account for the majority of fatalities and injuries in this industry, and which have been the focus of targeted OSHA inspections; to prevent serious accidents in the construction industry through implementation of enhanced safety and health programs and increased employee training; and to recognize those subcontractors with exemplary safety and health programs.

To date, there are no OSHA or Cal-OSHA requirements that an employer hire or provide for a Construction Safety Officer. OSHA and Cal-OSHA regulations do, however, require that safety be provided by an employer and the term “Competent Person” is used in many OSHA and Cal-OSHA standards, documents, and directives. A “Competent Person” is usually defined by OSHA as an individual who, by way of training and/or experience, is knowledgeable of standards, is capable of identifying workplace hazards relating to the specific operations, is designated by the employer, and has authority to take appropriate action. Therefore, in order to meet the intent of the OSHA standard to provide for a safe workplace during power plant construction, staff proposes condition of certification **WORKER SAFETY-3** which would require the applicant/project owner to designate and provide for a power plant site Construction Safety Supervisor.

As discussed above, the hazards associated with the construction industry are well documented. These hazards increase in complexity in the multi-employer worksites typical of large, complex industrial type projects, such as the construction of gas-fired power plants.

Accidents, fires, and a worker death have occurred at Energy Commission-certified power plants in the recent past due to the failure to recognize and control safety hazards and the inability to adequately supervise compliance with occupational safety and health regulations. Safety problems have been documented by Energy Commission

staff in safety audits conducted in 2005 at several power plants under construction. The findings of staff's audit include, but are not limited to, such safety oversights as:

- Lack of posted confined space warning placards/signs;
- Confusing and/or inadequate electrical and machinery lockout/tagout permitting and procedures;
- Confusing and/or inappropriate procedures for handing over lockout/tagout and confined space permits from the construction team to commissioning team and then to operations;
- Dangerous placement of hydraulic elevated platforms under each other;
- Inappropriate placement of fire extinguishers near hotwork;
- Dangerous placement of numerous power cords in standing water on the site thus increasing the risk of electrocution
- Inappropriate and unsecure placement of above-ground natural gas pipelines inside the facility but too close to the perimeter fence; and
- Lack of adequate employee or contractor written training programs addressing proper procedures to follow in the event of finding suspicious packages or objects either on- or off-site.

In order to reduce and preferably, eliminate these hazards, it is necessary for the Energy Commission to have a safety professional monitor on-site compliance with Cal-OSHA regulations and periodically audit safety compliance during construction, commissioning, and the hand-over to operational status. These requirements are outlined in condition of certification **WORKER SAFETY-3**. A monitor, hired by the project owner yet reporting to the CBO and CPM, will serve as an "extra set of eyes" to ensure that safety procedures and practices are fully implemented at all power plants certified by the Energy Commission. During the audits conducted by staff, most site safety professionals welcomed the audit team and actively engaged them in questions about the team's findings and recommendations. These safety professionals recognized that safety requires continuous vigilance and that the presence of an independent audit team provided a "fresh perspective" of the site.

Fire Hazards

During construction and operation of the proposed WCEP there is the potential for both small fires and major structural fires. Electrical sparks, combustion of fuel oil, natural gas, hydraulic fluid, mineral oil, insulating fluid at the power plant switchyard or flammable liquids, explosions, and over-heated equipment, may cause small fires. Major structural fires in areas without automatic fire detection and suppression systems are unlikely to develop at power plants. Fires and explosions of natural gas or other flammable gasses or liquids are rare. Compliance with all LORS will be adequate to assure protection from all fire hazards.

The project will rely on both onsite fire protection systems and local fire protection services. The onsite 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, would be provided by the Los Angeles County Fire Department (EME2005a, Section 8.16.2.3).

Construction

During construction, portable fire extinguishers will be located throughout the site, and safety procedures and training will be implemented. In addition, LACFD will provide fire protection backup for larger fires that can not be extinguished using the portable suppression equipment.

Operation

The information in the AFC indicates that the project intends to meet the fire protection and suppression requirements of the California Fire Code, all applicable recommended NFPA standards (including Standard 850 addressing fire protection at electric generating plants), and all Cal-OSHA requirements. Fire suppression elements in the proposed plant will include both fixed and portable fire extinguishing systems. The fire water will be supplied via the existing 12-inch-diameter reclaimed water supply line. The fire water system will be sized to provide water at a rate of up to 2,000 gallons per minute for up to 2 hours of protection (EME 2005a, Sections 2.1.7.2 and 2.1.7.12).

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 release the CO_2 (EME 2005a, Section 2.2.2.1.1).

In addition to the fixed fire protection system, smoke detectors, flame detectors, temperature detectors, and appropriate class of service portable extinguishers and fire hydrants must be located throughout the facility at code-approved intervals. These systems are standard requirement by the NFPA and the UFC and staff has determined that they will ensure adequate fire protection.

The applicant would be required by condition of certification **WORKER SAFETY-1** and**-2** to provide the final Fire Protection and Prevention Program to staff and to the Los Angeles County Fire Department prior to construction and operation of the project, to confirm the adequacy of the proposed fire protection measures.

Emergency Medical Response

A state-wide survey was conducted by staff to determine the frequency of emergency medical response (EMS) and off-site fire-fighter response for natural gas-fired power plants in California. The purpose of the analysis was to determine what impact, if any, power plants may have on local emergency services. Staff has concluded that incidents at power plants that require fire or EMS response are infrequent and represent an insignificant impact on the local fire departments, except for rare instances where a rural fire department has mostly volunteer fire-fighting staff. However, staff has determined that the potential for both work-related and non-work related heart attacks exists at power plants. In fact, staff's research on the frequency of EMS response to gas-fired power plants shows that many of the responses for cardiac emergencies involved non-work related incidences, including visitors. The need for prompt response within a few minutes is well documented in the medical literature. Staff believes that the quickest

medical intervention can only be achieved with the use of an on-site defibrillator; the response from an off-site provider would take longer regardless of the provider location. This fact is also well documented and serves as the basis for many private and public locations (e.g., airports, factories, government buildings) maintaining on-site cardiac defibrillation devices. Therefore, staff concludes that with the advent of modern cost-effective cardiac defibrillation devices, it is proper in a power plant environment to maintain such a device on-site in order to convert cardiac arrythmias resulting from industrial accidents or other non-work related causes. Therefore, an additional condition of certification **WORKER SAFETY-5** is proposed which would require that a portable automatic cardiac defibrillator be located on site.

CUMULATIVE IMPACTS AND MITIGATION

Staff reviewed the potential for the construction and operation of WCEP combined with existing industrial facilities and expected new facilities to result in impacts on the fire and emergency service capabilities of the LACFD, and determined that cumulative impacts were insignificant. Given the industrial area where the project is proposed to be built, and the lack of unique fire hazards associated with a modern gas-fired power plant, staff concludes that this project will not have any significant incremental burden on the department's ability to respond to a fire or medical emergency.

RESPONSE TO AGENCY AND PUBLIC COMMENTS

No agency or public comments were received relating to worker safety and fire protection.

CONCLUSIONS

Staff concludes that if the applicant for the proposed WCEP provides a Project Construction Safety and Health Program and a Project Operations and Maintenance Safety and Health Program as required by conditions of certification **WORKER SAFETY -1**, and **-2**; and fulfils the requirements of **WORKER SAFETY-3** through**-5**, the project would incorporate sufficient measures to ensure adequate levels of industrial safety and comply with applicable LORS. Staff also concludes that the proposed project would not have significant impacts on local fire protection services.

PROPOSED CONDITIONS OF CERTIFICATION

WORKER SAFETY-1 The project owner shall submit to the Compliance Project Manager (CPM) a copy of the Project Construction Safety and Health Program containing the following:

A Construction Personal Protective Equipment Program;

A Construction Exposure Monitoring Program;

A Construction Injury and Illness Prevention Program;

A Construction Emergency Action Plan; and

A Construction Fire Prevention Plan.

The Personal Protective Equipment Program, the Exposure Monitoring Program, and the Injury and Illness Prevention Program shall be submitted to the CPM for review and approval concerning compliance of the program with all applicable Safety Orders. The Construction Emergency Action Plan and the Fire Prevention Plan shall be submitted to the 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 the CPM with a copy of a letter 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,

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 comment 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 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 to the CPM of a letter 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 LORS, 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 and federal regulations related to power plant projects;

Assure that all construction and commissioning workers and supervisors receive adequate safety training;

Complete accident and safety-related incident investigations, emergency response reports for injuries, and inform the CPM of safety-related incidents; and

Assure that all the plans identified in conditions of certification **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 of starting in the position.

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 condition of certification **WORKER SAFETY-3**, implements all appropriate Cal/OSHA and Energy Commission safety requirements. The Safety Monitor shall conduct on-site (including linear facilities) safety inspections at intervals necessary to fulfill those responsibilities.

Verification: Prior to the start of construction, the project owner shall provide to the CPM for review and approval, proof of its agreement to fund the Safety Monitor services.

WORKER SAFETY-5 The project owner shall ensure that a portable automatic cardiac defibrillator 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.

Verification: At least 30 days prior to the start of site mobilization the project owner shall submit to the CPM proof that a portable automatic cardiac defibrillator exists on site and a copy of the training and maintenance program for review and approval.

REFERENCES

California Fire Code 1998. Published by the International Fire Code Institute comprised of the International Conference of Building Officials, the Western Fire Chiefs Association, and the California Building Standards Commission. Whittier, CA.

EME 2005a – Edison Mission Energy/GPL:bpm (tn: 35950). Walnut Creek Energy Energy Park AFC. 11/21/2005. Rec'd 11/22/2005

Uniform Fire Code 1997, Vol. 1. Published by the International Fire Code Institute comprised of the International Conference of Building Officials and the Western Fire Chiefs Association, Whittier, CA.

USOSHA (United States Occupational Safety and Health Administration). 1993. Process Safety Management / Process Safety Management Guidelines For Compliance. U.S. Department of Labor, Washington, DC.

ENGINEERING ASSESSMENT

FACILITY DESIGN

Shahab Khoshmashrab

SUMMARY OF CONCLUSIONS

Staff concludes that the design, construction and eventual closure of the project and its linear facilities would likely comply with applicable engineering laws, ordinances, regulations and standards (LORS). The proposed conditions of certification, below, would ensure compliance with these LORS.

INTRODUCTION

Facility Design encompasses the civil, structural, mechanical and electrical engineering design of the project. The purpose of the Facility Design analysis is to:

- verify that the LORS applicable to the engineering design and construction of the project have been identified;
- verify that the project and ancillary facilities have been described in sufficient detail, including proposed design criteria and analysis methods, to provide reasonable assurance that the project can be designed and constructed in accordance with all applicable engineering LORS, and in a manner that assures public health and safety;
- determine whether special design features should be considered during final design to deal with conditions unique to the site which could influence public health and safety; and
- describe the design review and construction inspection process and establish conditions of certification that will be used to monitor and ensure compliance with the engineering LORS and any special design requirements.

Subjects discussed in this analysis include:

- identification of the engineering LORS applicable to facility design;
- evaluation of the applicant's proposed design criteria, including the identification of those criteria that are essential to ensuring public health and safety;
- proposed modifications and additions to the Application for Certification (AFC) that are necessary to comply with applicable engineering LORS; and
- conditions of certification proposed by staff to ensure that the project will be designed and constructed to assure public health and safety and comply with all applicable engineering LORS.

LAWS, ORDINANCES, REGULATIONS AND STANDARDS

Lists of LORS applicable to each engineering discipline (civil, structural, mechanical and electrical) are described in the AFC (EME 2005a, Appendices 10A through 10G). The key LORS are listed in **Facility Design Table 1** below:

Facility Design Table 1
Key Engineering Laws, Ordinances, Regulations and Standards (LORS)

Applicable LORS	Description
Federal	Title 29 Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health Standards
State	2001 California Building Standards Code (CBSC) (also known as Title 24, California Code of Regulations)
Local	City of Industry, 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)

SETTING

The Walnut Creek Energy Park (WCEP) project will be built on an 11.48-acre site, located in the City of Industry, Los Angeles County. The site will lie in seismic zone 4. For more information on the site and related project description, please see the **Project Description** section of this document. Additional engineering design details are contained in the AFC, in Appendices 10A through 10G (EME 2005a).

ASSESSMENT OF IMPACTS AND DISCUSSION OF MITIGATION

The purpose of this analysis is to ensure that the project is built to the applicable engineering codes in order to ensure public health and safety. The analysis verifies that the applicable engineering LORS have been identified and that the project and ancillary facilities have been described in sufficient detail. It also evaluates the applicant's proposed design criteria, describes the design review and construction inspection process, and establishes conditions of certification to monitor and ensure compliance with the engineering LORS and any special design requirements. These conditions allow the Energy Commission Compliance Project Manager (CPM) and the applicant to adopt a compliance monitoring scheme that will verify compliance with these LORS and any special design requirements.

SITE PREPARATION AND DEVELOPMENT

Staff has evaluated the proposed design criteria for grading, flood protection, erosion control, site drainage, and site access. Staff has assessed the criteria for designing and constructing linear support facilities such as natural gas and electric transmission interconnections. The applicant proposes to use accepted industry standards (see EME 2005a, Appendices 10A through 10G for a representative list of applicable industry standards), design practices and construction methods in preparing and developing the site. Staff concludes that the project, including its linear facilities, would most likely comply with all applicable site preparation LORS, and proposes conditions of

certification (see below and the **Geology and Paleontology** section of this document) to ensure compliance.

MAJOR STRUCTURES, SYSTEMS AND EQUIPMENT

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

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

The project shall be designed and constructed to the 2001 edition of the California Building Standards Code (CBSC) (also known as Title 24, California Code of Regulations), which encompasses the California Building Code (CBC), California Building Standards Administrative Code, California Electrical Code, California Mechanical Code, California Plumbing Code, California Energy Code, California Fire Code, California Code for Building Conservation, California Reference Standards Code, and other applicable codes and standards in effect at the time design and construction of the project actually commences. In the event the initial designs are submitted to the Chief Building Official (CBO) for review and approval when the successor to the 2001 CBSC is in effect, the 2001 CBSC provisions, identified herein, shall be replaced with the applicable successor provisions.

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

PROJECT QUALITY PROCEDURES

The AFC (EME 2005a, § 2.3.5) describes a project Quality Program that will be used on the project to maximize confidence that systems and components will be designed, fabricated, stored, transported, installed and tested in accordance with the technical codes and standards appropriate for a power plant. Compliance with design requirements will be verified through an appropriate program of inspections and audits. Employment of this quality assurance/quality control (QA/QC) program would ensure that the project is actually designed, procured, fabricated, and installed as contemplated in this analysis.

COMPLIANCE MONITORING

Under Section 104.2 of the CBC, the building official is authorized and directed to enforce all the provisions of the CBC. For all energy facilities certified by the Energy Commission, the Energy Commission is the building official and has the responsibility to enforce the code. In addition, the Energy Commission has the power to render interpretations of the CBC and to adopt and enforce rules and supplemental regulations to clarify the application of the CBC's provisions.

The Energy Commission's design review and construction inspection process is developed to conform to CBC requirements and to ensure that all facility design conditions of certification are met. As provided by Section 104.2.2 of the CBC, the Energy Commission appoints experts to carry out the design review and construction inspections and act as delegate CBO on behalf of the Energy Commission. These delegates typically include the local building official and/or independent consultants hired to cover technical expertise not provided by the local official. The applicant, through permit fees as provided by CBC Sections 107.2 and 107.3, pays the costs of the reviews and inspections. While building permits in addition to the Energy Commission certification are not required for this project, in lieu permit fees are paid by the applicant consistent with CBC Section 107, to cover the costs of reviews and inspections.

Engineering and compliance staff will invite the local building authority, the City of Industry or Los Angeles County, or a third party engineering consultant, to act as CBO for the project. When an entity has been identified to perform the duties of CBO, Energy Commission staff will complete a Memorandum of Understanding (MOU) with that entity that outlines its roles and responsibilities and those of its subcontractors and delegates.

Staff has developed proposed conditions of certification to ensure public health and safety and compliance with engineering design LORS. Some of these conditions address the roles, responsibilities and qualifications of the applicant's engineers responsible for the design and construction of the project (proposed Conditions of Certification **GEN-1** through **GEN-8**). Engineers responsible for the design of the civil, structural, mechanical and electrical portions of the project are required to be registered in California, and to sign and stamp each submittal of design plans, calculations and specifications submitted to the CBO. These conditions require that no element of construction subject to CBO review and approval shall proceed without prior approval from the CBO. They also require that qualified special inspectors be assigned to perform or oversee special inspections required by the applicable LORS.

While the Energy Commission and delegate CBO have the authority to allow some flexibility in scheduling construction activities, these conditions are written to require that no element of construction of permanent facilities subject to CBO review and approval, which would be difficult to reverse or correct, may proceed without prior approval of plans by the CBO. Those elements of construction that are not difficult to reverse are allowed to proceed without approval of the plans. The applicant shall bear the responsibility to fully modify those elements of construction to comply with all design changes that result from the CBO's subsequent plan review and approval process.

CONCLUSIONS

1. The LORS identified in the AFC and supporting documents are those applicable to the project.
2. Staff has evaluated the proposed engineering LORS, design criteria and design methods in the record, and concludes that the design, construction and eventual closure of the project are likely to comply with applicable engineering LORS.
3. The conditions of certification proposed will ensure that the proposed facilities are designed and constructed in accordance with applicable engineering LORS. This will occur through the use of design review, plan checking and field inspections, which are to be performed by the CBO or other Energy Commission delegate. Staff will audit the CBO to ensure satisfactory performance.
4. Whereas future conditions that may affect decommissioning are largely unknown at this time, it can reasonably be concluded that if the project owner submits a decommissioning plan as required in the **General Conditions** portion of this document prior to the commencement of decommissioning, the decommissioning procedure is likely to occur in compliance with all applicable engineering LORS.

Energy Commission staff recommends that:

1. The conditions of certification proposed herein be adopted to ensure that the project is designed and constructed to assure public health and safety, and to ensure compliance with all applicable engineering LORS;
2. The project be designed and built to the 2001 CBSC (or successor standard, if such is in effect when the initial project engineering designs are submitted for review); and
3. The CBO shall review the final designs, conduct plan checking and perform field inspections during construction. Energy Commission staff shall audit and monitor the CBO to ensure satisfactory performance.

CONDITIONS OF CERTIFICATION

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

are handled in conditions of certification in the **Transmission System Engineering** section of this document.

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

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

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

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

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

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

Facility Design Table 2
Major Structures and Equipment List

Equipment/System	Quantity (Plant)
Combustion Turbine (CT) Foundation and Connections	5
CT Generator Foundation and Connections	5
Selective Catalytic Reduction (SCR) Stack Structure, Foundation and Connections	5
CT Main Transformer Foundation and Connections	5
CT Power Control Module Structure, Foundation and Connections	5
CT Inter Cooler Structure, Foundation and Connections	5
CT Cooling Pump Skid Foundation and Connections	5
CT Mechanical Auxiliary Skid Foundation and Connections	5
CT Inlet Air Filter House Structure, Foundation and Connections	5
CT CO/SCR Module Structure, Foundation and Connections	5
Continuous Emission Monitoring System (CEMS) Enclosure Structure, Foundation and Connections	5
Ammonia Dilution Air Skid Foundation and Connections	5
Ammonia Storage Tank Foundation and Connections	1
Ammonia Forwarding Pump Skid Foundation and Connections	1
Gas Filter/Separator Skid Foundation and Connections	5
Purge Air Fans Foundation and Connections	5
Closed Cooling Water Heat Exchanger Foundation and Connections	4
Fuel Gas Scrubber Foundation and Connections	2
Recycled Chlorination Tank Foundation and Connections	1
Auxiliary Transformer Foundation and Connections	9
Fire Wall Structure, Foundation and Connections	5
Cooling Tower Structure, Foundation and Connections	1
Cooling Tower Circulating Pump Foundation and Connections	3
Recycled Water Storage Tank Foundation and Connections	1
Warehouse Building Structure, Foundation and Connections	1
Water Treatment/ Mechanical Covered Structure, Foundation and Connections	1
Sulfuric Acid Storage Tank Foundation and Connections	1
Treated Water Storage Tank Foundation and Connections	1
Fire Water Tank Foundation and Connections	1
Demineralized Water Storage Tank Foundation and Connections	1
Gas Compressor/Air Compressor/Electrical Building Structure, Foundation and Connections	1
Cooling Tower Chemical Feed Building Structure, Foundation and Connections	1
High Side Breaker Foundation and Connections	3
Dead End Structure Foundation and Connections	1
Low Side Breaker Foundation and Connections	2
Diesel Fire Pump Skid Foundation and Connections	1

Equipment/System	Quantity (Plant)
Maintenance/Shop Building Structure, Foundation and Connections	1
Control/Administration/Switchgear Building Structure Foundation and Connections	1
Fuel Gas Filter/Separator Foundation and Connections	3
Drainage Systems (including sanitary drain and waste)	1 Lot
High Pressure and Large Diameter Piping and Pipe Racks	1 Lot
Heating, Ventilation and Air Conditioning (HVAC) and Refrigeration Systems	1 Lot
Temperature Control and Ventilation Systems (including water and sewer connections)	1 Lot
Building Energy Conservation Systems	1 Lot
Switchyard, Buses and Towers	1 Lot
Electrical Duct Banks	1 Lot

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

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

GEN-4 Prior to the start of rough grading, the project owner shall assign a California registered architect, structural engineer or civil engineer, as a resident engineer (RE), to be in general responsible charge of the project [Building Standards Administrative Code (Cal. Code Regs., tit. 24, § 4-209, Designation of Responsibilities)]. All transmission facilities (lines, switchyards, switching stations and substations) are handled in conditions of certification in the **Transmission System Engineering** section of this document.

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

The RE shall:

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

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

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

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

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

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

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

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

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

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

GEN-5 Prior to the start of rough grading, the project owner shall assign at least one of each of the following California registered engineers to the project: A) a civil engineer; B) a soils engineer, or a geotechnical engineer or a civil engineer experienced and knowledgeable in the practice of soils engineering; and C) an engineering geologist. Prior to the start of construction, the project

owner shall assign at least one of each of the following California registered engineers to the project: D) a design engineer, who is either a structural engineer or a civil engineer fully competent and proficient in the design of power plant structures and equipment supports; E) a mechanical engineer; and F) an electrical engineer. [California Business and Professions Code section 6704 et seq., and sections 6730, 6731 and 6736 requires state registration to practice as a civil engineer or structural engineer in California.] All transmission facilities (lines, switchyards, switching stations and substations) are handled in conditions of certification in the **Transmission System Engineering** section of this document.

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

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

If any one of the designated responsible engineers is subsequently reassigned or replaced, the project owner shall submit the name, qualifications and registration number of the newly assigned responsible engineer to the CBO for review and approval. The project owner shall notify the CPM of the CBO's approval of the new engineer.

A. The civil engineer shall:

1. Review the Foundation Investigations Report, Geotechnical Report or Soils Report prepared by the soils engineer, the geotechnical engineer, or by a civil engineer experienced and knowledgeable in the practice of soils engineering;
2. Design, or be responsible for design, stamp, and sign all plans, calculations and specifications for proposed site work, civil works and related facilities requiring design review and inspection by the CBO. At a minimum, these include: grading, site preparation, excavation, compaction, construction of secondary containment, foundations, erosion and sedimentation control structures, drainage facilities, underground utilities, culverts, site access roads and sanitary sewer systems; and
3. Provide consultation to the RE during the construction phase of the project and recommend changes in the design of the civil works facilities and changes in the construction procedures.

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

1. Review all the engineering geology reports;
2. Prepare the Foundation Investigations Report, Geotechnical Report or Soils Report containing field exploration reports, laboratory tests and engineering analysis detailing the nature and extent of the soils that may be susceptible to liquefaction, rapid settlement or collapse when saturated under load [2001 CBC, Appendix Chapter 33, Section 3309.5, Soils Engineering Report; Section 3309.6, Engineering Geology Report; and Chapter 18, Section 1804, Foundation Investigations];
3. Be present, as required, during site grading and earthwork to provide consultation and monitor compliance with the requirements set forth in the 2001 CBC, Appendix Chapter 33; Section 3317, Grading Inspections (depending on the site conditions, this may be the responsibility of either the soils engineer or engineering geologist or both); and
4. Recommend field changes to the civil engineer and RE.

This engineer shall be authorized to halt earthwork and to require changes if site conditions are unsafe or do not conform with predicted conditions used as a basis for design of earthwork or foundations [2001 CBC, section 104.2.4, Stop orders].

C. The engineering geologist shall:

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

D. The design engineer shall:

1. Be directly responsible for the design of the proposed structures and equipment supports;
2. Provide consultation to the RE during design and construction of the project;
3. Monitor construction progress to ensure compliance with engineering LORS;
4. Evaluate and recommend necessary changes in design; and
5. Prepare and sign all major building plans, specifications and calculations.

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

F. The electrical engineer shall:

1. Be responsible for the electrical design of the project; and
2. Sign and stamp electrical design drawings, plans, specifications, and calculations.

Verification: At least 30 days (or project owner and CBO approved alternative timeframe) prior to the start of rough grading, the project owner shall submit to the CBO for review and approval, resumes and registration numbers of the responsible civil engineer, soils (geotechnical) engineer and engineering geologist assigned to the project.

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

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

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

GEN-6 Prior to the start of an activity requiring special inspection, the project owner shall assign to the project, qualified and certified special inspector(s) who shall be responsible for the special inspections required by the 2001 CBC, Chapter 17 [Section 1701, Special Inspections; Section 1701.5, Type of Work (requiring special inspection)]; and Section 106.3.5, Inspection and observation program. All transmission facilities (lines, switchyards, switching stations and substations) are handled in conditions of certification in the **Transmission System Engineering** section of this document.

The special inspector shall:

1. Be a qualified person who shall demonstrate competence, to the satisfaction of the CBO, for inspection of the particular type of construction requiring special or continuous inspection;
2. Observe the work assigned for conformance with the approved design drawings and specifications;
3. Furnish inspection reports to the CBO and RE. All discrepancies shall be brought to the immediate attention of the RE for correction, then, if

uncorrected, to the CBO and the CPM for corrective action [2001 CBC, Chapter 17, Section 1701.3, Duties and Responsibilities of the Special Inspector]; and

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

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

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

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

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

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

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

project [2001 CBC, Section 106.4.2, Retention of Plans]. Electronic copies of the approved plans, specifications, calculations and marked-up as-builts shall be provided to the CBO for retention by the CPM.

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

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

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

1. Design of the proposed drainage structures and the grading plan;
2. An erosion and sedimentation control plan;
3. Related calculations and specifications, signed and stamped by the responsible civil engineer; and
4. Soils Report, Geotechnical Report or Foundation Investigations Report required by the 2001 CBC [Appendix Chapter 33, Section 3309.5, Soils Engineering Report; Section 3309.6, Engineering Geology Report; and Chapter 18, Section 1804, Foundation Investigations].

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

CIVIL-2 The resident engineer shall, if appropriate, stop all earthwork and construction in the affected areas when the responsible soils engineer, geotechnical engineer, or the civil engineer experienced and knowledgeable in the practice of soils engineering identifies unforeseen adverse soil or geologic conditions. The project owner shall submit modified plans, specifications and calculations to the CBO based on these new conditions. The project owner shall obtain approval from the CBO before resuming earthwork and construction in the affected area [2001 CBC, Section 104.2.4, Stop orders].

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

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

If, in the course of inspection, it is discovered that the work is not being performed in accordance with the approved plans, the discrepancies shall be reported immediately to the resident engineer, the CBO and the CPM [2001 CBC, Appendix Chapter 33, Section 3317.7, Notification of Noncompliance]. The project owner shall prepare a written report, 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 [2001 CBC, Section 3318, Completion of Work].

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

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

1. Major project structures;
2. Major foundations, equipment supports and anchorage; and
3. Large field fabricated tanks.

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

The project owner shall:

1. Obtain approval from the CBO of lateral force procedures proposed for project structures;
2. Obtain approval from the CBO for the final design plans, specifications, calculations, soils reports and applicable quality control procedures. If there are conflicting requirements, the more stringent shall govern (i.e., highest loads, or lowest allowable stresses shall govern). All plans, calculations and specifications for foundations that support structures shall be filed concurrently with the structure plans, calculations and specifications [2001 CBC, Section 108.4, Approval Required];
3. Submit to the CBO the required number of copies of the structural plans, specifications, calculations and other required documents of the designated major structures prior to the start of on-site fabrication and installation of each structure, equipment support, or foundation [2001 CBC, Section 106.4.2, Retention of plans; and Section 106.3.2, Submittal documents];
4. Ensure that the final plans, calculations and specifications clearly reflect the inclusion of approved criteria, assumptions and methods used to develop the design. The final designs, plans, calculations and specifications shall be signed and stamped by the responsible design engineer [2001 CBC, Section 106.3.4, Architect or Engineer of Record]; and
5. Submit to the CBO the responsible design engineer's signed statement that the final design plans conform to the applicable LORS [2001 CBC, Section 106.3.4, Architect or Engineer of Record].

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

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

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

1. Concrete cylinder strength test reports (including date of testing, date sample taken, design concrete strength, tested cylinder strength, age of test, type and size of sample, location and quantity of concrete placement

from which sample was taken, and mix design designation and parameters);

2. Concrete pour sign-off sheets;
3. Bolt torque inspection reports (including location of test, date, bolt size, and recorded torques);
4. Field weld inspection reports (including type of weld, location of weld, inspection of non-destructive testing (NDT) procedure and results, welder qualifications, certifications, qualified procedure description or number (ref: AWS); and
5. Reports covering other structural activities requiring special inspections shall be in accordance with the 2001 CBC, Chapter 17, Section 1701, Special Inspections; Section 1701.5, Type of Work (requiring special inspection); Section 1702, Structural Observation and Section 1703, Nondestructive Testing.

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

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

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

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

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

Verification: At least 30 days (or project owner and CBO approved alternate timeframe) prior to the start of installation of the tanks or vessels containing the above

specified quantities of toxic or hazardous materials, the project owner shall submit to the CBO for design review and approval final design plans, specifications and calculations, including a copy of the signed and stamped engineer's certification.

The project owner shall send copies of the CBO approvals of plan checks to the CPM in the 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. Physical layout drawings and drawings not related to code compliance and life safety need not be submitted. The submittal shall also include the applicable QA/QC procedures. Upon completion of construction of any such major piping or plumbing system, the project owner shall request the CBO's inspection approval of said construction [2001 CBC, Section 106.3.2, Submittal Documents; Section 108.3, Inspection Requests; Section 108.4, Approval Required; 2001 California Plumbing Code, Section 103.5.4, Inspection Request; Section 301.1.1, Approval].

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

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

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

Verification: At least 30 days (or project owner and CBO approved alternative timeframe) prior to the start of any increment of major piping or plumbing construction listed in **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 the applicable LORS, and shall send the CPM a copy of the transmittal letter in the next Monthly Compliance Report.

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

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

The project owner shall:

1. Ensure that all boilers and fired and unfired pressure vessels are designed, fabricated and installed in accordance with the appropriate section of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, or other applicable code. Vendor certification, with identification of applicable code, shall be submitted for prefabricated vessels and tanks; and
2. Have the responsible design engineer submit a statement to the CBO that the proposed final design plans, specifications and calculations conform to all of the requirements set forth in the appropriate ASME Boiler and Pressure Vessel Code or other applicable codes.

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

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

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

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

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

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

A. Final plant design plans to include:
   1. one-line diagrams for the 13.8 kV, 4.16 kV and 480 V systems; and
   2. system grounding drawings.

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

7. lighting energy calculations.

C. The following activities shall be reported to the CPM in the Monthly Compliance Report:

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

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

REFERENCES

EME 2005a — Edison Mission Energy/GPL:bpm (tn:35950). Walnut Creek Energy Park AFC. 11/21/2005. Rec'd 11/22/05.

GEOLOGY AND PALEONTOLOGY

Dal Hunter, Ph.D., C.E.G.

SUMMARY OF CONCLUSIONS

With the exception of strong ground shaking and possible liquefaction potential during an earthquake, the Walnut Creek Energy Park (WCEP) site lies in an area that generally exhibits low geologic hazards. The effects of strong ground shaking and, possibly, liquefaction potential must be mitigated through structural design as required by the California Building Code (2001). There are no known viable geologic or mineralogic resources on the property, although the Walnut oil field lies approximately one mile to the east-northeast. Paleontological Resources have been documented in the general area of the project; however, no significant fossils were identified during initial site investigations due to the urbanized character of the area. There is a possibility of encountering fossil remains with potentially high paleontologic sensitivity in Pleistocene sediments that are present at unknown depth below low sensitivity middle-Holocene sediments and fill materials. The potential impacts to paleontological resources due to construction activities would be mitigated by Energy Commissions Staff's proposed conditions of certification.

Based on this information, it is staff's opinion that the potential for significant adverse cumulative impacts to the project from geologic hazards, and to potential geologic, mineralogic, and paleontologic resources from the construction, operation, and closure of the proposed project, is low. It is Energy Commission staff's opinion that the WCEP can be designed and constructed in accordance with all applicable laws, ordinances, regulations, and standards (LORS) and in a manner that protects geological and paleontological resources as well as assures public health and safety, to the extent practical, with respect to geological hazards.

INTRODUCTION

In this section, Energy Commission staff discusses potential impacts of geologic hazards on the proposed WCEP and impacts of the WCEP on geologic (including mineralogic), and paleontologic resources. Staff's objective is to ensure that there will be no significant adverse impacts to important geological and paleontological resources during project construction, operation, and closure. A brief geological and paleontological overview of the project is provided. The section concludes with staff's proposed monitoring and mitigation measures with respect to geologic hazards and geologic, mineralogic, and paleontologic resources, with the inclusion of conditions of certification.

LAWS, ORDINANCES, REGULATION, AND STANDARDS

The applicable LORS are listed in the Application for Certification (AFC), in Sections 8.4.5, 8.4.6, 8.4.7, 8.4.8, and 8.8.5 (EME, 2005a). The following is a brief description of the current LORS for geologic hazards and resources, and mineralogic and paleontologic resources.

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

Applicable Law	Description
Federal	None
State	The proposed WCEP is not located on federal land. There are no federal LORS for geologic hazards and resources for this site.
California Building Code (2001)	The California Building Code (CBC) includes a series of standards that are used in project investigation, design, and construction (including grading and erosion control)
Public Resources Code, Section 25527	The Warren-Alquist Act requires the California 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 site…" With respect to paleontologic resources, the Energy Commission relies on the following guidelines from the Society for Vertebrate Paleontology (SVP).
SVP, 1995	The "Measures for Assessment and Mitigation of Adverse Impacts to Non-Renewable Paleontological Resources: Standard Procedures" is a set of procedures and standards for assessing and mitigating impacts to vertebrate paleontological resources. The measures were adopted in October 1995 by the Society for Vertebrate Paleontology, a national organization of professional scientists.
Local	None

It is staffs' opinion that the applicant will be able to comply with all applicable LORS for the WCEP.

REGIONAL SETTING

The WCEP is located in a valley occupied by the west-flowing intermittent San Jose Creek between the San Jose Hills to the north and the Puente Hills to the south. The creek has been confined to a more permanent channel during urbanization of the valley. The valley lies within the northeastern block of the Los Angeles Basin, which occupies the southern portion of the Transverse Ranges geomorphic province where it transitions into the Peninsular Ranges geomorphic province (Norris and Webb, 1990). The Transverse Ranges are characterized by complex, east-west oriented, reverse and left-lateral and right-lateral strike-slip faulting. Faulting within the Peninsular Ranges is predominantly northwest-oriented right-lateral strike slip similar to the San Andreas Fault located about 28 miles to the northeast of WCEP. Faulting within 25 miles of the proposed WCEP area is characteristic of both provinces.

FAULTS AND FOLDS

Major faults in the vicinity of the project site include the Whittier Fault located approximately 3 miles to the southwest, the Little Puente Hill Fault located 0.75 miles to the north, the San Jose Fault located 5 miles northeast, the Walnut Creek Fault located 2 miles to the northwest, the Chino Fault located 12 miles to the east, the Indian Hill Fault located 8 miles to the northeast (Yeats, 2004) and the Raymond-Sierra Madre-Cucamonga Fault Zones located 10 miles to the north. The Coyote Hills segment of the Puente Hills blind thrust probably runs east-west at a depth of 5 miles below the site (Shaw, et. al., 2002). The majority of these faults are active or potentially active north-

dipping reverse faults with east-west, northwest and northeast strikes. Active and potentially active strike-slip faults include the northwest-striking Chino Fault, which is a northward extension of the right-lateral Elsinore Fault, and the east-west-striking Indian Hill Fault and northwest-striking Walnut Creek Fault, which are interpreted to have left-lateral motion.

The nearest mapped fault relative to the project site is the Little Puente Hill reverse fault (Yeats, 2004), however, the fault is not part of an Alquist-Priolo Special Studies Zone (SSZ) or considered to be within an active fault near-source zone (ICBO, 1998). The most important faults that would potentially affect the WCEP are the Whittier, San Jose and Puente Hills Faults.

The Whittier Fault has been determined to be a reverse fault with right oblique movement, and is transitional in style between compressional tectonics in the Transverse Ranges and predominantly strike-slip faulting in the Peninsular Ranges (Ziony, 1985). Yeats (2004) has suggested that relative motion on the fault has changed over time from normal in the Miocene epoch, to reverse in the Pliocene to early Pleistocene, to late Quaternary right-lateral strike-slip. Although the surface trace of the Whittier Fault is 3 miles to the southwest, the fault plane could project to a minimum depth of 1.8 miles below the site, assuming a dip of 30 degrees to the north.

The San Jose Fault, which was formerly classified as a left-lateral strike-slip fault, has more recently been interpreted to have reverse offset (Yeats, 2004). The fault was thought to be responsible for the Upland earthquakes of 1988 (Magnitude 4.6) and 1990 (Magnitude 5.2), however, recent interpretations attribute the seismic events to movement along the Walnut Creek Fault (Yeats, 2004).

The Puente Hills blind thrust dips 27 degrees to the north and is responsible for the magnitude 5.9 Whittier Narrows earthquake of 1987. The epicenter of the Whittier Narrows earthquake lies approximately 6 to 7 miles west-northwest and roughly along strike of the Puente Hills blind thrust. The focus was recorded at a depth of 9.5 kilometers (Oskin, et . al., 2000; SCEC, 2006). By definition, a blind thrust fault does not intersect the ground surface. The surface projection of the fault trace would lie over 5 miles south of the proposed WCEP.

Pliocene to Quaternary folding of upper plate sediments north of the Whittier Fault is associated with compressional tectonics and reverse faulting. The portion of the San Jose Creek Valley in which the proposed WCEP is to be located lies within the west-northwest-trending Industry Syncline (Yeats, 2004). The syncline is situated between the Puente Hills Anticline to the south and the Walnut Anticline (also called the Puente Hills Anticline by other references) to the north. The Walnut oil field is hosted within the Walnut Anticline and is bounded to the south by the Little Puente Hill reverse fault (CDC, 2001; CDOGGR, 2005).

SOILS AND SEDIMENTARY ROCKS

The area is mapped as Quaternary Alluvium by Morton and Miller (2003) and is middle Holocene in age. The San Jose Hills to the north are composed of Pliocene Fernando Formation and Miocene Puente Formation marine sedimentary rocks (Bortugno and

Spittler, 1986; Morton and Miller, 2003). The units form the east-west oriented Walnut Anticline that developed in response to compressional tectonics and north-directed reverse faulting. The Puente Hills to the south are composed of upper Miocene to middle Pliocene marine sediments and Pleistocene terrestrial sediments (Bortugno and Spittler, 1986; Morton and Miller, 2003). Marine and terrestrial fossils have been reported in Miocene, Pliocene and Pleistocene sediments in the regional area (EME, 2005a).

The WCEP is to be constructed on alluvial, fluvial (river) and paludal (marsh and pond), deposits eroded from adjacent upland areas and transported into the valley by San Jose Creek from the east. The material within the upper 4 to 6.5 feet is loose to medium dense sandy lean clay, possibly fill (EME, 2005a: Appendix G). Underlying native soils consist of sandy lean clays, sandy silts, clayey sands, silty sands and poorly graded sands. Finer-grained and more clayey soils are predominant in the upper sections and in the west half of the site, whereas sandy soils are more common deeper and in the eastern half of the site.

PROJECT SITE DESCRIPTION

The WECP site is currently occupied by a 250,695 square foot industrial building most recently used as an electronics waste management facility (COI, 2006a). Asphalt pavement with minor concrete curbing and sidewalks covers the remainder of the parcel along the north and west side of the building. Two twenty-foot wide covered loading docks provide access to trucking on the north side of the facility. Union Pacific Railroad tracks are present along the south side of the property, and a private spur track services the building on the west end of the south side. Vegetation consists of trees, shrubs and grass confined to landscaped areas on the north side of the building and along the perimeter of the parcel. Bare ground exists only within the transmission line right-of-way and adjacent to the private railroad spur (EME, 2005a). The building will be demolished and removed, prior to construction of the power plant (COI, 2006a).

The site has been filled with 4 to 6.5 feet of material for the existing warehouse facility (EME, 2005a: Appendix G) such that the gradient is nearly flat and level. Drainage from the site flows to a drop inlet/storm drain that discharges to San Jose Creek, to the north.

ASSESSMENT OF IMPACTS AND DISCUSSION OF MITIGATION

There are two types of impacts considered in this section. The first are geologic hazards, which could impact proper functioning of the proposed facility and include faulting and seismicity, liquefaction, dynamic compaction, hydrocompaction, subsidence, expansive soils, landslides, and tsunamis and seiches. The second considers potential impacts the proposed facility could have on existing geologic, mineralogic, and paleontologic resources in the area.

METHOD AND THRESHOLD FOR DETERMINING SIGNIFICANCE

No federal LORS with respect to geologic hazards and geologic and mineralogic resources apply to this project; however, the CBC provides geotechnical and geological investigation and design guidelines, which engineers must adhere to when designing a proposed facility. As a result, the criteria used to assess geologic hazard impact

significance includes evaluating each potential hazard in relation to being able to adequately design and construct the proposed facility.

The California Environmental Quality Act (CEQA) Guidelines, Appendix G, provides a checklist of questions that a lead agency should normally address if relevant to a project's environmental impacts.

- Section (V) (c) asks if the project will directly or indirectly destroy a unique paleontological resource or site or unique geological feature.
- Sections (VI) (a), (b), (c), (d), and (e) pose questions that are focused on whether or not the project would expose persons or structures to geologic hazards.
- Sections (X) (a) and (b) pose questions about the project's effect on mineral resources.

With respect to impacts the proposed facility may have on existing geologic and mineralogic resources, geologic and mineral resource maps for the surrounding area have been reviewed, in addition to any site-specific information provided by the applicant, to determine if geologic and mineralogic resources are present in the area. When available, operating procedures of the proposed facility, in particular ground water extraction and mass grading, are reviewed to determine if such operations could adversely impact such resources.

Staff reviewed existing paleontologic information for the surrounding area, as well as site-specific information generated by the applicant. Staff contacted both the University of California Museum of Paleontology (Berkeley) and the Los Angeles County Museum of Natural History to help confirm that no vertebrate fossil locations are known on site. All research was conducted in accordance with accepted assessment protocol (SVP, 1995) to determine if there are any known paleontologic resources in the general area. If present or likely to exist, conditions of certification are applied to the project approval, which outlines procedures required during construction to mitigate impacts to potential resources.

DIRECT/INDIRECT IMPACTS AND MITIGATION

Ground shaking and liquefaction during an earthquake represent the only known geologic hazards at this site. These potential hazards can be effectively mitigated through facility design. Conditions of Certification **GEN-1, GEN-5, CIVIL-2 and CIVIL-3** in the **Facility Design** section should mitigate these impacts to a less than significant level. **GEN-1** requires that the structures be designed and constructed in accordance with the requirements of the 2001 California Building Code. The code specifies structural design criteria related to seismic zone earthquake loading, among other things related to foundations and structural connections. **GEN-5** essentially requires that design level geotechnical and geological investigations be conducted for the project and that all earthwork activities be monitored and certified by the geotechnical engineer or engineering geologist. **CIVIL-2** allows the resident engineer to stop all earthwork where unforeseen soil or adverse geological conditions are identified. **CIVIL-3** requires the project owner to perform inspection of the construction in accordance with the requirements of the 2001 CBC. This includes both soil and structural inspections.

No viable geologic or mineralogic resources are known to exist within the project site. The Walnut oil field is located approximately one mile to the east-northeast. Paleontological resources have not been documented on the WCEP project site; however, undisturbed Tertiary to Pleistocene native materials could exhibit a high sensitivity rating with respect to containing significant paleontologic resources (EME, 2005a). Materials on exposed ground surfaces and within the upper 4 to 6.5 feet of the surface, as well as undisturbed sediments identified as Holocene in age, exhibit no more than low paleontological sensitivity. Since the proposed WCEP will include varying amounts of grading, foundation excavation, and utility trenching, staff considers the probability that paleontological resources will be encountered during such activities to be undetermined but, possibly, moderate to high in native materials below a depth of 5 feet. conditions of certification **PAL-1** to **PAL-7** are designed to mitigate any paleontological resource impacts, as detailed further below, to a less than significant level.

GEOLOGICAL HAZARDS

The AFC (EME, 2005a) provides documentation of potential geologic hazards at the WCEP plant site, in addition to some subsurface exploration information. Review of the AFC, coupled with staffs' independent research, indicates that the potential for geologic hazards to impact the plant site is low.

Staffs' independent research included review of available geologic maps, reports, and related data of the WCEP plant site. Geological information was available from the California Geological Survey (CGS), California Division of Mines and Geology (CDMG), and other governmental organizations.

Faulting and Seismicity

No faults are mapped within the WCEP parcel, or its planned transmission line easement. The Coyote Hills segment of the Puente Hills blind thrust fault underlies the site at a depth of about 5 miles. The fault has not ruptured the ground surface, but an upward projection of the fault plane places it well south of the proposed WCEP. The likelihood of ground surface rupture at this site is, therefore, thought to be minimal.

The project is located within Seismic Zone 4 as delineated on Figure 16-2 of the 2001 edition of the California Building Code. The closest known active fault is the Whittier fault (presently a right-lateral strike-slip fault) which is located 5 kilometers (km) (3 miles) southwest of the proposed energy facility. The Whittier fault dips to the north towards the energy facility site, which is, therefore, located on the hanging wall side of the fault. The estimated peak horizontal ground acceleration for the power plant is 0.46g (46% of the acceleration of gravity) based on a moment magnitude 7 earthquake on the Whittier fault. The potential of surface rupture on a fault at the energy facility footprint is considered to be very low, since no faults are known to have ruptured the ground surface of the proposed energy facility location. The Southern California Edison Walnut Substation is located approximately 250 feet south of the WECP. The substation is the tie-in for the 230kV transmission line from the WECP switchyard.

Liquefaction

Liquefaction is a condition in which a cohesionless soil may lose shear strength due to a sudden increase in pore water pressure. Liquefaction analysis was performed on Standard Penetration test (SPT) data from one boring in the western portion of the site, and the potential for liquefaction was determined to be negligible (EME, 2005a: Appendix G). However, sediments encountered in borings in the eastern half of the site consist of loose to medium dense sandy and silty units that could be subject to liquefaction during an earthquake. Additionally, although ground water levels were 23 to 27 feet below ground surface (bgs) in borings, the historic ground water level mapped by the California Geological Survey in 1998 is 10 to 20 feet bgs (EME, 2005a: Appendix G). Therefore, there may be at least a moderate potential for liquefaction on the WCEP site. There are a number of standard mitigation options for liquefaction potential, depending on severity and risk tolerance. These options include deep foundations, stone columns, geogrid soil reinforcement and dewatering. All of these methods, if properly designed and constructed would comply with condition of certification GEN-1 and the 2001 CBC. The project geotechnical investigation (EME, 2005a: Appendix G) recommends the use of deep foundations for heavy structures and post-tensioned slab-on-grade foundations for light structures. Both of these systems could be used as liquefaction mitigation. Design level geotechnical investigations will determine the need for mitigation and provide appropriate recommendations.

Dynamic Compaction

Dynamic compaction of soils results when relatively unconsolidated granular materials experience vibration associated with seismic events. The vibration causes a decrease in soil volume, as the soil grains tend to rearrange into a more dense state (an increase in soil density). The decrease in volume can result in settlement of overlying structural improvements.

The potential for dynamic compaction is considered low based on the geotechnical exploration borings and analysis provided by the application (EME, 2005a: Appendix G). The data provided by this report indicate the soils profile is sufficiently consolidated so as to be subject to negligible consolidation from future ground shaking. Most soils in the Los Angeles basin have already been subjected to a number of strong earthquakes and should have already experienced most of their dynamic compaction.

Hydrocompaction

Hydrocompaction is the process of the loss of soil volume upon the application of water. Hydrocompaction is limited to specific geologic environments, such as flash floods, where soils can be deposited in a state of very low density (high percentage of voids). The soils at the site are loose to medium dense but are thought to be of sufficient density so that risk for hydrocompaction is negligible.

Subsidence

Ground subsidence is typically caused by petroleum or ground water withdrawal such that the effective unit weight of the soil profile is increased, which increases the effective stress on the deeper soils. This results in consolidation/settlement of the underlying soils. Potential subsidence resulting from the extraction of oil at the nearby Walnut oil

field is mitigated by water injection techniques (EME, 2005a: Appendix G). No ground water withdrawal is planned under the WCEP site. Staff has, therefore, concluded that there is no significant potential for subsidence due to ground water or petroleum withdrawal at the proposed WCEP.

Expansive Soils

Soil expansion occurs when certain clay soils, with an affinity for water, exist in-place at a moisture content below their plastic limit. The addition of moisture from precipitation irrigation, capillary tension, water line breaks, or other sources, allows the clay to bind water molecules into its structure, which in turn causes an increase in the overall volume of the soil. This increase in volume can cause uplift (heave) of overlying structural improvements. Laboratory testing of soils on site indicate a “medium” potential for expansion of some of the near surface soils at the WCEP property (EME 2005a: Appendix G). The project geotechnical investigation (EMG, 2005a: Appendix G) provides recommendations for mitigating expansive clay soils, including the use of post-tensioned slab-on-grade foundations for lightly loaded structures and deep foundation for heavily loaded structures. Concrete flatwork and asphalt concrete pavements are to be mitigated by over-excavation of clays on replacement with structural fill. All methods proposed are in compliance with GEN-1.

Landslides

No landslides are present on or adjacent to the proposed energy facility footprint. Landsliding potential at the WCEP site is negligible, since the proposed energy facility is located on broad, gently sloping (0 to 5 percent to the north and west) ground.

Flooding

The WCEP lies on an alluvium fan complex and fluvial and paludal sediments. Such geomorphic features are predominantly the result of numerous, infrequent but intense flash flood events. The coarser, gravelly units represent localized, high-energy debris flows. The upstream California Aqueduct structures, as well as the channelizing of San Jose Creek, should reduce the flash flood/debris flow potential at this site. No documentation of historic debris flows or flash floods were revealed in staff’s literature review.

Mapping by the Federal Emergency Management Agency (FEMA, 1994) does not show the WCEP site to be within a flood zone.

Tsunamis and Seiches

The proposed WECP site is not near any large body of water. As a result, the potential for tsunamis to affect the operation of the facility is considered negligible. There is also no potential for a significant seiche to impact the operation of the facility. A seiche is an oscillating wave in an enclosed or partially enclosed body of water. The wave is caused by earthquake shaking or sometimes by wind.

GEOLOGIC, MINERALOGIC, AND PALEONTOLOGIC RESOURCES

Energy Commission staff has reviewed applicable geologic maps and reports for this area (CDC, 2001; CDMG, 1988; CDMG, 1990; CDMG, 1992a and b; CDMG, 1994;

CDMG, 1998; CDMG, 1999). No geological resources have been identified at the proposed energy facility location or the transmission line route. Mineralogical resources in the vicinity of the project include sand, gravel, oil and gas. The site is located near the Walnut oil field. Review of California Department of Conservation, Division of Mines and Open-File Report 94-14 (CDMG 1994) indicates that the proposed energy facility site and transmission line route are designated by the California Department of Conservation, Division of Mines and Geology as MRZ-1 which denotes areas where adequate information indicates that no significant mineral deposits (aggregates) are present, or where it is judged that little likelihood exists for their presence.

No fossil bearing sites are known to lie within 3 miles of the proposed WCEP. Quaternary (Holocene and Pleistocene) alluvium underlying the WCEP site has been reported to yield vertebrate fossils in other areas. Fossil sites within the Los Angeles Basin include the La Brea Tar Pits, located approximately 25 miles to the west. A wide variety of fossil remains, including dire wolves, saber-tooth cats, the American lion, mammoth, mastodons, ground sloths, camels, horses and bison have been recovered from the asphalt seeps in which the animals were preserved. Other Holocene-Age sites in areas mapped as Quaternary Alluvium include the ancestral Los Angeles River channel at Union Station, over 12 ½ miles northwest of WCEP, (cedar or juniper wood, sycamore leaves, pollen and grape seeds of land plants), the Metro Red Line Universal City Station, about 26 miles west-northwest, (freshwater snails and clams, land snails), and the Metro Red Line North Hollywood Station, 27 miles northwest, (land plants). These fossil sites suggest that the alluvium may have a high potential for high sensitivity with respect to paleontological resources.

Documented Pleistocene fossil sites include the intersection of Vermont Avenue and the Hollywood Freeway (mammoth) over 25 miles west-northwest of WCEP, near the intersection of South Hill and West 12th streets (extinct North American horse), 22 miles west, and about 12 ½ miles to the northwest near Union Station in the Red Line Tunnel (bison). Another site of undetermined late Pleistocene or early Holocene Age is at the Alameda Corridor, roughly 4 miles south of the project site, and yielded vertebrate and invertebrate remains. Quaternary Alluvium in fossil sites in the Santa Ana River Basin and the Perris Plain have also yielded a wide variety of floral and faunal specimens. The remains are more often recovered from fluvial sediments, and have been found at depths up to 725 feet bgs (EME, 2005a). These sites are about 15 miles and 30, respectively, east of WCEP.

Surficial geology at the energy facility footprint location is made up of middle Holocene alluvial sediments and man-made fill. Geologic units beneath and adjacent to these sediments include the Fernando Formation, the Puente Formation, and other marine deposits, as well as Pleistocene terrestrial deposits. No in-situ paleontological resources were reported by the applicant's consultant to be within 3 miles of the site during their field survey on September 7, 2005. The lack of fossil resources may be due to the nearly complete urbanization of the site and adjacent areas, as well as the channelization of San Jose Creek.

Energy Commission staff has reviewed the paleontological resources assessments in the AFC (EME, 2005a) and has contacted the Los Angeles County Museum of Natural

History and the Museum of Vertebrate Paleontology of the University of California, Berkeley. No vertebrate fossils are known to have been removed from this site.

Undisturbed high-energy Holocene alluvial deposits are probably present beneath man-made fill on the site. It is not likely that fossil remains would be encountered in the high-energy depositional environment of Holocene alluvium, and therefore, the materials in the upper 5 feet are, conservatively, designated as units with low paleontologic sensitivity.

Pleistocene alluvial deposits, at unknown depth, but assumed at 5 feet, are more likely to contain interbedded fluvial and paludal sediments, due to major outwash along San Jose Creek during periods of glaciation and glacial melting. Although alluvial sands and gravels deposited in a high-energy environment generally do not contain fossils, lower-energy deposits such as in rivers, marshes and ponds, have a higher potential for fossil preservation. Undisturbed Pleistocene sediments that underlie Holocene deposits have an undetermined and potentially high paleontologic sensitivity due to the possible presence of sediments deposited in these low-energy environments.

Older (Miocene and Pliocene) marine sediments are considered to have high paleontologic sensitivity (Morton and Miller, 2003). However, the probability of encountering these rocks at the shallow excavation depths expected during demolition the existing building and construction of the power plant is remote.

Construction Impacts and Mitigation

As noted above, no viable geologic or mineralogic resources are known to exist in the area with the exception of the Walnut oil field located approximately one mile from the site. Paleontological resources were not documented within three miles of the project site, but the native materials of Pleistocene Age and older exhibit a high sensitivity rating with respect to potentially containing significant paleontologic resources. Surface fill and Holocene Age sediments in the upper five feet exhibit a low sensitivity rating.

Since construction of the proposed project will still include significant grading, foundation excavation, and utility trenching, staff considers the probability that paleontological resources will be encountered to be high in deeper excavations, based on SVP assessment criteria. Conditions of certification **PAL-1** to **PAL-7** are designed to mitigate any paleontological resource impacts, as discussed above, 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 (paleontologic resource specialist; PRS). Earthwork is halted any time potential fossils are recognized by either the paleontologist or the worker. When conducted well, the conditions of certification result is a net gain to the science of paleontology since fossils that would other wise not 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 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 change of finding significant fossils. In other

cases, the PRS can propose increased monitoring due to unexpected fossil discoveries or from repeated out-of-compliance incidents by the earthwork contractor.

Operation Impacts and Mitigation

Operation of the proposed new power plant facility should not have any adverse impact on geologic, mineralogic, or paleontologic resources.

CUMULATIVE IMPACTS AND MITIGATION

With the exception of strong ground shaking and possible liquefaction during an earthquake, the WCEP site lies in an area that generally exhibits low geologic hazards and no known viable geologic or mineralogic resources. Strong ground shaking and liquefaction must be mitigated (as appropriate) through foundation design as required by the CBC. Paleontological resources were not found in the general area of the project, although many fossil sites in similar Quaternary Age soils are located throughout the Los Angeles Basin. The potential impacts to paleontological resources due to construction activities will be mitigated by conditions of certification **PAL-1** to **PAL-7**.

The City of Industry and the surrounding cities are heavily developed. Renovation of existing structures and new construction will likely continue in these areas. Based on our evaluation, it is staff's opinion that the potential for significant adverse cumulative impacts from geologic hazards, and to potential geologic, mineralogic, and paleontologic resources resulting from construction and operation of the proposed WCEP is very low.

Based upon literature and archives search and field surveys for the WCEP project, the applicant has proposed monitoring and mitigation measures to be followed during the construction of the WCEP. Staff agrees with the applicant that the facility can be designed and constructed to minimize the effect of geologic hazards at the site, and that impacts to any vertebrate fossils encountered during construction of the power plant and transmission line can be mitigated to a level of insignificance.

The proposed conditions of certification will require the applicant to adopt a compliance monitoring program that will ensure compliance with LORS applicable to geologic hazards, and geologic, mineralogic, and paleontologic resources.

FACILITY CLOSURE

A definition and general approach to closure is presented in the General Conditions section of this assessment. Facility closure activities are not anticipated to impact geologic, mineralogic, or paleontologic resources. This is due to the fact that no such resources are known to exist at the power plant location or along its proposed transmission line. In addition, decommissioning and closure of the power plant should not negatively affect geologic, mineralogic, or paleontologic resources since the vast majority of the ground disturbed in plant decommissioning and closure would have been disturbed during construction and operation of the facility and any potential impacts would have been mitigated at that time.

RESPONSE TO AGENCY AND PUBLIC COMMENTS

Staff has not received any comments regarding geologic hazards, mineral resources, or paleontology at this time.

CONCLUSIONS

The proposed project will comply with applicable LORS, provided that the conditions of certification are followed. The project should have no adverse impact on geologic, mineralogic, and paleontologic resources as the result of its construction, operation, and closure.

PROPOSED CONDITIONS OF CERTIFICATION

It is staff's opinion that potential to encounter paleontologic resources is low to negligible in the upper five feet and moderate to high below five feet. Staff will entertain the prospect of reducing monitoring intensity, at the recommendation of the project paleontological resource specialist (PRS), following evaluation by the PRS of sufficient, representative, deep excavations.

General conditions of certification with respect to Geology are covered under conditions of certification **GEN-1**, **GEN-5**, and **CIVIL-1** in the **Facility Design** section. Paleontological conditions of certification follow.

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, then the project owner shall obtain CPM approval of the replacement PRS. The project owner shall submit to the CPM to keep on file, resumes of the qualified Paleontological Resource Monitors (PRMs). If a PRM is replaced, the resume of the replacement PRM shall also be provided to the CPM.

The PRS resume shall include the names and phone numbers of references. The resume shall also demonstrate to the satisfaction of the CPM, the appropriate education and experience to accomplish the required paleontological resource tasks.

As determined by the CPM, the PRS shall meet the minimum qualifications for a vertebrate paleontologist as described in the Society of Vertebrate Paleontology (SVP) guidelines of 1995. The experience of the PRS shall include the following:

1. institutional affiliations, appropriate credentials and college degree,

2. ability to recognize and collect fossils in the field;

3. local geological and biostratigraphic expertise;

4. proficiency in identifying vertebrate and invertebrate fossils and;

5. at least three years of paleontological resource mitigation and field experience in California, and at least one year of experience leading paleontological resource mitigation and field activities.

The project owner shall ensure that the PRS obtains qualified paleontological resource monitors to monitor as he or she deems necessary on the project. Paleontologic resource monitors shall have the equivalent of the following qualifications:

- BS or BA degree in geology or paleontology and one year 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:

- 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.
- At least 20 days prior to ground disturbance, the PRS or project owner shall provide a letter with resumes naming anticipated monitors for the project and stating that the identified monitors meet the minimum qualifications for paleontological resource monitoring required by the condition. If additional monitors are obtained during the project, the PRS shall provide additional letters and resumes to the CPM. The letter shall be provided to the CPM no later than one week prior to the monitor beginning on-site duties.
- Prior to the termination or release of a PRS, the project owner shall submit the resume of the proposed new PRS to the CPM for review and approval.

PAL-2 The project owner shall provide to the PRS and the CPM, for approval, maps and drawings showing the footprint of the power plant, construction laydown areas, and all related facilities. Maps shall identify all areas of the project where ground disturbance is anticipated. If the PRS requests enlargements, the project owner shall provide copies to the PRS and CPM. The site grading plan and the plan and profile drawings for the utility lines would be acceptable for this purpose. The plan drawings should show the location, depth, and extent of all ground disturbances and can be at a scale of 1 inch = 20 feet to 1 inch = 100 feet range. If the footprint of the power plant changes, then the project owner shall provide maps and drawings reflecting these changes to the PRS and CPM. Maps and drawings may be limited to the boundaries of the WCEP project.

If construction of the project will proceed in phases, maps and drawings may be submitted prior to the start of each phase. A letter identifying the proposed schedule of each project phase shall be provided to the PRS and CPM. Prior to work commencing on affected phases, the project owner shall notify the PRS and CPM of any construction phase scheduling changes.

At a minimum, the project owner shall ensure that the PRS or PRM consults weekly with the project superintendent or construction field manager to confirm area(s) to be worked during the next week, until ground disturbance is completed.

Verification:

(1) At least 30 days prior to the start of ground disturbance, the project owner shall provide the maps and drawings to the PRS and CPM.

(2) If there are changes to the footprint of the project, revised maps and drawings shall be provided to the PRS and CPM at least 15 days prior to the start of ground disturbance.

(3) If there are changes to the scheduling of the construction phases, the project owner shall inform the PRS and submit an updated schedule 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 a basis for discussion in the event that on-site decisions or changes are proposed. Copies of the revised PRMMP shall reside with the PRS, each monitor, the project owner's on-site manager, and the CPM.

The PRMMP shall be developed in accordance with the guidelines of the Society of Vertebrate Paleontology (SVP, 1995) and shall include, but not be limited to, the following:

1. Assurance that the performance and sequence of project-related tasks, such as any literature searches, pre-construction surveys, worker environmental training, fieldwork, flagging or staking, construction monitoring, mapping and data recovery, fossil preparation and collection, identification and inventory, preparation of final reports, and transmittal of materials for curation will be performed according to the PRMMP procedures;
2. Identification of the person(s) expected to assist with each of the tasks identified within the PRMMP and the conditions of certification;
3. A thorough discussion of the anticipated geologic units expected to be encountered, the location and depth of the units relative to the project

when known, and the known sensitivity of those units based on the occurrence of fossils either in that unit or in correlative units;

4. An explanation of why, how, and how much sampling is expected to take place and in what units. Include descriptions of different sampling procedures that shall be used for fine-grained and coarse-grained units;
5. A discussion of the locations of where the monitoring of project construction activities is deemed necessary, and a proposed plan for the monitoring and sampling;
6. A discussion of the procedures to be followed in the event of a significant fossil discovery, halting construction, resuming construction, and how notifications will be performed;
7. A discussion of equipment and supplies necessary for collection of fossil materials and any specialized equipment needed to prepare, remove, load, transport, and analyze large-sized fossils or extensive fossil deposits;
8. Procedures for inventory, preparation, and delivery for curation into a retrievable storage collection in a public repository or museum, meeting the Society of Vertebrate Paleontology standards and requirements for the curation of paleontological resources;
9. Identification of the institution that has agreed to receive any data and fossil materials collected, requirements or specifications for materials delivered for curation and how they will be met, and the name and phone number of the contact person at the institution; and
10. A copy of the paleontological conditions of certification.

Verification:

(1) 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 deeper than 5 feet, the project owner and the PRS shall prepare and conduct weekly CPM-approved training for all workers, including but not limited to, project managers, construction supervisors, foremen, and general workers who are involved with or operate ground disturbing equipment or tools. Workers shall not excavate in sensitive units prior to receiving CPM-approved worker training. Worker training shall consist of an initial in-person PRS training session during the project kick-off. Following initial training, a CPM-approved video or in-person training may be used for new employees. The training program may be combined with other training programs prepared for cultural and biological resources, hazardous materials, or any other areas of interest or concern. No ground disturbance shall occur prior to CPM approval of the Worker Environmental Awareness Program (WEAP), unless specifically approved by the CPM.

The WEAP shall address the potential to encounter paleontological resources in the field, the sensitivity and importance of these resources, and the legal obligations to preserve and protect such resources.

The training shall include:

1. A discussion of applicable laws and penalties under the law;
2. Good quality photographs or physical examples of vertebrate fossils shall be provided 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 Certification of Completion of WEAP form signed by each worker indicating that they have received the training; and
7. A sticker that shall be placed on hard hats indicating that environmental training has been completed.

Verification:

1. At least 30 days prior to ground disturbance, the project owner shall submit the proposed WEAP including the brochure with the set of reporting procedures the workers are to follow.
2. At least 30 days prior to ground disturbance, the project owner shall submit the script and final video to the CPM for approval if the project owner is planning on using a video for interim training.
3. If the owner requests an alternate paleontological trainer, the resume and qualifications of the trainer shall be submitted to the CPM for review and approval prior to installation of an alternate trainer. Alternate trainers shall not conduct training prior to CPM authorization.
4. In the Monthly Compliance Report (MCR) the project owner shall provide copies of the WEAP Certification of Completion forms with the names of those trained and the trainer or type of training (in-person or video) offered that month. The MCR shall also include a running total of all persons who have completed the training to date.

PAL-5 The project owner shall ensure that the PRS and PRM(s) monitor consistent with the PRMMP all construction-related grading, excavation, trenching, and augering in areas where potentially fossil-bearing materials have been identified, both at the site and along any constructed linear facilities associated with the project. In the event that the PRS determines full time

monitoring is not necessary in locations that were identified as potentially fossil-bearing in the PRMMP, the project owner shall notify the CPM.

The project owner shall ensure that the PRS and PRM(s) have the authority to halt or redirect construction if paleontological resources are encountered. The project owner shall ensure that there is no interference with monitoring activities unless directed by the PRS. Monitoring activities shall be conducted as follows:

1. Any change of monitoring different from the accepted schedule presented in the PRMMP shall be proposed in a letter or email from the PRS and the project owner to the CPM prior to the change in monitoring and included in the Monthly Compliance Report. The letter or email shall include the justification for the change in monitoring and be submitted to the CPM for review and approval.
2. The project owner shall ensure that the PRM(s) keeps a daily log of monitoring of paleontological resource activities. The PRS may informally discuss paleontological resource monitoring and mitigation activities with the CPM at any time.
3. The project owner shall ensure that the PRS immediately notifies the CPM within 24 hours of the occurrence of any incidents of non-compliance with any paleontological resources conditions of certification. The PRS shall recommend corrective action to resolve the issues or achieve compliance with the conditions of certification.
4. For any significant paleontological resources encountered, either the project owner or the PRS shall notify the CPM within 24 hours or Monday morning in the case of a weekend when construction has been halted due to a paleontological find.

The project owner shall ensure that the PRS prepares a summary of the monitoring and other paleontological activities that will be placed in the MCR. The summary will include the name(s) of PRS or PRM(s) active during the month, general descriptions of training and monitored construction activities and general locations of excavations, grading, boring(s) and other areas of ground disturbance. A section of the report shall include the geologic units or subunits encountered; descriptions of sampling within each unit; and a list of identified fossils. A final section of the report will address any issues or concerns about the project relating to paleontologic monitoring including any incidents of non-compliance and any changes to the monitoring plan that have been approved by the CPM. If no monitoring took place during the month, the report shall include an explanation in the summary as to why monitoring was not conducted.

Verification:

(1) 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 and must be approved by the CPM prior to implementation of the change.

PAL-6 The project owner, through the designated PRS, shall ensure that all components of the PRMMP are adequately performed including collection of fossil materials, preparation of fossil materials for analysis, analysis of fossils, identification and inventory of fossils, the preparation of fossils for curation, and the delivery for curation of all significant paleontological resource materials encountered and collected during the project construction.

Verification:

(1) The project owner shall maintain in their compliance file copies of signed contracts or agreements with the designated PRS and other qualified research specialists. The project owner shall maintain these files for a period of three years after completion and approval of the CPM-approved Paleontological Resource Report (See **PAL-7**). The project owner shall be responsible to pay any curation fees charged by the museum for fossils collected and curated as a result of paleontological mitigation. A copy of the letter of transmittal submitting the fossils to the curating institution shall be provided to the CPM.

PAL-7 The project owner shall ensure preparation of the Paleontological Resources Report (PRR) by the designated PRS. The PRR shall be prepared following completion of the ground disturbing activities. The PRR shall include an analysis of the collected fossil materials and related information and submitted to the CPM for review and approval.

The report shall include, but is not limited to, a description and inventory of recovered fossil materials; a map showing the location of paleontological resources encountered; determinations of sensitivity and significance; and a statement by the PRS that project impacts to paleontological resources have been mitigated below the level of significance.

Verification:

(1) Within 90 days after completion of ground disturbing activities, including landscaping, the project owner shall submit the Paleontological Resources Report under confidential cover to the CPM.

Certification of Completion
Worker Environmental Awareness Program
Walnut Creek Energy Park (Docket #05-AFC-02)

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, Paleontology and Biological Resources for all personnel (i.e., construction supervisors, crews and plant operators) working on-site or at related facilities. By signing below, the participant indicates that they understand 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: ___/___/__

REFERENCES

Bortugno and Spittler, 1986 (rev. 1998), Geologic Map of the *San Bernardino Quadrangle,* California Division of Mines and Geology Map No. 3A (Geology).

CBC (California Building Code). 2001.

California Code of Regulations, Title 24 (*California Building Standards Code* [CBSC]), Part 2, *California Building Code* (CBC). 2001.

CDC (California Department of Conservation). 2001. *Oil, Gas, and Geothermal Fields in California.*

CDMG (California Division of Mines and Geology). 1988. *Mineral Land Classification: Aggregate Materials in the Bakersfield Production-Consumption Region*, California Division of Mines and Geology Special Report 147, plate 15.

CDMG. 1990. *Industrial Minerals in California: Economic Importance, Present Availability, and Future Development*, Special Publication 105, Reprinted from U.S. Geological Survey Bulletin 1958.

CDMG. 1992a. (Fourth reprinting) *Geologic Map of California, Bakersfield Sheet*, Scale 1:250,000.

CDMG. 1992b. *Peak Acceleration from Maximum Credible Earthquakes in California (Rock and Stiff-Soil Sites)* (Prepared for Internal Use by Caltrans), DMG Open-File Report 92-1.

CDMG. 1994b. *Update of Mineral Land Classification of Portland Cement Concrete Aggregate on Ventura, Los Angeles, and Orange Counties, California,* DMG, Open-File Report 94-14.

CDMG. 1996. *Probabilistic Seismic Hazard Assessment for the State of California*, DMG Open-File Report 96-08, USGS Open-File Report 96-706.

CDMG. 1998. *Gold Districts of California*, Sesquicentennial Edition, California Gold Discovery to Statehood, Bulletin 193.

CDMG. 1999. *Fault Activity Map of California and Adjacent Areas with Locations and Ages of Recent Volcanic Eruptions, Scale: 1:750,000.*

CDMG. 1999. *Mines and Mineral Producers Active in California (1997-1998)*, Special Publication 103.

CDOGGR (California Division of Oil, Gas, and Geothermal Resources). 2005. Oil and Gas Field Maps. http://www.consrv.ca.gov./dog.

COI, 2006a – City of Industry, *Initial Study for 911 Bixby Drive Building Demolition,* January 31, 2006.

DWR (California Department of Water Resources). 1990. *Black and White Aerial Photos of the Edmonston Pumping Plant and Vicinity*, Aerial photos flight designation WR-AXB nos. 1-1 through 1-3, dated June 2, 2990, scale 1:30,000.

EME 2005a – Edison Mission Energy/GPL:bpm (tn: 35950). Walnut Creek Energy Park AFC. 11/21/2005. Rec'd 11/22/2005.

FEMA (Federal Emergency Management Agency). 1986. *Flood Insurance Rate Map No. 065035*, dated September 29, 1986.

Geologic Map of Santa Ana Sheet, Olaf Jenkens Edition, 1992. Compiled by Rodgers, 1965, California Division of Mines and Geology.

ICBO (International Conference of Building Officials). 1998. *Map of Known Active Fault Near-Source Zones in California and Adjacent Portions of Nevada.*

Jennings, Charles W., and George J. Saucedo. 2002. *Simplified Fault Activity Map of California, Map Sheet 54*. California Geological Survey.

Morton, D.M. and F.K. Miller, 2003. Preliminary digital geologic map of the San Bernardino 30' x 60' quadrangle, California, version 1.0. *United States Geological Survey Open-File Report* 03-293. 189 p.

NOAA (National Oceanic and Atmospheric Administration). 1973. *Precipitation-Frequency Atlas of the Western United States, Volume XI-California*, Figure 43.

Norris, R. M. and R. W. Webb. 1990. *Geology of California*. Second Edition. John Wiley and Sons. New York.

Oskin, M., Sieh, K., Rockwell, T., Miller, G., Guptill, P., Curtis, M., McArdle, S., and Elliot, P., 2000. *Active Parasitic Folds on the Elysian Park Anticline; Implications for Seismic Hazard in Central Los Angeles, California*; Geologic Society of America Bulletin, v. 112, No. 5, p. 693-707.

SCEC (Southern California Earthquake Center). Data Center Website: scecde.scec.org/whittier.html.

Shaw, J.H., Plesch, A., Dolan, J., Pratt, T.L., and Fiore, P., 2002. *Puente Hills Blind Thrust System, Los Angeles, California*; Seismological Society of American Bulletin, V.92, p. 2948-2960.

SVP (Society for Vertebrate Paleontology). 1995. *Measures for Assessment and Mitigation of Adverse Impacts to Non-Renewable Paleontologic Resources: Standard Procedures.*

Yeats, Robert S., 2004, *Tectonics of the San Gabriel Basin and Surroundings, Southern California,* GSA Bulletin, v. 116, no. 9/10.

Ziony, J.I., 1985, *Evaluating Earthquake Hazards in the Los Angeles Region-An Earth Science Perspective,* U.S.G.S. Professional Paper, 1360.

POWER PLANT EFFICIENCY

Steve Baker

SUMMARY OF CONCLUSIONS

The project, if constructed and operated as proposed, would generate a nominal 500 MW of peaking electric power, at an overall project fuel efficiency of 41.75 percent lower heating value (LHV) at maximum full load. While it will consume substantial amounts of energy, it will do so in the most efficient manner practicable. It will not create significant adverse effects on energy supplies or resources, will not require additional sources of energy supply, and will not consume energy in a wasteful or inefficient manner. No energy standards apply to the project. Staff therefore concludes that the project would present no significant adverse impacts upon energy resources.

INTRODUCTION

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

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

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

LAWS, ORDINANCES, REGULATIONS AND STANDARDS

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

SETTING

Walnut Creek Energy (WCE) proposes to construct and operate the 500 MW (nominal net output) simple cycle WCEP, enhancing power supply reliability in the Southern California electricity market by providing peaking power and power quality services, such as automatic generation control, during periods of high demand (hot summer days) (EME 2005a, AFC §§ 1.4, 2.1.16, 9.1, 10.2.2, 10.3). WCE will sell energy through contracts and into the merchant power market (EME 2005a, AFC § 2.1.16). The project will consist of five General Electric (GE) LMS100 gas turbine generators and ancillary

equipment. The applicant intends for the project to operate at annual capacity factors between 20 and 40 percent (EME 2005a, AFC §§ 2.1.16, 10.2.2, 10.3). Each gas turbine will be equipped with evaporative inlet air cooling and compressor intercooling (via a five-cell evaporative cooling tower) to enhance power, as well as combustor water injection and selective catalytic reduction (SCR) to control oxides of nitrogen emissions (EME 2005a, AFC §§ 1.1, 2.1.2, 2.1.4.1, 2.1.4.2, 2.3.2.1.1).

The project will be constructed on an industrial site currently occupied by a warehouse. The site is served by road and rail access, and has immediate access to natural gas, electric transmission, and reclaimed and potable water (EME 2005a, AFC § 1.1, 2.0).

ASSESSMENT OF IMPACTS

METHOD AND THRESHOLD FOR DETERMINING SIGNIFICANCE OF ENERGY RESOURCES

CEQA Guidelines state that the environmental analysis "…shall describe feasible measures which could minimize significant adverse impacts, including where relevant, inefficient and unnecessary consumption of energy" (Cal. Code Regs., tit. 14, § 15126.4(a)(1)). Appendix F of the Guidelines further suggests consideration of such factors as the project's energy requirements and energy use efficiency; its effects on local and regional energy supplies and energy resources; its requirements for additional energy supply capacity; its compliance with existing energy standards; and any alternatives that could reduce wasteful, inefficient and unnecessary consumption of energy (Cal. Code regs., tit. 14, § 15000 et seq., Appendix F).
The inefficient and unnecessary consumption of energy, in the form of non-renewable fuels such as natural gas and oil, constitutes an adverse environmental impact. An adverse impact can be considered significant if it results in:

- adverse effects on local and regional energy supplies and energy resources;
- a requirement for additional energy supply capacity;
- noncompliance with existing energy standards; or
- the wasteful, inefficient and unnecessary consumption of fuel or energy.

PROJECT ENERGY REQUIREMENTS AND ENERGY USE EFFICIENCY

Any power plant large enough to fall under Energy Commission siting jurisdiction will consume large amounts of energy. Under average ambient conditions, the WCEP would burn natural gas at a nominal rate of 3,906 million Btu per hour LHV (EME 2005a, AFC Fig. 2.1-3; § 2.2.6). This is a substantial rate of energy consumption, and holds the potential to impact energy supplies. Under expected project conditions, electricity will be generated at a full load efficiency of approximately 42 percent LHV (EME 2005a, AFC Fig. 2.1-3; §§ 2.1.3, 10.3).

ADVERSE EFFECTS ON ENERGY SUPPLIES AND RESOURCES

The applicant has described its sources of supply of natural gas for the project (EME 2005a, AFC §§ 1.1, 2.0, 2.3.3, 6.0). Natural gas for the WCEP will be supplied from the

existing Southern California Gas Company (SoCalGas) natural gas transmission pipeline located within the project site. The SoCalGas natural gas system has access to gas from the Rocky Mountains, Canada and the Southwest. This represents a resource of considerable capacity; the SoCalGas gas supply system should prove an adequate source for a project of this size. Staff considers it highly unlikely that the project could pose a significant adverse impact on natural gas supplies in California.

Power plants are high value gas consumers. Should gas supplies or gas transport capacity fall short, power plants would not be curtailed until after most or all industrial and commercial users had been curtailed. Given SoCalGas's extensive system and its drive to continually improve its supply and delivery capabilities, staff does not envision the project suffering significant risk of gas supply curtailment.

ADDITIONAL ENERGY SUPPLY REQUIREMENTS

Natural gas fuel will be supplied to the project by an existing 30-inch diameter SoCalGas transmission pipeline via a new 14-inch diameter interconnection (EME 2005a, AFC §§ 2.0, 6.0). This is a resource with adequate delivery capacity for a project of this size. There is no real likelihood that the WCEP will require the development of additional energy supply capacity.

COMPLIANCE WITH ENERGY STANDARDS

No standards apply to the efficiency of the WCEP or other non-cogeneration projects.

ALTERNATIVES TO REDUCE WASTEFUL, INEFFICIENT AND UNNECESSARY ENERGY CONSUMPTION

The WCEP could be deemed to create significant adverse impacts on energy resources if alternatives existed that would reduce the project's use of fuel. Evaluation of alternatives to the project that could reduce wasteful, inefficient or unnecessary energy consumption first requires examination of the project's energy consumption. Project fuel efficiency, and therefore its rate of energy consumption, is determined by the configuration of the power producing system and by the selection of equipment used to generate power.

Project Configuration

The project objective is to support power supply reliability in the Southern California market by providing peaking power and power quality services, such as automatic generation control, during periods of high demand (hot summer days) (EME 2005a, AFC §§ 1.4, 2.1.16, 9.1, 10.2.2, 10.3). A simple-cycle configuration is consistent with this objective. The WCEP will be configured as five simple-cycle power plants in parallel, in which electricity is generated by five natural gas-fired turbine generators (EME 2005a, AFC §§ 1.1, 2.0, 2.1.2, 2.1.4.1). This configuration, with its short start-up time and fast ramping[1] capability, is well suited to providing peaking power. Further, when reduced output is required, one or more turbine generators can be shut down, allowing the remaining machine(s) to produce a percentage of the full power at optimum

[1] Ramping is increasing and decreasing electrical output to meet fluctuating load requirements.

efficiency, rather than operating a single, larger machine at a less efficient part load output.

The applicant intends for this facility to operate in peaking duty at an annual capacity factor between 20 and 40 percent for the five combustion turbines (EME 2005a, AFC §§ 2.1.16, 10.2.2, 10.3). This is equivalent to each machine running between 1,750 and 3,500 hours per year. In order to evaluate the validity of this expectation, staff has gathered actual operating statistics on large simple cycle gas turbine peaking plants in California. Actual capacity factors for the year 2005 are displayed in **Table 1** below:

Table 1: Capacity Factors of California Peakers Over 40 MW (non-cogen) Calendar Year 2005

Facility Name	Generating Capacity (MW)	Capacity Factor (%)	**Equivalent Hours**
McClure	142.4	1.4	**127**
Potrero Power	156	3.3	**288**
Mandalay	138	2.4	**208**
Grayson (City of Glendale)	49.3	4.2	**369**
Harbor (City of Los Angeles)	282	1.2	**102**
Glenarm	178.6	1.7	**150**
McClellan	77	10.0	**878**
Olive	62.2	6.3	**554**
Coachella	92.4	0.9	**83**
Oakland Power Plant	223.5	1.9	**163**
Redding Power	65.6	0.1	**13**
Almond Power Plant (Turlock Irrigation District)	49.5	24.9	**2,180**
NCPA CT Project No. 2	50	7.9	**695**
Alameda	49.8	2.0	**177**
Roseville (NCPA)	50.4	0.3	**26**
Anaheim GT	49.2	12.3	**1,078**
Rockwood	49.8	0.9	**79**
Ellwood	58	0.2	**19**
Vaca Dixon No. 1	49.5	1.0	**84**
Panoche No. 2	49.5	0.9	**81**
Border	49.5	1.9	**163**
El Cajon No. 6	48.7	2.2	**189**
Enterprise No. 7	49	1.6	**137**
Indigo Energy Facility	149.7	4.2	**372**
Larkspur Energy Facility	99.8	3.5	**304**
Creed Energy Center	47	2.2	**197**
Lambie Energy Center	47	3.7	**324**
Goose Haven Energy Center	47	2.5	**220**
Hanford Energy Park Peaker	92.2	3.9	**346**
Los Esteros C.E.F.	180	17.0	**1488**
Henrietta Peaker	98	1.5	**130**

Facility Name	Generating Capacity (MW)	Capacity Factor (%)	**Equivalent Hours**
Gilroy Peaking Energy Center	135	4.3	**381**
King City Peaking	47.3	3.8	**329**
Yuba City Energy Center	47.3	8.4	**732**
Feather River Energy Center	47	3.1	**272**
Wolfskill Energy Center	47	3.8	**335**
Panoche Peaker	49.9	0.9	**80**
Gates Peaker	46.5	2.3	**202**
Century Generating Facility	44.8	0.4	**32**
Drews Generating Facility	44.8	0.3	**28**
Riverview Energy Center	47	4.9	**431**
Springs Generating Station (City of Riverside)	**40**	**0.6**	**51**

Source: EIA Annual Electric Generator Report, 2005

As seen in the table, most of California's peakers operate at very low capacity factors; only four of the units surveyed showed capacity factors of ten percent or greater. Note that while these figures are smaller than the capacity factor predicted by the applicant, California's grid controllers are predicting increased need for peaking capacity in coming years. In addition, the WCEP will be more fuel efficient than its competition, and thus more likely to be economically dispatched. Staff thus believes that the applicant's prediction of project capacity factor is valid.

In response to staff concerns regarding visible plumes during colder months (October through March), the applicant has claimed that the WCEP is unlikely to see significant dispatch during this period. The Energy Commission has noted the seasonality of California's demand for peaking power. In the 2005 Integrated Energy Policy Report (2005 IEPR) is a discussion of the "peakiness" of California's power demand, pointing out that " [e]lectricity demand in California increases most dramatically in the summer, driven by high air conditioning loads." (2005 IEPR, p. 49) Efficiency staff thus agrees with the applicant that the WCEP will likely see dispatch chiefly in the warmer months.

Equipment Selection

Modern gas turbines embody the most fuel-efficient electric generating technology available today. The WCEP will employ five GE LMS100 gas turbine generators, the newest and most efficient such machine available (EME 2005a, AFC §§ 1.1, 1.4, 2.0, 2.1.2, 2.1.3, 9.1, 10.3). This model of the LMS100[2] is nominally rated at 103 MW at a rated fuel efficiency of 43.8 percent (GTW 2005; Morton 2005). The WCEP will actually produce 478 MW (95.6 MW per machine) at a site rated fuel efficiency of 41.75 percent LHV, based on average annual weather conditions (EME 2005a, AFC Figure 2.1-3). This site rating differs from nominal figures due to power losses from parasitic loads, and to reduced system output due to flow losses caused by the inlet air cooling system and by the SCR unit installed on the exhaust of each turbine.

[2] The WCEP will employ LMS100s with single annular combustors equipped with water injection for NOx control.

Efficiency of Alternatives to the Project

Alternative Generating Technologies

Alternative generating technologies for the WCEP are considered in the AFC (EME 2005a, AFC § 9.6). Fossil fuels (coal and oil), hydroelectric, geothermal, biomass, wood waste, solar and wind power were all considered. For the peaking purposes of this project, Hydro and geothermal resources are not sufficient alternatives in Los Angeles County. Biomass and wood waste are not available in sufficient quantities. Solar and wind are not dispatchable, so are incapable of producing the ancillary services[3] needed. Coal and oil are too highly polluting to be viable in Los Angeles County (EME 2005a, AFC § 9.6.2). Staff agrees with the applicant that only natural gas-burning technologies are feasible for this project.

Natural Gas-Burning Technologies

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

Capital cost is also important in selecting generating machinery. Recent progress in the development of gas turbines, incorporating technological advances made in the development of aircraft (jet) engines, combined with the cost advantages of assembly-line manufacturing, has made available machines that not only offer the lowest available fuel costs, but at the same time sell for the lowest per-kilowatt capital cost.

The GE LMS100

The applicant will employ five General Electric LMS100 gas turbine generators in the WCEP (EME 2005a, AFC §§ 1.1, 2.0, 2.1.2, 2.1.4.1). The LMS100 gas turbine represents the most modern and efficient such machine now available. This machine is nominally rated at 103 MW and 43.8 percent efficiency LHV at ISO[4] conditions (GTW 2005; Morton 2005). (Staff compares alternative machines' ISO ratings as a common baseline, since project-specific ratings are not available for the alternative machines.)

In the LMS100, GE has taken a novel approach by combining technology from both aircraft engines and heavy industrial machines. Like most aeroderivatives, the LMS100 is basically a two-shaft engine, in which an initial low-pressure compressor section is driven by the final low-pressure turbine section. An independent high-pressure compressor section, spinning on a concentric shaft, is driven by the high-pressure turbine section. GE has done three things differently on the LMS100.

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[3] WCE proposes to provide dispatchable non-spinning reserve and automatic generation control services to the grid.

[4] International Standards Organization (ISO) standard conditions are 15°C (59°F), 60 percent relative humidity, and one atmosphere of pressure (equivalent to sea level).

First, while the high-pressure compressor and turbine spool is taken from an aero engine (the GE CF6-80C2 that powers the Boeing 747 and the CF6-80E1 that powers the Boeing 767), the low pressure spool is taken from GE's industrial Frame 6 machine. Where the airflow (and, thus, power output) of GE's popular LM6000 aeroderivative engine (see below) was limited by airflow through the low pressure spool, this limit is removed by substituting these parts from the Frame 6.

Second, GE has employed a much more effective compressor interstage cooling system. On the LM6000 SPRINT[5] machine, after air has been partially compressed in the low pressure compressor, it is evaporatively cooled by spraying water into the interstage space. Since the air entering the high pressure compressor is now cooler than it would be without intercooling, less power is required to drive the high pressure compressor. This leaves more power to drive the electric generator, increasing both power output and fuel efficiency. On the LMS100, GE ducts the air discharged from the low pressure compressor away from the machine, where it can be more effectively cooled by a separate cooling system (once-through, evaporative or dry cooling systems can be employed). The cooled air is then ducted back into the high pressure compressor.

Third, GE has provided a third shaft, independent of the first two spools, to carry the power turbine,[6] which is in turn coupled to the electric generator. On most aeroderivative gas turbine generators, the generator is coupled directly to the low pressure turbine shaft. Since the generator must turn at synchronous speed (3,600 rpm in North America), the low pressure spool must also turn at this speed. This restricts design of the machine, preventing the turbine from operating at optimum levels. Since the LMS100's power turbine (and generator) are not mechanically coupled to the low pressure spool, this spool is free to spin at optimum speed (approximately 5,300 rpm at full load) (Morton 2005).

The net result of these design improvements is a doubling of power output, a ten percent improvement in fuel efficiency, and much greater operating flexibility. Where other gas turbine generators' fuel efficiency drops off rapidly when the machine is operated at less than full load, the LMS100's efficiency suffers much less at lower output. Further, the machine is capable of ramping at high rates. The LMS100 can be operated at loads as low as ten percent (10 MW), then ramped up quickly. When running at half load (50 MW), the machine can reach full load of nearly 100 MW in less than a minute. In addition, the LMS100 can go from a cold start to full load in ten minutes. Such operating flexibility make this the most capable machine available for providing such ancillary services as peaking, load following and automatic generation control.

Alternatives to the LMS100

Alternative machines that can meet the project's objectives are the LM6000 SPRINT, the SGT-800 and the FT8 TwinPac, which are aeroderivative machines adapted from

[5] SPRINT stands for "spray intercooling."

[6] This configuration is common in helicopter engines.

General Electric, Siemens Power Generation and Pratt & Whitney aircraft engines, respectively.

The General Electric LM6000 SPRINT gas turbine generator in a simple cycle configuration is nominally rated at 50 MW and 40.5 percent efficiency LHV at ISO conditions (GTW 2005). The Pratt & Whitney FT8 TwinPac gas turbine generator in a simple cycle configuration is nominally rated at 51 MW and 38.4 percent efficiency LHV at ISO conditions (GTW 2005). The Siemens SGT-800 gas turbine generator in a simple cycle configuration is nominally rated at 45 MW and 37 percent efficiency LHV at ISO conditions (GTW 2005).

Machine	Generating Capacity (MW)	ISO Efficiency (LHV)
GE LMS100	**103**	**43.8 %**
GE LM6000PC SPRINT	50	40.5 %
P & W FT8 TwinPac	51	38.4 %
Siemens SGT-800	45	37.0 %

Source: GTW 2005; Morton 2005

While the LMS100 enjoys a significant advantage in fuel efficiency over these alternative machines, its operating flexibility makes it even more attractive for peaking, load following and ancillary service than these efficiency numbers reflect. Staff agrees with the applicant that the GE LMS100 is the most appropriate choice of machine for the WCEP.

The applicant also considered other gas-fired alternatives, such as the Rankine cycle (steam boiler and turbine), the combined cycle gas turbine, the Kalina Cycle, the Steam Injected Gas Turbine (STIG), the Humid Air Turbine (HAT) Cycle, and the Chemically Recuperated Gas Turbine (CRGT) (EME 2005a, AFC §§ 9.6.1.1 through 9.6.1.5). None can match the LMS100 in terms of fuel efficiency, operating flexibility, small space requirements and capital and operating costs.

Inlet Air Cooling

A further choice of alternatives involves the selection of gas turbine inlet air-cooling methods.[7] The two commonly used techniques are the evaporative cooler or fogger, and the chiller (mechanical or absorption); both techniques increase power output by cooling the gas turbine inlet air. In general terms, a mechanical chiller can offer greater power output than the evaporative cooler on hot, humid days, but consumes electric power to operate its refrigeration process, thus slightly reducing overall net power output and, thus, overall efficiency. An absorption chiller uses less electric power, but necessitates the use of a substantial inventory of ammonia. An evaporative cooler or a fogger boosts power output best on dry days; it uses less electric power than a mechanical chiller, possibly yielding slightly higher operating efficiency. The difference in efficiency among these techniques is relatively insignificant.

The applicant proposes to employ evaporative inlet air cooling and compressor interstage cooling (EME 2005a, AFC §§ 1.1, 2.0, 2.1.2, 2.1.4.1, 2.3.2.1.1, 9.6.4). Given

[7] A gas turbine's power output decreases as ambient air temperatures rise.

the climate at the WCEP site and the relative lack of superiority of one system over the other, staff agrees that the applicant's approach will yield no significant adverse energy impacts.

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

CUMULATIVE IMPACTS

Staff is unaware of any other nearby projects that could combine with the WCEP to create cumulative impacts on natural gas resources. As discussed above, the SoCalGas natural gas supply system is adequate to supply this project without adversely impacting its other customers.

NOTEWORTHY PUBLIC BENEFITS

The applicant proposes to enhance power supply reliability in the Southern California electricity market by providing peaking power and power quality services, such as automatic generation control, during periods of high demand (hot summer days) (EME 2005a, AFC §§ 1.4, 2.1.16, 9.1, 10.2.2, 10.3). By doing so in this most fuel-efficient manner, i.e., employing the most modern peaking gas turbine generator available, the WCEP will provide a benefit to the electric consumers of Southern California.

CONCLUSIONS

The project, if constructed and operated as proposed, would generate a nominal 500 MW of peaking electric power, at an overall project fuel efficiency of 41.75 percent LHV at maximum full load. While it will consume substantial amounts of energy, it will do so in the most efficient manner practicable. It will not create significant adverse effects on energy supplies or resources, will not require additional sources of energy supply, and will not consume energy in a wasteful or inefficient manner. No energy standards apply to the project. Staff therefore concludes that the project would present no significant adverse impacts upon energy resources. No cumulative impacts on energy resources are likely.

PROPOSED CONDITIONS OF CERTIFICATION

No conditions of certification are proposed.

REFERENCES

EME 2005a — Edison Mission Energy/GPL:bpm (tn:35950). Walnut Creek Energy Park AFC. 11/21/2005. Rec'd 11/22/05.

GTW 2005 — Gas Turbine World. *Gas Turbine World 2005 Performance Specs*, 23rd Edition, January 2005.

Morton 2005 — Presentation by Andrew Morton, GE Power Regional Sales Manager, Western US, to California Energy Commission staff, October 11, 2005.

Power 1994. "Operating and maintaining IPP/cogen facilities," *Power*, September 1994, p. 14.

POWER PLANT RELIABILITY

Steve Baker

SUMMARY OF CONCLUSIONS

Walnut Creek Energy (WCE) predicts an equivalent availability factor of 92 to 98 percent, which staff believes is achievable. Based on a review of the proposal, staff concludes that, once a reliable supply of reclaimed water has been ensured, the plant will be built and operated in a manner consistent with industry norms for reliable operation. This should provide an adequate level of reliability. No conditions of certification are proposed.

INTRODUCTION

In this analysis, Energy Commission staff addresses the reliability issues of the project to determine if the power plant is likely to be built in accordance with typical industry norms for reliability of power generation. Staff uses this level of reliability as a benchmark because it ensures that the resulting project would likely not degrade the overall reliability of the electric system it serves (see **Setting** below).

The scope of this power plant reliability analysis covers:

- equipment availability;
- plant maintainability;
- fuel and water availability; and
- power plant reliability in relation to natural hazards.

Staff examined the project design criteria to determine if the project is likely to be built in accordance with typical industry norms for reliability of power generation. While WCE has predicted an equivalent availability factor from 92 to 98 percent for the Walnut Creek Energy Park (WCEP) project (see below), staff uses typical industry norms as a benchmark, rather than WCE's projection, to evaluate the project's reliability.

LAWS, ORDINANCES, REGULATIONS AND STANDARDS

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

SETTING

In the restructured competitive electric power industry, the responsibility for maintaining system reliability falls largely to the State's control area operators, such as the California Independent System Operator (CAISO), that purchase, dispatch, and sell electric power throughout the State. How the CAISO and other control area operators will ensure system reliability is an ongoing process; protocols are being developed and put in place that will allow sufficient reliability to be maintained under the competitive market system.

“Must-run” power purchase agreements and “participating generator” agreements are two mechanisms being employed to ensure an adequate supply of reliable power.

The CAISO also requires those power plants selling ancillary services, as well as those holding reliability must-run contracts, to fulfill certain requirements, including:

- filing periodic reports on plant reliability;
- reporting all outages and their causes; and
- scheduling all planned maintenance outages with the CAISO.

The CAISO’s mechanisms to ensure adequate power plant reliability apparently have been devised under the assumption that the individual power plants that compete to sell power into the system will each exhibit a level of reliability similar to that of power plants of past decades. However, there is cause to believe that, under free market competition, financial pressures on power plant owners to minimize capital outlays and maintenance expenditures may act to reduce the reliability of many power plants, both existing and newly constructed (McGraw-Hill 1994). It is possible that, if significant numbers of power plants were to exhibit individual reliability sufficiently lower than this historical level, the assumptions used by CAISO to ensure system reliability would prove invalid, with potentially disappointing results. Until the restructured competitive electric power system has undergone an adequate shakeout period, and the effects of varying power plant reliability are thoroughly understood and compensated for, staff will recommend that power plant owners continue to build and operate their projects to the level of reliability to which all in the industry are accustomed.

As part of its plan to provide needed reliability, the applicant proposes to operate the 500 MW (nominal output) WCEP, a simple-cycle peaking power plant, providing reliable peaking power and ancillary services to the Southern California market (EME 2005a, AFC §§ 1.4, 2.1.16, 2.3.1, 10.2.2). The project is expected to achieve an equivalent availability factor (EAF) in the range of 92 to 98 percent, and is designed to operate between approximately 50 and 100 percent of base load. The project is projected to actually operate at capacity factors between 20 and 40 percent during each year of its operating life, being dispatched on-peak and mid-peak to serve at times of high demand (summer daytime) (EME 2005a, AFC §§ 2.1.2, 2.1.16, 2.3.1, 10.2.2).

ASSESSMENT OF IMPACTS

METHOD FOR DETERMINING RELIABILITY

The Energy Commission must make findings as to the manner in which the project is to be designed, sited and operated to ensure safe and reliable operation [Cal. Code Regs., tit. 20, § 1752(c)]. Staff takes the approach that a project is acceptable if it does not degrade the reliability of the utility system to which it is connected. This is likely the case if the project exhibits reliability at least equal to that of other power plants on that system.

The availability factor for a power plant is the percentage of the time that it is available to generate power; both planned and unplanned outages subtract from its availability. Measures of power plant reliability are based on its actual ability to generate power when it is considered available and are based on starting failures and unplanned, or forced, outages. For practical purposes, reliability can be considered a combination of these two industry measures, making a reliable power plant one that is available when called upon to operate. Throughout its intended 30-year life (EME 2005a, AFC § 2.3.1, 10.2.2), the WCEP will be expected to perform reliably. Power plant systems must be able to operate for extended periods without shutting down for maintenance or repairs. Achieving this reliability is accomplished by ensuring adequate levels of equipment availability, plant maintainability with scheduled maintenance outages, fuel and water availability, and resistance to natural hazards. Staff examines these factors for the project and compares them to industry norms. If they compare favorably, staff can conclude that the WCEP will be as reliable as other power plants on the electric system, and will therefore not degrade system reliability.

EQUIPMENT AVAILABILITY

Equipment availability will be ensured by use of appropriate quality assurance/ quality control (QA/QC) programs during design, procurement, construction and operation of the plant, and by providing for adequate maintenance and repair of the equipment and systems (discussed below).

Quality Control Program

The applicant describes a QA/QC program (EME 2005a, AFC § 2.3.5.2) typical of the power industry. Equipment will be purchased from qualified suppliers, based on technical and commercial evaluations. Suppliers' personnel, production capability, past performance, QA programs and quality history will be evaluated. The project owner will perform receipt inspections, test components, and administer independent testing contracts. Staff expects implementation of this program to yield typical reliability of design and construction. To ensure such implementation, staff has proposed appropriate conditions of certification under the portion of this document entitled **Facility Design**.

PLANT MAINTAINABILITY

Equipment Redundancy

A generating facility called on to operate for long periods of time must be capable of being maintained while operating. A typical approach for achieving this is to provide redundant examples of those pieces of equipment most likely to require service or repair.

The applicant plans to provide appropriate redundancy of function for the project (EME 2005a, AFC §§ 2.1.8, 2.1.13.3, 2.3.2.2, 2.3.2.3, 2.3.2.4, 2.3.2.5, 2.3.2.6; Table 2.3-1). The fact that the project consists of five combustion turbine-generators configured as independent equipment trains provides inherent reliability. A single equipment failure cannot disable more than one train, thus allowing the plant to continue to generate (at reduced output). Further, all plant ancillary systems are also designed with adequate

redundancy to ensure continued operation in the face of equipment failure. Staff believes that equipment redundancy will be sufficient for a project such as this.

Maintenance Program

The applicant proposes to establish a preventive plant maintenance program typical of the industry (EME 2005a, AFC §§ 2.3.1, 2.3.5.2, 6.3, 10.2.2). Equipment manufacturers provide maintenance recommendations with their products; the applicant will base its maintenance program on these recommendations. The program will encompass preventive and predictive maintenance techniques. Maintenance outages will be planned for periods of low electricity demand. In light of these plans, staff expects that the project will be adequately maintained to ensure acceptable reliability.

FUEL AND WATER AVAILABILITY

For any power plant, the long-term availability of fuel and of water for cooling or process use is necessary to ensure reliability. The need for reliable sources of fuel and water is obvious; lacking long-term availability of either source, the service life of the plant may be curtailed, threatening the supply of power as well as the economic viability of the plant.

Fuel Availability

The WCEP will burn natural gas from the Southern California Gas Company (SoCalGas) system. Natural gas fuel will be supplied to the project via a new 14-inch diameter interconnection from the existing 30-inch diameter high pressure SoCalGas Pipeline 2001 that crosses the site. This natural gas system represents a resource of considerable capacity and offers access to adequate supplies of gas from the Rocky Mountains, Canada and the Southwest (EME 2005a, AFC §§ 1.1, 2.0, 2.1.6, 2.3.3, 6.0, 10.2.1). SoCalGas strives continually to upgrade its gas supply and delivery capabilities. Further, power plants are high value gas consumers, and can be expected to be low on the list of customers to be curtailed should gas supplies tighten. Staff agrees with the applicant's prediction that there will be adequate natural gas supply and pipeline capacity to meet the project's needs.

Water Supply Reliability

The WCEP will use tertiary treated recycled water for cooling tower makeup, evaporative inlet air cooling makeup, combustor water injection and landscape irrigation. A 30-foot long 12-inch diameter tap will convey water from the Rowland Water District's existing 12-inch diameter supply pipeline adjacent to the project site. A 150,000-gallon storage tank will hold reclaimed water for use in the event of supply interruptions (EME 2005a, AFC §§ 1.1, 1.5.5, 2.0, 2.1.7.2, 7.1). Potable water will also be supplied by the Rowland Water District via a 30-foot long 4-inch diameter tap line (EME 2005a, AFC §§ 1.1, 2.3.4, 7.1). The Rowland Water District has provided a will-serve letter acknowledging that it will be able to provide the required water (EME 2005a, AFC § 2.0; App. 7A). The source of reclaimed water will be Rowland's San Jose Creek Wastewater Reclamation Plant, supplemented by impaired well water from two existing ground wells (CH2MHILL 2006d). (For further discussion of water supply, see the **Soil and Water Resources** section of this document.)

POWER PLANT RELIABILITY IN RELATION TO NATURAL HAZARDS

Natural forces can threaten the reliable operation of a power plant. High winds, tsunamis (tidal waves), seiches (waves in inland bodies of water), and flooding will not likely represent a hazard for this project. High winds are historically not a problem in this region; the site lies too far from the ocean and from inland bodies of water to be endangered by tsunami or seiche; and the site lies in neither a 100-year nor a 500-year floodplain (EME 2005a, AFC § 2.2.1). Seismic shaking (earthquake), on the other hand, may present a credible threat to reliable operation.

Seismic Shaking

The site lies within Seismic Zone 4 (EME 2005a, AFC § 2.2.1); see that portion of this document entitled **Geology, Mineral Resources, and Paleontology**. The project will be designed and constructed to the latest appropriate LORS (EME 2005a, AFC §§ 2.2.1, 10.4; Table 10.4-1; App. 10). Compliance with current LORS applicable to seismic design represents an upgrading of performance during seismic shaking compared to older facilities, due to the fact that these LORS have been periodically and continually upgraded. By virtue of being built to the latest seismic design LORS, this project will likely perform at least as well as, and perhaps better than, existing plants in the electric power system. Staff has proposed conditions of certification to ensure this; see that portion of this document entitled **Facility Design**. In light of the historical performance of California power plants and the electrical system in seismic events, staff believes there is no special concern with power plant functional reliability affecting the electric system's reliability due to seismic events.

Flooding

The site does not lie within either a 100-year or a 500-year floodplain, and is classified by FEMA as flood class "D," a moderate to minimal hazard area (EME 2005a, AFC §§ 2.2.1, 8.15.1.3). Staff believes there are no concerns with power plant functional reliability due to flooding. For further discussion, see **Soil and Water Resources** and **Geology and Paleontology**.

COMPARISON WITH EXISTING FACILITIES

Industry statistics for availability factors (as well as many other related reliability data) are kept by the North American Electric Reliability Council (NERC). NERC continually polls utility companies throughout the North American continent on project reliability data through its Generating Availability Data System (GADS), and periodically summarizes and publishes the statistics on the Internet (http://www.nerc.com). NERC reports the following summary generating unit statistics for the years 1999 through 2003 (NERC 2005):

For Gas Turbine units (All MW sizes):

Equivalent Availability Factor = 88.37 percent

The gas turbines that will be employed in the project are new on the market. GE is pursuing a development program for the LMS100 that is nearly unprecedented[1] in the gas turbine industry. New turbines typically undergo only systems tests during development, leaving final testing and shakedown to the initial commercial units. After the costly problems that attended the release of GE's Frame 7F machine in the mid-1990s, GE has now committed to build and own the initial LMS100 power plant itself. Only after the machine has been thoroughly tested and proven will GE sell this initial plant to its ultimate owner, and proceed to deliver LMS100 machines to additional customers. That first machine, destined for the Basin Electric Power Cooperative's Groton, South Dakota station, was delivered in late 2005 and has been turned over to its new owner (POWER 2005, Morton 2004).

The applicant's prediction of an equivalent availability factor of 92 to 98 percent (EME 2005a, AFC §§ 2.3.1, 10.2.2) appears reasonable compared to the NERC figure for similar plants throughout North America (see above). In fact, these new machines can well be expected to outperform the fleet of various (mostly older) gas turbines that make up the NERC statistics. Further, since the plant will consist of five parallel gas turbine generating trains, maintenance can be scheduled during those times of year when the full plant output is not required to meet market demand, typical of industry standard maintenance procedures. The applicant's estimate of plant availability, therefore, appears realistic. The stated procedures for assuring design, procurement and construction of a reliable power plant appear to be in keeping with industry norms, and staff believes they are likely to yield an adequately reliable plant.

NOTEWORTHY PROJECT BENEFITS

The applicant proposes to enhance power supply reliability in the Southern California electricity market by providing peaking power and power quality services, such as automatic generation control, during periods of high demand (hot summer days) (EME 2005a, AFC §§ 1.4, 2.1.16, 9.1, 10.2.2, 10.3). The fact that the project consists of five combustion turbine generators configured as independent equipment trains provides inherent reliability. A single equipment failure cannot disable more than one train, thus allowing the plant to continue to generate (at reduced output).

Although the gas turbines that will be employed in the project are new on the market, they can be expected to exhibit typically high availability due to the unique program GE is pursuing to ensure a reliable machine. The applicant's prediction of an equivalent availability factor of 92 to 98 percent appears reasonable compared to the NERC figure for similar plants throughout North America (see above). Staff believes this should provide an adequate level of reliability.

[1] GE has taken this same approach on the initial Frame 7H machines being installed at the Inland Empire Energy Center project in Riverside County, CA.

CONCLUSION

WCE predicts an equivalent availability factor of 92 to 98 percent, which staff believes is achievable. Based on a review of the proposal, staff concludes that the plant would be built and operated in a manner consistent with industry norms for reliable operation, and should provide an adequate level of reliability. No conditions of certification are proposed.

PROPOSED CONDITIONS OF CERTIFICATION

No conditions of certification are proposed.

REFERENCES

CEC 2006e — California Energy Commission/E. Knight (tn: 36505). CEC Staff's Data Requests (1-97). POS. 03/10/2006. Rec'd 03/10/2006.

CH2MHILL 2006b — CH2MHILL/D. Davy (tn: 37046). Supplemental Data Responses (set 1-97), Responses to Workshop Questions, and Data Responses 98-99. 05/31/06. Rec'd 05/31/06.

CH2MHILL 2006d – CH2MHILL/D.M. Davy, Ph.D. (tn: 37786). Supplement III in Response to Data Request 1 – 104 and April 25 Workshop queries in support of the Application for Certification for the Walnut Creek Energy Park. 09/01/2006. Rec'd 09/01/2006.

EME 2005a — Edison Mission Energy/GPL:bpm (tn: 35950). Walnut Creek Energy Park AFC. 11/21/06. Rec'd 11/22/06.

McGraw-Hill 1994 — McGraw-Hill Energy Information Services Group. Operational Experience in Competitive Electric Generation, an Executive Report, 1994.

Morton 2004 — E-mail from Andrew Morton, GE Power Regional Sales Manager, Western US, to Steve Baker, California Energy Commission staff, 12/8/04.

NERC 2005 — North American Electric Reliability Council. 1999-2003 Generating Availability Report.

POWER 2006 — *Power Engineering*, February 2006. Pages 9-10.

TRANSMISSION SYSTEM ENGINEERING

Sudath Arachchige and Mark Hesters

SUMMARY OF CONCLUSIONS

The proposed Walnut Creek Energy Park (WCEP) outlet transmission lines and termination are acceptable and would comply with all applicable laws, ordinances, regulations, and standards (LORS).

Other than transmission facilities proposed by the applicant, no transmission facilities requiring California Environmental Quality Act (CEQA) review would be needed for the interconnection of the WCEP.

- The interconnection of the project to the transmission grid may result in the need to upgrade or replace ten 230-kV circuit breakers within the fence line of Southern California Edison's (SCE) Mesa Substation.
- Identified overloads could be mitigated by the replacement of disconnect switches and wave traps at the SCE Center and Olinda Substations.
- CA ISO review of the SIS will be discussed in staff's final transmission assessment of the WCEP.

INTRODUCTION

STAFF ANALYSIS

The Transmission System Engineering (TSE) analysis examines whether or not the facilities associated with the proposed interconnection conform to all applicable LORS required for safe and reliable electric power transmission. Additionally, under the CEQA, the Energy Commission must conduct an environmental review of the "whole of the action," which may include facilities not licensed by the Energy Commission (California Code of Regulations, title 14, §15378). Therefore, the Energy Commission must identify the system impacts and necessary new or modified transmission facilities downstream of the proposed interconnection that is required for interconnection and which represent the "whole of the action."

Energy Commission staff relies on the interconnecting authority, in this case the CA ISO, for the analysis of impacts on the transmission grid from the proposed interconnection as well as the identification and approval of new or modified facilities downstream required as mitigation measures. The proposed WCEP would connect to the SCE transmission network and requires analysis by SCE and approval of the California Independent System Operator (CA ISO).

SOUTHERN CALIFORNIA EDISON'S ROLE

SCE is responsible for ensuring electric system reliability in its system for addition of the proposed transmission modifications and determines both the standards necessary to achieve reliability and whether the proposed transmission modifications conform to

those standards. SCE will provide the analysis and reports in its System Impact and Facilities studies, and its approval for the facilities and changes required in its system for addition of the proposed transmission modifications.

CA ISO'S ROLE

The CA ISO is responsible for ensuring electric system reliability for all participating transmission owners and is also responsible for developing the standards necessary to achieve system reliability. It will review the studies of the SCE system to ensure adequacy of the proposed transmission interconnection.

The CA ISO will determine the reliability impacts of the proposed transmission modifications on the SCE transmission system in accordance with all applicable reliability criteria. According to the CA ISO Tariffs, it will determine the "Need" for transmission additions or upgrades downstream from the interconnection point to insure reliability of the transmission grid. The CA ISO will, therefore, review the System Impact Study (SIS) performed by SCE and/or any third party, provide their analysis, conclusions and recommendations, and issue a preliminary approval or concurrence letter to SCE. On completion of the SCE Facilities Study (FS), the CA ISO will review the study results; provide their conclusions and recommendations and issues final approval/disapproval letter for the interconnection of the proposed WCEP. If necessary, the CA ISO will provide written and verbal testimony on their findings at the Energy Commission hearings.

LAWS, ORDINANCES, REGULATIONS AND STANDARDS

- North American Electric Reliability Council (NERC) Reliability Standards for the bulk electric systems of North America provide national policies, standards, principles and guides to assure the adequacy and security of the electric transmission system. The NERC planning standards provide for system performance levels under normal and contingency conditions. With regard to power flow and stability simulations, while these Standards are similar to NERC/WECC Planning Standards, certain aspects of the NERC/WECC standards are either more stringent or more specific than the NERC standards for Transmission System Contingency Performance. The NERC planning standards apply not only to interconnected system operation but also to individual service areas (NERC 2006).
- NERC/WECC Planning Standards: The Western Electricity Coordinating Council (WECC) Planning Standards are merged with the NERC Reliaiblity 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 include the reliability criteria for system adequacy and security, system modeling data requirements, system protection and control, and system restoration. Analysis of the WECC system is based to a large degree on Section I.A of the standards, "NERC and WECC Planning Standards with Table I and WECC Disturbance-Performance Table" and on Section I.D, "NERC and WECC Standards for Voltage Support and Reactive

Power". These standards require that the results of power flow and stability simulations verify defined performance levels. Performance levels are defined by specifying the allowable variations in thermal loading, voltage and frequency, and loss of load that may occur on systems during various disturbances. Performance levels range from no significant adverse effects inside and outside a system area during a minor disturbance (loss of load or a single transmission element out of service) to a level that seeks to prevent system cascading and the subsequent blackout of islanded areas during a major disturbance (such as loss of multiple 500 kV lines along a common right of way, and/or multiple generators). While controlled loss of generation or load or system separation is permitted in certain circumstances, their uncontrolled loss is not permitted (WECC 2002).

- California Public Utilities Commission (CPUC) General Order 95 (GO-95), "Rules for Overhead Electric Line Construction," formulates uniform requirements for construction of overhead lines. Compliance with this order ensures adequate service and safety to persons engaged in the construction, maintenance, operation, or use of overhead electric lines and to the public in general.
- California Public Utilities Commission (CPUC) General Order 128 (GO-128), "Rules for Underground Electric Line Construction," formulates uniform requirements for construction of underground lines. Compliance with this order ensures adequate service and safety to persons engaged in the construction, maintenance, operation, or use of overhead electric lines and to the public in general.
- National Electric Safety Code 1999 provides electrical, mechanical, civil and structural requirements for overhead electric line construction and operation.
- CA ISO Planning Standards also provide standards, and guidelines to assure the adequacy, security and reliability in the planning of the CA ISO transmission grid facilities. The CA ISO Planning Standards incorporate the merged NERC and WECC Planning Standards. With regard to power flow and stability simulations, the CA ISO Planning Standards are similar to NERC/WECC and the NERC Planning Standards for Transmission System Contingency Performance. However, the CA ISO Standards also provide some additional requirements that are not found in the NERC/WECC or NERC Planning Standards. The CA ISO Standards apply to all participating transmission owners interconnecting to the CA ISO controlled grid. It also applies when there are any impacts to the CA ISO grid due to facilities interconnecting to adjacent controlled grids not operated by the CA ISO (CA ISO 2002a).
- CA ISO/FERC Electric Tariff provides guidelines for construction of all transmission additions/upgrades (projects) within the CA ISO controlled grid. The CA ISO determines the "Need" for the proposed project where it will promote economic efficiency or maintain System Reliability. The CA 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 CA ISO grid.

PROJECT DESCRIPTION

The proposed WCEP would be a simple-cycle power generating facility located in the City of Industry, Los Angeles County, California. The WCEP would consist of five

combustion turbine generators with a nominal output of approximately 500 MW. Each generating unit would be connected to a dedicated 78/104/130 MVA step up (13.8/220-kV) transformer and the high voltage terminals of the transformer would be connected to gas insulated (SF6) circuit breakers. The circuit breakers would be connected through disconnect switches to the overhead cables which would connect to SCE's Walnut Substation. Power would be distributed to the grid via transmission lines from the Walnut Substation. (EME 2005a, AFC section 2-1 and 5-1).

SCE has proposed two generation tie-line options to interconnect WCEP to the Walnut substation. (WCEP DRR supplement, Figure WSQ-11)

- Option 1 runs due west from the WCEP switchyard within the existing SCE transmission corridor for about 700 feet, then turns south to cross the Union Pacific Railroad and connect with the northwest corner of the Walnut substation. The proposed 1170 feet long 230kV line with 1590ACSR conductor would be built on five support towers along SCE's existing transmission corridor adjacent to Walnut substation.
- Option 2 would run first south from the WCEP switchyard, across the railroad, then turn west to run just north of the northern boundary of the substation to the northwest corner of the substation, turning south to connect. The proposed 1220 feet long 230kV line with 1590ACSR conductor would be built on five support towers along SCE's existing transmission corridor adjacent to Walnut substation.

ASSESSMENT OF IMPACTS AND DISCUSSION OF MITIGATION

For the interconnection of a proposed generating unit or transmission facility to the grid, the interconnecting utility (SCE in this case) and the control area operator (CA ISO) are responsible for ensuring grid reliability. These entities determine the transmission system impacts of the proposed project, and any mitigation measures needed to ensure system conformance with performance levels required by utility reliability criteria, NERC planning standards, WECC reliability criteria, and CA ISO reliability criteria. A SIS and a FS are used to determine the impacts of the proposed project on the transmission grid. Staff relies on the studies and any review conducted by the CA ISO to determine the projects effect on the transmission grid and to identify any necessary downstream facilities or indirect project impacts required to bring the transmission network into compliance with applicable reliability standards.

The SIS and FS analyze the grid with and without the proposed project under conditions specified in the planning standards and reliability criteria. The standards and criteria define the assumptions used in the study and establish the thresholds through which grid reliability is determined. The studies must analyze the impact of the project for the proposed first year of operation and thus are based on a forecast of loads, generation and transmission. Load forecasts are developed by the interconnecting utility and the CA ISO. Generation and transmission forecasts are established by an interconnection queue. The studies are focused on thermal overloads, voltage deviations, system stability (excessive oscillations in generators and transmission system, voltage collapse, loss of loads or cascading outages), and short circuit duties.

If the studies show that the interconnection of the project causes the grid to be out of compliance with reliability standards then the study will identify mitigation alternatives or ways in which the grid could be brought into compliance with reliability standards. When a project connects to the CA ISO controlled grid, both the studies and mitigation alternatives must be reviewed and approved by the CA ISO. If the mitigation identified by CA ISO or interconnecting utility includes transmission modifications or additions which require CEQA review as the "whole of the action," the Energy Commission must analyze the environmental impacts of these modifications or additions.

STATUS OF SCE STUDIES

SCE has completed the SIS and has identified mitigation measures for all identified overloads. Staff is uncertain on the status of the FS but will update their analysis for the Final Staff Assessment.

STATUS OF CA ISO REVIEW

Staff has contacted the CA ISO but has not received the review of the SIS or the Preliminary Interconnection Approval letter. This letter will review the SIS, the study results and the proposed mitigation measures. If the CA ISO does not concur with the SIS, more study may be required and as yet determined mitigation measures may be needed.

SCOPE OF SYSTEM IMPACT STUDY

The SIS was performed by SCE at the request of Edison Mission Energy (EME) to identify the transmission system impacts caused by the WCEP project on SCE's 230/500kV system. The SIS included a Power Flow Study, Short Circuit Study, and Dynamic Stability Analysis (EME 2005a; Appendix 5a; EME 2006c). The study modeled the proposed WCEP for a net output of 500 MW. The base cases included all approved SCE, Los Angeles Department of Water and Power (LADWP) and San Diego Gas and Electric (SDG&E) major transmission projects. The detailed study assumptions have been described in the SIS. The Power Flow studies were conducted with and without the WCEP connected to the SCE grid at the Walnut Substation using 2008 Heavy Summer and 2008 Light Spring base cases. The Power Flow study assessed the project's impact on thermal loading of the transmission lines and equipment. Dynamic stability studies were conducted with the WCEP using the 2008 Heavy Summer and Light Spring base cases to determine whether the WCEP would create instability in the system following certain selected outages. Short circuit studies were conducted with and without the WCEP to determine if the WCEP would result in overstressing existing substation facilities.

Power Flow Study Results

The SIS identified pre-existing overloads in the power systems. The overloading problems affect transmission line facilities under single contingency (N-1) and double contingence (N-2) conditions (See definitions at the end of this document). Under the assumption that the pre-existing conditions are corrected, the SIS identified five conditions that require mitigation for the connection of, and power delivery from the WCEP to SCE's transmission system. The proposed mitigation measures for the post project conditions involve replacing wave traps and replacing disconnect switches with

equipment with higher ampacity ratings. Based on the SIS results, there are no adverse impacts under normal conditions of the network due to interconnection of the WCEP as proposed. Below are the study results and mitigation measures based on conducted contingency analysis.

Normal (N-0) Conditions

The SIS results indicated that pre-existing overloads would not be exacerbated under N-0 conditions in any of the four base case scenarios studied. The addition of the WCEP project does not have negative thermal impact on the system under N-0 condition.

Single Contingency/ N-1

Mesa – Walnut 230 kV Line: The outage of SCE's Mesa-Walnut 230-kV line overloads the SCE Center-Olinda 230kV transmission line by approximately 24 percent.

Mitigation: Overload of the Center-Olinda 230-kV line is mitigated by replacement of seven existing 1200A disconnect switches with 2000A disconnect switches and also by replacing two existing 2000A wave traps with 3000A wave traps within the existing fence line of the Center and Olinda Substations.

Double Contingency/ N-2

Chino – Mira Loma No.1 230 kV line: The double outage of SCE's Chino-Mira Loma No.2 230-kV and SCE's Chino-Mira Loma No.3 230-kV line overloads the Chino-Mira Loma No.1 230-kV transmission line by 1 percent.

- Mitigation: Overload of the Chino-Mira Loma 230-kV line is mitigated by removing one wave trap at Mira Loma Substation.

La Fresa – Hinson 230 kV line: The double outage of SCE's La Fresa - Rodendo No.1 230-kV and SCE's La Fresa - Rodendo No.2 230-kV line overloads the La Fresa - Hinson 230-kV line by 2 percent.

- Mitigation: Overload of the La Fresa - Hinson No.1 230 kV line is mitigated by replacing the existing 2000A wave traps with 3000A wave traps at each substation. These mitigation measures would occur within the fenceline of existing facilities and would not require CEQA review.

Dynamic Stability Study Results

Dynamic Stability studies for WCEP were conducted using 2008 Heavy Summer base case to determine if the WCEP would create any adverse impact on the stable operation of the transmission grid following selected N-1 and N-2 outages (EME 2005a, SIS).The results indicate there are no identified transient stability concerns on the transmission system following the selected disturbances, as outlined in the SIS for integration of the WCEP.

Post-Transient Power Flow Study Results

Post transient studies conducted for generators similar to or larger than WCEP in the area concluded that voltage remains stable under N-1 and N-2 contingencies. The post

transient studies did not indicate any voltage deviations from the SCE guidelines (7 percent for single contingency outages and 10 percent for double contingency outages).

Short Circuit Study Results

Short circuit studies were performed to determine the degree to which the addition of the WCEP project increases fault duties at SCE's substations, adjacent utility substations, and the other 230-kV and 500-kV busses within the study area. The busses at which faults were simulated, the maximum three phase and single line-to-ground fault currents at these busses both without and with the WCEP project, and information on the breaker duties at each location are summarized in the report. (EME 2005a, SIS, Page.12). The SIS indicates that addition of WCEP would increase the short circuit duty at eleven substations, but would only require replacement of breakers at the SCE's Mesa Substation.

COMPLIANCE WITH LORS

The SIS indicates that the project interconnection would comply with NERC/WECC planning standards and CA ISO reliability criteria. The applicant will design, build and operate the proposed 230kV overhead transmission line. The proposed modifications to the Walnut Substation would be done by SCE within the substation's fenced yard. Staff concludes that with implementation of the proposed conditions of certification, the project will meet the requirements and standards of all applicable LORS.

CONCLUSIONS AND RECOMMENDATIONS

The proposed WCEP outlet lines and termination are acceptable and would comply with all applicable LORS.

Other than the transmission facilities proposed by the applicant, no transmission facilities outside the fenceline of existing facilities would be needed for the reliable interconnection of the WCEP.

- The interconnection of the project may result in the need to upgrade or replace ten 230-kV circuit breakers within the fence line of the Mesa Substation.
- Identified overloads could be mitigated by the replacement of disconnect switches and wave traps at the Center and Olinda Substations.
- CA ISO review of the SIS will be included in staff's final transmission assessment of the WCEP.

If the Energy Commission approves the project, staff recommends the following conditions of certification to insure system reliability and conformance with LORS.

CONDITIONS OF CERTIFICATION FOR TSE

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

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

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

Table 1: Major Equipment List
Breakers
Step-up Transformer
Switchyard
Busses
Surge Arrestors
Disconnects
Take off facilities
Electrical Control Building
Switchyard Control Building
Transmission Pole/Tower
Grounding System

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

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

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

The electrical engineer shall:

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

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

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

TSE-3 If any discrepancy in design and/or construction is discovered in any engineering work that has undergone CBO design review and approval, the project owner shall document the discrepancy and recommend corrective action. (2001 California Building Code, Chapter 1, Section 108.4, Approval Required; Chapter 17, Section 1701.3, Duties and Responsibilities of the Special Inspector; Appendix Chapter 33, Section 3317.7, Notification of Noncompliance). The discrepancy documentation shall become a controlled document and shall be submitted to the CBO for review and approval and shall reference this condition of certification.

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

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

a) receipt or delay of major electrical equipment;

b) testing or energization of major electrical equipment; and

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

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

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

a) The existing Walnut Substation will require new 230kV breakers to facilitate interconnection of the WCEP. The WCEP will be interconnected to the SCE grid via a 230kV according to one of the following two options:

- A single 1170 feet long 230kV line with 1590ACSR conductor would be built on five support towers along SCE's existing transmission corridor adjacent to Walnut substation. Or,
- A single 1220 feet long 230kV line with 1590ACSR conductor would be built on five support towers along SCE's existing transmission corridor adjacent to Walnut substation.

b) 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", CA ISO standards, National Electric Code (NEC) and related industry standards.

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

d) 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.

e) The project conductors shall be sized to accommodate the full output from the project.

f) Termination facilities shall comply with applicable SCE interconnection standards.

g) The project owner shall provide to the CPM:

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

   ii) Executed project owner and CA ISO Facility Interconnection Agreement

h) A request for minor changes to the facilities described in this condition may be allowed if the project owner informs the CBO and CPM and receives approval for the proposed change. A detailed description of the proposed change and complete engineering, environmental, and economic rationale for the change shall accompany the request. Construction involving changed equipment or substation configurations shall not begin without prior written approval of the changes by the CBO and the CPM.

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

a) Design drawings, specifications and calculations conforming with CPUC General Order 95 or 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", CA 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 responsible charge, a route map, and an engineering

description of equipment and the configurations covered by requirements **TSE-5** a) through f) above.

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

e) At least 60 days prior to the construction of transmission facilities, the project owner shall inform the CBO and the CPM of any impending changes which may not conform to the facilities described in this condition and request approval to implement such changes.

TSE-6 The project owner shall provide the following Notice to the California Independent System Operator 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 CA ISO with a letter stating the proposed date of synchronization; and
2. At least one business day prior to synchronizing the facility with the grid for testing, provide telephone notification to the ISO Outage Coordination Department.

Verification: The project owner shall provide copies of the CA ISO letter to the CPM when it is sent to the CA ISO one week prior to initial synchronization with the grid. The project owner shall contact the CA 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 CA 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 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. 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 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.

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".

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

REFERENCES

CA ISO 1998a – CA ISO Tariff Scheduling Protocol posted April 1998, Amendments 1,4,5,6, and 7 incorporated.

CA ISO 1998b – CA ISO Dispatch Protocol posted April 1998.

CA ISO 2002a – CA ISO Grid Planning Standards, February 2002.

EME 2005a – Edison Mission Energy/GPL:bpm (tn: 35950). Walnut Creek Energy Park AFC. 11/21/2005. Rec'd 11/22/2005.

EME 2006c – Edison Mission Energy/Scilacci (tn: 36210). Supplement in Response to CEC Staff's Data Adequacy Comments on the AFC for the Walnut Creek Energy Park. 01/12/2006. Rec'd 01/13/2006.

NERC (North American Electric Reliability Council) 2006. Reliability Standards for the Bulk Electric Systems of North America, May 2 2006.

WECC (Western Electricity Coordinating Council) 2002. NERC/WECC Planning Standards, August 2002.

DEFINITION OF TERMS

AAC — All Aluminum conductor.

ACSR — Aluminum Conductor Steel-Reinforced.

SSAC — Steel-Supported Aluminum Conductor.

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

Ampere — The unit of current flowing in a conductor.

Bundled — Two wires, 18 inches apart.

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

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

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

Double Contingency — Also known as emergency or N-2 condition, occurs when a forced outage of two system elements usually (but not exclusively) caused by one single event. Examples of an N-2 contingency include loss of two transmission circuits on single tower line or loss of two elements connected by a common circuit breaker due to the failure of that common breaker.

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

Kcmil or KCM

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

Kilovolt (kV)

A unit of potential difference, or voltage, between two conductors of a circuit, or between a conductor and the ground.

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

Megavar One megavolt ampere reactive.

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

Megavolt ampere (MVA)

A unit of apparent power, equals the product of the line voltage in kilovolts, current in amperes, the square root of 3, and divided by 1000.

Megawatt (MW)

A unit of power equivalent to 1,341 horsepower.

N-0 Condition

See Normal Operation/Normal Overload

Normal Operation/ Normal Overload (N-0)

When all customers receive the power they are entitled to without interruption and at steady voltage, and no element of the transmission system is loaded beyond its continuous rating.

N-1 Condition

See Single Contingency.

N-2 Condition

See Double Contingency.

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

Power Flow Analysis

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

Reactive Power

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

Remedial Action Scheme (RAS)

A remedial action scheme is an automatic control provision, which, for instance, will trip a selected generating unit upon a circuit overload.

SF6 Sulfur hexafluoride is an insulating medium.

Single Contingency

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

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

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

Thermal rating
: See ampacity.

TSE
: Transmission System Engineering.

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

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

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

ALTERNATIVES

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SUMMARY OF FINDINGS

In the analysis of individual resource areas, the Preliminary Staff Assessment finds potential adverse impacts of the proposed Walnut Creek Energy Park project in the area of air quality. Based on this and other concerns, this section evaluates three alternative sites in detail. Additional alternatives were considered but eliminated from detailed analysis. The alternatives analyzed in detail are in the City of Industry, Los Angeles County (Grand Avenue Alternative and Valley Boulevard Railyards Alternative) and in the City of Rancho Cucamonga, San Bernardino County (Etiwanda Avenue Alternative). The No Project Alternative was evaluated as well.

The Walnut Creek project site and the Etiwanda Avenue Alternative site meet all project objectives. The Grand Avenue and Valley Boulevard Railyards sites meet most but not all objectives. At the Grand Avenue site, long linears would be needed. These are a reclaimed-water pipeline and a new transmission line to Walnut Substation. The Valley Boulevard Railyards site meets project objectives except with regard to potentially obtaining site control. The site is used by Union Pacific as a rail-truck intermodal container storage area and land for such a use is scarce.

In terms of environmental impact, all sites except the Grand Avenue Alternative are similar. However, given the assumed difficulty of obtaining site control at the Valley Boulevard Alternative site, the Walnut Creek project site and the Etiwanda Avenue Alternative are superior to the other two alternatives considered. In comparing the Walnut Creek site and the Etiwanda Avenue site, the Etiwanda Avenue site is somewhat superior. The principal distinction is with regard to solid waste generated and distance to residences and schools. The Etiwanda Avenue site requires little to no demolition, is already owned by SCE, and is farther from residential areas and schools. At the Walnut Creek site, an existing structure would be demolished and disposed of, the site is under agreement but not yet under control by SCE, and is comparatively closer to residential areas and schools. However, both sites meet all project objectives and both have less than significant impacts. They have similar potential air quality impacts.

Staff also believes that, overall, the No Project Alternative is not superior to the proposed project. The No Project scenario would likely delay development of peaking electrical power to address peak demand in the region and would not increase supply reliability.

INTRODUCTION

The purpose of staff's alternatives analysis is to consider whether there are alternatives that could feasibly attain most of the basic objectives of the proposed Walnut Creek Energy Park (WCEP) Project and avoid or substantially lessen one or more of the significant effects of the project. If the Energy Commission determines that the proposed project will result in significant adverse impacts and identifies an alternative that meets these criteria, it cannot license the project unless it finds that the benefits of

the project outweigh the impacts and that the alternative is infeasible. However, the Energy Commission does not have the authority to require alternative configurations, require alternative technology designs, or to require the applicant to move the proposed project to another location. If the applicant moves its proposed project to one of the alternative sites, Energy Commission staff will analyze any new proposed site at the same level of detail as the original proposed site.

LAWS, ORDINANCES, REGULATIONS, AND STANDARDS (LORS)

Energy Commission staff 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(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. The California Environmental Quality Act (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(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 Dist. 1989) 214 Cal. App. 3d 1438).

APPROACH

This alternatives analysis uses the following approach, based on guidance in the CEQA Deskbook (Bass et al. 1999):

- Describe the project objectives.
- Assess the proposed project's significant environmental effects.
- Develop screening criteria for feasibility of alternatives.
- Consider a broad range of alternatives, including the No Project Alternative, and select a reasonable range of alternatives that:
  - Meet some or all of the project objectives.
  - May be located on alternatives sites.
  - Substantially avoid or lessen one or more of the potential significant effects of the project; and
  - Are feasible based on specific economic, social, legal, or technical considerations.
- Explain why other alternatives have been rejected from evaluation.
- Provide meaningful evaluation and analysis of environmental impacts of the reasonable range of alternatives and the No Project Alternative in comparison with environmental effects of the proposed project.
- Identify the environmentally superior alternative.

PROJECT OBJECTIVES

Section 9 of the AFC identifies the project objectives for the WCEP. These are to:

- Cost-effectively provide the most efficient peaking capacity available to the southern California market cost effectively
- Provide peaking power to the grid to help meet the demand for electricity
- Minimize or eliminate the length of any project linears, including
  - Gas and water supply lines
  - Discharge lines
  - Transmission interconnections
- Help replace less efficient fossil fuel generation resources
- Enhance the reliability of the electrical system by providing peaking power generation near the centers of electrical demand.

The applicant has identified the newly available GE Energy LMS100 natural gas-fired turbine-generator as the most efficient technology available in the current market.

SUMMARY DESCRIPTION OF PROPOSED PROJECT

The proposed site is located on South Bixby Drive in the City of Industry, Los Angeles County. It covers approximately 11.48 acres, including a construction laydown area. The site is currently owned by the Industry Urban Development Agency, and is subject to a lease option agreement with Edison Mission Energy that would be assigned to its wholly-owned subsidiary, Walnut Creek Energy, LLC. The Walnut Creek site is within an existing industrial park and is zoned for industrial uses. An existing structure on the site is planned for demolition by the Development Agency.

SCE's Walnut Substation is immediately southwest of the project site, across existing rail lines. Interconnecting to the substation would require an approximately 600-foot-long transmission line connection. Infrastructure on or adjacent to the site that would serve the WCEP includes a high-pressure natural gas transmission line, a recycled water supply line, potable water, and a sanitary sewer trunk line. The terrain in the site vicinity is flat.

Although located in the City of Industry, the site is situated between two other communities, La Puente and Hacienda Heights. The Hacienda Heights area of Los Angeles County is the nearest residential area to the WCEP site and is approximately 1,000 feet south of the site, immediately south of East Gale Avenue. The City of La Puente is approximately 1,200 feet to the north of the site. With the exception of a commercial area between Old Valley Boulevard and East Valley Boulevard, the area is residential.

There are 13 schools within 1 mile of the site. The nearest school, Glenelder Elementary School, is located in Hacienda Heights. It is on Folger Street and is approximately 1,100 feet southwest of the site.

POTENTIAL SIGNIFICANT ENVIRONMENTAL IMPACTS AND AREAS OF IDENTIFIED PUBLIC CONCERN

In this PSA, staff has identified that the WCEP has the potential to cause significant impacts to air quality from power plant emissions. Air Quality Staff currently believes that the applicant has not secured sufficient mitigation for air quality impacts. Additionally, Energy Commission staff cannot conclude that the WCEP can be built to comply with all applicable noise laws, ordinances, regulations and standards, and that is will not cause significant adverse impacts. Staff's detailed assessments of the expected environmental consequences of the proposed project are discussed in the individual technical sections of the PSA.

The Energy Commission's Issues Identification Report identified air quality and water resources as issues at the WCEP site. The air quality issue concerned the ability to secure adequate criteria air pollutant mitigation for the project, located in South Coast Air Quality Management District. The water resources issue arose during data requests and concerned securing reliable reclaimed water supply. Subsequently, the issue of visual and safety impacts of plumes from water vapor condensation was identified, for

both ground-hugging plumes and airborne plumes, and concerns over reclaimed water availability were addressed.
Based on supplemental information to the AFC and staff assessments, the issues identified for water resources and visual safety impacts of plumes have been reduced to a less than significant level.

IDENTIFICATION AND SCREENING OF ALTERNATIVES

Staff used a two-stage process to select alternatives for analysis. First a reasonable range of alternatives was identified, and then these alternatives were screened to select those that qualified for detailed evaluation. Staff considered alternatives to the project that were identified by several sources, including the applicant, previous environmental documents, and Energy Commission staff. The following sections first describe alternatives suggested by the applicant, followed by alternative sites identified by staff. This PSA presents analysis of three site alternatives and the No Project Alternative.

The PSA also describes alternatives that were eliminated from detailed consideration by staff and presents an explanation of why these alternatives are not analyzed. These and other alternatives are found in Appendix A to this section. Alternatives that were eliminated from detailed consideration are:

- Two site alternatives in the general region of the project (three sites are retained for full analysis).
- Three site alternatives outside of the South Coast Air Quality Management District.
- Conservation and demand-side management.
- Generation technology alternatives (solar, wind, and biomass generation and Hydropower).

CONSIDERATION OF ALTERNATIVE SITES

For comparison purposes, and to meet the requirements of the CEQA and Energy Commission regulations, alternative sites were identified that could feasibly attain most of the project's basic objectives.

According to the AFC, the applicant used the criteria listed below to identify the project site and alternatives. Staff believes these criteria are appropriate for a screening level analysis of site alternatives. The primary criteria include the following factors:

- Location more than 1,000 feet from the nearest residential areas
- Location near the centers of demand for maximum efficiency and system benefit
- Land zoned for industrial use
- Access to tertiary treated wastewater for cooling water
- Location near electrical transmission facilities
- Location near reliable natural gas supply

- A parcel or adjoining parcels of sufficient size for a power plant and construction laydown areas
- Site control (lease or ownership) feasibility
- Minimize construction impacts to existing residences and businesses
- Feasible mitigation of potential environmental impacts.

ALTERNATIVES Figure 1 shows the location of the proposed WCEP and the alternatives evaluated in this PSA. ALTERNATIVES Figures 2, 3 and 4 show the setting for the three alternatives -- Grand Avenue Alternative, Valley Boulevard Railyards Alternative, and Etiwanda Avenue Alternative.

COMPARATIVE EVALUATION OF ALTERNATIVE SITES

ALTERNATIVE A: GRAND AVENUE

Site Description

Alternative A is near the intersection of North Grand Avenue and Baker Parkway, in the City of Industry, approximately 6.5 miles east of the WCEP site. This triangular-shaped site is located in the southwest corner of a new and undeveloped industrial park and is zoned for industrial uses. The 600-acre industrial park, known as the Industry Business Center, is located between the communities of Diamond Bar and Walnut. The Grand Avenue alternative location would occupy 32.3-acres, Parcel E-5 of the industrial park. A residential community is located approximately 0.25 mile east of the site. Property to the north is in industrial and commercial land uses. Land to the west and south is currently vacant. Two schools are within 1 mile of the site. The closest is Armstrong Elementary School, approximately 0.5 miles east of the site. A Little League Park is located approximately 1,000 feet northwest of the site.

Infrastructure Availability

The site is not located near a sufficient source of reclaimed water or near an electrical substation, and would require that offsite connections be built. A pipeline approximately 5-miles long would be needed to supply reclaimed water to the site, and a new 7-mile long transmission line would be needed to connect to Walnut Substation.

Environmental Assessment for Grand Avenue Alternative

Development Constraints: The basic needs of power plant siting for access to electrical transmission and cooling water are not met at the Grand Avenue Alternative site.

Air Quality: The quantity of emissions from project operation would be the same at any of the sites. Each of the sites has similar contributions to the regional airshed and would, therefore, be subject to similar review, emission reduction crediting, and permitting requirements. The Grand Avenue site is somewhat closer to complex terrain, but the effects of this could not be determined without detailed modeling. The differences between the sites in terms of their distances from the nearest residences should not make a significant difference in air quality impacts at these residences. Mitigation would bring any potential impacts to a level that is less than significant.

Biological Resources: The Grand Avenue site is currently open grassland that is in the process of being converted for industrial and commercial uses. It provides habitat for wildlife, but does not appear to contain wetlands or provide habitat for listed species.

Cultural Resources: There are no known cultural resources at the site. As a previously undeveloped site, there is an unknown possibility of finding cultural resources. Because mitigation measures would address the treatment and protection of cultural resources, it is reasonable to assume that each of the alternative sites has approximately the same cultural resources sensitivity, and that potential impacts would be less than significant.

Geological Resources and Hazards: There are no significant differences between the WCEP site and Alternative A in terms of geological resources and hazards. There are no geological resources located on or near the Grand Avenue site.

Hazardous Materials Handling: There would be no significant difference between the site locations in terms of hazardous materials handling. The use of hazardous materials would be the same for any of the sites. The routes and distances traveled for delivery would depend on the point of origin. While there might be slight differences in the distances that trucks carrying hazardous materials would travel to deliver the materials, these differences do not distinguish among the sites.

Land Use: The Grand Avenue Alternative site located in a highly developed urban area, but the site itself is not yet developed. Schools and residences are, over 2,500 and 1,300 feet from the site boundary, respectively.

Noise: Residential receptors for noise are approximately 1,300 feet from the site. There is intervening terrain between the site and residential areas to the east. Nearly all of the residences close to the Grand Avenue site are located on the other side of a hill from this location and as a result the noise would be attenuated for all but a few residences located near or on the hilltop.

Paleontology: The probability of encountering significant fossils is approximately the same at each site and would be assessed according to the guidelines detailed in the Cultural Resources section.

Public Health: The potential for public health effects is approximately the same from a power plant located at any of the sites.

Socioeconomics: At each of the sites, the number of workers, construction costs, payroll, and property tax revenues would be nearly the same. The majority of the workers would come from the greater San Gabriel Valley or Inland Empire areas. Most workers would commute daily or weekly to the plant site. Some may move temporarily to the local area during construction, causing site-specific impacts to schools, utilities, and emergency services. These impacts would be temporary.

Soils and Agriculture: The Grand Avenue site is currently undeveloped and was formerly grazing/open space. It is planned to be converted to industrial and commercial uses.

Traffic and Transportation: The site is well served by freeways and arterials. Approximately 3 employees would be working at a given time during project operation and will not significantly impact local traffic conditions. The peak number of employees during construction (228) will have more impact, but the impact will be temporary, and can be mitigated by transportation management planning. Construction of a 5-mile long

reclaimed water pipeline to supply cooling water would disrupt roads during installation. This would lead to lane closures and other traffic and speed controls where the pipeline is in a roadway.

Visual Resources: The site is not in an area with a protected viewshed or in a designated viewshed corridor. Existing use adjacent to the north of the site is industrial. The Grand Avenue site would be visible from some residences approximately 0.6 mile to the north, in Walnut. Views from the south would be blocked by hills except for a few houses located on the hilltops overlooking the project site.

Water Resources: The Grand Avenue site would require a pipeline approximately 5 miles long to use tertiary treated recycled water for power plant cooling. This would require construction in local roads and rights of way.

Waste Management: The Grand Avenue site is vacant; therefore no building demolition would be necessary. This avoids the need to dispose of demolition debris. Handling disposal of construction waste and normal operations waste would be similar regardless of site location.

ALTERNATIVE B: VALLEY BOULEVARD RAILYARDS

Site Description

Alternative B is located approximately 1 mile east of the WCEP site on property east of South Azusa Boulevard and between East Valley Boulevard and Arenth Avenue in the City of Industry. This property is owned and operated by the Union Pacific Railroad and is currently used for intermodal transfer of newly manufactured automobiles (offloading from rail, storage, and loading to trucks for distribution). It is a large parcel, exceeding 35 acres. This property is zoned Industrial.

The nearest residential properties are approximately 1,000 feet northwest of the site. It is separated from these properties, as well as commercial and industrial land uses north of the site, by East Valley Boulevard and the Union Pacific rail line. For approximately 0.5 mile south of the site, the land is in industrial uses. Beyond this industrial area are mixed industrial and commercial uses. Seven schools are within 1 mile, with the closest being Hurley Elementary School, which is approximately 0.3 mile northwest of the site.

Infrastructure Availability

The site is located near the high-pressure natural gas line that runs along the Union Pacific Railroad tracks (0.6 mile). The Rowland Water District's storage tank for reclaimed water is 0.35 mile to the west. This site would require a 1.5-mile-long electrical transmission line be built to the Walnut Substation. Site control could be difficult to achieve at this site because of the demand for the property's current use as a rail-truck intermodal container storage yard.

Environmental Assessment for Valley Boulevard Railyards Alternative

Development Constraints: The basic needs of power plant siting for access to electrical transmission, gas supply, and cooling water, are met in the Valley Boulevard Alternative site vicinity. Compared to the WCEP site, this alternative would require somewhat

longer extensions from existing gas and water pipelines and a longer electric transmission line to the Walnut Substation.

Air Quality: The quantity of emissions from project operation would be the same at any of the sites. Each of the sites has similar contributions to the regional airshed and would, therefore, be subject to similar review, emission reduction crediting, and permitting requirements. The Grand Avenue site is somewhat closer to complex terrain, but the effects of this could not be determined without detailed modeling. The differences between the sites in terms of their distances from the nearest residences should not make a significant difference in air quality impacts at these residences. Mitigation would bring any potential impacts to a level that is less than significant.

Biological Resources: The Valley Boulevard Railyards site is entirely developed and does not appear to have any habitat value.

Cultural Resources: There are no known cultural resources at the sites. Each of the sites has approximately the same cultural resources sensitivity. Because mitigation measures would address the treatment and protection of cultural resources, it is reasonable to assume that each of the alternative sites has approximately the same cultural resources sensitivity, and that potential impacts would be less than significant.

Geological Resources and Hazards: There would be no significant differences between the sites in terms of geological resources and hazards. There are no geological resources located on or near the Valley Boulevard Railyards site.

Hazardous Materials Handling: There would be no significant difference between the site locations in terms of hazardous materials handling. The uses of hazardous materials would be the same for any of the sites. The routes and distances traveled for delivery would depend on the point of origin. While there might be slight differences in the distances that trucks carrying hazardous materials would travel to deliver the materials, these differences do not distinguish among the sites.

Land Use: The site is zoned industrial and is located in a highly developed urban area. There is not a conflict with adjacent or nearby land uses.

Noise: Valley Boulevard Railyards' site distance from residential receptors is approximately 1,000 feet. There are intervening structures between the site and residential areas. These factors would result in a less than significant noise impact.

Paleontology: The probability of encountering significant fossils is approximately the same at each site and would be assessed according to the guidelines detailed in the Cultural Resources section.

Public Health: The potential for public health effects is approximately the same from a power plant located at any of the sites.

Socioeconomics: At each of the sites the number of workers, construction costs, payroll, and property tax revenues would be nearly the same. The majority of the workers would come from the greater San Gabriel Valley or Inland Empire areas. Most

workers would commute daily or weekly to the plant site. Some may move temporarily to the local area during construction, causing site-specific impacts to schools, utilities, and emergency services. These impacts would be temporary.

Soils and Agriculture: The Valley Boulevard site is developed industrial land that has no agricultural value.

Traffic and Transportation: The site is well served by freeways and arterials. The number of employees working at a given time during project operation (approximately 3) will not significantly impact local traffic conditions at any of the sites. The peak number of employees during construction (228) will have much more impact, but the impact will be temporary, and can be mitigated by transportation management planning.

Visual Resources: The site is not located in an area with a protected viewshed nor is it in a designated viewshed corridor. The land use at and surrounding the site is industrial. The visual effects of a facility at the WCEP site and Alternative B are roughly the same. The Valley Boulevard Railyards site would be visible to some residences at higher elevations to the south and north. North of the site, at distance of 0.5 miles, the land elevation is only 50 feet higher than the site. To the south, the land is in industrial and commercial use. At approximately 0.75 mile from the Alternative A site, the elevation increase is about 20 feet. From these elevations, and with intervening buildings, the site is largely not visible from residential areas and other land uses.

Water Resources: Reclaimed water in sufficient quantities is available less than a mile from the Valley Boulevard Railyards site.

Waste Management: The management of wastes would differ between the project site and the three alternatives, though these differences would not necessarily lead to a site preference. At the Valley Boulevard Railyards site, demolition and removal of existing asphalt and other facilities would be necessary. Depending on how much of the Valley Boulevard Railyards site would be used, the demolition waste volumes between the two sites could be similar. Handling disposal of construction waste and normal operations waste would be similar regardless of site location

ALTERNATIVE C: ETIWANDA AVENUE

Site Description

Alternative C is located approximately 25 miles east of the proposed project site. It is in the City of Rancho Cucamonga, San Bernardino County at the intersection of Etiwanda Avenue and 6th Street. The Etiwanda Avenue site is owned by Southern California Edison and covers approximately 50 acres. This site is zoned Heavy Industrial. The site is adjacent to the existing Etiwanda Substation and Etiwanda Power Plant. An industrial park is located to the west of the site, with heavy industry north and east of the site. Commercial and industrial land uses occur south of the site. West Valley Detention Center is approximately 1,000 feet to the south, along Etiwanda Avenue.

The nearest residential area to the Etiwanda Avenue site is located approximately 0.8 mile to the north. Etiwanda Avenue is the boundary between Rancho Cucamonga and

Fontana. Industrial land uses in Fontana extend to the east from Etiwanda Avenue. There are no schools within 1 mile of the site. The nearest school is Sacred Heart School, located approximately 1.25 miles to the north.

Infrastructure Availability

There is a reclaimed water main in Etiwanda Avenue that could supply the 512 gpm (827 acre feet per year) required for the proposed project. Southern California Gas Company has an 8-inch high pressure gas line approximately 30 feet from the site that could supply the natural gas required for the project.

Environmental Assessment for Etiwanda Avenue Alternative

Development Constraints: The basic needs of power plant siting for access to electrical transmission, gas supply, and cooling water, are met at the Etiwanda Avenue Alternative site. A substation is immediately adjacent to the site, eliminating the need for a long transmission line connection. Gas and cooling water is available within 1,000 feet of the site. Alternative A would require extension of gas and cooling water lines into the site, whereas the WCEP has them on or adjacent to that site.

Air Quality: The quantity of emissions from project operation would be the same at any of the sites. Each of the sites has similar contributions to the regional airshed and would, therefore, be subject to similar review, emission reduction crediting, and permitting requirements. The Etiwanda Avenue site is located in relatively flat terrain that would help to promote dispersion of emissions. The differences between the sites in terms of their distances from the nearest residences should not make a significant difference in air quality impacts at these residences. Mitigation would bring any potential impacts to a level below significance for any of the alternatives.

Biological Resources: The Etiwanda Avenue site has been previously developed. It is currently disturbed vacant open space, but does not appear to have significant biological resources or habitat value. The adjacent parcels are developed to accommodate industrial and commercial uses, including SCE's Etiwanda Substation and Reliant Energy's Etiwanda Power Plant.

Cultural Resources: There are no known cultural resources at the sites. Each of the sites has approximately the same cultural resources sensitivity. Because mitigation measures would address the treatment and protection of cultural resources, it is reasonable to assume that each of the alternative sites has approximately the same cultural resources sensitivity, and that potential impacts would be less than significant.

Geological Resources and Hazards: There are no significant differences between the WCEP site and Alternative C in terms of geological resources and hazards. There are no geological resources located on or near the Etiwanda Avenue site.

Hazardous Materials Handling: There would be no significant difference between the site locations in terms of hazardous materials handling. The uses of hazardous materials would be the same for any of the sites. The routes and distances traveled for delivery would depend on the point of origin. While there might be slight differences in the

distances that trucks carrying hazardous materials would travel to deliver the materials, these differences do not distinguish among the sites.

Land Use: All of the sites are zoned industrial and are located in highly developed urban areas. The Etiwanda Avenue site does not present any conflicts with nearby land uses.

Noise: Developments at each site would be able to meet the noise standards for the respective jurisdictions. The Etiwanda Avenue site is approximately 2,000 feet from the nearest residences, with intervening industrial structures and storage yards over most of that distance. These surrounding conditions would attenuate noise from a facility at this site.

Paleontology: The probability of encountering significant fossils is approximately the same at each site and would be assessed according to the guidelines detailed in the Cultural Resources section.

Public Health: The potential for public health effects is approximately the same from a power plant located at any of the sites.

Socioeconomics: The Etiwanda Avenue site is located in San Bernardino County approximately 25 miles from the proposed project site. At each of the sites the number of workers, construction costs, payroll, and property tax revenues would be nearly the same. The majority of the workers would come from the greater San Gabriel Valley or Inland Empire areas. Most workers would commute daily or weekly to the plant site. Some may move temporarily to the local area during construction, causing site-specific impacts to schools, utilities, and emergency services. These impacts would be temporary and not necessarily significant.

Soils and Agriculture: The Etiwanda Ave site is a former industrial site that is currently vacant in a heavily industrialized area. The site has no agricultural value.

Traffic and Transportation: All of the sites are well served by freeways and arterials. The number of employees working at a given time during project operation (approximately 3) will not significantly impact local traffic conditions at any of the sites. The peak number of employees during construction (228) will have much more impact, but the impact will be temporary, and can be mitigated by transportation management planning.

Visual Resources: The site is not located in an area with protected viewshed nor is it in a designated viewshed corridor. The site is on flat terrain in the midst of a heavily industrialized area. The Etiwanda Avenue site would be visible from Etiwanda Avenue and Interstate 15. A power plant at this location would be visually similar to the existing power plant and other industrial facilities. Intervening structures would prevent visibility from residential areas.

Water Resources: Reclaimed water in sufficient quantities is available near the Etiwanda Avenue site.

Waste Management: The management of wastes would differ between the project site and the three alternatives, though these differences would not necessarily lead to a site preference. The Etiwanda Avenue site is vacant, and no demolition would be necessary. Handling disposal of construction waste and normal operations waste would be similar regardless of site location

NO PROJECT ALTERNATIVE

The CEQA Guidelines state that "the purpose of describing and analyzing a no project alternative is to allow decision makers to compare the impacts of approving the proposed project with the impact of not approving the proposed project" (Cal. Code Regs., tit. 14, §15126.6(i)). If the WCEP were not built, the proposed site would likely remain in industrial use and the impacts of project construction and operation at this site would not occur. However, if the WCEP were not constructed, it would not contribute to the region's electricity resources and would not increase the peaking capacity for a more reliable electric system. The No Project Alternative would not meet the project objectives. This alternative would result in potentially greater demands for more energy production from existing power that currently have older, less efficient generating units than those proposed for the WCEP.

SUMMARY AND COMPARISON

Power plant siting is feasible at each of the three alternative sites, but would have different impacts on resources. As a consequence, some sites are preferred over others. In the evaluation, some factors revealed little to no difference in impact among the sites and are not discussed further. These include zoning, location near the centers of electrical demand, location near ample natural gas supply, parcel or adjoining parcels of sufficient size for a power plant, and mitigation of potential impacts feasible.

Following is a summary of the proposed site as compared with the alternatives, using the site selection factors that could reasonably distinguish between sites.

- **Location more than 1,000 feet from the nearest residential areas**: Each site meets this standard. However, the Etiwanda Avenue site is farthest from residences and schools, as compared to the other sites.
- **Location near a sufficient source of treated wastewater**: Reclaimed water is available at the Walnut Creek, Etiwanda Avenue, and Valley Boulevard Railyards sites. It would be necessary to construct a pipeline 5 or more miles long to serve the Grand Avenue site.
- **Location near electrical transmission facilities:** The Walnut Creek site is located adjacent to the SCE Walnut Substation, and the Etiwanda Avenue site is adjacent to the Etiwanda Substation. Both have suitable transmission lines proximate to the site that could be used for connection to the substation. A transmission line 7 or more miles long would have to be constructed to connect the Grand Avenue site with the Walnut Substation, which is the nearest 230-kilovolt (kV) substation. For the Valley Boulevard site, a 1.5 mile 230 kV transmission line would have to be constructed to access the Walnut Substation.

- **Site control feasible:** Site control is feasible at the Walnut Creek, Etiwanda Avenue, and Grand Avenue sites. Use of land at the Valley Boulevard site would require negotiations with Union Pacific Railroad. The site is used as an intermodal truck facility. Feasibility of obtaining use of this site is undetermined, but given the proximity of an existing intermodal rail yard and the scarcity of facilities, it is thought to be unlikely.

ALTERNATIVES Table 1
Comparison of Impacts of Alternatives to the Proposed Walnut Creek Energy Park Project

Issue Area	Alternative A Grand Avenue	Alternative B Valley Blvd Railyards	Alternative C Etiwanda Avenue	Proposed WCEP Project
Development Constraints	▪ 5 mi pipelines ▪ 7 mi transmission line	▪ 0.6 mi pipelines ▪ 1.5 mi transmission line ▪ Site Control	▪ 0.2 mi pipelines ▪ > 100 ft transmission line	▪ Very short pipelines ▪ 600 ft transmission line
Air Quality	*Similar Impacts*	*Similar Impacts*	*Similar Impacts*	*Similar Impacts*
Biological Resources	*Similar Impacts*	*Similar Impacts*	*Similar Impacts*	*Similar Impacts*
Cultural Resources	*Similar Impacts*	*Similar Impacts*	*Similar Impacts*	*Similar Impacts*
Geologic Resources and Hazards	*Similar Impacts*	*Similar Impacts*	*Similar Impacts*	*Similar Impacts*
Hazardous Materials	*Similar Impacts*	*Similar Impacts*	*Similar Impacts*	*Similar Impacts*
Land Use	*Similar Impacts*	*Similar Impacts*	*Similar Impacts*	*Similar Impacts*
Noise	*Potential on hill above site*	*Similar Impacts*	*Similar Impacts*	*Similar Impacts*
Paleontology	*Similar Impacts*	*Similar Impacts*	*Similar Impacts*	*Similar Impacts*
Public Health	*Similar Impacts*	*Similar Impacts*	*Similar Impacts*	*Similar Impacts*
Socioeconomics	*Similar Impacts*	*Similar Impacts*	*Similar Impacts*	*Similar Impacts*
Soils and Agriculture	*Similar Impacts*	*Similar Impacts*	*Similar Impacts*	*Similar Impacts*
Traffic and Transportation	Pipeline Construction Disruption	*Similar Impacts*	*Similar Impacts*	*Similar Impacts*
Visual Resources	*Similar Impacts*	*Similar Impacts*	*Similar Impacts*	*Similar Impacts*
Water Resources	Long Pipeline	Near Site	Near Site	Adjacent to Site
Waste Management	No Demolition	Site Demolition Debris	No Demolition	Site Demolition Debris

The Walnut Creek site and Etiwanda site each meet all project objectives. Each is adjacent to a high-pressure natural gas pipeline, an electrical substation, and a source of recycled water. The Etiwanda Avenue site currently is vacant land, while the Walnut Creek site will require demolition of an existing structure prior to its use. Although demolition would be accomplished prior to SCE taking site control, it is reasonable to attribute this demolition to power plant construction.

The Grand Avenue and Valley Boulevard Railyards sites do not meet all project objectives. At the Grand Avenue site, long linears would be required for electrical transmission and reclaimed water. This would raise the possibility of additional environmental impacts. The feasibility of an agreement with Union Pacific to use the Valley Boulevard Railyards site is unknown. However, the availability of land near the railway for intermodal transfer and cargo container storage is low and demand is high; therefore, site control at the Valley Boulevard location may be difficult or infeasible.

Overall, the Walnut Creek and Etiwanda Avenue sites are superior to the other sites. Between the two, the Etiwanda Avenue site is somewhat superior to the Walnut Creek site. As compared to the Walnut Creek site, the Etiwanda site requires no demolition, is already controlled by SCE, and is further from residential areas and schools. Construction access to the site could be achieved from freeway connections without passing through or near residential areas. However, development of the proposed project at either site would result in less than significant impacts.

Staff has concluded that none of the alternative sites is preferable to the Walnut Creek site because they do not avoid the potential impacts posed by the proposed project.

REFERENCES

Aspen (Aspen Environmental Group). 2001. Draft report prepared for the California Energy Commission on assessment of alternative generation technologies, December, 2001.

Bass et al. (Ronald bass, Albert Henson, and Kenneth Bogdan). 1999. *CEQA Deskbook: A Step-by-Step Guide on How to Comply with the California Environmental Quality Act.* Solano Press. Point Arena, California

Beck et al. (Fredric Beck, Jan Hamrin, Richard Sindano, and Virinder Singh. 2001. *Renewable Energy for California: Benefits, Status and Potential,* Washington, DC: Renewable Energy Policy Project, August 24, 2001. p.17.

CEC (California Energy Commission). 2004a. Internet Website at http://www.energy.ca.gov/wind/overview.html.

____. 2004b. Internet Website at http://www.energy.ca.gov/maps/wind_map.html.

____. 2004c. Internet Website at http://www.energy.ca.gov/development/biomass/biomass.html.

Inland Empire Utility Company. 2006. Personal communication by Somer Goulet, M.S.E.L. (Aspen Environmental Group) with Lisa Muenos, Engineer. November 8, 2006.

Ontario (City of Ontario). 2006a. Information on New Colony Plan. http://www.ci.ontario.ca.us/index.cfm/22658

____. 2006b. Personal communication by Somer Goulet M.S.E.L. (Aspen Environmental Group) with Franz Gardina, city planner. November 9, 2006.

Rancho Cucamonga (City of Rancho Cucamonga Planning Department). 2006. Personal communication by Somer Goulet, M.S.E.L. (Aspen Environmental Group) with city planner. November 5, 2006.

____. No date. Rancho Cucamonga General Plan. http://www.ci.rancho-cucamonga.ca.us/index_govt.htm

Southern California Gas Company. 2006. Personal communication by Somer Goulet, M.S.E.L. (Aspen Environmental Group) with Don, engineer. November 13, 2006.

APPENDIX A: ALTERNATIVES CONSIDERED BUT ELIMINATED

SITE ALTERNATIVES

Mira Loma

A site adjacent to the Mira Loma Substation was considered but eliminated. The substation is on South Milliken Avenue, south of Riverside Drive, in the City of Ontario. The alternative site considered is immediately west of the existing substation. The site met many of the siting criteria including the proximity of a substation and transmission lines are adjacent to the site. However, the site is within 8,200 acres annexed by the City. Under a land use plan for the area, the site is undergoing conversion from agriculture to residential/commercial as part of the New Model Colony project. Colony High School is located approximately 1,200 feet north of the site, and site preparation for low density residential construction is occurring in the vicinity. Additionally, the Mira Loma site does not have a reclaimed water main nearby.

Long Beach

Property at the Edgington Refinery in Long Beach was considered as a potential site. This site met several of the project development criteria. The site was eliminated from further consideration because there was insufficient land available and the landowner concluded a business arrangement with a different party for development that would be incompatible with power plant operations. In addition, use of the site would have required a transmission line across State Route 91 to reach the Lighthipe Substation a mile distant.

Alternative Air Quality Management Districts

Air quality impacts associated with a site in the South Coast Air Quality Management District (AQMD) are of concern. Therefore, potential alternative sites were considered in the Mojave Desert AQMD (at Lugo Substation site near Victorville and High Desert Power Plant site) and in the Antelope Valley AQMD (at Vincent Substation site near Palmdale). These two AQMDs would rely on the same priority reserve credits as would a site located in the South Coast AQMD. In addition, these distant sites would not meet the localized power needs of the proposed project.

Conclusion Regarding Site Alternatives Eliminated

The planned development around the potential Mira Loma site would be incompatible with a 500 MW power plant. This area of the City of Ontario is being developed into an extensive residential and commercial area. Long Beach site had insufficient land area and it was not feasible to gain site control. The Lugo Substation, High Desert Power Plant, and the Vincent Substation sites would not alter the air quality issues of the project and would not serve the localized peak power needs to be addressed by the proposed project.

NON-SITE ALTERNATIVES

This section describes alternatives that did not satisfy the screening criteria for inclusion in a more detailed analysis, and include the following:

- Conservation and demand-side management;

- Solar generation
- Wind generation
- Biomass generation
- Hydropower

These alternatives, and the reasons for their not being considered in detail in this analysis, are addressed below.

Conservation and Demand-Side Management

Conservation and demand-side management (DSM) include a variety of approaches, including energy efficiency and conservation, building and appliance standards, load management and fuel substitution. Public Resources Code Section 25305(c) states that conservation, load management, or other demand reducing measures reasonably expected to occur shall be explicitly examined in the Energy Commission's energy forecasts and shall not be considered as alternatives to a proposed facility during the siting process. The forecast that addresses this issue is the Energy Commission's Integrated Energy Policy Report. Thus, such alternatives are not included in this analysis.

Solar Generation

There are two types of solar generation: solar thermal power and photovoltaic (PV) power generation.

Solar thermal power generation involves the conversion of solar radiation to thermal energy, which is then used to run a conventional steam power system. Solar thermal is a viable alternative to conventional generation systems and, depending on the technology, is suited to either distributed generation on the kW scale or to centralized power generation on scales up to several hundred MW. Solar thermal systems use three designs to generate electricity: parabolic trough concentrating collectors, power tower/heliostat configurations, and parabolic dish collectors. Parabolic trough and power tower systems typically run conventional power units, such as steam turbines, while parabolic dish systems power a small engine at the focal point of the collector.

PV power generation involves the direct conversion of light to electricity. PV is best suited to distributed generation uses rather than centralized power generation. PV is the most capital intensive of any alternative generation technology (Aspen 2001). PV power systems consist of solar electric modules (built from PV cells) assembled into arrays of varying sizes to produce electric power proportional to the area of the array and the intensity of the sunlight. PV arrays can be mounted on either the ground or on buildings. They can be installed on dual-purpose structures such as covered parking lots.

Solar resources would require large land areas in order to generate 500 MW of electricity. Specifically, assuming location in an area receiving maximum solar exposure such as the desert areas of California, central receiver solar thermal projects require approximately five acres per MW, so 500 MW would require approximately 2,500 acres. One square kilometer of PV generation (400 acres) can produce 100 MW of power, so

500 MW would require approximately 2,000 acres. Either of these technologies would use significantly more land area than the area required for the proposed WCEP.

Although air emissions are significantly reduced or eliminated for solar facilities, these facilities can have significant visual effects. Solar generation results in the absence or reduction in air pollutant emissions, and visible plumes. Water consumption for solar generation is substantially less than for a geothermal or natural gas fired plant because there is no thermal cooling requirement. However, development over a large area could affect numerous biological resources and would require careful analysis of potential impacts from either solar or PV generation at such a scale.

Like all technologies generating power for sale into the state's power grid, solar thermal facilities and PV generation require near access to transmission lines. Large solar thermal plants must be located in desert areas with high direct normal insolation, and in these remote areas, transmission availability is limited. Additionally, solar energy technologies cannot provide full-time availability due to the natural intermittent availability of sunlight. Therefore, solar thermal power and photovoltaic power generation would not successfully meet the project objectives.

Wind Generation

Wind carries kinetic energy that can be used to spin the blades of a wind turbine rotor and an electrical generator, which then feeds alternating current into the utility grid. Most state-of-the-art wind turbines operating today convert 35 to 40 percent of the wind's kinetic energy into electricity. Modern wind turbines represent viable alternatives to large bulk power fossil power plants as well as small-scale distributed systems. The range of capacity for an individual wind turbine today ranges from 400 watts up to 3.6 MW. California's 1,700 MW of wind power represents 1.5 percent of the state's electrical capacity (Aspen 2001).

Although air emissions are significantly reduced or eliminated for wind facilities, these facilities can have significant visual effects. Wind turbines have also caused bird mortality (especially for raptors) resulting from collision with rotating blades although this effect is more noted in the Altamont Pass area than in other parts of the state.

Wind resources require large land areas in order to generate 500 MW of electricity. Depending on the size of the wind turbines, wind generation "farms" generally can require between 5 and 17 acres to generate one megawatt (CEC 2004a). A 500 MW plant would therefore require between 2,500 and 8,500 acres. The lack of available transmission access is an important barrier to wind power development (Beck et al. 2001). California has a diversity of existing and potential wind resource regions that are near load centers such as San Francisco, Los Angeles, San Diego and Sacramento (CEC 2004b). However, wind energy technologies cannot provide full-time availability due to the natural intermittent availability of wind resources. Therefore, wind generation technology would not meet the project's goal, which is to provide peak-serving capacity.

Biomass Generation

Biomass generation uses a waste vegetation fuel source such as wood chips (the preferred source) or agricultural waste. The fuel is burned to generate steam. Biomass facilities

generate substantially greater quantities of air pollutant emissions than natural gas burning facilities. In addition, biomass plants are typically sized to generate less than 20 MW, which is substantially less than the capacity of the 500 MW WCEP project. At the peak of the biomass industry, 66 biomass plants were in operation in California, but as of 2001, only about 30 direct-combustion biomass facilities were in operation (CEC 2004c). These power plants would have potentially significant environmental impacts of their own.

Hydropower

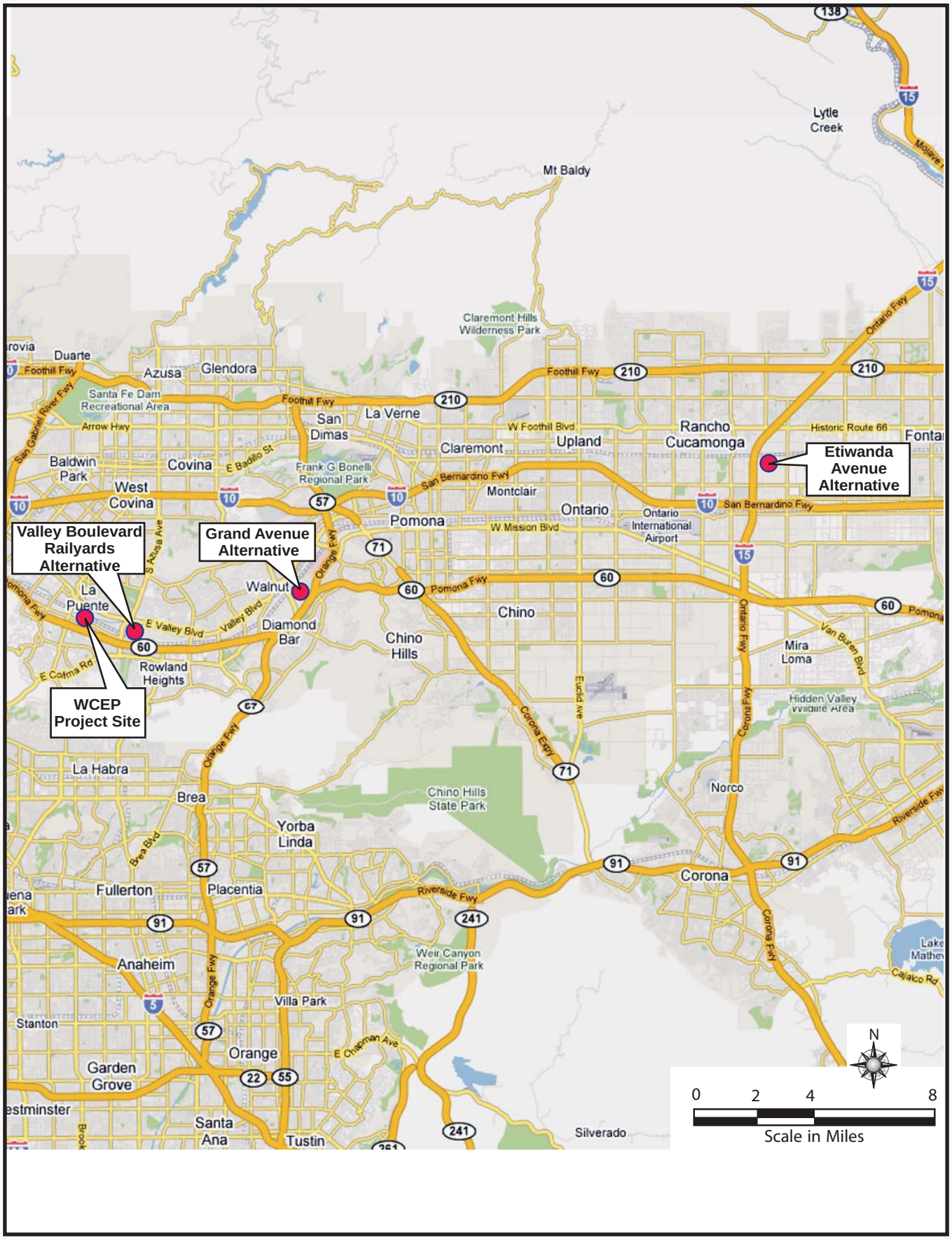
While hydropower does not require burning fossil fuels and may be available in California, this power source can cause significant environmental impacts, due primarily to the inundation of many acres of potentially valuable habitat and the interference with fish movements during their life cycles. In addition, planning and permitting time is on the order of 10 years. As a result, it is extremely unlikely that new large hydropower facilities could be developed and permitted in California within the next several years (Aspen 2001).

Conclusion Regarding Alternative Technologies

Alternative generation typically has specific resource needs, environmental impacts, permitting difficulties, and intermittent availability. Therefore, these technologies do not fulfill a basic objective of the proposed project to provide peak load serving capability in order to ensure a reliable supply of electricity in the region. Consequently, staff does not believe that these renewable technologies present feasible alternatives to the proposed project.

ALTERNATIVES - FIGURE 1

Walnut Creek Energy Park - Alternative Site Locations



CALIFORNIA ENERGY COMMISSION, ENERGY FACILITIES SITING DIVISION, DECEMBER 2006

SOURCE: Energy Commission Staff - Google Maps 2006

ALTERNATIVES - FIGURE 2

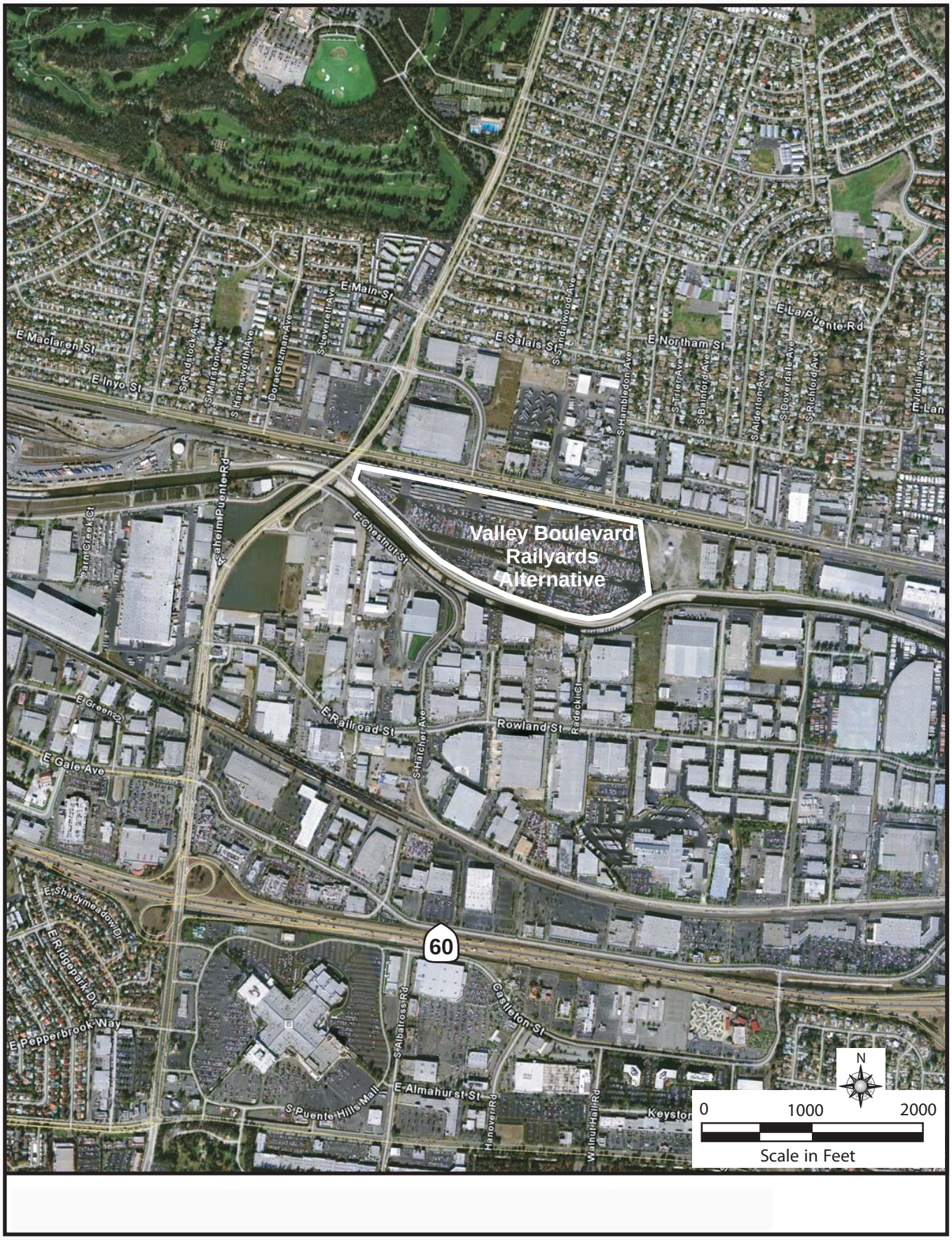
Walnut Creek Energy Park - Grand Avenue Alternative

CALIFORNIA ENERGY COMMISSION, ENERGY FACILITIES SITING DIVISION, DECEMBER 2006

SOURCE: Energy Commission Staff - GoogleEarthPro, 2006

ALTERNATIVES - FIGURE 3

Walnut Creek Energy Park - Valley Boulevard Railyards Alternative

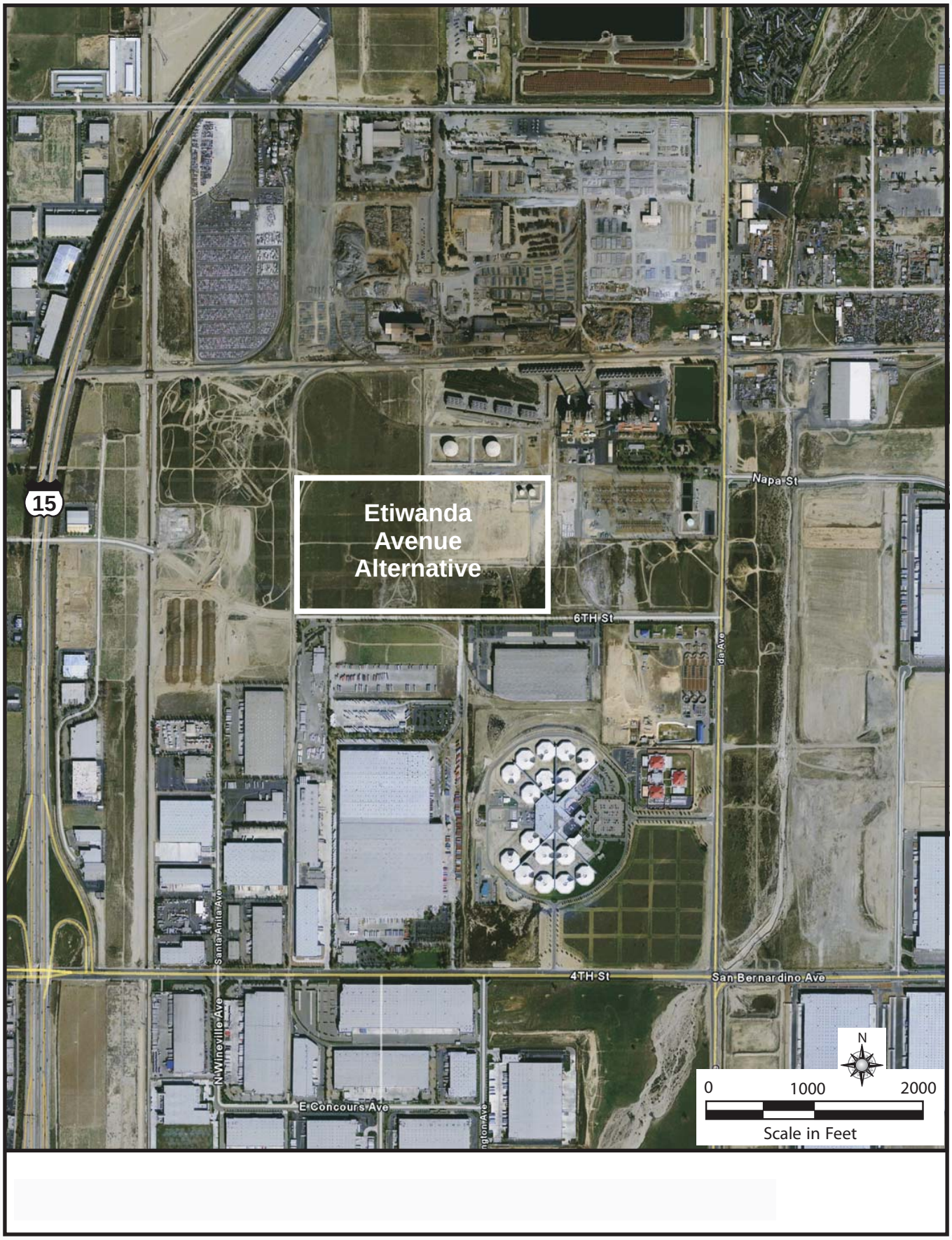


CALIFORNIA ENERGY COMMISSION, ENERGY FACILITIES SITING DIVISION, DECEMBER 2006

SOURCE: Energy Commission Staff - GoogleEarthPro, 2006

ALTERNATIVES - FIGURE 4

Walnut Creek Energy Park - Etiwanda Avenue Alternative



CALIFORNIA ENERGY COMMISSION, ENERGY FACILITIES SITING DIVISION, DECEMBER 2006

SOURCE: Energy Commission Staff - GoogleEarthPro, 2006

GENERAL CONDITIONS INCLUDING COMPLIANCE MONITORING AND CLOSURE PLAN

Lance Shaw

INTRODUCTION

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

The Compliance Plan is composed of elements that:

- set forth the duties and responsibilities of the Compliance Project Manager (CPM), the project owner, delegate agencies, and others;
- set forth the requirements for handling confidential records and maintaining the compliance record;
- state procedures for settling disputes and making post-certification changes;
- state the requirements for periodic compliance reports and other administrative procedures that are necessary to verify the compliance status for all Energy Commission approved conditions of certification;
- establish requirements for facility closure plans; and
- specify conditions of certification for each technical area containing the measures required to mitigate any and all potential adverse project impacts associated with construction, operation and closure to an insignificant level. Each specific condition of certification also includes a verification provision that describes the method of assuring that the condition has been satisfied.

DEFINITIONS

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

PRE-CONSTRUCTION SITE MOBILIZATION

Site mobilization is limited preconstruction activities at the site to allow for the installation of 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. Fencing for the site is also considered part of site mobilization. Walking, driving or parking a passenger vehicle, pickup truck and light vehicles is allowable during site mobilization.

CONSTRUCTION GROUND DISTURBANCE

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

CONSTRUCTION GRADING, BORING, AND TRENCHING

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

CONSTRUCTION

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

1. the installation of environmental monitoring equipment;
2. a soil or geological investigation;
3. a topographical survey;
4. any other study or investigation to determine the environmental acceptability or feasibility of the use of the site for any particular facility; and
5. any work to provide access to the site for any of the purposes specified in "Construction" 1, 2, 3, or 4 above.

START OF COMMERCIAL OPERATION

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

COMPLIANCE PROJECT MANAGER RESPONSIBILITIES

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

1. ensuring that the design, construction, operation, and closure of the project facilities are in compliance with the terms and conditions of the Energy Commission Decision;
2. resolving complaints;
3. processing post-certification changes to the conditions of certification, project description, and ownership or operational control;
4. documenting and tracking compliance filings; and
5. ensuring that the compliance files are maintained and accessible.

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

All project compliance submittals are submitted to the CPM for processing. Where a submittal required by a condition of certification requires CPM approval, the approval will involve all appropriate Energy Commission staff and management.

PRE-CONSTRUCTION AND PRE-OPERATION COMPLIANCE MEETING

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

ENERGY COMMISSION RECORD

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

1. all documents demonstrating compliance with any legal requirements relating to the construction and operation of the facility;
2. all monthly and annual compliance reports filed by the project owner;
3. all complaints of noncompliance filed with the Energy Commission; and
4. all petitions for project or condition of certification changes and the resulting staff or Energy Commission action.

PROJECT OWNER RESPONSIBILITIES

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

COMPLIANCE CONDITIONS OF CERTIFICATION

Unrestricted Access (COMPLIANCE-1)

The CPM, responsible Energy Commission staff, and delegate agencies or consultants shall be guaranteed and granted unrestricted access to the power plant site, related facilities, project-related staff, and the records maintained on site, for the purpose of

conducting audits, surveys, inspections, or general site visits. Although the CPM will normally schedule site visits on dates and times agreeable to the project owner, the CPM reserves the right to make unannounced visits at any time.

Compliance Record (COMPLIANCE-2)

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

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

Compliance Verification Submittals (COMPLIANCE-3)

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

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

1. reporting on the work done and providing the pertinent documentation in monthly and/or annual compliance reports filed by the project owner or authorized agent as required by the specific conditions of certification;
2. providing appropriate letters from delegate agencies verifying compliance;
3. Energy Commission staff audits of project records; and/or
4. Energy Commission staff inspections of work or other evidence that the requirements are satisfied.

Verification lead times (e.g., 90, 60 and 30-days) 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 involved condition(s) of certification by condition number and include a brief description of the subject of the submittal**. The project owner shall also identify those submittals **not** required by a condition of certification with a statement such as: “This submittal is for information only and is not required by a specific condition of certification.” When submitting supplementary or corrected information, the project owner shall reference the date of the previous submittal.

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

All submittals shall be addressed as follows:

Compliance Project Manager
California Energy Commission
1516 Ninth Street (MS-2000)
Sacramento, CA 95814

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

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

Prior to commencing construction, a compliance matrix addressing only those conditions that must be fulfilled before the start of construction shall be submitted by the project owner to the CPM. This matrix will be included with the project owner's **first** compliance submittal or prior to the first pre-construction meeting, whichever comes first. It will be 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 (e.g., 30, 60, 90 days) for submittal of compliance verification documents to the CPM for conditions of certification are established to allow sufficient staff time to review and comment and, if necessary, allow the project owner to revise the submittal in a timely manner. This will ensure that project construction may proceed according to schedule.

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

If the project owner anticipates starting 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. This is important if the required lead-time for a required compliance event extends beyond the date anticipated for start of construction. It is also important that the project owner understand that the submittal of compliance documents prior to project certification is at the owner's own risk. Any approval by Energy Commission staff is subject to change based upon the 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).

Satisfied conditions do not need to be included in the compliance matrix after they have been identified as satisfied in at least one monthly or annual compliance report.

Monthly Compliance Report (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 an initial list of dates for each of the events identified on the **Key Events List. The Key Events List Form is found at the end of this section.**

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

1. a summary of the current project construction status, a revised/updated schedule if there are significant delays, and an explanation of any significant changes to the schedule;
2. documents required by specific conditions to be submitted along with the Monthly Compliance Report. Each of these items must be identified in the transmittal letter, and submitted as attachments to the Monthly Compliance Report;
3. an initial, and thereafter updated, compliance matrix showing the status of all conditions of certification (fully satisfied conditions do not need to be included in the matrix after they have been reported as completed);
4. a list of conditions that have been satisfied during the reporting period, and a description or reference to the actions that satisfied the condition;

5. a list of any submittal deadlines that were missed, accompanied by an explanation and an estimate of when the information will be provided;
6. a cumulative listing of any approved changes to conditions of certification;
7. a listing of any filings submitted to, or permits issued by, other governmental agencies during the month;
8. a projection of project compliance activities scheduled during the next two months. The project owner shall notify the CPM as soon as any changes are made to the project construction schedule that would affect compliance with conditions of certification;
9. a listing of the month's additions to the on-site compliance file; and
10. a listing of complaints, notices of violation, official warnings, and citations received during the month, a description of the resolution of the resolved actions, and the status of any unresolved actions.

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

Annual Energy Facility Compliance Fee (COMPLIANCE-9)

Pursuant to the provisions of Section 25806(b) of the Public Resources Code, the project owner is required to pay an annual fee of fifteen thousand dollars ($15,000), which may be adjusted annually. 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, 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 remains accountable for implementing the on-site contingency plan. It can also include unplanned closure where the project owner is unable to implement the contingency plan, and the project is essentially abandoned.

COMPLIANCE CONDITIONS FOR FACILITY CLOSURE

Planned Closure (COMPLIANCE-11)

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

The plan shall:

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

2. identify a schedule of activities for closure of the power plant site, transmission line corridor, and all other appurtenant facilities constructed as part of the project;
3. identify any facilities or equipment intended to remain on site after closure, the reason, and any future use; and
4. address conformance of the plan with all applicable laws, ordinances, regulations, standards, and local/regional plans in existence at the time of facility closure, and applicable conditions of certification.

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

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

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

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

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

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

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

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

specific conditions of certification for the technical areas of Hazardous Materials Management and Waste Management.)

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

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

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

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

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

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

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

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

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

The project owner must petition the Energy Commission pursuant to Title 20, California Code of Regulations, section 1769, in order to modify the project (including linear facilities) design, operation or performance requirements, and to transfer ownership or operational control of the facility. **It is the responsibility of the project owner to contact the CPM to determine if a proposed project change should be considered a project modification pursuant to section 1769.** Implementation of a project

modification without first securing Energy Commission, or Energy Commission staff approval, may result in enforcement action that could result in civil penalties in accordance with section 25534 of the Public Resources Code.

A petition is required for **amendments** and for **insignificant project changes** as specified below. 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, 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. This process takes approximately two to three months to complete, and possibly longer for complex project modifications.

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 takes approximately one month to complete, and requires public notice and approval by the full Commission.

Insignificant Project Change

Modifications that do not result in deletions or changes to conditions of certification, and that are compliant with laws, ordinances, regulations and standards may be authorized by the CPM as an insignificant project change pursuant to section 1769(a) (2). This process usually takes less than one month to complete, and it requires a 14-day public review of the Notice of Insignificant Project Change that includes staff's intention to approve the modification unless substantive objections are filed.

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. This process usually takes less than five working days to complete.

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.
Moreover, to ensure compliance with the terms and conditions of certification and applicable LORS, delegate agencies are authorized to take any action allowed by law in accordance with their statutory authority, regulations, and administrative procedures.

NONCOMPLIANCE COMPLAINT PROCEDURES

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

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

Informal Dispute Resolution Procedure

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

This procedure may precede the more formal complaint and investigation procedure specified in Title 20, California Code of Regulations, section 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 procedure encourages all parties involved in a dispute to discuss the matter and to reach an agreement resolving the dispute. If a dispute cannot be resolved, then the matter must be brought before the full Energy Commission for consideration via the complaint and investigation process. The procedure for informal dispute resolution is as follows:

Request for Informal Investigation

Any individual, group, or agency may request 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 and within seven working days of the CPM's request, provide a written report to the CPM of the results of the investigation, including corrective measures proposed or undertaken. Depending on the urgency of the noncompliance matter, the CPM may conduct a site visit and/or request the project owner to provide an initial report, within 48 hours, followed by a written report filed within seven days.

Request for Informal Meeting

In the event that either the party requesting an investigation or the Energy Commission staff is not satisfied with the project owner's report, investigation of the event, or corrective measures 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; and
4. after the conclusion of such a meeting, promptly prepare and distribute copies to all in attendance and to the project file, a summary memorandum that fairly and

accurately identifies the positions of all parties and any conclusions reached. If an agreement has not been reached, the CPM shall inform the complainant of the formal complaint process and requirements provided under Title 20, California Code of Regulations, section 1230 et seq.

Formal Dispute Resolution Procedure-Complaints and Investigations

If either the project owner, Energy Commission staff, or the party requesting an investigation is not satisfied with the results of the informal dispute resolution process, such party may file a complaint with the Energy Commission's Dockets Unit. Requirements for complaint filings and a description of how complaints are processed are in Title 20, California Code of Regulations, section 1237.

KEY EVENTS LIST

PROJECT: _____

DOCKET #: _____

COMPLIANCE PROJECT MANAGER: _____

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

COMPLIANCE TABLE 1
SUMMARY of COMPLIANCE CONDITIONS OF CERTIFICATION

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

CONDITION NUMBER	SUBJECT	DESCRIPTION
COMPLIANCE-8	Confidential Information	Any information the project owner deems confidential shall be submitted to the Energy Commission's Dockets Unit with a request for confidentiality.
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.)

PREPARATION TEAM

WALNUT CREEK ENERGY PARK PROJECT
PREPARATION TEAM

Executive Summary ..... Lorne C. Prescott
Introduction ..... Lorne C. Prescott
Project Description ..... Lorne C. Prescott
Air Quality ..... Joe Loyer
Biological Resources ..... Joanna Grebel
Cultural Resources ..... Dorothy Torres
Hazardous Materials Management ..... Rick Tyler
Land Use ..... Amanda Stennick
Noise ..... Shahab Khoshmashrab, P.E.
Public Health ..... Obed Odoemelam, PhD
Socioeconomic Resources ..... Joseph Diamond, PhD
Soils and Water Resources ..... Michael Stephens, C.E.G. and John Kessler, P.E.
Traffic and Transportation ..... Mark Hamblin
Transmission Line Safety and Nuisance ..... Obed Odoemelam, PhD
Visual Resources ..... David Flores
Waste Management ..... Ellie Townsend-Hough
Worker Safety and Fire Protection ..... Rick Tyler
Geology and Paleontology ..... Dal Hunter, PhD, C.E.G.
Facility Design ..... Shabab Khoshmasrab, P.E.
Power Plant Efficiency ..... Steve Baker, P.E.
Power Plant Reliability ..... Steve Baker, P.E.
Transmission System Engineering ..... Sudath Arachchige and Mark Hesters
Alternatives ..... Fritts Golden
Compliance Monitoring and Facility Closure ..... Lance Shaw
Project Secretary ..... Dora Gomez

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

APPLICATION FOR CERTIFICATION FOR THE WALNUT CREEK ENERGY PARK (WCEP)	**DOCKET NO. 05-AFC-2** **(Revised 2/23/06)**

PROOF OF SERVICE LIST

DOCKET UNIT

Send the original signed document plus the required 12 copies to the address below:

CALIFORNIA ENERGY COMMISSION
DOCKET UNIT, MS-4
*Attn: Docket No. 05-AFC-2
1516 Ninth Street
Sacramento, CA 95814-5512
docket@energy.state.ca.us

* * * *

In addition to the documents sent to the Commission Docket Unit, also send individual copies of any documents to:

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INTERESTED AGENCIES

No agencies to date.

INTERVENORS

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DECLARATION OF SERVICE

I, Dora Gomez, declare that on December 28, 2006, I deposited copies of the attached Preliminary Staff Assessment for Walnut Creek Energy Park Project (05-AFC-2) in the United States mail at Sacramento, CA with first class postage thereon fully prepaid and addressed to those identified on the Proof of Service list above. Transmission via electronic mail was consistent with the requirements of California Code of Regulations, title 20, sections 1209, 1209.5, and 1210. I declare under penalty of perjury that the foregoing is true and correct.

Original Signed in Dockets
[signature]

* * * *

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