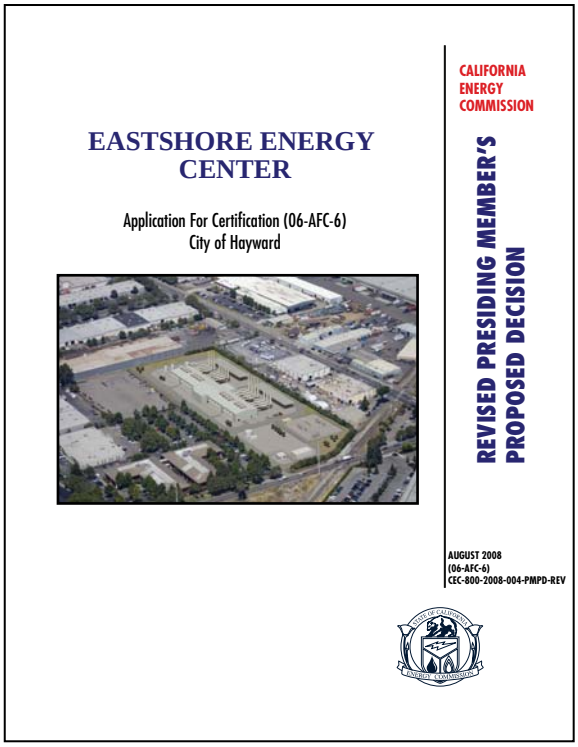
CALIFORNIA
ENERGY
COMMISSION

EASTSHORE ENERGY CENTER

Application For Certification (06-AFC-6)
City of Hayward

REVISED PRESIDING MEMBER'S PROPOSED DECISION

AUGUST 2008
(06-AFC-6)
CEC-800-2008-004-PMPD-REV



CALIFORNIA ENERGY COMMISSION

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www.energy.ca.gov/sitingcases/eastshore/index.html

JEFFERY D. BYRON
Presiding Committee Member

SUSAN GEFTER
Hearing Officer

BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION OF THE STATE OF CALIFORNIA
1516 NINTH STREET, SACRAMENTO, CA 95814
1-800-822-6228 – WWW.ENERGY.CA.GOV

APPLICATION FOR CERTIFICATION FOR THE *EASTSHORE ENERGY CENTER* IN HAYWARD BY TIERRA ENERGY	**DOCKET NO. 06-AFC-6** *(AFC ACCEPTED 11/8/06)*

The Committee hereby submits the ***Revised Presiding Member's Proposed Decision (RPMPD)*** for the ***EASTSHORE ENERGY CENTER***. The proposed site is a 6.22-acre parcel located at 25101 Clawiter Road in the City of Hayward, Alameda County.

We have prepared this ***RPMPD*** pursuant to the requirements set forth in the Energy Commission's regulations. [Cal. Code Regs., tit. 20, § 1769.] Additions to the Presiding Member's Proposed Decision issued July 20, 2008, are highlighted in yellow.

The Committee continues to recommend that the Application for Certification be ***Denied***. The proposed ***EASTSHORE ENERGY CENTER*** is inconsistent with applicable laws, ordinances, regulations, and standards and it creates unmitigable impacts under the California Environmental Quality Act (CEQA).

Dated August 29, 2008, at Sacramento, California.

Original Signed By:

JEFFREY D. BYRON
Commissioner and Presiding Committee Member
Eastshore Energy Center AFC Committee

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INTRODUCTION

A. SUMMARY OF THE DECISION

This Decision contains our rationale for determining whether the Eastshore Energy Center (EEC) complies with all applicable laws, ordinances, regulations, and standards required for certification. Our findings and conclusions are based exclusively upon the record established during the certification proceeding, which is summarized in this document. We have independently evaluated the evidence, provided references to the record[1] which support our findings and conclusions, and specified the measures required to ensure that if the Energy Commission decides to certify the EEC, it will be designed, constructed, and operated in a manner that protects public health and safety, promotes the general welfare, and preserves environmental quality.

Committee Recommendation

The Committee recommends that the Energy Commission ***deny*** certification of the proposed Eastshore Energy Center at 25101 Clawiter Road in the City of Hayward. In summary, and based on the weight of the evidence, the Committee found the Application for Certification deficient in five areas (all of which are discussed in detail in this proposed decision) that cannot be mitigated at the proposed project site:

1) The facility would cause a significant cumulative public safety impact on the operations of the nearby Hayward Executive Airport by further reducing already constrained air space and increasing pilot cockpit workload.

[1] The Reporter's Transcript of the evidentiary hearings conducted on December 17 and 18, 2007, and January 14 and July 21, 2008, is cited as "date RT page" The exhibits included in the evidentiary record are cited as "Ex. number." A list of all exhibits is contained in Appendix B of this Decision.

2) The thermal plumes from the facility would present a significant public safety risk to low flying aircraft during landing and takeoff maneuvers due to the close proximity of the Hayward Executive Airport.

3) The facility would be inconsistent with the City of Hayward's Municipal Zoning Ordinance requirements for a Conditional Use Permit (CUP) since the project "would not operate at a minimum of detriment to surrounding properties."

4) The facility would be inconsistent with the City of Hayward's Airport Approach Zoning Regulations and incompatible with the Alameda County Airport Land Use Policy Plan (ALUPP).

5) The facility would be inconsistent with the City of Hayward's General Plan 2002 Update Land Use Policy 7.

The project's deficiencies constitute public health and safety violations of the California Environmental Quality Act (CEQA) and inconsistencies with local laws, ordinances, regulations, and standards (LORS). The Committee was not persuaded that the benefits of the project would be sufficient to recommend that the Commission exercise its override authority. If the Energy Commission should decide to override the CEQA violations and LORS inconsistencies and certify the project, the Conditions of Certification identified in this Decision for each topic should be incorporated into the Commission decision and be effective upon certification.

Background

On September 22, 2006, Eastshore Energy, LLC (Applicant), a wholly-owned subsidiary of Tierra Energy, submitted an Application for Certification (AFC) to construct and operate a 115.5 megawatt (MW) peaking power plant in the City of Hayward in Alameda County. The relative distances between the project site and key locations in the area as stipulated by Applicant and the City of Hayward are described in **Appendix E** of this Decision. We note that Staff and the other parties did not accept this stipulation.

The proposed EEC site is located at 25101 Clawiter Road, in an area zoned for industrial uses. The power plant consists of 14 Wartsila 20V34SG natural gas-fired reciprocating engine generators, each with a 70-foot tall exhaust stack and associated equipment. The EEC is designed as a peaking facility to meet electricity load during periods of high demand, which generally occur during daytime hours and more frequently during the summer. The Applicant had a power purchase agreement to sell power to Pacific Gas & Electric (PG&E) as a result of the Request for Offer (RFO) bidding process conducted by PG&E to implement its 2004 Long-Term Procurement Plan (LTTP). Applicant terminated the agreement with PG&E on May 18, 2008.

Although the agreement with PG&E is no longer in effect, Applicant still assumes that the EEC will connect to PG&E's electrical system at the existing Eastshore Substation, located approximately 1.1 miles south of the project site. Natural gas will be supplied via a 200-foot pipeline connection to PG&E's Pipeline 153 on the other side of Clawiter Road. New transmission poles will be added to PG&E's existing utility corridor to the Eastshore Substation.

The EEC will use approximately 1.6 acre-feet of potable water per year for engine cooling and other power plant processes, landscape irrigation, and potable and sanitary uses. The City of Hayward will supply water for the project through an existing potable water connection adjacent to the project site.

Air emissions from the EEC will be controlled using best available control technology applied to each engine's exhaust stack. Each system will consist of a selective catalytic reduction unit for oxides of nitrogen (NOx) control and an oxidation catalyst unit for carbon monoxide (CO) and precursor organic compounds (POC) control. If certified, the EEC must comply with rules and regulations of the Bay Area Air Quality Management District (BAAQMD) and the conditions identified in BAAQMD's Final Determination of Compliance (FDOC) for the project. The Conditions of Certification listed in the **Air Quality** section of

this Decision include all the Conditions contained in the FDOC as well as Conditions proposed by Staff as modified by the Energy Commission.

In completing this review process, the Energy Commission consulted with local, state, and federal agencies including the City of Hayward, Alameda County, BAAQMD, California Environmental Protection Agency (Cal-EPA) California Air Resources Board (CARB), Office of Environmental Health Hazard Assessment (OEHHA), Department of Toxic Substances Control (DTSC), Alameda County Airport Land Use Commission, California Department of Transportation (Caltrans) Aeronautics Division, and the Federal Aviation Administration (FAA).

The formal Intervenors included the City of Hayward; Mr. Paul N. Haavik; Alameda County; Las Positas-Chabot Community College District, California Pilots Association and San Lorenzo Village Homes Association (Group Petitioners); and Mr. Robert Sarvey.

Members of the Hayward community expressed vigorous opposition to the EEC. Scores of individuals, community representatives, and elected officials participated at our public hearings. All public comments at the hearings were included in the official Reporter's Transcripts of this proceeding. In addition, the Energy Commission's Docket Unit received more than 1,500 written comments on the EEC. Most of the comments referenced the EEC's potential impacts on air quality, public health, environmental justice, global warming, land use, socioeconomics and property values, noise, and aviation safety. The overarching public concern was based on the potential environmental and economic burdens of hosting two gas-fired power plants within one mile of each other in the City of Hayward.[2] The Final Staff Assessment (Ex. 200) contains

[2] Public opposition was particularly focused on the Energy Commission's approval of the Russell City Energy Center (RCEC) Amendment in Hayward shortly before we began evidentiary hearings on this project. The RCEC is a 600 MW, combined cycle, gas-fired power plant that will be constructed about one mile from the EEC site.

detailed responses to the public comments by topic and this Decision also addresses public concerns by topic.

Based on the evidentiary record, we found it necessary to make changes to proposed mitigation submitted by the parties. The following summarizes the changes by topic:

Air Quality. Applicant and Staff provided testimony at the July 21, 2008 Supplemental Evidentiary Hearing indicating that the EEC would comply with the stringent new state NO_2 standard adopted by CARB on March 20, 2008. To mitigate PM emissions, Condition **AQ-SC8** requires the project owner to provide evidence of appropriate Emission Reduction Credits (ERCs) and/or woodstove/fireplace retrofit credits prior to construction. Failure to do so will delay construction.

Environmental Justice. Since public health impacts are determined at the point of maximum impact, which is at the project fence line and 50 yards east in a parking lot, there is no evidence of disproportionate impact on an environmental justice population. The most conservative assumptions regarding sensitive individuals are included in the modeling protocol established by OEHHA. Staff is not required to develop a new or different model to address Environmental Justice concerns raised by the Intervenors.

Public Health. We have adopted the more restrictive testing requirements recommended by Staff in Condition **PUBLIC HEALTH-1,** which directs the project owner to conduct source tests on four engines, to test for acrolein emission levels, and to restrict operation if source testing indicates that project emissions exceed safe RELs. We have edited the Condition for consistency with Conditions **AQ-23, AQ-24, and AQ-25**.

At the July 21, 2008 Supplemental Evidentiary Hearing, Applicant and Staff provided testimony that new ambient air quality data from CARB's March 18, 2008, Draft Health Risk Assessment on diesel particulate emissions in the Oakland area would not affect the risk assessment required by Condition **PUBLIC HEALTH-1**.

Land Use. The site is inconsistent with the City's Airport Approach Zoning Regulations, which are designed to: (1) prevent the creation or establishment of airport hazards or obstructions; and (2) prevent the destruction or impairment of the utility of the airport and the public investment therein. The EEC's high-velocity thermal plumes could cause turbulence and loss of control to aircraft flying at low altitude over the project site, creating a safety hazard within the airport zoning area since aircraft regularly fly over the EEC site at low altitude.

The aviation safety hazard created by the EEC would significantly restrict uses of the Hayward airspace for aircraft transit, maintenance flights, student pilot training, and normal departures/arrivals that cannot be avoided if the project is developed at the proposed location. Thus, the EEC is inconsistent with Conditional Use Permit (CUP) finding (c) since the project's invisible thermal plumes create an aviation safety hazard that is detrimental to public safety or general welfare.

The Applicant failed to provide substantial evidence of feasible mitigation that would either (1) eliminate thermal plumes or (2) prevent the constriction of navigable airspace that would impair the utility of the airport. Thus, the EEC is inconsistent with CUP finding (d) since it creates an aviation safety hazard affecting the operation and utility of the Hayward Executive Airport, which is not in harmony with applicable City policies.

The EEC is inconsistent with zoning requirements for a CUP since the project "would not operate at a minimum of detriment to surrounding properties" and is

therefore incompatible with Sections 10-1.140, 10-1.1605, 10-1.1620, 10-3225, and 10-6.00 of the Hayward Municipal Code as well as the Alameda County Airport Land Use Policy Plan (ALUPP). The EEC is also inconsistent with Land Use Policy 7 of the City's General Plan 2002 Update, which promotes the transition of the eastern portion of the Industrial Corridor from heavy industry to information-based technology.

Noise. We have adopted Condition **NOISE-4** as recommended by Staff to limit operating noise levels to 60 dBA at R2. Condition **NOISE-4** also requires project design to eliminate tonal noises (pure tones) that are distinctive in sound quality. We find that Staff's recommendation is consistent with LORS requirements, particularly since Fremont Bank's employees regularly use the Bank's outside facilities. There was no evidence to support Applicant's claim that it would be technologically infeasible to reduce project only noise to 2 dBA above the ambient noise levels. Applicant's proposed modifications to Condition **NOISE-4** would contribute to the project's cumulative noise impacts and be inconsistent with applicable law

Traffic and Transportation. (1) The project's invisible thermal plumes at the proposed site create a significant adverse impact under CEQA that would be cumulatively considerable to available Hayward Airport airspace. (2) The EEC is adjacent the existing air traffic pattern, requiring pilots to be concerned about other traffic as well as potential turbulence from stack exhaust. (3) The cumulative effect of the EEC on Hayward Airport airspace increases the potential for serious impairment to the utility of the airport by increasing the complexity of the airspace. (4) The "no fly zone" mitigation planned for RCEC cannot be implemented at the EEC since this would reduce available airspace for the takeoff and landing traffic pattern zone. (5) The project does not comply with applicable LORS regarding *aviation* traffic (City of Hayward Airport Approach Regulations) since it will result in a significant aviation hazard that cannot be mitigated at the proposed site.

The evidentiary record includes results of Applicant's November 2007 flyover test, which was conducted to measure thermal plume velocity at a similar power plant facility known as the Barrick plant near Reno, Nevada. The Committee rejected the results of the Barrick test as unreliable and denied Applicant's motion to reopen the record to allow a second flyover to cure the deficiencies of the Barrick test. Substantial evidence in the record establishes that the project location itself creates an unmitigable adverse impact on the already-congested airspace near the Hayward Executive Airport. Moreover, operation of EEC would also result in a cumulatively considerable adverse impact on aviation safety in conjunction with the RCEC project, which also reduces available airspace near the airport. Evidence from another flyover test would not change those findings.

Visual Resources. Construction lighting shall be consistent with Condition **VIS-3**, which requires all lighting to be shielded, hooded, and directed downward to minimize potential impacts on sensitive receptors. A lighting complaint resolution form shall document lighting complaints and resolutions. We have modified Condition **VIS-3** to include reference to nighttime construction lighting and to require notification to the public on how to file a lighting complaint.

Worker Safety/Fire Protection. Condition **Worker-Safety-**7 requires the project owner to pay the Hayward Fire Department (HFD) up to $75,000 for one-half of the total cost to upgrade the HFD's Opticom system to mitigate the project's incremental effect on fire and emergency response in conjunction with the RCEC

OVERRIDE

Applicant requested the Energy Commission to override findings of LORS inconsistencies and to certify the EEC in the interest of "public convenience and necessity" for reliable peaking energy in the Bay Area. We decline to override. As discussed in the **Local System Effects** and **Override** sections of this Decision, we find that the project's economic and reliability benefits for electricity consumers are modest at best. We also find that the project's asserted

environmental benefits from replacing power generated by older, less efficient power plants do not outweigh the project's public health and safety impacts. On balance, the EEC does not provide public benefits that outweigh the consequences of LORS violations at the proposed site or warrant overriding considerations under the Warren-Alquist Act or CEQA.

B. SITE CERTIFICATION PROCESS

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

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

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

The process begins when an Applicant submits an Application for Certification (AFC). Commission staff reviews the data submitted as part of the AFC and makes a recommendation to the Commission on whether the AFC contains adequate information to begin the certification process. After the Commission determines an AFC contains sufficient analytic information, it appoints a Committee of two Commissioners to conduct the formal licensing process. This process includes public conferences and evidentiary hearings, where the

evidentiary record is developed and becomes the basis for the Presiding Member's Proposed Decision (PMPD). The PMPD determines a project's conformity with applicable laws, ordinances, regulations, and standards and provides recommendations to the full Commission.

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

Following this, the Committee conducts a Prehearing Conference to assess the adequacy of available information, identify issues, and determine the positions of the parties. Based on information presented at this event, the Committee issues a Hearing Order to schedule formal evidentiary hearings. At the evidentiary hearings, all formal parties, including Intervenors, may present sworn testimony, which is subject to cross-examination by other parties and questioning by the Committee. Members of the public may offer oral or written comments at these hearings. Evidence submitted at the hearings provides the basis for the Committee's analysis and recommendations to the full Commission.

The Committee's analysis and recommendations appear in the PMPD, which is available for a 30-day public comment period. Depending upon the extent of revisions necessary after considering comments received during this period, the Committee may elect to publish a revised version. If so, the Revised PMPD triggers an additional 15-day public comment period. Finally, the full Commission

decides whether to accept, reject, or modify the Committee's recommendations at a public hearing.

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

C. PROCEDURAL HISTORY

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

On September 22, 2006, Eastshore Energy, LLC (Applicant) submitted an Application for Certification (AFC) for the Eastshore Energy Center (EEC), a 115.5 MW power plant in the City of Hayward. On November 8, 2006, the Energy Commission deemed the AFC data adequate (sufficient data to proceed) and assigned a Committee of two Commissioners to conduct proceedings.

The formal parties included the Applicant, Energy Commission staff (Staff), and Intervenors City of Hayward; Mr. Paul N. Haavik; Alameda County; Las Positas-Chabot Community College District, California Pilots Association and San Lorenzo Village Homes Association (Group Petitioners); and Mr. Robert Sarvey.

On January 3, 2007, the Committee issued a Notice of "Informational Hearing and Site Visit." The Notice was mailed to local agencies and members of the community who were known to be interested in the project, including the owners of land adjacent to or in the vicinity of the EEC. The Notice was also published in a local general circulation newspaper.

On January 29, 2007, the Committee conducted a Site Visit to tour the proposed EEC site and then convened a public Informational Hearing in the City of Hayward at the Chabot College Campus. At that event, the Committee, the parties, interested governmental agencies, and other public participants discussed issues related to development of the EEC, described the Commission's review process, and explained opportunities for public participation. On February 2, 2007, the Committee issued an initial Scheduling Order. A Revised Scheduling Order was issued on April 5, 2007, and a 2nd Revised Scheduling Order was issued on July 2, 2007.

In the course of the review process, Staff conducted public workshops on January 29, March 19, and May 23, 2007, to discuss issues with the Applicant, governmental agencies, and interested members of the public.

On May 18, 2007, the Committee issued a Notice of Joint Committee Status Conference, which was held on June 6, 2007, at the Hayward City Council Chambers. The Joint Status Conference included the Russell City Energy Center (RCEC) Committee members and RCEC parties to discuss overlapping issues between the EEC and RCEC projects. The Joint Status Conference provided a public forum for the EEC and RCEC Applicants, the Commission staff, interested parties, governmental agencies, and members of the public to discuss whether case development was progressing satisfactorily, potential schedule delays, and other relevant matters regarding the certification process.

Staff issued its Preliminary Staff Assessment (PSA) on August 17, 2007. Subsequently, on September 6, 2007, Staff conducted a public workshop in Hayward to discuss the topics of Alternatives, Air Quality, Biology, Land Use, Public Health, Worker Safety and Fire Protection, Land Use, Traffic and Transportation, and Local System Effects. Staff issued its Final Staff Assessment (FSA) on November 9, 2007.

On October 16, 2007, the Committee issued a Notice of Prehearing Conference and Notice of Evidentiary Hearings. The Prehearing Conference was held at the City of Hayward Council Chambers on November 26, 2007.

On December 4, 2007, the Committee issued a Notice of Evidentiary Hearings, which were conducted at the City of Hayward City Council Chambers on December 17 and 18, 2007. On December 20, 2007, the Committee issued a Notice of Continued Evidentiary Hearing Date, which was held on January 14, 2008, to accommodate the parties, to allow more time for public comment, and to complete the receipt of evidence in this matter. The January 14 and July 21, 2008, hearings were also conducted at the City of Hayward Council Chambers. All Evidentiary Hearings were broadcast over the City of Hayward's local access TV Channel 15 (KHRT) and webcast live on the City's website.

The Committee published the Presiding Member's Proposed Decision (PMPD) on June 20, 2008, and held a Supplemental Evidentiary Hearing and Committee Conference in Hayward on July 21, 2008, to take additional evidence and to discuss the PMPD. The 30-day comment period on the PMPD expired on July 28, 2008. Based on the evidence submitted at the July 21, 2008 hearing and the parties' comments on the PMPD, the Committee issued a Revised PMPD on August 29, 2008. The comment period on the Revised PMPD expires October 8, 2008, when the full Commission will conduct a hearing in Sacramento on the Revised PMPD.

On July 16, 2008, Applicant filed a motion to reopen the record to conduct a second flyover test to correct deficiencies of its November 2007 flyover test at the Barrick power plant in Nevada. The Committee denied the motion on August 8, 2008.

D. PUBLIC COMMENT

The record contains public comments from concerned individuals, organizations, and elected officials. Throughout these proceedings, as reflected in the transcribed record, the Committee provided an opportunity for public comment at each Committee-sponsored conference and hearing. The following list shows the names of those offering public comments at the Prehearing Conference on November 26, 2007, and the Evidentiary Hearings on December 17-18, 2007, and January 14 and July 21, 2008. The concerns raised in public comments were addressed in the Final Staff Assessment (Ex. 200) and in this Decision.

EEC – Public Comment
Prehearing Conference, November 26, 2007

Name and Organization
Scott Galati, Galati|Blek, Counsel, Pacific Gas and Electric Company
Bob Nishimura, Bay Area Air Quality Management District
Weyman Lee, Bay Area Air Quality Management District
Christopher Parman, Office of Assembly Member Mary Hayashi
Jesus Armas, Former City Manager for City of Hayward
Barry Luboviski, Building and Construction Trades Council of Alameda County AFL-CIO
Ryan Maldonado
Ben Flores
Mayor Michael Sweeney, City of Hayward
Kevin Dowling, Hayward City Council Member
Barbara Halliday, Hayward City Council Member
Audrey LePell, Citizens Against Pollution

Prehearing Conference, November 26, 2007
(Continued)

Name and Organization
Karen Kramer
Patricia Taylor
Dennis DuBose
Ernie Pacheco
Diane Zuliani, Academic Senate President, Chabot Community College
Susan Silva, Citizens Against Pollution
J. V. McCarthy
Suzanne Barba
Andrew Wilson III
Robert Williams
Juanita Gutierrez
Rob Simpson

EEC – Public Comment
Evidentiary Hearing – December 17, 2007

Name and Organization
Scott Galati, Galati|Blek, Counsel to Pacific Gas and Electric Company
Michael W. Jarred, Office of Senator Ellen M. Corbett
Christopher Parman, Office of Assembly Member Mary Hayashi
Mayor Michael Sweeney, City of Hayward
Supervisor Gail Steele, Alameda County Board of Supervisors
Ahmad Asir
Chancellor Joel Kinnamon, Ed.D, Chabot-Las Positas Community College District
Trustee Hal G. Gin, EdD, Chabot-Las Positas Community College District
Diane Zuliani, Academic Senate President, Chabot Community College
Rachel Ugale, Classified Senate President, Chabot Community College

EEC – Public Comment
Evidentiary Hearing – December 17, 2007
(Continued)

Name and Organization
Jove Meyer, Vice President, Associated Students of Chabot College, Chabot Community College
Lynn Tomkunas
Audrey LePell, Citizens Against Pollution
Karen Kramer, Citizens Against Pollution
Professor Laurie Price, California State University East Bay
Wulf Bieschke, President, San Lorenzo Village Homes Association
Glenn Kirby, Sierra Club
Kimberley Finn
Harry Shin, Pilot and Mechanical Engineer
Juanita McDonald
Barry Luboviski, Building and Construction Trades Council of Alameda County AFL-CIO
Stephania Widger
Sharon Cornu, Alameda Labor Council
Patricia Taylor
J. Edwards
J. V. McCarthy
Mitchell Medeiros
Bob Williams
Carol Ford, California Pilots Association
Juanita Gutierrez
Rob Simpson
Jesus Armas, Former City Manager for City of Hayward

EEC – Public Comment
Evidentiary Hearing – December 18, 2007

Name and Organization
Scott Galati, Galati|Blek, Counsel to Pacific Gas and Electric Company
David Butterfield, Federal Aviation Administration
Gary Cathey, Caltrans Aeronautics Division
Andy Richards, Federal Aviation Administration
Mayor Michael Sweeney, City of Hayward
Jesus Armas, Former City Manager for City of Hayward

EEC – Public Comment
Evidentiary Hearing – January 14, 2008

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EEC – Public Comment
Committee Conference and Evidentiary Hearing – July 21, 2008

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I. PROJECT PURPOSE AND DESCRIPTION

On September 22, 2006, Eastshore Energy, LLC (Applicant), a wholly-owned subsidiary of Tierra Energy,[3] filed an application for certification (AFC) for the Eastshore Energy Center (EEC), a natural gas-fired, 115.5 megawatt (MW) power plant to be located in the City of Hayward. (Ex. 200, p. 3-1; Ex. 1 § 1.0.)

Project Ownership and Purpose

The Applicant will construct, own, and operate the EEC under a 20-year power purchase agreement (PPA) with Pacific Gas & Electric (PG&E) to supply up to 115.5 MW of electricity at the Eastshore Substation interconnection. (Ex. 1, §1.5.) The Applicant's predecessor, Black Hills Energy, sponsored the EEC in PG&E's 2004 Request for Offers (RFO) for non-renewable generation resources. In April 2006, PG&E chose EEC as one of seven projects to receive a PPA under the RFO process. Subsequently, Tierra Energy acquired the EEC from Black Hills and in June 2006, formally advised the City of Hayward of plans to develop the project. Under the PPA, the EEC is expected to be online by May 2009. (1/14/08 RT 54, 78; Ex. 310.)

The EEC is designed as a 115.5 MW nominal capacity intermediate/peaking load facility to serve local load demands in the southern East Bay and in the City of San Mateo in the San Francisco peninsula due the existing transmission network. The project's quick start capability is designed to respond to unexpected changes in regional demands from high summer temperatures, other facilities tripping off line, or sudden changes in renewable power generation. In accordance with Bay Area Air Quality Management District (BAAQMD) requirements, the project may operate up to 4,000 hours per engine per year with no seasonal restrictions. Actual operation will depend upon PG&E system demand, California Independent System

[3] Tierra Energy is a development and asset management company based in Denver, Colorado. (Ex. 1, § 1.5.)

Operator (CAISO) dispatch requirements, and North of Path 15 (NP-15) market conditions. (Ex. 1, § 1.2; Ex. 200, p. 3-1.)

Power Plant Site and Facilities

The proposed EEC site is a 6.22-acre parcel located in Alameda County within the City of Hayward at 25101 Clawiter Road in an area zoned for industrial use. The site, previously used as metal stamping facility for automobile parts, was purchased by Tierra Energy in August 2006. A vacant industrial building and asphalt paving currently exist on the parcel. A commercial office complex and parking lot are located to the immediate south and light-to-medium industrial facilities are located to the west and east. The Union Pacific Railroad (UPR) corridor forms the northeast corner of the parcel, and Clawiter Road borders the east. The EEC will lease a 1.5-acre parcel owned by Berkeley Farms, located across Clawiter Road, for temporary construction and laydown during the construction and commissioning periods. (Ex. 200, p. 3-2; Ex. 1, § 2.1.1.)

Staff's Project Description **Figure 1**, below, shows the regional and local settings for the project. (Ex. 200, after p. 3-4.)

The principal elements of the project include:

- Demolition of the existing site building, foundations, and paved surface on the 6.22-acre project site;
- Grading of site and installation of new foundations, piping, and utility connections;
- Installation of 14 nominal 8.4 MW (gross) Wartsila model 20V34SG natural gas-fired reciprocating engine-generator sets, *each* with a state-of-the-art air pollution control system, 70-foot tall stack, and 3 radiators equipped with 12 fans each for cooling (42 radiators total);
- Construction of an acoustically engineered main building enclosing all 14 engines;
- Construction of a closed-loop cooling system consisting of multiple fan-cooled radiator assemblies outside of the main building;
- Connection to pre-existing, on-site water and wastewater service pipelines;

- Construction of an on-site 115-kV switchyard including switchgear and step-up voltage transformers;
- Construction of an approximately 1.1-mile single-circuit 115-kV transmission line interconnecting to PG&E's Eastshore Substation;
- Construction of an approximately 200-foot off-site natural gas pipeline connection to PG&E's Line 153; and
- Use of a 4.65-acre temporary construction laydown and parking area located immediately across Clawiter Road from the project site. (Ex. 1, § 2.2.)

The EEC will consist of 14 Wartsila 20V34SG natural gas-fired reciprocating engine generator sets and associated exhaust stacks as well as mechanical and auxiliary equipment and a new switchyard. Total site generating capacity is approximately 118 MW gross or 115.5 MW net. Each generator set will have a gross capacity of approximately 8.4 MW, based upon a design ambient temperature range of 32ºF to 100ºF. The project is designed for rapid start-up capability since each engine can ramp up to full load within 10 minutes. (Ex. 200, p. 3-3; Ex. 1, §§ 1.8.7, 2.2.)

Each generator set will be equipped with support auxiliaries, including a fuel gas system, lube oil system, charge air systems, and an engine cooling system. Air emissions from each generator will be treated by a selective catalytic reduction (SCR) system for reduction of NO_x emissions, and an oxidation catalyst for reduction of carbon monoxide (CO) and precursor organic compound (POC) emissions. (Ex. 200, p. 3-3; Ex. 1, § 2.2; Ex. 21.)

The 14 generator exhaust stacks are each approximately 70 feet tall, four feet in diameter at the top and eight feet in diameter at the base. The stacks will be constructed in two clusters of seven stacks each, extending a total of approximately 425 feet in a linear array. Each stack will produce a high velocity thermal plume, with the potential for each seven-stack array to merge into a single plume. The project also includes two 20-foot tall radiator stack exhausts,

which also produce individual high velocity thermal plumes. (Ex. 200, p. 3-4; Ex. 1, § 2.2.2 et seq.; Ex. 21.)

Staff's Visual Resources **Figure 15**, below, shows the general arrangement of the facility. (Ex. 200, after p. 4.12-37.)

The EEC will connect to the electric grid at PG&E's existing Eastshore Substation, located approximately 1.1 miles south of the project site. This connection requires a new overhead single circuit 115-kV line that will run near an existing PG&E 12-kV distribution right-of-way. The connection may also require widening the existing right-of-way and replacing 10 to 12 transmission poles with towers designed to accommodate both the 12-kV and 115-kV transmission lines. (Ex. 200, p. 3-4; Ex. 1, § 2.2.)

Natural gas will be supplied via a 200-foot pipeline connection to PG&E's Pipeline 153, located on Clawiter Road. PG&E will install a 4.5-inch diameter pipeline interconnection via an underground bore originating at the site, boring under Clawiter Road and the Union Pacific Railroad right-of-way, and connecting to the existing gas line. (Ex. 200, p. 3-4; Ex. 1, § 2.2.)

The EEC will consume about 1.6 acre-feet of potable water per year for engine cooling, mechanical processes, landscape irrigation, and potable and sanitary uses. The closed-loop engine cooling system will reduce the need for water to approximately one gallon per minute (average annual rate) during plant operation. Applicant expects the City of Hayward to supply potable water for the project through an existing connection immediately adjacent to the site. Sanitary wastewater will be discharged to the city's sewer system via an existing on-site sewer connection. Process wastewater will be tested for potential contamination, and, under normal conditions, discharged to the sanitary sewer line. If wastewater composition exceeds allowable discharge limits, it will be transported off site for treatment and disposal. (Ex. 200, p. 3-4; Ex. 1, § 2.2.)

Project Schedule and Capital Cost

The capital cost of the project is estimated at $140 million. Property taxes are estimated at $1.4 million annually. (Ex. 200, p. 4.8-7.) Project construction will take approximately 18 months and will require an average and peak construction work force of about 125 and 235 individuals, respectively. The construction payroll is estimated at $33.8 million over 18 months. Construction sales tax revenue is estimated at $166,250. Approximately 13 permanent staff will be employed during project operation. Annual operational payroll is estimated at $1 to 2.3 million and operational sales tax revenue is estimated at $116,480. (Ex. 1, §§ 1.7.8, 1.8, and 2.2.15; Ex. 200, p. 4.8-7.)

Construction will be scheduled on weekdays, 7 a.m. to 7 p.m. Additional hours may be necessary to make up schedule deficiencies or complete critical construction activities. During some construction periods and during the start-up phase, some activities will continue 24 hours a day, 7 days a week. The peak construction workforce is expected in months 10 and 11 of the construction period. Truck deliveries of materials and equipment will access the site at Clawiter Road.

FINDINGS AND CONCLUSIONS

Based upon the evidentiary record, we find as follows:

1. Tierra Energy through its subsidiary Eastshore Energy, LLC (Project Owner) plans to construct and operate the Eastshore Energy Center (EEC), a nominally rated 115.5 MW natural gas-fired power plant within the City of Hayward in Alameda County.

2. As a result of PG&E's 2004 Request for Offers (RFO) process, the Project Owner will operate the EEC under a 20-year power purchase agreement with PG&E to supply up to 115.5 MW of electricity at the Eastshore Substation.

3. The EEC will be built on 6.22-acre parcel at 25101 Clawiter Road in Hayward and includes a new 200-foot underground natural gas pipeline connection to PG&E's Pipeline 153 on Clawiter Road as well as a new 1.1 mile overhead, single circuit 115-kV line near an existing PG&E 12-kV distribution right-of-way to the Eastshore Substation.

4. The power plant consists of 14 Wartsila 20V34SG natural gas-fired reciprocating engine generator sets, each with a gross capacity of approximately 8.4 MW, along with 14 associated 70-foot tall exhaust stacks, and air pollution control equipment including selective catalytic reduction (SCR) for reduction of NO_x emissions, and an oxidation catalyst for reduction of carbon monoxide (CO) and precursor organic compound (POC) as well as mechanical and auxiliary equipment and a new switchyard.

5. The EEC will consume about 1.6 acre-feet of potable water annually for cooling, mechanical processes, and domestic uses.

6. Due to its quick start capability, the EEC will serve as an intermediate/peaking load facility to respond to unexpected load demand in the southern East Bay and San Francisco peninsula.

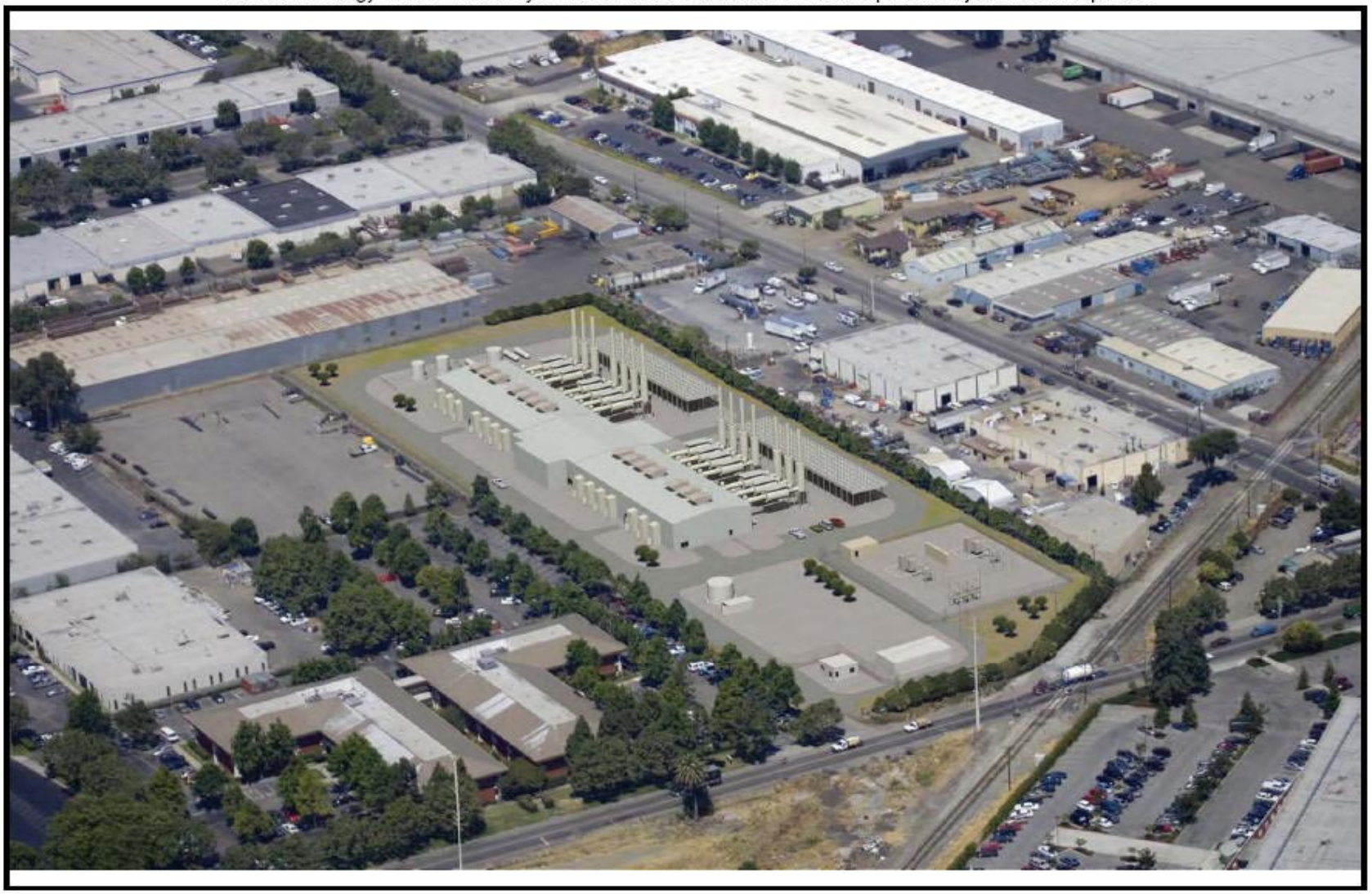
We therefore conclude that Tierra Energy/Eastshore Energy LLC has described the Eastshore Energy Center in sufficient detail to allow review in compliance with the provisions of both the Warren-Alquist Act and the California Environmental Quality Act (CEQA).

PROJECT DESCRIPTION - FIGURE 1
Eastshore Energy Center - Site and Linear Facilities Location Map

Source: Ex. 200

VISUAL RESOURCES - FIGURE 15

Eastshore Energy Center - Bird's Eye View of a Photo Simulation of the Proposed Project After Completion



Source: Ex. 200

VIII. PROJECT ALTERNATIVES

For projects such as the Eastshore Energy Center that have been exempted from the Notice of Intention requirements by Public Resources Code section 25540.6(a),[4] the Commission is required to examine ". . . the feasibility of available site and facility alternatives. . . which substantially lessen the significant adverse impacts of the proposal on the environment." (20 Cal. Code Regs., § 1765; 14 Cal. Code Regs., § 15252.) This inquiry is consistent with the traditional Environmental Impact Report (EIR) process and the California Environmental Quality Act (CEQA) Guidelines.

The range of alternatives we are required to consider is governed by a rule of reason. This means that our consideration of alternatives is limited to those that would avoid or substantially lessen any of the project's significant effects while still continuing to attain most of the basic objectives of the project. (1/14/08 RT 69:2-8.) This is especially relevant in the present case since, as discussed in the pertinent portions of this Decision, we have determined that the proposed project will cause unmitigable significant adverse impacts in the areas of **Land Use** and **Traffic and Transportation**. We also evaluated the “no project" alternative. We did not include those alternatives whose effects cannot be reasonably ascertained and whose implementation is remote and speculative. [See, *e.g.,* 14 Cal. Code Regs., § 15126.6.]

Under both the traditional EIR process and our "functionally equivalent" process, the key issue is whether the selection and discussion of alternatives fosters informed decision making and informed public participation. (*Laurel Heights Improvement Association of San Francisco* v. *The Regents of the University of California* (1988) 47 Cal.3d 376.) To put the alternatives analysis into

[4] Public Resources Code section 25540.6(b) requires an Applicant for a power plant such as the EEC to include information on the site selection criteria, alternative sites, and the reasons for choosing the proposed site. Section 1765 of the Commission’s regulations further requires the parties to present evidence on alternative sites and facilities at the evidentiary hearings.

perspective, it is important to recognize that alternatives are considered at two stages in our process and that differing factors come into play at each stage. Alternatives are identified, and refined, beginning with the AFC filing (Ex. 1) and continuing through the preliminary and final staff assessments (Ex. 200), then examined once again during the evidentiary hearing stage. When selecting alternatives as part of its project analysis, Staff's task is to examine the objectives of the project and to identify a range of alternatives that will satisfy most of the basic project objectives while reducing or avoiding any significant impacts. The focus is on whether an alternative can, as a practical matter, be implemented. Alternatives that are not at least potentially feasible[5] are excluded at this stage because there is no point in studying those that cannot succeed.

At the project approval stage, the decision-makers evaluate the relative advantages and disadvantages of the project and its impacts, as well as any alternatives deemed to be potentially feasible, as developed through the foregoing process. The decision-makers can approve the project as fully mitigated, approve the project even with significant unmitigated impacts if there are overriding considerations, or deny the project. The Commission makes this decision after considering the entire range of issues and policies relevant to its action on the project. CEQA does not mandate the choice of the environmentally "best" feasible project if, through the imposition of appropriate mitigation measures, a project's impacts can be reduced to an acceptable level. (*Laurel Hills Homeowners Association* v. *City Council of City of Los Angeles* (1978) 83 Cal.App.3d 515.)

[5] "Feasibility" takes into account environmental, economic, legal, social, technological, and other considerations. (Pub. Res. Code § 21061.1; 14 Cal. Code Regs., § 15364.)

SUMMARY AND DISCUSSION OF THE EVIDENCE

Applicant, Staff, and Intervenor Group Petitioners were the only parties to submit evidence on this topic.[6]

1. Project Objectives.

Applicant cited five basic objectives for the EEC project in evidence offered at the initial Evidentiary Hearings:

- To safely construct and operate a nominal 115.5-MW (net), natural-gas fired, intermediate/peaking load generating facility;
- To deliver electricity to the PG&E Eastshore Substation at 115-kV without system upgrades;
- To provide voltage support to the regional 230-kV transmission system;
- To provide much-needed reliable local power supply (intermediate and peak generation) at 115-kV to the Eastshore Substation to meet the area's demand; and
- To develop a project within the timeframes and performance criteria required by the executed PG&E/Eastshore Energy, LLC power purchase agreement. (Ex. 1, p. 9-1.)

In the PMPD, we noted that Staff reviewed these objectives to ensure their reasonableness (1/14/08 RT 81:13-22) and synthesized them, essentially repeating the first three objectives mentioned above. (1/14/08 RT 69:18-25; 74:8-18; Ex. 200, pp. 3-2, 6-3.) Staff further explained that the Eastshore project

[6] Applicant challenged the qualifications of the witness offered by Group Petitioners. (1/14/08 RT 56-59.) This witness' testimony did not deal with the substantive merits of alternative project configurations or locations, but rather contended that the project was not needed and was inconsistent with various goals and policies contained in the Commission's 2007 Integrated Energy Policy Report (*IEPR*). (1/14/08 RT 60-64.) We are, of course, aware of the *IEPR* and have taken official notice of it in this proceeding. (1/14/08 RT 65:23-24.) Notably, the Intervenor did not assert that Staff's Alternatives analysis failed to comply with CEQA, but rather that the analysis failed to consider demand reducing factors and other information discussed in the *IEPR*. (1/14/08 RT 66:13-67:2; see also, Group Intervenors Comments on the PMPD at 5-7.)

was the result of the competitive bidding process conducted under the auspices of the California Public Utilities Commission. The EEC was selected by PG&E to meet the utility's needs for clean fossil fuel generation through the 2004 Request for Offers (RFO) solicitation.[7] (Ex. 200, p. 3-1; Ex. 12.)

At the July 21, 2008 Supplementary Evidentiary Hearing, the Committee learned that Applicant had terminated the Power Purchase Agreement with PG&E on May 18, 2008. (7/21/08 RT 79, 88-89, 92:20-22.) Applicant indicated that it nonetheless retains its plan to interconnect at the Eastshore Substation as a project objective. (7/21/08 RT 94:7-14; 134:15-21.) Applicant also noted that the EEC has been "re-bid," and believes that since PG&E had selected it to supply generation once; there is a strong possibility that PG&E would select it again. (7/21/08 RT 89:10-16; Applicant's Supplement to the Motion to Reopen the Evidentiary Record at 6.)

2. Applicant's Analysis

The evidence explains the process Applicant used in choosing the proposed project site and configuration. Applicant reviewed six sites in addition to the one proposed. Applicant examined whether each alternative location: 1) was close to the Eastshore substation and infrastructure including a gas transmission line, a potable water line, and a sewer system; 2) would allow development with no significant environmental impacts; 3) was compatibly zoned; 4) was of adequate size (6-10 acres) and available for sale or lease; and 5) would allow for construction and operation in compliance with applicable LORS. (Ex. 1, p. 9-4.) Table 1 summarizes Applicant's comparative evaluation of these sites: (Ex. 1, p. 9-12.)

[7] We noted in the PMPD that Applicant's counsel clarified that Applicant was not relying on the specific terms of the RFO contract as the basis for its analysis, other than the fact that the contract existed and that Applicant had publicly disclosed the on-line date. (1/14/08 RT 77-78.)

Alternatives Table 1 - Comparison of the Proposed Site and Alternative Site Locations

Characteristic	Eastshore (Proposed) Site 1	PG&E Substation Site 2	Pallet Yard Site 3	Industrial Buildings/Yards Sites 4-6	WPCF Site Site 7
Ability to control site	Yes	No	No	No	No
Size of parcel (parcel must be 6 – 10 acres	Yes	Yes	No	No	No
Site encumbrances	No	Yes	No	No	Yes
Appropriate zoning	Yes*	Yes	Yes	Yes	Yes
Proximity to sensitive noise receptors	1,100 feet north	2,200 east	5,800 east	Ranges from 1,100 to 4,400 feet	4,300 feet
Traffic Impacts	Yes	Yes	Yes	Yes	Yes
Potential visual sensitivity	Low	Low	Moderate	Low/Moderate	Moderate
Ability to use water consistent with State Water Resources Control Board policy	Yes	Yes	Yes	Yes	Yes
Distance to potable water line	Adjacent to site	Adjacent to site	Adjacent to all sites	Adjacent to site	Adjacent to site
Existing gas supply	200 feet	2,000 feet	4,300 feet	Ranges from 400 feet to 3,000 feet	4,500 feet
Transmission Interconnection	1.1 miles	200 Feet	5,000	Ranges from 1,300 feet to 5,100 feet	4,300 feet

* This is inconsistent with the Commission's findings on Land Use LORS

The evidence further shows that Applicant compared the environmental effects of locating the project at one of the alternative sites (see, Table 9.3-2 in Ex. 1, pp. 9-20 to 9-25), that it examined alternative corridors for the associated linear facilities such as gas and water lines (Ex. 1, pp. 9-13 to 9-16), and that it explored alternative project configurations (Ex. 1, pp. 9-16 to 9-18) and the use of alternative technologies. (Ex. 1, pp. 9-18 to 9-19.) Based upon these analyses, Applicant concluded that the project, as proposed, would meet all project objectives, create no unmitigable significant adverse impacts, and comply with all applicable LORS. (Ex. 1, pp. 9-11 to 9-13.)

3. Staff's Analysis.

Staff performed a similar, independent analysis of the proposed project. Staff's methodology is intended to:

- Describe the basic project objectives;
- Identify any potential significant environmental impacts;

- Identify and evaluate alternative locations or sites to determine whether any potential impacts are similar, lesser, or worse than those associated with the proposed project;
- Identify and evaluate technology alternatives; and
- Evaluate the implications of not constructing the project. (Ex. 200, pp. 6-2 to 6-3.)

In applying this methodology, Staff considered the underlying objectives of the project and limited its analysis to the East San Francisco Bay area. Staff then evaluated alternative locations with regard to the project objectives and a potential alternative's: proximity to the PG&E Eastshore substation; location in an area appropriate for industrial development; compatibility with general plans and zoning ordinances; proximity to needed infrastructure such as water service, transmission lines, and gas pipelines; and ability to mitigate any potential adverse impacts to below a level of significance. (Ex. 200, p. 6-3.)

Staff initially examined the alternative site locations proposed by Applicant (*see Alternatives Table 1, supra*) as well as four additional sites in the City of Fremont, one site in the City of Newark, and the potential for locating the project in the City of Alameda at the former Alameda Naval Station.[8] In addition to applying the methodology mentioned above, Staff also visited several alternative sites to confirm suitability and continued availability. (1/14/08 RT 70-71; Ex. 200, p. 6-5.) At the conclusion of its analysis, Staff eliminated seven sites from further consideration.[9]

The five sites Staff retained for further evaluation were Applicant's Alternatives 1, 2, and 5, and Staff's Alternative sites D & E. Applicant's alternative sites are

[8] This alternative site analysis included locating the EEC project with the Russell City project at or near the latter project site. (1/14/08 RT 70:22 – 71:5; see also Exs. 10, 47, 306.)

[9] Staff's reasons for eliminating various sites are contained in the FSA (Ex. 200) at pages 6-5 to 6-7. Briefly, the sites eliminated were Applicant's Alternatives 3 and 4 (parcel too small); the Russell City site (insufficient space available; Ex. 303); Applicant's Alternative 6 (no longer available); Staff Alternative A (Stevenson Road in Fremont; pending sale); Staff Alternative B

each located in Hayward and connect to the Eastshore substation; Staff's alternative sites are each located in Fremont and would connect to the Newark substation. (1/14/08 RT 71:8-14.) Staff then performed a comparative analysis of these five alternative sites and the proposed project site to assess the availability of necessary infrastructure as well as the relative environmental impacts. (1/14/08 RT 71:15 – 72:13; Ex. 200, pp. 6-7 to 6-11.) The following two tables summarize the results of Staff's analysis:

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(Cargill Facility in Newark; dedicated to commercial development); and the Alameda Naval Air Station (plan inconsistency). (Ex. 200, pp. 6-5 to 6-7.)

ALTERNATIVES Table 2
Comparison of Approximate Length of Linears/Distance to Receptors (feet)

	Eastshore Site	Tierra Alternative Site 1	Tierra Alternative Site 2	Tierra Alternative Site 5	Staff Alternative Site D	Staff Alternative Site E
Transmission Line Length	5,900	200	5,000	1,600	10,000-15,000	18,500
Gas Pipeline Length	200	2,000	4,500	400	6,800	Adjacent
Water/Sewer Connections	Adjacent	Adjacent	Adjacent	Adjacent	Adjacent	Adjacent
Distance to Sensitive Receptors	1,100	2,200	7,400	1,100	1,200	2,600
Distance to Schools	1,000 – 3,700	4,400	7,000	2,900	3,500	4,500

Source: Ex. 200, p. 6-10.

ALTERNATIVES Table 3
Comparison of Impacts of Alternatives to the Proposed Eastshore Project *

Issue Area	Tierra Alternative Site 1 – PG&E Sub	Tierra Alternative Site 2 – Depot Rd	Tierra Alternative Site 5 – Corporate Ave	Staff Alternative Site D – Boyce Rd	Staff Alternative Site E – Grimmer Blvd
Environmental Assessment					
Air Quality	Similar to proposed site	Similar to proposed site	Similar to proposed site	Similar to proposed site	Similar to proposed site
Biological Resources	Similar to proposed site	Similar to proposed site	Similar to proposed site	Similar to proposed site	Similar to proposed site
Cultural Resources	Similar to proposed site	Similar to proposed site	Similar to proposed site	Similar to proposed site	Similar to proposed site
Hazardous Materials	Similar to proposed site	Similar to proposed site	Similar to proposed site	Similar to proposed site	Similar to proposed site
Land Use	Similar to proposed site although greater distance to airport could reduce impacts	Similar to proposed site	Similar to proposed site although greater distance to airport could reduce impacts	Less than proposed site	Less than proposed site
Noise and Vibration	Similar to proposed site	Less than proposed site	Similar to proposed site	Similar to proposed site	Similar to proposed site
Public Health	Similar to proposed site	Similar to proposed site	Similar to proposed site	Similar to proposed site	Similar to proposed site

Issue Area	Tierra Alternative Site 1 – PG&E Sub	Tierra Alternative Site 2 – Depot Rd	Tierra Alternative Site 5 – Corporate Ave	Staff Alternative Site D – Boyce Rd	Staff Alternative Site E – Grimmer Blvd
Socio-economic Resources	Similar to proposed site	Similar to proposed site	Similar to proposed site	Similar to proposed site	Similar to proposed site
Soil and Water Resources	Similar to proposed site	Similar to proposed site	Similar to proposed site	Similar to proposed site	Similar to proposed site
Traffic and Transportation	Less than proposed site although aviation safety and air traffic impacts could still occur	Similar to proposed site	Less than proposed site although aviation safety and air traffic impacts could still occur	Less than proposed site	Less than proposed site
Visual Resources	Similar to proposed site	Similar to proposed site	Similar to proposed site	Similar to proposed site	Similar to proposed site
Waste Management	Similar to proposed site	Similar to proposed site	Similar to proposed site	Similar to proposed site	Similar to proposed site
Worker Safety	Similar to proposed site	Similar to proposed site	Similar to proposed site	Similar to proposed site	Similar to proposed site
Engineering Assessment					
Geology, Mineral Resources, and Paleontology	Similar to proposed site	Similar to proposed site	Similar to proposed site	Similar to proposed site	Similar to proposed site
Transmission System Engineering	Similar to proposed site	Similar to proposed site	Similar to proposed site	Similar to proposed site	Similar to proposed site

Source: Ex. 200, p. 6-11. The shaded cells in Table 3, above, indentify impacts which differ – to a greater or lesser degree – from those associated with the proposed site.

Based upon the analyses summarized above, Staff concluded that the two Fremont sites (Staff's Alternatives D and E) would not have the aviation related impacts discussed in the **TRAFFIC AND TRANSPORTATION** section of this Decision. Of these two sites, Staff's testimony indicates that Alternative Site D ". . . reduces the significant impacts of the Eastshore project and appears to have fewer environmental impacts as compared to the other alternatives." (1/14/08 RT 72:10-13.)

4. Technology Alternatives/No Project Analysis

The evidence of record also shows that both Applicant and Staff examined technological alternatives to the EEC as well as the consequences of not constructing the proposed project.

California's electrical use continues to increase as a result of population growth and business expansion. The unrefuted evidence establishes that measures such as energy conservation and programs that increase energy efficiency, reduce electricity use, or shift electricity use away from peak hours of demand are not currently sufficient to satisfy the State's electrical needs. (1/14/08 RT 72:14-18.) Both new generation and transmission facilities will likely be needed. (Ex. 200, p. 6-12.)

The evidence also contains an analysis of renewable, non-fossil fuel technological alternatives to the EEC. These include solar, wind, geothermal, biomass, and hydroelectric sources of power. The evidence shows that each of these technologies is either unavailable in the area (*e.g.,* geothermal), unlikely to be developed in the near term (*e.g.,* hydro or biomass), or would occupy many times the land area which would be used by the EEC (*e.g*., solar and wind), thereby likely requiring extensive land use modifications. (Ex. 1, pp. 9-18 to 9-19; Ex. 200, pp. 6-12 to 6-14.) Moreover, none of these technological alternatives could be counted upon to provide quick start capability to respond to unexpected changes in regional demands, thus not fulfilling a basic objective of the proposed project. (1/14/08 RT 72:19-22; Ex. 200, p. 6-14.)

Finally, the evidence also contains a comparison of the impacts of the EEC as opposed to not constructing the project.[10] The evidence shows that the no-project alternative would have both positive and negative consequences. Obviously, without the EEC, the construction and operation impacts discussed throughout this Decision would not occur. The evidence, however, also shows that in the absence of the EEC, other power plants could be constructed to serve anticipated electrical demand. In the near future existing plants, many of which produce higher levels of pollutants, could operate more. (1/14/08 RT 72:23-25 to 73:1-4; Ex. 200, p. 6-14.) Failure to construct the EEC could also deprive the

[10] Applicant has characterized actions which would require relocation of the project to another site as a "no project" option. (See *e.g.,* Exs. 16; 47, pp. 2-3.) We disagree with this characterization, for many of the same reasons noted by the City of Hayward in its Reply Brief at 13-14.

local area of a relatively clean and efficient source of generation, as well as the positive electrical system attributes discussed in the **LOCAL SYSTEM EFFECTS** portion of this Decision. (Ex. 200, pp. 6-14 to 6-15.)

5. Discussion

In view of our determinations as discussed in the **Land Use** and the **Traffic and Transportation** sections that the EEC will cause significant unmitigated impacts, we must now decide whether or not a feasible alternative site which would eliminate or acceptably reduce these impacts exists. Both Applicant and Staff – the only parties presenting detailed, substantive evidence on the merits of alternative sites -- each concluded that no feasible alternative site exists which would meet most project objectives.[11] (1/14/08 RT 73:13-15; see also Applicant's Opening Brief at 73-75; Staff's Opening Brief at 22, Staff's Reply Brief at 16.) The evidence compels us to agree.

Having said this, we further note that a reasonable, feasible alternative must be one that meets most basic project objectives. [Cal. Code Regs., § 15126.6(a).] We realize that, as pointed out by the City of Hayward (Reply Brief at 12), stating project objectives too narrowly or too specifically could artificially limit the range of reasonable, feasible alternatives to be considered. Therefore, we have given careful consideration to the propriety of the selection of project objectives in this case, especially the stated objective of interconnection at the Eastshore Substation.

All objectives appear proper to us. The electrical system attributes are similar to those in other areas and arguably will improve the overall system. This is certainly a legitimate project goal, as is the desire to avoid causing the need for transmission system upgrades. While it is true that no specific interconnection

[11] Staff formulated this conclusion while also contending that the EEC will create unmitigatable significant adverse impacts in the form of aviation hazards and LORS inconsistencies.

was specified at the commencement of the RFO process (which stated a preference only for the general Bay Area; 1/14/08 RT 84: 21-23, 86), it is also true that Applicant retains its plan to interconnect at the Eastshore Substation as a project objective even though it terminated its Power Purchase Agreement with PG&E. (1/14/08 RT 84:15-18; 7/21/08 RT 94:7-17; 134:15-21.) Therefore, additional alternative project locations and/or project objectives beyond those considered in the PMPD are not at issue.

Of the locations examined only one, Staff's Alternative D (located at 4100 Bryce Road in Fremont), has actual proponents as being feasible. (See City of Hayward Reply Brief, pp. 12-13; Reply Brief of Robert Sarvey.) The persuasive weight of the evidence of record, however, clearly establishes that Alternative D would require interconnection at the Newark rather that the Eastshore Substation. (Ex. 200, p. 6-9.) As such, it would clearly fail to meet a fundamental project objective of interconnecting at the Eastshore Substation. (1/14/08 RT 73:17-25; 81:7–12; Ex. 13, p. 20.)

Finally, as summarized above, the evidence uniformly establishes that renewable generation resources or demand reducing programs are either not practical or currently unable to satisfy most project objectives. What we are left with is, in our estimation, a proposed project which creates significant unmitigable impacts but for which a means of alleviating these impacts (in light of the project's objectives) does not exist. We discuss in the **OVERRIDE** section of this Decision, *infra,* our reasoning as to whether or not the positive attributes of the EEC project ultimately render it acceptable.

FINDINGS AND CONCLUSIONS

Based upon the weight of the evidence of record before us, we make the following findings and reach the following conclusions:

1. The evidence of record contains an analysis of a reasonable range of alternatives to the proposed project, including alternative locations, alternative technologies, demand-side management, renewable energy sources, and the "no project" alternative.

2. The project objectives are properly described.

3. Renewable, non-fossil fuel technology alternatives such as biomass, geothermal, hydroelectric, solar or wind resources are either unavailable in the Greater Bay Area or are not capable of meeting project objectives.

4. Renewable, non-fossil fuel alternatives would not reliably provide quick start capability to respond to unexpected changes in regional demand.

5. Conservation and other demand-side management programs are currently not sufficient to satisfy California's electricity needs.

6. The "no project" alternative would avoid the significant adverse unmitigable adverse impacts discussed in the **Traffic** and **Transportation** and **Land Use** portions of this Decision;

7. The EEC project would provide local area generation and positive electrical system benefits.

8. The "no project" alternative would not provide local area peaking generation and positive electrical system attributes.

9. Applicant terminated its Power Purchase Agreement with PG&E on May 18, 2008.

10. Applicant has stated that even in light of the termination of its Power Purchase Agreement, it retains its plan to interconnect at the Eastshore substation as a project objective.

11. Interconnecting the EEC at the Newark Substation would fail to meet a basic project objective.

12. No feasible alternative site exists which would satisfy most project objectives.

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

III. COMPLIANCE AND CLOSURE

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

SUMMARY OF THE EVIDENCE

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

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

The Compliance Plan is composed of two broad elements. The first element establishes the "General Conditions," which:

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

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

- set forth requirements for facility closure.

The second general element of the Plan contains the specific "Conditions of Certification." These are found following the summary and discussion of each individual topic area in this Decision. The individual Conditions contain the measures required to mitigate potentially adverse Project impacts associated with construction, operation, and closure to levels of insignificance. Each Condition also includes a verification provision describing the method of assuring that the Condition has been satisfied.

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

FINDINGS AND CONCLUSIONS

The evidence of record establishes:

1. The Compliance Plan and the specific Conditions of Certification contained in this Decision assure that the Eastshore Energy Center will be designed, constructed, operated, and closed in conformity with applicable law.

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

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

GENERAL CONDITIONS OF CERTIFICATION

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. 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.

Unrestricted Access (COMPLIANCE-1)

The CPM, responsible Energy Commission staff, and delegate agencies and 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
Docket No. 06-AFC-6C
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 Form, 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 seventeen thousand six hundred seventy-six dollars ($17,676), which will be adjusted annually on July 1. The initial payment is due on the date the Energy Commission adopts the final decision. All subsequent payments are due by July 1 of each year in which the facility retains its

certification. The payment instrument shall be made payable to the California Energy Commission and mailed to: Accounting Office MS-2, California Energy Commission, 1516 9th St., Sacramento, CA 95814.

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

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

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

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

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

FACILITY CLOSURE

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

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

CLOSURE DEFINITIONS

Planned Closure

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

Unplanned Temporary Closure

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

Unplanned Permanent Closure

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

COMPLIANCE CONDITIONS FOR FACILITY CLOSURE

Planned Closure (COMPLIANCE-11)

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

The plan shall:

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

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

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

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

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

In the event that there are significant issues associated with the proposed facility closure plan's approval, or the desires of local officials or interested parties are

inconsistent with the plan, the CPM 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.

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 7 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

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

KEY EVENTS LIST

PROJECT: _____

DOCKET #: _____

COMPLIANCE PROJECT MANAGER: _____

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

COMPLIANCE TABLE 1
SUMMARY of COMPLIANCE CONDITIONS OF CERTIFICATION

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

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.)

IV. ENGINEERING ASSESSMENT

The broad engineering assessment conducted for the Eastshore Energy Center consists of separate analyses that examine facility design, engineering, efficiency, and reliability of the project. These analyses include the on-site power generating equipment and project-related facilities (transmission line and natural gas pipeline).

A. FACILITY DESIGN

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

SUMMARY AND DISCUSSION OF THE EVIDENCE

The Application for Certification (AFC) describes the preliminary facility design for the project. In considering the adequacy of the design plans, the Commission reviews whether the power plant and linear facilities are described with sufficient detail to assure the project can be designed and constructed in accordance with applicable engineering laws, ordinances, regulations, and standards (LORS). The review also includes the identification of special design features that are necessary to deal with unique site conditions, which could impact public health and safety, the environment, or the operational reliability of the project. (Ex. 100, p. 5.1-1.)

Staff proposed several Conditions of Certification, which we have adopted, that establish a design review and construction inspection process to verify compliance with applicable design standards and special design requirements.[12] (Ex. 200, p. 5.1-4.) The project will be designed and constructed in conformance with the latest edition of the California Building Standards Code (currently the

[12] Conditions of Certification **GEN-1** through **GEN-8**.

2001 CBSC) and other applicable codes and standards in effect at the time design approval and construction actually begin. (*Id.* at 5.1-3.) Condition of Certification **GEN-1** incorporates this requirement.

Staff considered potential geological hazards and reviewed the preliminary project design with respect to site preparation and development; major project structures, systems and equipment; mechanical systems; electrical systems; and related facilities such as the natural gas pipeline, recycled water pipeline, and the transmission interconnection facilities. (Ex. 200, p. 5.1-2 et seq. Ex. 1, §§ 5.0, 8.9, 8.15, 10.0, Appendices 10A-10G.)

The project will implement site preparation and development measures consistent with accepted industry standards. This includes design practices and construction methods for grading, flood protection, erosion control, site drainage, and site access. (Ex. 1, § 8.9.3 et seq. and Appendix 10A; Ex. 200, p. 5.1-2.) Conditions **CIVIL-1** through **CIVIL-4** ensure that these activities will be conducted in compliance with applicable LORS.

Major structures, systems, and equipment include those structures and associated components necessary for power production and facilities used for storage of hazardous or toxic materials. (Ex. 1, Appendices 10B and 10F.) Condition **GEN-2** lists the major structures and equipment included in the initial engineering design for the project.

The power plant site is located in Seismic Zone 4, the highest level of potential ground shaking in California. (Ex. 1, § 8.15.3.3; Appendix 10G; Ex. 200, p. 5.1-3.) The 2001 CBC requires specific “lateral force” procedures for different types of structures to determine their seismic design. (*Ibid*.) To ensure that project structures are analyzed using the appropriate lateral force procedure, Condition **STRUC-1** requires the project owner to submit its proposed lateral force

procedures to the Chief Building Official (CBO)[13] for review and approval prior to the start of construction. (Ex. 200, p. 5.1-3.)

According to Staff, the mechanical systems for the project are designed to the specifications of applicable LORS. (Ex. 200, p. 5.2-3; Ex. 1, Appendix 10C.) Conditions **MECH**-1 through **MECH**-3 ensure the project will comply with these standards.

Major electrical features other than the transmission system include generators, power control wiring, protective relaying, grounding system, cathodic protection system and site lighting. (Ex. 1, Appendix 10D.) Condition **ELEC-1** ensures that design and construction of these electrical features will comply with applicable LORS.

The transmission facilities include a new 115 kV switchyard at the project site and a new 1.1-mile single circuit 115 kV transmission outlet line to the PG&E Eastshore Substation south of the site. (Ex. 1, § 5.2.) The design and construction of these facilities are described in the **Transmission System Engineering** section of this Decision. Implementation of Conditions **TSE-1** through **TSE-8** will ensure the project's transmission facilities comply with applicable LORS.

The evidentiary record also addresses project closure. (Ex. 200, p. 5.1-4.) To ensure that decommissioning of the facility will conform with applicable LORS to protect the environment and public health and safety, the project owner is required to submit a decommissioning plan, which is described in the general

[13] The Energy Commission is the CBO for energy facilities certified by the Commission. We may delegate CBO authority to local building officials to carry out design review and construction inspections. When CBO duties are delegated to local authorities, the Commission requires a Memorandum of Understanding with the delegated CBO to assign the roles and responsibilities described in Conditions of Certification **GEN-1** through **GEN-8**. (Ex. 200, p. 5.1-4.)

closure provisions of the Compliance Monitoring and Closure plan. *See* **General Conditions** in this Decision, *ante*.

Finally, the Conditions of Certification specify the roles, qualifications, and responsibilities of engineering personnel who will oversee project design and construction. These Conditions require CBO approval after appropriate inspections by qualified engineers. No element of construction may proceed without approval of the CBO. (Ex. 200, p. 5.1-4.)

FINDINGS AND CONCLUSIONS

Based on the uncontroverted evidence of record, the Commission makes the following findings and conclusions:

1. The Eastshore Energy Center is currently in the preliminary design stage.
2. The evidence of record contains sufficient information to establish that the proposed facility can be designed and constructed in conformity with the applicable laws, ordinances, regulations, and standards (LORS) set forth in the appropriate portions of **Appendix A** of this Decision.
3. The Conditions of Certification set forth below are necessary to ensure that the project is designed and constructed both in accordance with applicable law and in a manner that protects environmental quality and public health and safety.
4. The Conditions of Certification below and the **General Conditions,** included in a separate section of this Decision, establish requirements to be followed in the event of facility closure.

We therefore conclude that implementation of the Conditions of Certification listed below ensure that the Eastshore Energy Center can be designed and constructed in conformance with applicable laws.

CONDITIONS OF CERTIFICATION

GEN-1 The project owner shall design, construct, and inspect the project in accordance with 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 all other applicable engineering LORS in effect at the time initial design plans are submitted to the CBO for review and approval. The CBSC in effect is that edition that has been adopted by the California Building Standards Commission and published at least 180 days previously. The project owner shall insure that all the provisions of the above applicable codes are 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 dealt with in Conditions of Certification in the **Transmission System Engineering** section of this Decision.

Where, in any specific case, different sections of the code specify different materials, methods of construction, or other requirements, the most restrictive shall govern. Where there is a conflict between a general requirement and a specific requirement, the specific requirement shall govern.

The project owner shall ensure that all contracts with contractors, subcontractors, and suppliers clearly specify that all work performed and materials supplied 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 1** below. Major structures and equipment shall be added to or deleted from the table only with CPM approval. The project owner shall provide schedule updates in the Monthly Compliance Report.

Table 1: Major Structures and Equipment List

Equipment/System	Quantity (Plant)
Engine Genset w/ Auxiliary Module Foundation and Connections	14
Selective Catalytic Reduction Unit Foundation and Connections	14
Oxidation Catalyst Unit Foundation and Connections	14
Exhaust Stack Structure, Foundation and Connections	14
Closed-Loop Cooling System Structure, Foundation and Connections	2
Main Step-up Transformer Foundation and Connections	2
Auxiliary or Station Service Transformer Foundation and Connections	2
Fuel gas Heater Foundation and Connections	1
Fire Protection System	1
Raw Water Storage Tank Foundation and Connections	1
Aqueous Ammonia Storage Tank Foundation and Connections	2
Aqueous Ammonia Handling System Foundation and Connections	1
Waste Water Holding Tank Foundation and Connections	1
Clean Lube Oil Storage Tank Foundation and Connections	1
Dirty Lube Oil Storage Tank Foundation and Connections	1
Engine Hall, Warehouse/Shop, and Control Room Structure, Foundation and Connections	1
Start Air System	2
Instrument and Service Air System	1
Miscellaneous Ancillary Equipment	1 Lot
Black Start Emergency Diesel Generator Foundation and Connections	1

Equipment/System	Quantity (Plant)
Potable Water Systems	1 Lot
Drainage Systems (including sanitary drain and waste)	1 Lot
Plant Control System	1 Lot
HVAC and Refrigeration Systems	1 Lot
Temperature Control and Ventilation Systems (including water and sewer connections)	1 Lot
Building Energy Conservation Systems	1 Lot
Switchyard, Buses and Towers	1 Lot
Electrical Duct Banks	1 Lot

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 dealt with in Conditions of Certification in the **Transmission System Engineering** section of this Decision.

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 of Certification for 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 5 days of the approval.

If the RE or the delegated engineer(s) are subsequently reassigned or replaced, the project owner has 5 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; and b) a soils engineer, or a geotechnical engineer or a civil engineer experienced and knowledgeable in the practice of soils engineering. 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: 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; d) a mechanical engineer; and e) 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 dealt with in Conditions of Certification in the **Transmission System Engineering** section of this Decision.

The tasks performed by the civil, mechanical, electrical or design engineers may be divided between two or more engineers as long as each engineer is responsible for a particular segment of the project (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 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.

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

E. 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 and soils (geotechnical) engineer 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 5 days of the approval.

If the designated responsible engineer is subsequently reassigned or replaced, the project owner has 5 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 5 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 dealt with in Conditions of Certification in the **Transmission System Engineering** section of this Decision.

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 is, 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 5 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 5 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 5 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].

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.

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 5 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 5 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, 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 [1998 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 construction of any major structure or component listed in **Facility Design Table 1** 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 submitted for the following items (from **Table 1**, 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

   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 **Table 1** 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, 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.

If a discrepancy is discovered in any of the above data, the project owner shall, within 5 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 5 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 5 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 **Table 1**, 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 not be limited to:

- American National Standards Institute (ANSI) B31.1 (Power Piping Code);
- ANSI B31.2 (Fuel Gas Piping Code);
- ANSI B31.3 (Chemical Plant and Petroleum Refinery Piping Code);
- ANSI B31.8 (Gas Transmission and Distribution Piping Code);
- Title 24, California Code of Regulations, Part 5 (California Plumbing Code);
- Title 24, California Code of Regulations, Part 6 (California Energy Code, for building energy conservation systems and temperature control and ventilation systems);
- Title 24, California Code of Regulations, Part 2 (California Building Code); and
- 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 **Table 1**, 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 dealt with in Conditions of Certification in the **Transmission System Engineering** section of this Decision.

A. Final plant design plans shall include:

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

2. system grounding drawings.

B. Final plant calculations 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.

B. POWER PLANT EFFICIENCY

In accordance with CEQA requirements, the Commission must review whether the EEC's consumption of energy (non-renewable fuel) will result in adverse environmental impacts on energy resources. (Cal. Code Regs., tit. 14, § 15126.4(a)(1), Appendix F.) Our review considers the efficiency of project design and identifies measures that prevent wasteful, inefficient, or unnecessary energy consumption.

SUMMARY AND DISCUSSION OF THE EVIDENCE

Consumption of non-renewable fuel constitutes an adverse environmental impact under CEQA if it results in (1) an adverse effect on local and regional energy supplies and resources; (2) the need for additional energy supply capacity; (3) noncompliance with existing energy standards; or (4) the wasteful, inefficient, and unnecessary consumption of fuel or energy. (Ex. 200, p. 5.3-2; Cal. Code Regs., tit. 14, § 15000 et seq., Appendix F.)

1. Potential Effects on Energy Supplies and Resources

Natural gas-fired power plants consume large amounts of non-renewable fuel. Under the range of predicted site-ambient conditions, the EEC would burn natural gas at a rate varying from 36 million to 909 million Btu per hour LHV. (Ex. 1, §§ 2.2.6, 10.4; Fig. 2.2-4.) This is a substantial rate of energy consumption, and has the potential to impact energy supplies. (Ex. 220, p. 5.3-2; Ex. 1, §§1.8.5, 1.8.7, 2.2.2, 10.4; Fig. 2.2-4.)

Natural gas for the project will be supplied through the existing PG&E Line 153 natural gas pipeline east of the project site. PG&E transports natural gas from the major gas-producing areas of the Rocky Mountains, Canada, and the Southwest, which represent resources of considerable capacity. Staff believes it

is unlikely that the project would pose a significant adverse impact on natural gas supplies in California.[14] (Ex. 200, p. 5.3-3.)

2. Need for Additional Energy Supplies or Capacity

PG&E will supply natural gas to the project from the existing PG&E Line 153 via a new 4½-inch diameter, 200 foot-long interconnection. (Ex. 1, §§ 1.2, 2.1, 2.1.1, 2.2.6, 2.4.3, 6.1, 10.3.1, Appendix 6A.) According to Staff, this pipeline provides adequate delivery capacity for a project of this size. (Ex. 200, p. 5.3-3.)

3. Compliance with Energy Standards

No energy efficiency standards apply to the EEC or other non-cogeneration projects. (Ex. 50, p. 5.3-3.) Cf. Public Resources Code section 25134.

4. Alternatives to Wasteful or Inefficient Energy Consumption

Evaluation of alternative technologies to reduce wasteful, inefficient or unnecessary energy consumption requires examination of the project's fuel consumption. Applicant provided information on alternative generating technologies, including coal and oil, hydroelectric, biomass, solar, and wind power. Given the project objectives, location, and air pollution control requirements, Staff agreed with Applicant that only natural gas-burning technologies are feasible at the site location since coal and oil are highly polluting; hydro and geothermal resources do not exist in Alameda County; biomass is not available in sufficient quantities; solar and wind are not

[14] The Energy Commission's 2007 *Integrated Energy Policy Report* (*IEPR*) identifies declining gas field productivity in North America and the potential disruption of supply due to weather-related events as well as the price volatility of the gas market and the tension between reducing environmental impacts of electricity generation and reducing California's overwhelming dependence on a single fuel source. (2007 *IEPR* , p. 216 et seq.) In view of the *IEPR,* we believe Staff's analysis requires further discussion of the gas supply forecast during the EEC's 20-year power purchase agreement with PG&E.

dispatchable or able to produce the needed ancillary services[15]. (Ex. 1, §§ 9.1, 9.7.1, 9.7.2, 9.7.3, 9.7.4, 9.7.5; Ex. 200, p. 5.3-5.) *See also,* the **Alternatives** section of this Decision.

Fuel efficiency, which indicates the rate of energy consumption, is determined by the configuration of the power producing system and by the selection of equipment used to generate power.[16] (Ex. 1, p. 5.3-5.)

The EEC will use 14 Wärtsilä 20V34SG reciprocating engine gensets. The 34SG engine is one of the most efficient and cleanest-burning machines available. Each engine is nominally rated at 8.4 MW gross at a fuel efficiency of 44.1 percent LHV. The entire facility will produce up to 115.5 MW net (8.25 MW per machine) at a "site-rated" fuel efficiency of 43.3 percent LHV. (Ex. 1, §§ 1.2, 1.8.5, 1.8.6, 1.8.7, 2.1, 2.2.2, 10.4; Figure 2.2-4.) Staff found that the "site-rating" differed from nominal figures due to site specific ambient conditions (altitude and temperature) and power losses from parasitic loads.[17] (Ex. 200, p. 5.3-4.)

Although fuel efficiency of a simple-cycle gas turbine drops off rapidly when the turbine is operated at less than full load, the efficiency of a reciprocating engine such as the Wärtsilä is not significantly reduced at lower loads. At 75 percent load, the Wärtsilä's efficiency is 92 percent of that at full load; at 50 percent load, it drops only to 89 percent of full-load efficiency. Furthermore, the engine is capable of ramping at high rates and from a cold start to full load in 10 minutes. (Ex. 1, §§ 1.8.5, 1.8.7, 2.2.2, 9.6, 9.6.1, 10.4; Fig. 2.2-4; Ex. 200, p. 5.3-5.) This

[15] EEC will offer typical intermediate load-following and peaking power service, including flexible output (from 4 to 115.5 MW), spinning reserve, and rapid start (non-spinning reserve. (Ex. 200, p. 5-3.5.)

[16] Fuel consumption is one of the key economic factors in selecting an electric generator since fuel typically accounts for over two-thirds of total operating costs of a fossil-fired power plant. Thus, in a competitive market, power plant developers are strongly motivated to purchase fuel-efficient machinery. (Ex. 200, p. 5.3-4.)

[17] The engines produce a constant amount of power at full load, at constant fuel efficiency, in ambient temperatures ranging from 32°F to 100°F. (Ex. 1, Fig. 2.2-4.)

operating flexibility will allow the facility to provide ancillary services such as peaking, load following, and spinning and non-spinning reserve. (Ex. 1, §§ 2.2.2 et seq., 8.1.2.2.)

According to Staff, modern gas turbines embody the most fuel-efficient electric generating technology available today. Gas turbine generators that could perform in intermediate and peaking service include the General Electric (GE) LM6000 SPRINT, the Siemens Power SGT-800, and the Pratt & Whitney FT8 TwinPac, all of which are aeroderivative machines adapted from aircraft engines, and the GE LMS100, a new hybrid machine that incorporates both aeroderivative and industrial turbine technologies. While the LMS100 enjoys a slight advantage in fuel efficiency over the Wärtsilä, the Wärtsilä's smaller generating capacity makes it more attractive for peaking and load following.[18] The LMS100 is specifically designed for flexible output and high efficiency at part load, but the nearly 100-MW output of the LMS100 limits its flexibility. Each of the EEC's 14 reciprocating engines can be curtailed to about 4 MW without a significant drop in fuel efficiency. (Ex. 200, p. 5.3-6; Ex. 1, § 9.6.)

5. Cumulative Impacts

Staff analyzed the potential cumulative energy consumption impacts of both the EEC and the Russell City Energy Center in Hayward. According to Staff, the PG&E natural gas supply system is adequate to supply both the EEC and Russell City projects without adversely impacting its other natural gas customers. The power purchase agreement between PG&E and EEC calls for PG&E to acquire and supply natural gas to the project. (Ex. 1 §§2.4.3, 10.3.1.)

[18] Applicant considered other reciprocating engines (Cummins, Caterpillar, Waukesha, and MAN B&W) with the Wärtsilä, and found the Wärtsilä's generating capacity, potential air emissions, fuel efficiency, cost, and schedule concerns compared favorably to the other engines.. (Ex. 1, § 9.6.)

Staff concluded that the EEC would not result in cumulative impacts to natural gas fuel supplies. Staff further found that the project configuration and chosen generating equipment represent the most feasible, efficient technology to satisfy project objectives. (Ex. 200, p. 5.3-6.)

FINDINGS AND CONCLUSIONS

Based on the uncontroverted evidence of record, the Commission makes the following findings and conclusions:

1. EEC will not require the development of new fuel supply resources since natural gas resources exceed the fuel requirements of the project.
2. EEC will not consume natural gas in a wasteful, inefficient, or unnecessary manner.
3. The project configuration and choice of generating equipment represent the most feasible combination to achieve project objectives.
4. The anticipated operational efficiency of the 14 Wärtsilä 20V34SG reciprocating engines is higher than state-of-the-art simple cycle turbine generators operating in peaking capacity since Wärtsiläs can ramp up and shut down quickly without significant loss of fuel efficiency.
5. There is no evidence of cumulative impacts to energy resources since PG&E's natural gas supply system is adequate to supply both the EEC and Russell City projects without adversely impacting other natural gas customers.

The Commission therefore concludes that EEC will not cause any significant direct, indirect, or cumulative adverse impacts upon energy resources. The Project will conform with all applicable laws, ordinances, regulations, and standards relating to fuel efficiency as identified in the pertinent portions of **Appendix A** of this Decision. No Conditions of Certification are required for this topic.

C. POWER PLANT RELIABILITY

The Energy Commission must consider the power plant's mechanical safety and reliability, including provisions for emergency operation and shutdown. [Pub. Res. Code, § 25520(b); Cal. Code Regs., tit. 20 § 1752(c)(2).] Although there are currently no LORS that establish either power plant reliability criteria or procedures for attaining reliable operation, the California Independent System Operator (CAISO) has developed a generation maintenance program to be employed by power plant operators in California.[19]

SUMMARY AND DISCUSSION OF THE EVIDENCE

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

The EEC will ensure equipment availability by use of quality assurance/quality control programs (QA/QC) typical of the power industry. These include inventory review and equipment inspection, as well as testing on a regular basis during design, procurement, construction, and operation. Qualified vendors of plant equipment and materials will be selected based on past performance and

[19] CAISO's *Maintenance Performance Standards and Criteria* identify the maintenance standards expected of generators and provide a benchmark against which Generating Asset Owners and CAISO can judge the adequacy of maintenance programs used at each generating facility. (Ex. 200, p. 5.4-2.) Specifically, CAISO requires generators selling ancillary services and holding reliability must-run contracts to: (1) file periodic reports on reliability; (2) report all outages and their causes; (3) describe all remedial actions taken during outages; and (4) schedule all planned maintenance outages with CAISO. (*Ibid.)*

independent testing contracts to ensure that reliable equipment is acquired. (Ex. 200, p. 5.4-3; Ex. 1, § 2.4.5.)

Applicant proposes to increase local system reliability in the East Bay by providing intermediate and peaking power and ancillary services including black start, voltage support, spinning and non-spinning reserve, and capacity during periods of high demand (Ex. 1, §§1.2, 1.2.1, 1.8.4, 1.8.7, 2.1, 2.2.13.8, 2.2.16, 10.3.2, 10.4.) A peaking facility provides adequate opportunity for maintenance work during downtime; however, during periods of extended dispatch, the facility could be required to operate for extended periods. To ensure reliability under these circumstances the facility should include a redundancy of equipment most likely to require service or repair. (Ex. 200, p. 5.4-4.)

The evidentiary record indicates that the project's design includes appropriate redundancy. Since the project consists of 14 reciprocating generators operating in parallel as independent equipment trains, the project is inherently reliable. A single equipment failure cannot disable more than one train, thereby allowing the plant to continue to generate at slightly reduced output. Furthermore, all plant ancillary systems are designed with enough redundancy to ensure continued operation in the event of equipment failure. (Ex. 200, p. 5.4-4; Ex. 1, §§ 1.2, 1.8.5, 2.1, 2.2.2, 2.2.4, 2.2.13.3, 2.4.1, 2.4.2.1.1, 2.4.2.2, 2.4.2.3, 2.4.2.4.1, 2.4.2.4.2; Table 2.4-1.)

Reasonable long-term availability of fuel and water is also necessary to ensure project reliability. PG&E will supply natural gas via a new 4.5-inch diameter, 200-foot long interconnection to PG&E's Line 153 east of the site. The record indicates that PG&E's natural gas distribution system offers adequate supply and pipeline capacity to meet project needs. (Ex. 200, p. 5.4-4.) See the **Power Plant Efficiency** section of this Decision.

The EEC will use potable water from the City of Hayward's municipal water system for potable, sanitary, fire protection, and landscape irrigation uses via an existing on-site connection to the city's water main at Clawiter Road. The project also includes a 35,000-gallon raw water storage tank as part of the fire protection system. Water consumption will be minimal due to the closed loop cooling process incorporated into the reciprocating engine gen-sets. Thus, the city's water supply combined with the on-site water storage capacity represent a reliable water source for project operation. (Ex. 1, § 1.2, 1.8.8, 2.1, 2.1.1, 2.2.2, 2.2.7.2, 2.4.4, 7.1.) See the **Soil and Water Resources** section of this Decision.

The site is located in Seismic Zone 4 where several earthquake faults create the potential for seismic shaking that could affect reliable operation. The EEC will be designed and constructed to comply with current LORS for seismic design. These standards improve seismic stability compared with older power plants, and ensure that the project will perform at least as well as existing plants in the electrical system. (Ex. 200, p. 5.4-5.) The Conditions of Certification in the **Facility Design** section of this Decision ensure that the project will conform with seismic design LORS. See also the **Geology/Paleontology** section of this Decision.

Applicant estimates the project will have an annual availability factor of 94 to 98 percent.[20] (Ex. 1, §§ 2.2.2, 2.2.16, 2.4.1, 10.3.2, 10.4.) This compares favorably with the North American Electric Reliability Council (NERC) assessment for similar plants throughout the United States and Canada, which found an overall Equivalent Availability Factor of 94.50 percent. According to Staff, the project's 14 reciprocating engines can be expected to deliver high availability and reliability due to their flexibility in ramping up to meet demand. (Ex. 200, p. 5.4-

[20] The EEC's Wärtsilä 34SG natural gas-fired lean-burn engines have been on the market since 1995; at least 222 34SG engines have been installed in power plants around the world, totaling more than 1,400 MW. According to Staff, the Wärtsilä generator represents an established, reliable technology. (Ex. 200, p. 5.4-6.)

6.) Thus, EEC's projection of an availability factor of 94 to 98 percent appears achievable. (*Ibid*.)

Finally, the evidence shows that the procedures for design, procurement, and construction are in keeping with industry norms and will likely result in an adequately reliable plant. (Ex. 200, p. 5.4-7.)

FINDINGS AND CONCLUSIONS

Based on the uncontroverted evidence of record, the Commission makes the following findings and conclusions:

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

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

3. The project's 14 reciprocating generators operating in parallel as independent equipment trains provide inherent reliability and equipment redundancy.

4. The project's estimated 94 to 98 percent availability factor is consistent with industry norms for power plant reliability, and will improve electric system reliability in the East Bay.

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

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

D. TRANSMISSION SYSTEM ENGINEERING

The Commission's jurisdiction includes "…any electric power line carrying electric power from a thermal power plant …to a point of junction with an interconnected transmission system." (Pub. Res. Code, § 25107.) The Commission assesses the engineering and design of new transmission facilities associated with a proposed project to ensure compliance with applicable law. Additionally, CEQA requires an environmental review of the "whole of the action," which may include impacts on facilities not licensed by this Commission. Thus, our inquiry also considers the environmental effect of interconnecting the new project to the existing transmission system.

The California Independent System Operator (CAISO) is responsible for ensuring electric system reliability for participating entities, and determines both the standards necessary to achieve system reliability and whether a proposed project conforms to those standards. The Commission works in conjunction with the CAISO in assessing a project. (Ex. 200, pp. 5.5-1 – 5.5-2.)

Staff's analysis evaluates the power plant switchyard, outlet line, termination and downstream facilities identified by the Applicant, and includes Conditions of Certification to ensure the project complies with applicable laws during the design review, construction, operation, and potential closure of the project. No additional new or modified transmission facilities, other than those proposed by the Applicant for the outlet configuration, are required for the interconnection of the EEC project. (Exs. 1; 5; 8; 200, pp. 5.5-1 to 5.5-13.) No evidence of record disputes these matters.

SUMMARY AND DISCUSSION OF THE EVIDENCE

The nominal 115 MW EEC project consists of 14 natural gas-fired reciprocating engine generators. Two sets, of seven generators each, would interconnect with

the 13.8 kV bus bar of the project switchyard and its dedicated 60/72/90 MVA step-up (13.8/115 kV) transformers. The low sides of the generator step-up transformers would be connected through circuit breakers to the 13.8 kV bus bar of the switchyard. The high sides of the generator step-up transformers would be connected through circuit breakers and disconnect switches to the 115 kV bus bar in the switchyard. The 115 kV generator tie-line (715 kcmil aluminum overhead conductor) would interconnect with the switchyard and PG&E's existing 115/230 kV Eastshore Substation. (Exs. 6; 200, p. 5.5-4.)

The 1.2-mile-long generator tie-line would be supported by new 115 kV transmission wood or steel poles in the existing distribution line corridor for PG&E's 12 kV distribution lines. This existing corridor may require widening to accommodate 10 to 12 new transmission poles. Four different pole types with specific heights would be used. As proposed, 80-foot pole structures would support the 115 kV transmission lines, 85-foot pole structures would support the 115 kV transmission lines with underbuilt 12 kV distribution lines, and a 90-foot pole structure would be placed on the south side of Highway 92 with a 60-foot pole structure placed on the north side. PG&E will design, build, and operate the line. (Ex. 1, p. 5.1.)

PG&E's existing Eastshore Substation would require a new 115 kV generator tie breaker, disconnect switches, and associated protective relays to facilitate interconnection with the EEC project. Power would flow into PG&E's transmission grid over outgoing transmission lines from the Eastshore Substation. (Ex. 200, p. 5.5-4.)

For the interconnection of either a proposed generating unit or transmission facility to the grid, the interconnecting utility (PG&E in this case) and the control area operator (CAISO) are jointly responsible for ensuring the grid's reliability. These entities determine, based upon the results of detailed studies, the project's

impact on the transmission system and any needed mitigation measures to ensure system conformance with applicable criteria.

The evidence includes a revised Systems Impact Study (SIS) and a revised Facilities Study (FS), both dated January 11, 2007. (Ex. 5.) These studies analyze the transmission grid both with and without the EEC project under conditions specified in planning standards and reliability criteria. The studies focus on thermal overloads, voltage deviations, system stability (including voltage collapse and cascading outages), and short circuit duties. (Exs. 1, p. 5-3; 200, p. 5.5-5.)

The revised SIS contains a Power Flow Study, Short Circuit Study, and Dynamic Stability analysis. The evidence shows that the EEC project was modeled at a net output of 115 MW. The modeling also included all planned generation facilities in the PG&E territory, as well as those in areas served by local municipal utilities, whose on-line schedules are either concurrent with or precede the proposed project. The studies indicate that, under certain contingency conditions, the EEC project would increase loading on the Sobrante-Grizzly-Claremont #2 transmission line and the Oakland D-Oakland L 115 kV line. These studies also establish that the EEC will not create the need for any mitigation measures due to the increased loading. Similarly, the evidence shows that the EEC project will not adversely affect the stable operation of the transmission system, nor will it require the replacement of any breakers. (Ex. 200, pp. 5.5-5 to 5.5-6.) The SIS indicates that the project's interconnection with the transmission grid will comply with all applicable planning and reliability criteria.

The evidence further demonstrates that the CAISO has reviewed both the revised SIS and the revised FS. Concurring with the results of these studies, the CAISO granted Final Interconnection Approval in a letter dated January 23, 2007, for an anticipated operation date in the fourth quarter of 2008. (Ex. 8; Ex.

200, p. 5.5-5). A copy of the letter is attached at the end of this section. Condition of Certification **TSE-5J** requires the project owner to provide a final Detailed Facility Study and the executed facility interconnection agreement with CAISO before construction of the project's transmission facilities.

FINDINGS AND CONCLUSIONS

Based on the uncontroverted evidence of record, the Commission makes the following findings and conclusions:

1. The EEC project will interconnect to PG&E's existing Eastshore Substation via a 1.2 mile tie-line routed in an existing distribution line corridor.

2. PG&E will design, build, and operate the tie-line.

3. The record includes a revised System Impact Study and a revised Facilities Study which analyze potential reliability and congestion impacts that could occur when the EEC project interconnects to the grid.

4. No new transmission lines, other than those proposed by Applicant, are required for the project.

5. The EEC project would not trigger any transmission system upgrades. There are therefore no adverse impacts to the transmission system as a result of the project's integration.

6. The existing breakers are adequate to withstand the post-project incremental fault currents described in the Short Circuit Study.

7. The proposed interconnection facilities between the project and the Eastshore Substation, including the step-up transformers, the 115 kV overhead transmission line, and terminations, are adequate, planned in accordance with good utility practices, and in accordance with engineering LORS.

8. The CAISO has reviewed the revised System Impact Study and the revised Facilities Study and concurs with their results.

9. The CAISO has granted Final Interconnection Approval for the EEC project.

10. The Conditions of Certification ensure that the transmission interconnection facilities will be designed, constructed, and operated in a manner consistent with all applicable laws, ordinances, regulations, and standards (LORS).

The Commission therefore concludes that implementation of the measures specified in the Conditions of Certification listed below will ensure compliance with all applicable laws, ordinances, regulations, and standards (LORS) related to Transmission System Engineering and listed in the appropriate portion of this Decision.

CONDITIONS OF CERTIFICATION

TSE-1 The project owner shall provide the Compliance Project Manager (CPM) and the Chief Building Official (CBO) with 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 both a description and a 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 fewer, if mutually agreed upon by the project owner and the CBO) before the start of construction, the project owner shall submit the schedule, a master drawing list, and a master specifications list to both the CBO and 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 both CPM and CBO approval. The project owner shall provide schedule updates in the monthly compliance report.

Table 1: Major Equipment List
Breakers
Step-up transformer
Switchyard
Busses
Surge arrestors
Disconnects
Take-off facilities

Electrical control building
Switchyard control building
Transmission pole/tower
Grounding system

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

A. a civil engineer;

B. a geotechnical engineer or a civil engineer experienced and knowledgeable in the practice of soils engineering;

C. a design engineer who is either a structural engineer or a civil engineer and fully competent and proficient in the design of power plant structures and equipment supports; or

D. a mechanical engineer (Business and Professions Code Sections 6704 et seq. require state registration to practice as either a civil engineer or a structural engineer in California).

The tasks performed by the civil, mechanical, electrical, or design engineers may be divided between two or more engineers as long as each engineer is responsible for a particular segment of the project, e.g., proposed earthwork, civil structures, power plant structures, or equipment support. No segment of the project shall have more than one responsible engineer. The transmission line may be the responsibility of a separate California registered electrical engineer. The civil, geotechnical, or civil and design engineer, assigned as required by Facility Design Condition **GEN-5**, may be responsible for design and review of the TSE facilities.

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

The electrical engineer shall:

1. be responsible for the electrical design of the power plant switchyard, outlet, and termination facilities; and

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

Verification: At least 30 days (or fewer if mutually agreed to by the project owner and the CBO) before 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 5 days of the approvals.

If the designated responsible engineer is subsequently reassigned or replaced, the project owner has 5 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 5 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, shall be submitted to the CBO for review and approval, and shall refer to this Condition of Certification.

Verification: The project owner shall submit a copy of the CBO's approval or disapproval of any corrective action taken to resolve a discrepancy to the CPM within 15 days of receipt. If disapproved, the project owner shall advise the CPM, within 5 days, of the reason for the disapproval along with the revised corrective action required to obtain the CBO's approval.

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

A. receipt or delay of major electrical equipment;

B. testing or energization of major electrical equipment; and

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

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

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

A. The Eastshore project will be interconnected to PG&E's Eastshore Substation via a single 115 kV transmission line, approximately 1.2 miles long, with 715 kcmil aluminum conductor or conductor with a higher rating.

B. The generation tie line will require the replacement of 10 to 12 transmission poles that accommodate both the 12 kV and 115 kV lines.

C. The existing Eastshore Substation will require a new 115 kV generation tie breaker and associated protective relays to facilitate interconnection of the project.

D. The protection requirements will consist of a fully redundant, double-pilot current differential protection scheme.

E. 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,* CAISO standards, National Electric Code (NEC), and related industry standards.

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

G. 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.

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

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

J. 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 sequencing and timing if applicable; and

   ii. executed project owner and CAISO facility interconnection agreement.

K. 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 before the start of construction of transmission facilities (or fewer days if mutually agreed upon 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*, CAISO 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," (for instance, a dead-end or angle pole), 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*, CAISO standards, National Electric Code (NEC), and related industry standards;

C. Electrical one-line diagrams signed and sealed by the registered professional electrical engineer in charge, a route map, and an engineering description of the equipment and configurations covered by requirements **TSE-5** A) through K), 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; and the executed project owner and CAISO facility interconnection agreement; and

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 CAISO prior to synchronizing the facility with the California electric transmission system:

A. at least one week prior to synchronizing the facility with the grid for testing, provide the CAISO with a letter stating the proposed date of synchronization; and

B. at least one business day prior to synchronizing the facility with the grid for testing, provide telephone notification to the CAISO's outage coordination department.

Verification: The project owner shall provide copies of the CAISO letter to the CPM when it is sent to the CAISO one week before initial synchronization with the grid. The project owner shall contact the CAISO's outage coordination department (Monday through Friday, between the hours of 7:00 a.m. and 3:30 p.m. at (916) 351-2300) at least one business day prior to synchronizing the facility with the grid for testing. A report of that conversation with the CAISO shall be provided electronically to the CPM one day before synchronizing the facility with the California electric transmission system for the first time.

TSE-7 The project owner shall be responsible for inspection of the transmission facilities during and after project construction, and for any subsequent CPM and CBO approved changes, 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*, CAISO standards, National Electric Code (NEC), and related industry standards. In cases of non-conformance, the project owner shall inform the CPM and CBO, in writing and within 10 days of the discovery of such non-conformance, and the actions that will be taken to correct it.

Verification: Within 60 days after the 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 charge. A statement verifying conformity 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*, CAISO 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 charge or an 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; and

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.

DEFINITION OF TERMS

AAC — All aluminum conductor.

ACSR — Aluminum conductor steel-reinforced.

ACSS — Aluminum conductor steel-supported.

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

Ampere — The unit of current flowing in a conductor.

Bundled — Two wires, 18 inches apart.

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

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

Congestion Management
A scheduling protocol that ensures 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 occurs -- 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 condition. This is also called an N-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, divided by 1,000.

Megawatt (MW)

A unit of power equivalent to 1,341 horsepower.

N-0 Condition

See Normal Operation/Normal Overload, below.

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, below.

N-2 Condition

See Double Contingency, above.

Outlet Transmission facilities (circuit, transformer, circuit breaker, etc.) linking generation facilities with 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

A remedial action scheme is an automatic control provision that, as one example, will trip a selected generating unit when a circuit overloads.

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.

Special Protection Scheme/System

Detects a transmission outage (either a single or credible multiple contingency) or an overloaded transmission facility and then trips or runs back generation output to avoid potential overloaded facilities or other criteria violations.

Switchyard A power plant switchyard is an integral part of a power plant that is used as an outlet for one or more electric generators.

Thermal Rating

See ampacity.

TSE Transmission System Engineering.

Tap A transmission configuration that creates an interconnection through a short single circuit to a small or medium-sized load or 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 principal transmission line conductors.

California ISO
Your Link to Power

California Independent
System Operator Corporation

DOCKET
06-AFC-6
DATE JAN 23 2007
RECD. MAR 06 2007

January 23, 2007

Greg Trewitt
VP, Development and Engineering
Tierra Energy
710 S. Pearl Street, Suite A
Denver, Colorado 80209

Re: Eastshore Energy Facility Project
Re-Affirmation of Final Interconnection Approval

Dear Mr. Trewitt:

Eastshore Energy, LLC proposes to interconnect a 115 MW generating facility to Pacific Gas & Electric's (PG&E) 115 kV bus at Eastshore Substation in Hayward, California. The proposed project is called the Eastshore Energy Facility Project (Project). The Project consists of fourteen (14) reciprocating engine generators. The proposed commercial operation date of the Project is September 2008. This project had been granted final interconnection approval by the California ISO (CAISO) in a letter dated March 8, 2006 (when the project was being developed by Ramco) with an operation date of May 2007 and reaffirmed in a letter dated October 26, 2006.

This letter is necessitated by a configuration change from one to two step-up transformer banks to connect the Project to PG&E's transmission facilities. The CAISO has reviewed the revised System Impact Study and the revised Facilities Study reports (dated January 11, 2007) that were conducted by Pacific Gas and Electric Company (PG&E) for the Eastshore Energy Facility Project. The CAISO concurs with the results of these revised studies and agrees that there was no change from the previous studies and reports. The Facilities Study report outlines a technically feasible transmission plan for the interconnection of the project to the CAISO Controlled Grid. Based on the accumulated results of the System Impact and the Facilities studies performed for this project, the CAISO reaffirms its final interconnection approval to connect the Eastshore Energy Facility Project to the CAISO Controlled Grid.

This project may interconnect to the CAISO Controlled Grid and be eligible to deliver the project's output using available transmission. However, these studies do not establish the generation project's level of deliverability for purposes of determining its Net Qualifying Capacity under the CAISO Tariff and in accordance with CPUC-adopted Resource Adequacy Rules. Therefore, this letter makes no representation, and Eastshore Energy, LLC cannot rely on any statements herein, regarding the ability, or amount, of the output of the project to be eligible to sell Resource Adequacy Capacity. We encourage you to follow the baseline deliverability studies ongoing at the CAISO.

PO Box 639014 Folsom, California 95763-9014 Telephone: 916 351-4400

For more information on generation deliverability, please reference the following web link: http://www.caiso.com/181c/181c902120c80.html .

Should you have any questions about the CAISO's approval to interconnect the Eastshore Energy Facility Project to the CAISO Controlled Grid, please contact Larry Tobias at (916) 608-5763 (ltobias@caiso.com) or Gary DeShazo at (916) 608-5880 (GDeShazo@caiso.com).

Sincerely,

Original singed by Gary DeShazo

Gary DeShazo
Director of Regional Transmission – North
California ISO

LT/GD:pjp

cc: Greg Trewitt (Tierra Energy, Greg.Trewitt@Tierraenergy.com)
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Nan Liu (ISO via email)
Ed Fishback (ISO via email)
Judy Nickel (ISO via email)
Dennis Peters (ISO via email)
Regional Transmission (ISO via email)

PO Box 639014 Folsom, California 95763-9014 Telephone: 916 351-4400

Attachment

This attachment is a summary of the CAISO review of the project's Revised Final System Impact Study and Facilities Study Reports Dated January 11, 2007.

Eastshore Energy, LLC proposes to interconnect a 115 MW generating facility to Pacific Gas & Electric's (PG&E) 115 kV bus at Eastshore Substation in Hayward, California. The proposed project is called the Eastshore Energy Facility Project (Project). The Project consists of fourteen (14) reciprocating engine generators. The proposed commercial operation date of the Project is September 2008.

The Direct Assignment facilities consist of:

- Constructing a new generator tie line from the Project to PG&E's Eastshore Substation
- Installing one new 115 kV generator tie breaker and associated protective relays, as well as communication and control equipment related to the Project up to the Interconnection Point
- Surveying, mapping, land or land rights acquisition activities required for the generator tie line
- Preparing and filing of the Notice of Construction (NOC)
- Pre-parallel inspection, testing, SCADA, EMS setup, and engineering support at the Project facility

There are no Network Upgrade facilities required to interconnect the Project with PG&E's transmission system.

The Project consists of fourteen (14) reciprocating engine generators. Each generator will be rated at 8.43 MW for a total of 118 MW. The expected total plant load will be 3 MW. Therefore, the maximum net output to the grid will be 115 MW. The Project will have a 13.8/115 kV step-up transformer connecting to the 115 kV bus at PG&E's Eastshore Substation via a new 115 kV generator tie line.

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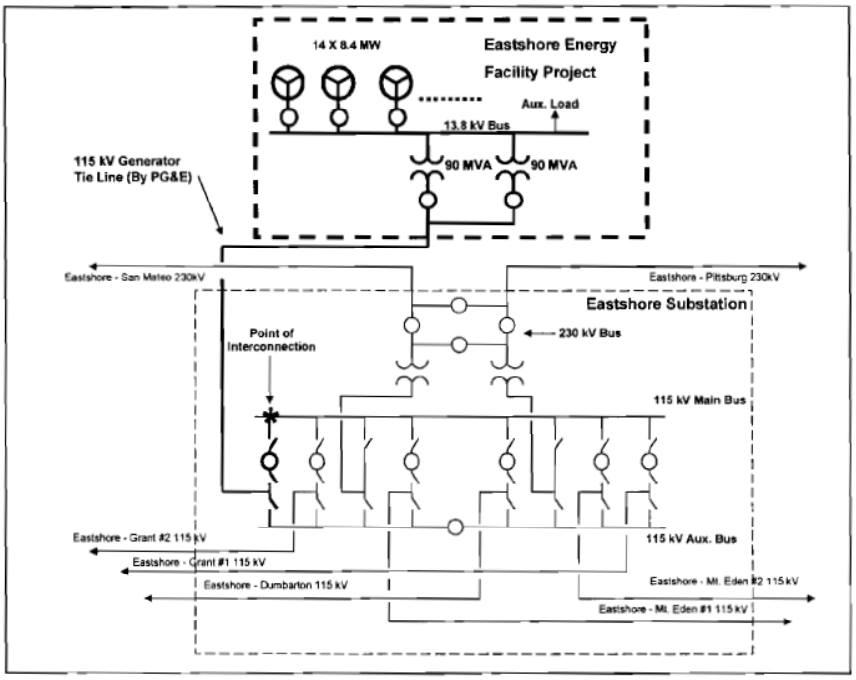
Figure 2-1: Conceptual Single-Line Diagram



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E. TRANSMISSION LINE SAFETY AND NUISANCE

The EEC's transmission line must be constructed and operated in a manner that protects environmental quality, assures public health and safety, and complies with applicable law. The following analysis describes the potential impacts of the transmission line on aviation safety, radio-frequency interference, audible noise, fire hazards, hazardous and nuisance shocks, and electric and magnetic field exposure and identifies the mitigation measures required to reduce any potential impacts to insignificant levels.

SUMMARY AND DISCUSSION OF THE EVIDENCE

1. Description of Transmission Line

The EEC will interconnect to PG&E's electric transmission grid via a new 1.1-mile, overhead 115-kV transmission line to PG&E's Eastshore Substation located south of the project site.[21] The transmission line will exit the northeast corner of the site from a 35-foot on-site structure at the new plant switchyard, then extend east for 150 feet to the first off-site pole on the east side of Clawiter Road, and then extend south on 10 to 12 new transmission poles within PG&E's existing 12-kV distribution line corridor to the Substation. (Ex. 1, § 5.5.2 et seq.; Ex. 200, p, 4.11-3.) See Applicant's **Figure 5.1-1**, Transmission Line Routes, attached at the end of this section. (Ex. 1, § 5.0, Figure 5.1-1.)

The transmission line conductors will be standard low-corona aluminum steel-reinforced cables, erected on steel poles with a maximum height of 90-95 feet. When running within the corridor of the existing 12-kV distribution line, the EEC line will be carried on support structures by itself or share structures with PG&E's existing 12-kV line. If necessary, the shared right-of-way will be widened according to PG&E requirements. The applied design and construction will be performed according to PG&E's guidelines, which will ensure line safety and

[21] The overhead line will be built, owned, and operated by PG&E as part of its 115-kV network in the area. (Ex. 1, § 5.5.1.)

efficiency as well as reliability and maintainability. (Ex. 1, § 5.2.4.) Implementation of Conditions of Certification **TLSN 1** through **TLSN-5** will ensure compliance with applicable health and safety LORS.

2. Potential Impacts

a. Electric and Magnetic Field Exposure

Electric and magnetic fields (EMF) occur whenever electricity flows. The possibility of deleterious health effects from exposure to EMF has raised public health concerns about living and working near high-voltage lines.[22] (Ex. 1, § 5,5,2 et seq,; Ex. 200, p. 4.11-7 et seq.) Due to the present scientific uncertainty regarding potential health effects from EMF exposure, CPUC policy requires reduction of such fields, if feasible, without affecting safety, efficiency, reliability, and maintainability of the transmission grid. (*Ibid.*)

The CPUC requires each new transmission line in California to be designed according to the EMF-reducing guidelines of the electric utility in the service area involved. EMF fields produced by new lines must be similar to the fields of comparable lines in that service area. According to Staff, if the EEC line is designed in accord with existing PG&E field strength-reducing guidelines, it will comply with CPUC requirements for line field management. (Ex. 200, p. 4.11-8.)

PG&E's guidelines for EMF-reduction measures include the following:

- Increasing the distance between the conductors and the ground;
- Reducing the spacing between the conductors;
- Minimizing the current in the line; and
- Arranging current flow to maximize the cancellation effects from interacting fields from nearby conductors. (Ex. 200, p. 4.11-9.)

[22] While scientific research has not established a definitive correlation between EMF exposure and adverse health effects, the potential for EMF-related health hazards remains at issue. In this regard, the CPUC requires the regulated utilities, including PG&E, to incorporate EMF-reducing

Condition **TLSN-1** ensures implementation of the necessary design requirements. Under Condition **TLSN-3**, the project owner must provide data necessary to compare the resulting EMF intensity measurements within the project's transmission corridor with fields from PG&E lines of the same voltage and current-carrying capacity. The need for further mitigation will be determined from the efficiency assessment after energization. (Ex. 200, pp. 4.11-9.)

Under CPUC policy, field intensity 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 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. (Ex. 1, § 200, p. 4.11-8.)

The Applicant calculated the electric and magnetic field levels for (a) the section where the project line will run parallel to the existing 12-kV line while on the same or separate support structures, and (b) where the project line will occupy a right-of-way by itself. The maximum calculated electric field strength in those two segments was 0.26 kV/m within the shared right-of-way and 0.6 kV/m in the 115-kV separate right-of-way. The maximum magnetic field strength is 23 mG within the shared right-of-way and 19.5 mG within the separate right-of-way. Such low electric and magnetic field intensities are similar to those from other PG&E lines. The 23 mG value for the magnetic field is much lower than the 150 mG to 200 mG established for transmission lines and related facilities by the few states with established regulatory EMF limits. (Ex. 1, § 5.5.2.1 and § 5.5.2.2.)

The actual field strengths and contribution levels for the proposed line design will be assessed from the results of the field strength measurements specified in

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measures in the design, construction, and maintenance of new transmission facilities and to operate existing facilities in accordance with those measures. (Ex. 200, p. 4.11-8 et seq.)

Condition **TLSN-3** to verify the field reduction efficiency assumed by the Applicant.

b. Aviation Safety

The potential for aircraft collision with transmission line towers is negligible or non-existent in this case. FAA regulations require notification of proposed structures that would extend above 200 feet in restricted airspace near airport runways. The maximum height of EEC's transmission line towers at 90-95 feet is below the FAA's 200-foot limitation. Furthermore, the line is located an area with several other PG&E lines, which have similar voltages and structural dimensions. The orientation and flight approach to the Hayward Executive Airport runway (in a north-to-northeast orientation) does not include the airspace above the project's transmission line. Thus, the transmission line structures do not create an obstruction-related aviation hazard to area aircraft and no FAA notice of construction or alteration will be required. (Ex. 200, p. 4.11-5; Ex. 1, § 5.5.3.)

c. Interference with Radio-Frequency Communication

Transmission lines produce radio-frequency energy, which can affect radio and television reception. Federal Communications Commission (FCC) regulations prohibit transmission line operation from interfering with radio/tv communications. Such interference is due to noise produced by action of the electric fields on the surface of the energized conductor. This process, known as corona discharge or spark gap electric discharge, occurs within gaps between the conductor and insulators or metal fittings. (Ex. 200, p. 4.11-6.)

Corona-related interference is most commonly caused by irregularities (such as nicks and scrapes on the conductor surface), sharp edges on suspension hardware, and other discontinuities around the conductor surface. The EEC line will be built and maintained according to standard PG&E practices minimizing

such surface irregularities and discontinuities. (Ex. 200, p. 4.11-6; Ex. 1, § 5.5.2.5.) Further, the potential for corona-related interference is usually of concern for lines rated at 345-kV and above, and not the proposed 115-kV line, except in rainy weather (when the presence of raindrops increases the strengths of the offending surface electric fields). The low-corona design for the EEC line will be the same as the existing PG&E lines of similar design. Since the existing lines do not currently produce the corona effects of specific concern, it is unlikely that any corona-related interference will occur on the EEC line. (*Ibid.)* Condition **TLSN-2** ensures the implementation of an appropriate complaint and mitigation process to address interference with radio/tv signals due to operation of the EEC line.

d. Audible Noise

Noise caused by electric field intensity from transmission lines is not specifically addressed by either federal or state regulations. Rather, electric field noise is limited through design, construction, or maintenance practices established by industry research.[23] Audible noise usually results from the action of the electric field at the surface of the line conductor, which could be perceived as a crackling, frying, or hissing sound or hum. This phenomenon occurs in wet weather, generally from overhead lines of 345-kV or higher. The lower field intensity of the EEC line and the low-corona design used for the line will minimize the potential for audible noise. Thus, line operation is unlikely to significantly add perceptible noise to current background noise levels in the project area. (Ex. 200, p. 4.11-6.) See the section on **Noise** in this Decision.

[23] Research by the Electric Power Research Institute (EPRI 1982) has shown that fair-weather audible noise from modern transmission lines is generally indistinguishable from background noise at the edge of a right-of-way of 100 feet or more. (Ex. 200, p. 4.11-6.)

e. Fire Hazards

Fire hazards related to transmission line operation are typically caused by sparks from overhead line conductors or from direct contact between the line and nearby trees or other combustible objects. The EEC line will conform with standard PG&E procedures for fire hazard prevention and the clearance-related aspects of the CPUC's General Order (GO) 95. (Ex. 200, p. 4.11-6; Ex. 1, § 5.5.4.) Condition **TLSN-4** ensures compliance with appropriate LORS related to fire hazard prevention.

f. Hazardous Shocks

Hazardous shocks occur from direct or indirect contact with an energized line. The EEC line will be designed and constructed to minimize the risk of hazardous shocks. (Ex. 1, § 5.5.2.4.) Implementation of Condition **TLSN-1** ensures the lines will meet the requirements of all applicable health and safety LORS.

g. Nuisance Shocks

Nuisance shocks are caused by direct contact with metal objects electrically charged by fields from the energized line. The potential for nuisance shocks around the new line will be minimized by standard industry grounding practices. (Ex. 1, § 5.5.2.4.) Condition **TLSN-5** ensures that all metallic objects along the route of the overhead lines are grounded according to PG&E requirements.

3. Cumulative Impacts

Since the new line will be designed, maintained, and operated according to current PG&E standards on safety and EMF management, the actual contribution of the line to the area's EMF exposure and any other health and safety considerations would be insignificant given the present configuration of numerous transmission lines in the area. (Ex. 200, p. 4.11-9.)

FINDINGS AND CONCLUSIONS

Based on the uncontroverted evidence of record, the Commission makes the following findings and conclusions:

1. The EEC will interconnect to the existing PG&E Eastshore Substation via a new 1.1-mile 115-kV outlet line from the new switchyard at the site.

2. The new interconnection line will follow PG&E's existing 12-kV distribution line corridor.

3. The EEC transmission line will comply with existing LORS for public health and safety.

4. The EEC transmission line will incorporate standard EMF-reducing measures established by PG&E.

5. The project owner will coordinate with PG&E to provide field intensity measurements before and after energization to assess EMF contributions from the project-related current flow.

6. The EEC transmission line will not result in significant adverse environmental impacts to public health and safety or cause significant impacts in the areas of aviation safety, radio frequency communication, fire hazards, nuisance or hazardous shocks, or electric and magnetic field exposure.

We therefore conclude that implementation of the Conditions of Certification, below, will ensure that the EEC complies with all applicable laws, ordinances, regulations, and standards relating to transmission line safety and nuisance as identified in the pertinent portions of **Appendix A** of this Decision.

CONDITIONS OF CERTIFICATION

TLSN-1 The project owner shall construct the project's transmission line according to the requirements of CPUC GO-95, GO-52, GO-131-D, Title 8, Group 2 High voltage electrical safety orders, sections 2700 through 2974 of the California Code of Regulations, and PG&E's EMF-reduction guidelines.

Verification: At least 30 (or fewer, as mutually agreed between the project owner and the compliance project manager) days before beginning construction of the transmission line or its related structures and facilities, the project owner shall submit to the compliance project manager 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 is made to identify and correct, on a case-specific basis, any complaints of interference with radio or television signals from the operation of project-related lines and associated switchyards. The project owner shall maintain written records, for a period of 5 years, of all complaints of radio or television interference attributable to plant operation together with the corrective action(s) taken to address each complaint. All complaints shall be recorded to include notations of corrective actions taken. Complaints not resulting in a specific action, or for which there was no resolution, shall be both noted and explained. The record shall be signed by both the project owner and 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 project-related lines and included, during the first 5 years of plant operation, in the annual compliance report.

TLSN-3 The project owner shall hire a qualified consultant to measure the strength of EMF~~s~~ both before and after the line is energized. The measurements shall be made according to 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 no later than 6 months after the beginning of operations.

Verification: The project owner shall file copies of the pre- and post-energization measurements with the CPM within 60 (or fewer, as mutually agreed between the project owner and the compliance project manager) days after completion of those measurements.

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

Verification: During the first 5 years of plant operation, the project owner shall provide a summary of inspection results, along with all fire prevention activities carried out along the right-of-way, and provide those 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 line are grounded according to industry standards, regardless of ownership. In the event of a refusal by any property owner to permit this grounding, the project owner shall notify the CPM. This notification shall include, when possible, the owner's written objection. Upon receipt of this notice, the CPM may waive the requirement for grounding the object involved.

Verification: At least 30 (or fewer, as mutually agreed between the project owner and the compliance project manager) days before the line is energized, the project owner shall transmit to the CPM a letter confirming compliance with this condition.

Hayward Executive Airport (HWD)
Oakland
SF
Map Area
San Jose
Project Site
Construction Laydown
Route 2
Route 3
Route 1
PG&E Eastshore Substation
LEGEND
Site Location
Proposed Route
Alternate Route
Existing 115 kV Transmission Line
Existing 230 kV Transmission Line
N
0 500 1,000 2,000
Feet
SCALE IS APPROXIMATE
FIGURE 5.1-1
ALTERNATIVE TRANSMISSION LINE ROUTES
EASTSHORE ENERGY CENTER
HAYWARD, CALIFORNIA
CH2MHILL

Source: Ex. 1

F. LOCAL SYSTEM EFFECTS

This topic area concerns localized electrical benefits and impacts that can be attributed to the addition of the EEC to the electric transmission grid. To paraphrase one witness, a project's "local system effects" essentially refer to the benefits that would occur were a project located in a load center.[24] (1/14/08 RT 16:20-22.) These effects can be manifested as an increase or decrease in system losses and reactive power margins, deferral of capital investments, operational reliability characteristics, and the ability to be integrated into the existing (and planned) CAISO–controlled grid. (Ex. 200, p. 5.6-1.)

The California Environmental Quality Act (CEQA) requires the Commission's analysis to include a discussion of the potential energy impacts of the project. Particular emphasis is placed on avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy. CEQA also emphasizes that the decision-maker should consider "the effects of the project on local and regional energy supplies and on requirements for additional capacity." (14 Cal. Code Regs., §§ 15000 et seq., Appendix F.)

SUMMARY AND DISCUSSION OF THE EVIDENCE

Power can be produced and distributed locally, or it can be produced and transported into an area over transmission facilities. Electricity for the cities of Hayward, Fremont, and San Leandro is supplied primarily from the older Pittsburg and Contra Costa power plants located in the northern East Bay area via the Eastshore substation, as well as from imported power via the Newark, Tesla, and Vaca-Dixon substations through the existing bulk transmission lines. The EEC project would interconnect at the 115 kV bus of the existing 230/115 kV PG&E Eastshore substation. As a result, power from the EEC would serve the

[24] This analysis is <u>not</u> a cost-benefit analysis of the entire project. (1/14/08 RT 40:9-11.) This topic pertains to the EEC's effects upon the electrical system, not upon individual customers. (See discussion at 1/14/08 RT 37-40; Applicant's Opening Brief at 78.)

load demands of the cities of Hayward, Fremont, and San Leandro in the southern East Bay area through the existing 115 kV network and, to some extent, would also serve the load demands of the city of San Mateo in the San Francisco Peninsula area through the San Mateo substation. Under certain outage conditions, the EEC project could be the only major generator providing electricity to the Hayward area. (Ex. 200, pp. 5.6-1 to 5.6-2; 1/14/08 RT 30, 41, 46-47; Applicant's Opening Brief at 78-79.)

Only Staff and Applicant submitted evidence on this topic. Both parties attribute certain electrical system "benefits" to the EEC.

Staff analyzed various dispatch scenarios, both for the EEC alone and in conjunction with the nearby Russell City Energy Center (RCEC). Staff concluded that, operating by itself, the EEC would result in an annual on-peak transmission loss savings[25] of 9 MW in 2008; this would be reduced to 7 MW if operating in conjunction with the RCEC. Overall, on-peak loss savings attributable to EEC would range from 6.5 MW to 19 MW annually. (Ex. 200, p. 5.6-5.) These loss savings equate to an approximate annual energy savings of 24 GWh (enough to supply about 3,600 homes), or a savings to ratepayers of $1.2 to $1.7 million per year (present value, 2007 dollars) if the EEC is considered alone. Operated in conjunction with the RCEC, the estimated energy savings is reduced to 18.5 GWh annually and the ratepayer savings to $0.9 to $1.3 million per year.[26] (Ex. 200, p. 5.6-5; see also, Staff's Opening Brief at 21; Applicant's Brief Supporting

[25] Producing power locally, near the load center where it will be used, greatly reduces transmission losses. (1/14/08 RT 19: 8-10.) These loss savings act as energy that need not be produced by other power plants, thus diminishing the consumption of fuel and water as well as the production of emissions. (Ex. 200, p. 5.6-5.)

[26] In performing its analysis, Staff assumed the RCEC would be on-line first, since the Commission has already certified this project. (1/14/08 RT 49-50.) [Docket No. 01-AFC-7; September 11, 2002.] The project has not yet been built, however, and the Commission approved a major amendment recently, on September 26, 2007. [Docket No. 01-AFC-7C.] Applicant believes that EEC should be considered operational first, since it is ahead of the RCEC in the CAISO interconnection queue. (1/14/08 RT 49:4-18; see also, Applicant's Opening Brief at 76-77.) Applicant's view would result in the higher end of the estimated ranges in loss savings, energy savings, and ratepayer savings being attributed to EEC.

Override for LORS Noncompliance at 19-20.) This reduction in system losses is the primary benefit quantified. (1/14/08 RT 16:24-25.)

These loss savings act as energy that is produced without requiring emissions from generation sources. Though valued by Staff at zero in its admittedly conservative assumptions (Ex. 200, p. 5.6-5), Applicant believes that the value of emissions reductions because of the transmission loss savings should be attributed to the EEC. (Ex. 14, p. 4.) In this regard, Applicant contends that the value of this emission offset benefit is approximately $115,000 to $150,000.[27] (Ex. 15, p. 4.) Moreover, since these loss savings would offset load that would have otherwise been met by running other power plants, Applicant believes there will be annual CO_2 emissions reductions of 9,000 to 12,000 tons. (Ex. 15, p. 5; see also Applicant's Opening Brief at 76-77; Staff's Opening Brief at 20.)

In addition to the transmission loss savings, both parties agree that EEC would increase reactive margins in the southern East Bay and in the San Francisco Peninsula. The evidence shows that the EEC would provide both real and reactive power[28] to the grid in the San Francisco Bay Area. The additional reactive power output, 80 MVAR, from EEC would increase the local reactive margins even under system contingency conditions. (1/14/08 RT 17:10-12; 29:10-12; Exs. 200, pp. 5.6-1, 5.6-6; 14, p. 3.) This would improve voltage stability and system reliability.

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[27] This calculation is based on market emission offset values for criteria pollutants and emission factors in tons/GWh. (Ex. 15, p.5.)

[28] In general, electric energy is defined as "real power" measured in megawatts (MW), and is used to supply lighting, motors, computers, and numerous other appliances. "Reactive power," measured in megavars (MVAR), supplies voltage support to transport electricity through the transmission system. Real power flows on transmission facilities must not exceed the capacity of the transmission facilities. When real power flow is projected to exceed the capability of transmission facilities, steps must be taken to either limit power flow or install additional or higher-capacity equipment. If reactive power is insufficient system voltages will decrease, which could lead to the controlled dropping of customer loads (rolling blackouts) and even the uncontrolled loss of load associated with voltage collapse. (Ex. 200, p. 5.6-2, Fn. 1; see also Applicant's Opening Brief at 80.)

Applicant also contends that EEC will provide PG&E and CAISO with additional operating flexibility to deal with unanticipated contingencies or higher than expected levels of load. (Ex. 14, pp. 3-4.) Finally, both Staff and Applicant characterize, as a benefit, the fact that EEC can be reliably connected to the CAISO-controlled grid with the projects identified in the current transmission plan without the need for new or modified downstream facilities. (Ex. 200, p. 5.6-1; Staff's Opening Brief at 20; Applicant's Opening Brief at 81.)

Thus, the evidence of record shows that the following factors could be considered as positive project attributes because the EEC would:

- Provide local on-peak generation and consequently reduce transmission losses, resulting in energy savings and savings to ratepayers, though the amount of these savings is disputed;
- Increase reactive margins thereby improving voltage stability and system reliability;
- Increase PG&E and CAISO operating flexibility;
- As a result of line loss savings, result in an emission offset benefit valued at $115,000 to $150,000 per year; energy savings will result in the annual production of CO_2 decreasing by 9,000 – 12,000 tons per year;
- Be reliably interconnected with the grid without the need for new or modified downstream facilities. (See Applicant's Opening Brief at 78-81; Applicant's Brief Supporting Override for LORS Noncompliance at 19-20.)

Both the evidence and logic support the conclusion that the EEC's position as a local source of on-peak generation and its associated reduction in transmission losses, the increase in reactive margins with the improvements in voltage support and system reliability, and the increase in operating flexibility are positive factors attributable to the project. Likewise, although unconfirmed by a Staff analysis, credible testimony exists which quantifies the value of emissions reductions due

to the project. (Applicant's Opening Brief at 76-77; Staff's Opening Brief at 21, Fn. 6.) The parties also cite as a "benefit" the fact that the EEC can reliably interconnect with the grid without creating the need for additional or new downstream facilities. (7/21/08 RT 94:17-24; Applicant's comments on the PMPD at 8.) We see no reason to disagree with the positive characterization of these factors.

In conclusion, we are persuaded that the EEC will provide some degree of local system benefits as discussed above. Whether these factors are "significant" as characterized by Applicant (see, *e.g.*, Applicant's Reply Brief on Contested Subject Areas at 47-48) or "modest" as viewed by Staff (see, *e.g.*, Staff's Reply Brief at 16), and how they are balanced in light of the project's impacts, is discussed in the **OVERRIDE** section of this Decision.

FINDINGS AND CONCLUSIONS

Based upon the persuasive weight of the evidence of record, we reach the following findings and conclusions:

1. The EEC would provide a local source of on-peak electrical generation, which would serve the load demands of the southern East Bay area, including the cities of Hayward, Fremont, and San Leandro as well as, under certain conditions, the City of San Mateo on the San Francisco Peninsula.

2. The EEC would result in on-peak transmission line loss savings of between 6.5 MW and 19 MW annually. These loss savings constitute the primary benefit attributable to the project.

3. The EEC would result in an estimated present value (2007 dollars) of between $11.4 million to $16.3 million in savings to ratepayers over twenty years.

4. As a result of the transmission line loss savings referred to in Findings 2 and 3 above, the EEC would result in a reduced need to run other power plants to serve the local area's on-peak demands. Applicant values this reduction as

an annual emissions offset benefit of $115,000 to $150,000 based on an estimated 9,000 to 12,000 fewer tons of CO_2 emissions from older generators.

5. The EEC would provide both real and reactive power to the grid in the San Francisco Bay Area.

6. The EEC would increase reactive margins on the southern East Bay area and the San Francisco Peninsula, thereby improving voltage stability and system reliability.

7. The EEC would enhance operating flexibility for PG&E and the CAISO.

We therefore conclude that the EEC project would provide some degree of benefit to the local electrical system in the areas of the southern East Bay and the San Francisco Peninsula.

V. PUBLIC HEALTH AND SAFETY ASSESSMENT

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

A. AIR QUALITY

This section examines the potential adverse impacts of criteria air pollutant emissions resulting from project construction and operation. In consultation with the local air pollution control district, the Commission determines whether the project will likely conform with applicable laws, ordinances, regulations and standards (LORS), whether it will likely result in significant air quality impacts, including violations of ambient air quality standards, and whether the project's proposed mitigation measures will likely reduce potential impacts to insignificant levels. (Ex. 200, pp. 4.1-1, 4.1-2.)

National ambient air quality standards (NAAQS) have been established for seven air contaminants identified as "criteria air pollutants." These include sulfur dioxide (SO_2), carbon monoxide (CO), ozone (O_3), nitrogen dioxide (NO_2), lead (Pb), particulate matter less than 10 microns in diameter (PM10) and particulate matter less than 2.5 microns in diameter (PM2.5). The review of potential impacts also includes the precursor pollutants for ozone, which are nitrogen oxides (NO_x) and volatile organic compounds (VOC), and the precursors for PM10 and PM2.5, which are primarily NO_x, sulfur oxides (SO_x), and ammonia (NH_3). Sulfur oxides (SO_x) react in the atmosphere to form particulate matter and are major contributors to acid rain. (Ex. 200, p. 4.1-1; Ex. 1, § 8.1.3.4.)

The federal Clean Air Act[29] requires new major stationary sources of air pollution to comply with federal requirements in order to obtain Authority to Construct (ATC) permits. The U.S. Environmental Protection Agency (U.S. EPA), which administers the Clean Air Act, has designated all areas of the United States as attainment/unclassifiable (air quality better than the NAAQS or unable to determine) or nonattainment (worse than the NAAQS) for criteria air pollutants. The Clean Air Act also requires a periodic review of the science upon which the standards are based and appropriate updates as necessary.[30] (Ex. 200, pp. 4.1-4 to 4.1-5.)

There are two major components of air pollution law: New Source Review (NSR) for evaluating pollutants that violate federal standards and Prevention of Significant Deterioration (PSD) to evaluate pollutants that do not violate federal standards. Enforcement of NSR and PSD rules is delegated to local air districts, which are established by federal and state law. (Ex. 200, p. 4.1-2; Ex. 1, § 8.1.5.) The Bay Area Air Quality Management District (Air District or BAAQMD) has jurisdiction in Alameda County and its rules apply to the EEC.[31] (Ex. 200, p. 4.1-1.)

The project is also subject to the federal New Source Performance Standards (NSPS), which are generally delegated to the local air district; however, local emissions limitation rules are typically more restrictive than NSPS requirements. (Ex. 200, pp. 4.1-2; 4.1-34.)

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[29] Title 42, United States Code, section 7401 et seq.

[30] Ambient air quality standards are designed to protect people who are most susceptible to respiratory distress such as asthmatics, the elderly, very young children, people already weakened by other disease or illness, and people engaged in strenuous work or exercise. The ambient standards are also set to protect public welfare, including protection against decreased visibility, and damage to animals, crops, vegetation, and buildings. (Ex. 200, p. 4.1-4.)

[31] The EEC is not subject to PSD review since it is not considered a major source for any applicable PSD pollutants. (Ex. 27, p. 23; Ex. 1, § 8.1.7.5.)

Both the U.S. EPA and the California Air Resources Board (CARB) have established allowable maximum ambient concentrations for the criteria pollutants identified above. The California Ambient Air Quality Standards (CAAQS) are more stringent than federal standards. Federal and state ambient air quality standards are shown below in Staff's Air Quality Table 2.

Air Quality Table 2
State and Federal Ambient Air Quality Standards

Pollutant	Averaging Time	California Standard	Federal Standard
Ozone (O_3)	1 Hour	0.09 ppm (180 µg/m^3)	None
	8 Hour	0.070 ppm (137 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	None
Fine Particulate Matter (PM2.5)	24 Hour	None	35 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	0.18 ppm (339 µg/m^3)	None
	Annual	0.030 ppm (57 µg/m^3)	0.053 ppm (100 µg/m^3)
Sulfur Dioxide (SO_2)	1 Hour	0.25 ppm (655 µg/m^3)	None
	3 Hour	None	0.5 ppm (1300 µg/m^3)
	24 Hour	0.04 ppm (105 µg/m^3)	0.14 ppm (365 µg/m^3)
	Annual	None	0.03 ppm (80 µg/m^3)

Source: ARB, July 2008. Note: the new 1-hour NO_2 CAAQS of 0.18 ppm [338 µg/m^3] and annual NO_2 CAAQS of 0.030 ppm [56 µg/m^3] were approved by the Office of Administrative Law in February 2008. and became effective March 20, 2008.

In addition to criteria air pollutants, the generation of electricity produces air emissions known as greenhouse gases (GHG), which contribute to the warming of the earth's atmosphere. GHGs related to combustion of natural gas include carbon dioxide, nitrous oxide (N_2O), methane (CH_4, unburned natural gas), sulfur hexafluoride (SF_6), hydrofluorocarbons (HFCs), and perfluorocarbons (PFCs) from transformers and chillers. (Ex. 200, p. 4.1-32.)

The California Global Warming Solutions Act of 2006 (AB 32) requires CARB to adopt a statewide GHG emissions limit by 2020 that is equivalent to 1990

statewide GHG emissions levels. CARB has drafted regulations to achieve technologically feasible and cost-effective GHG emission reductions and to require mandatory GHG emissions reporting. (Ex. 200, p. 4.1-32.)

The Electricity Greenhouse Gas Emission Standards Act (SB 1368)[32] also enacted in 2006, makes electricity generation and power supply contracts subject to the GHG Environmental Performance Standard (EPS). In 2007, the California Public Utilities Commission (CPUC) adopted an EPS for any baseload generation undertaken by load-serving entities that will emit 1,100 pounds (or 0.5 metric tons) of CO_2 per megawatt-hour (MWh) of electricity.[33] The Energy Commission adopted a similar EPS for local publicly-owned electric utilities.[34] This standard applies to baseload power from new power plants, new investments in existing power plants, and new or renewed contracts with terms of five years or longer, including contracts with power plants located outside of California. As a peaking project, the EEC is not subject to the EPS; however, it will emit approximately 1,000 pounds of CO_2 per MWh and is subject to the GHG reporting requirements established under AB 32. (Ex. 200, p. 4.1-33.)

Condition of Certification **AQ-SC11** requires the project owner to report the quantities of GHGs emitted from the EEC to ensure the project is consistent with the LORS and policies described above.

SUMMARY OF THE EVIDENCE

Air quality in the San Francisco Bay Area is in attainment with federal and state standards for SO_2, NO_2 and CO, and the federal PM10 and PM2.5 (likely to be

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[32] Public Utilities Code § 8340 et seq.

[33] See http://www.cpuc.ca.gov/PUBLISHED/FINAL_DECISION/64072.htm

[34] Title 20, California Code of Regulations, section 2900 et seq.

designated nonattainment in 2009) standards, and nonattainment for the state and federal ozone standards and the state PM10 and PM2.5 standards. (Ex. 200, pp. 4.1-4, 4.1-5, 4.1-30.) BAAQMD's attainment status for each criteria pollutant is shown below in Staff's Air Quality Table 3.

Air Quality Table 3
Attainment Status of Bay Area Air Quality Management District

Pollutants	Federal Classification	State Classification
Ozone	**Nonattainment (Marginal)**	**Nonattainment (Serious)**
PM10	Attainment	**Nonattainment**
PM2.5	Attainment*	**Nonattainment**
CO	Attainment	Attainment
NO_2	Attainment	Attainment
SO_2	Attainment	Attainment

Source: ARB 2007 (http://www.arb.ca.gov/desig/desig.htm)
* According to Staff, likely to be designated nonattainment by 2009. (Ex. 200, p. 4.1-30.)

1. BAAQMD's Final Determination of Compliance

BAAQMD released its Final Determination of Compliance (FDOC) on October 17, 2007. The FDOC contains the permit conditions specified by BAAQMD to ensure compliance with applicable federal, state, and local air quality requirements.[35] (Ex. 27, p. 29 et seq.) BAAQMD's permit conditions are incorporated into this Decision. (Cal. Code Regs, tit. 20, §§ 1744.5, 1752.3.) In the power plant certification process, the Air District's FDOC serves as an in-lieu Authority to Construct (ATC) permit, which is required for new air pollution sources within the Air District's jurisdiction. (Ex. 27, p. 1, BAAQMD Regulations 2-3-403 and 2-3-405.) The ATC cannot be implemented unless the Energy Commission certifies the project.

[35] The conditions include emissions limitations, operating limitations, offset requirements, and testing, monitoring, record keeping and reporting requirements that ensure compliance with air quality LORS.

2. California Environmental Quality Act (CEQA) Requirements

In addition to reviewing the Air District's requirements, the Energy Commission also evaluates potential air quality impacts according to CEQA requirements. CEQA Guidelines identify several significance criteria to determine whether a project will: (1) conflict with or obstruct implementation of the applicable air quality plan; (2) violate any air quality standard or contribute substantially to an existing or projected air quality violation; (3) result in a cumulatively considerable net increase of any criteria pollutant for which the region is nonattainment for state or federal standards; (4) expose sensitive receptors to substantial pollutant concentrations; and (5) create objectionable odors affecting a substantial number of people. (Cal. Code Regs, tit. 14, § 15000 et seq., Appendix G.) The Guidelines note that where available, the significance criteria established by the applicable Air District may be relied upon to make a significance determination for CEQA review.

3. Ambient Air Quality

The following discussion provides an overview of air quality conditions in the Bay Area and describes the issues addressed by the Applicant and Staff in consultation with BAAQMD.

Staff's Air Quality Table 4, below, summarizes the existing ambient monitoring data as of May 2007 for nonattainment criteria pollutants collected by CARB and BAAQMD from monitoring stations closest to the project site. Data marked in **bold** indicates that the most-stringent current standard was exceeded. According to Staff, an exceedance is not necessarily a violation of the standard, and that only persistent exceedances lead to designation of an area as nonattainment. (Ex. 200, p. 4.1-6.)

Air Quality Table 4
Eastshore, Highest Measured Concentrations (ppm or µg/m^3)

Pollutant, Location	Averaging Time	2003	2004	2005	2006	2006 Date
Ozone (ppm) Hayward, La Mesa	1 hour	**0.116**	0.088	0.093	**0.101**	Jul 17
Ozone (ppm) San Leandro, Hospital	1 hour	**0.097**	**0.104**	**0.099**	0.088	Jul 22
Ozone (ppm) Fremont, Chapel Way	1 hour	**0.123**	0.090	**0.105**	**0.102**	Jun 22
Ozone (ppm) Hayward, La Mesa	8 hour	**0.092**	0.070	0.070	**0.071**	Jul 17
Ozone (ppm) San Leandro, Hospital	8 hour	**0.071**	0.066	0.061	0.066	Aug 9
Ozone (ppm) Fremont, Chapel Way	8 hour	**0.090**	**0.071**	**0.078**	**0.074**	Jun 22
PM10 Fremont (µg/m^3)	24 hour	37.2	48.9	**54.1**	**56.6**	Dec 7
PM10 Fremont (µg/m^3)	Annual	18.2	18.6	17.8	20.0	---
PM2.5 Fremont (µg/m^3)	24 hour	33.5	**39.9**	33.4	**43.9**	Dec 25
PM2.5 Fremont (µg/m^3)	Annual	8.7	9.4	9.0	n/a	---

Source: Ex. 200, p. 4.1-6; CARB, Air Quality Data Statistics (http://www.arb.ca.gov/adam/welcome.html). Accessed May 31, 2007.

Staff provided a detailed analysis of ambient air quality conditions in the site vicinity for ozone, PM10, PM2.5, NO_2, CO, and SO_2. (Ex. 200, p. 4.1-6 et seq.)

- 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 NO_x and POC, which interact in the presence of sunlight and warm air temperatures to form ozone. Ozone formation is highest in the summer and fall when abundant sunshine and high temperatures trigger the necessary photochemical reactions, and lowest in the winter. According to Staff, the days with the highest ozone concentrations occur between June and August, but the region's ozone management season (and the BAAQMD "Spare the Air" program)[36] officially runs from June 1 to October 12.

- PM10 is a mixture of particles and droplets that vary in size and chemical composition, depending upon the origin of the pollution. It is directly emitted by any combustion process, but it can also be formed upwind as secondary

[36] For more information see: http://www.sparetheair.org/

particulate matter when various precursor pollutants such as NO_x, SO_2, organic compounds, and ammonia (NH_3) chemically interact in the atmosphere to form secondary particulate nitrates, sulfates, and organic solids. The ambient PM10 data collected from monitoring stations near the project site shows that high levels of PM10 occur primarily during the winter months at the Fremont monitoring station near the site, but high regional PM10 levels also occur at other times of the year. (Ex. 200, p. 4.1-7.)

- Fine particulate matter with an aerodynamic diameter less than or equal to 2.5 microns (PM2.5) penetrates deeply into the lungs and can be much more damaging to public health than larger particles. PM2.5 is mainly a product of combustion and includes nitrates, sulfates, organic carbon (ultra-fine dust), and elemental carbon (ultra-fine soot). Ammonium sulfate is also a concern because of the availability of ammonia in the atmosphere. The highest PM2.5 concentrations occur in the winter when the contribution of wood-burning smoke particles adds to ground level releases, which are disproportionately high because of relatively stagnant meteorology.

- Carbon monoxide (CO) is a by-product of incomplete combustion common to any fuel-burning source. Ambient concentrations of CO vary substantially depending upon the proximity of the source since the pollutant disperses quickly and oxidizes in the air. Mobile sources are the principal sources of CO emissions. Ambient CO concentrations in the Bay Area meet the CAAQs due to two state-wide programs for mobile sources: the 1992 wintertime oxygenated gasoline program, and Phases I and II of the reformulated gasoline program. New vehicles with oxygen sensors and fuel injection systems also help reduce CO emissions

- The highest concentrations of NO_2 occur during the fall and not the winter, when atmospheric conditions lack significant photochemical activity. In the summer, the high temperatures and windy conditions disperse pollutants, preventing the accumulation of NO_2 to levels approaching the CAAQS.

- Sulfur dioxide is emitted by combustion of fuel containing sulfur. Since natural gas contains little sulfur and has low SO_2 emissions, EEC will not cause a violation of nor contribute to ambient SO_2 concentrations in the site vicinity. Staff notes that the entire state is designated attainment or unclassified for all SO_2 ambient air quality standards.

CARB's air quality data for the project vicinity indicate existing violations of ambient air quality standards for ozone, PM10, and PM2.5. In accordance with BAAQMD and U.S. EPA guidance, Applicant used the highest ambient air concentrations as the baseline for its analysis of potential air quality impacts.

(Ex. 1, Appendix 8.1B, p. 17.) These concentrations are shown in Staff's Air Quality Table 7, below.

Air Quality Table 7
Highest Local Background Concentrations (µg/m^3)

POLLUTANT	Averaging Time	Background	Limiting Standard	Percent of Standard
PM10	24 hour	**56.6**	50	**113**
	Annual	20.0	20	100
PM2.5	24 hour	**43.9**	35	**125**
	Annual	9.4	12	78
CO	1 hour	3,680	23,000	16
	8 hour	2,178	10,000	22
NO_2	1 hour	143	470	30
	Annual	28	100	28
SO_2	1 hour	102	655	16
	24 hour	24	105	23
	Annual	8	80	10

Source: Ex. 200, p. 4.1-12, Ex. 1, § 8.1.7.4, Table 8.1-30, updated with CARB's Air Quality Data: http://www.arb.ca.gov.aqd.aqdpage.htm

The existing regional emission inventory includes pollution from a diverse range of stationary sources, mobile sources, and smaller area-wide sources. (Ex. 1, § 8.1.6; Ex. 200, p. 4.1-29.) Mobile sources are typical throughout the urban areas and include about 1.03 million on-road vehicles in Alameda County (as of 2005), heavy mobile equipment used for off-road purposes (e.g., construction equipment), aircraft, and railroad locomotives. According to Staff, every 1,000 vehicles in Alameda County generate 23 tons per year of NO_x and 6.5 tons per year of PM10 from exhaust and paved road dust. (Ex. 200, p. 4.1-12.)

4. Potential Impacts

Methodology. Applicant performed an air dispersion modeling analysis using BAAQMD and U.S. EPA-approved air dispersion computer models (ISCST3 and SCREEN3) to evaluate the project's potential impacts on existing ambient air

quality during both construction and operation.[37] The analysis incorporates five years of hourly meteorological data collected in the site vicinity. (Ex. 1, §§ 8.1.7; 8.1.8, Appendix 8.1B.) BAAQMD confirmed the modeling was conducted in accordance with Air District rules. (Ex. 27, Appendix A.)

Construction. Although the construction phase is temporary, air pollutants will be generated from the diesel exhaust of heavy equipment and fugitive dust from activity on unpaved surfaces at the site and along the linear routes.

Staff's Air Quality Table 15, below, summarizes the results of Applicant's modeling analysis for construction-related emissions. (Ex. 1, § 8.7, Appendix 8.1E; Ex. 6, pp. 12-13; Ex 200, p. 4.1-21.) The total impact is the sum of the existing ambient conditions plus the maximum impact predicted by the modeling analysis for project activity. The values in **bold** either equal or exceed the relevant ambient air quality standard.

The maximum modeled project construction impacts are predicted to occur at the eastern fence line (Life Chiropractic College) and decrease rapidly with distance. The highest PM10 and PM2.5 impacts predicted at the southern fence line (Fremont Bank's Operations Center) is about two-thirds of the overall maximum modeled impact. No residential receptors exist at the fence line, but the maximum daily PM10 and PM2.5 construction impacts are about one-third of the maximum levels at the nearest residence, 1,100 feet northeast of the site. At Ochoa Middle School and Eden Gardens Elementary School, approximately 3,000 and 3,500 feet away, respectively, the maximum daily PM10 and PM2.5

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[37] Applicant used Model ISCST3 (Version 02035) for screening and refined modeling to estimate the direct impacts of the project's NOx, PM10, CO, and SO_x construction and operations emissions. The SCREEN3 dispersion model was used to evaluate plume merging and fumigation impacts. (Ex. 1, § 8.1.7, Appendix 8.1B, pp. 10-14.) The project-related modeled concentrations were then added to highest background concentrations to arrive at the total impact of the project. The total impact was then compared with the ambient air quality standards for

impacts are about one-fifth of the maximum levels. According to Staff, these particulate matter emissions result in a significant impact because they contribute to existing violations of annual and 24-hour average PM10 and PM2.5 ambient air quality standards. (Ex. 200, p. 4.1-21.)

Air Quality Table 15
Construction-Phase Maximum Impacts (μg/*m*^{3})

POLLUTANT	Averaging Time	Modeled Impact	Background	Total Impact	Limiting Standard	Percent of Standard
PM10	24 hour	36.3	**56.6**	**92.9**	50	**186**
	Annual	5.3	20.0	**25.3**	20	**127**
PM2.5	24 hour	13.4	**43.9**	**57.3**	35	**164**
	Annual	2.4	9.4	11.8	12	98
CO	1 hour	177.5	3,680	3,858	23,000	17
	8 hour	122.6	2,178	2,301	10,000	23
NO_2	1 hour	267.6	143	410.6	470	87
	Annual	16.6	28	44.6	100	45
SO_2	1 hour	64.0	102	166	655	25
	24 hour	19.4	24	43	105	41
	Annual	3.8	8	12	80	15

Sources: Ex. 200, p. 4.1-21; Ex. 1, Appendix 8.1E, Table 8.1E-2 for NO2 (using OLM and ARM), CO, and SO_2; DR14 for PM10 and PM2.5, with Energy Commission staff calculations based on 100% of combustion particulate matter impact (24-hour = 7.7 μg/m^3) plus 20% of fugitive dust particulate matter impact (24-hour = 0.2 x 28.6 μg/m^3).

Significant secondary impacts will also occur for PM10, PM2.5, and ozone because construction-phase emissions of particulate matter precursors (including SO_x) and ozone precursors (NOx and POC) contribute to existing violations of air quality standards.[38] Due to the variable and short-term nature of construction emissions, Staff believes a qualitative approach to mitigation is necessary to reduce impacts below significant levels. (Ex. 200, p. 4.1-22.)

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each pollutant to determine whether the project's emissions will either cause a new violation of the ambient air quality standards or contribute to an existing violation. (Ex. 200, p. 4.1-20.)

[38] According to Staff, the direct impacts of NO_2 in conjunction with worst-case background conditions, will not create a new violation of the 1-hour or annual NO_2 ambient air quality standard. The direct impacts of CO and SO_2 are also not significant since neither **construction** nor **operation** activities will cause or contribute to a violation of these standards. (Ex. 200, pp. 4.1-22 to 4.1-24.)

Applicant agreed to implement several mitigation measures to reduce diesel emissions, including low-sulfur diesel fuel, certified diesel engines (Tier I and II state and federal standards), soot filters, limited idling, electric motor options, and proper maintenance. Fugitive dust will be controlled by low speed limits, soil stabilization compounds, erosion control, replanting vegetation, covering storage piles and disturbed areas, gravel on unpaved roads, tire washing, and frequent watering of disturbed areas. (Ex. 1, § 8.1.2.10, Appendix 8.1E.2; Ex. 200, pp. 4.1-15, 4.1-16, 4.1-22.) These measures will be incorporated in the Construction Mitigation Plan (CMP) required by Conditions of Certification **AQ-SC2**, **AQ-SC3**, **AQ-SC4**, and **AQ-SC5**. Since calculations of construction-related emissions did not include measures required by the CMP, actual emissions are expected to be lower than estimated by Applicant and impacts should be reduced to insignificant levels. Condition **AQ-SC1** requires the project owner to designate an Air Quality Construction Mitigation Manager to ensure compliance with the CMP.

Operation. The EEC will include the following stationary sources of emissions:

- Fourteen natural gas-fired reciprocating internal combustion engine-generator sets, each 8.4 MW (gross), 11,660 bhp, Wärtsilä model 20V34SG, with each engine abated by a selective catalytic reduction (SCR) system and oxidation catalyst. Under the FDOC, these engines are limited to no more than 4,000 operating hours per year;
- One nominal 225 kilowatt (kW) Caterpillar model C9 ATAAC, diesel fuel oil-fired emergency back-up 369 bhp engine-generator set (i.e., “black start” engine), U.S. EPA Tier 3 certified, must use CARB-approved ultra-low-sulfur (0.0015 percent or 15 ppm sulfur by weight) diesel fuel; and
- One natural gas-fired heater to heat natural gas fuel delivered to the reciprocating engines to 25°F above the dew point of the gas, with a maximum firing rate of 2.0 million British thermal units (Btu) per hour (MMBtu/hr) heat input. (Ex. 200, p. 4.1-13; Ex. 1, §§ 8.1.2.2 and 8.1.2.3.)

The project includes several emission control systems required by state and federal law, including Best Available Control Technology (BACT) per BAAQMD Rule 2-2-301. (Ex. 27, p. 10 et seq.)

NO_x emissions from each engine will be treated by a Selective Catalytic Reduction (SCR) system before release into the atmosphere. SCR chemically reduces NO_x to elemental nitrogen and water vapor by injecting ammonia (NH3) into the exhaust gas stream in the presence of a catalyst and excess oxygen. SCR complies with the Air District's BACT requirements.[39] (Ex. 200, p. 4.1-16; Ex. 27, p. 12.)

Engine emissions of CO and unburned hydrocarbons, including POCs, will be controlled with an oxidation catalyst installed in conjunction with the SCR catalyst. An oxidation catalyst system chemically reacts with organic compounds and CO with excess oxygen to form carbon dioxide (CO_2) and water. The oxidation catalyst does not require additional chemicals. (Ex. 200, p. 4.1-17.)

The exclusive use of pipeline-quality natural gas, a clean-burning fuel that contains low sulfur levels or noncombustible solid residue, will limit the formation of SO_x and particulate matter. (Ex. 200, p. 4.1-17.)

BAAQMD's operating conditions are described in Condition of Certification **AQ-14**, which establishes limits on project emissions of criteria pollutants as follows:

- NO_x emissions controlled to 5 parts per million by volume, dry basis (ppmvd) corrected to 15 percent oxygen, averaged over any 1-hour period;
- POC emissions controlled to 25 ppmvd at 15 percent O_2 for any 1-hour period;
- CO emissions controlled to 13 ppmvd at 15 percent O_2 for any 1-hour period;
- Ammonia slip (NH_3) controlled to 10 ppmvd at 15 percent O_2 for any 3-hour period;

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[39] Intervenor Alameda County's expert witness on air quality claims that "there is sparse history of use of SCR…." (Ex. 500, p. 5.) This testimony is conclusively rebutted by BACT policies implemented by BAAQMD and other air districts in California where power plants have been sited. (Ex. 27, pp. 12-13.) We also note that the County's witness apparently did not review the evidence on hazardous materials that describes required mitigation for ammonia storage and handling. (Ex. 500, p. 9 et seq.) See the **Hazardous Materials** section in this Decision.

- PM10 emissions limited to 1.3 lb/hr on a 24-hour and annual basis but up to 1.9 lb/hr per engine, subject to approval by the BAAQMD Air Pollution Control Officer that the specific engine has been installed, operated, and maintained properly (see Condition **AQ-16**);
- SO_x emissions limited to 0.24 lb/hr.

Conditions **AQ-26** through **AQ-30** establish emission and operating limits for the 369 bhp emergency back-up generator:

- NO_x emissions limited to 2.62 grams per horsepower-hour (g/bhp-hr);
- POC emissions limited to 0.14 g/bhp-hr;
- CO emissions limited to 2.31 g/bhp-hr;
- PM10 emissions limited to 0.11 g/bhp-hr;
- Exclusive use of CARB ultra-low-sulfur diesel fuel; and
- Operation permitted up to one hour per day and not more than 50 hours per year for maintenance and testing purposes.

Emissions from the natural gas-fired fuel-gas heater are based upon a maximum firing rate of 2.0 MMBtu/hr, which ensures exempt emissions per BAAQMD Rule 2-1-114. (Ex. 200, p. 4.1-18.)

In addition, the following operating conditions are also included in calculating emission impacts:

- Exclusive use of pipeline-quality natural gas fuel with no provisions for an alternative or backup fuel (Condition **AQ-7**);
- Operation permitted up to 4,000 hours annually for each engine, which is equivalent to an annual capacity factor of approximately 45 percent (Condition **AQ-11**); and
- Start-ups and shutdowns limited to no more than 300 start-ups (0.5 hr per event) and 300 shutdowns (8.5 minutes per event) for each engine per year (Ex. 27, p. 4).

Continuous emission monitors (CEMs) installed on the exhaust stacks will monitor adherence to required emission limits for NO_x, CO, and oxygen concentrations. Conditions **AQ-2** and **AQ-3** establish the operating and reporting

protocol for the CEMs. Condition **AQ-14** Verification (e), in conjunction with **AQ-SC12**, requires quarterly reports on CEMs data. Condition **AQ-15** requires CEMs to run during all hours of project operation.

Applicant's analysis includes both maximum operating and start-up/shutdown scenarios to determine worst-case air quality impacts from routine operational emissions throughout the life of the project. (Ex. 1, § 8.1.8.3.) At the July 21, 2008 Supplemental Evidentiary Hearing, Applicant submitted a refined air quality analysis that updated the expected 1-hour NO_2 and cumulative NO_2 impacts from the project.[40] (Ex. 58.) The predicted maximum concentrations of non-reactive pollutants summarized in Staff's Air Quality Table 16, below, reflect this update.

Air Quality Table 16
Routine Operation Maximum Impacts (µg/m^3)

POLLUTANT	Averaging Time	Modeled Impact	Background	Total Impact	Limiting Standard	Percent of Standard
PM10	24 hour	27.5	**56.6**	**84.1**	50	**168**
	Annual	3.1	20.0	**23.1**	20	**116**
PM2.5	24 hour	17.0	**43.9**	**60.9**	35	**174**
	Annual	3.1	9.4	**12.5**	12	**104**
CO	1 hour	454.5	3,680	4,135	23,000	18
	8 hour	374.3	2,178	2,552	10,000	26
NO_2	1 hour	157,06	131.67	288.7	339	85.2
	Annual	3.22	32	35.2	57	61.8
SO_2	1 hour	7.4	102	109.4	655	17
	24 hour	4.8	24	28.8	105	27
	Annual	0.5	8	8.5	80	11

Source: Ex. 200, p. 4.1-23; Ex. 1, § 8.1.8.3: Table 8.1-34; Ex. 12, p. 11: Table WKS 4-5 (with PM10/PM2.5 revised by Staff). PM2.5 is 3-year average of maximum 8th highest (for 98th percentile) 24-hour impact. Includes routine start-up and shutdown events per Ex. 1, Table 8.1B-2.

[40] Project-only 1-hour NO_2 impacts and the cumulative multi-source modeling analysis provided by Applicant in April/May 2007 were revised in accordance with BAAQMD Permit Modeling Guidance (June 2007) for a Refined Air Quality Impact Analysis, using the Tier 3 Ozone Limiting Method (OLM) methodology specifically identified in BAAQMD's Modeling Guidance. The supplemental "refined" analysis indicates that the EEC will comply with the new NO_2 standard. (Ex. 58, Air Quality Testimony of Gregory Darvin, p. 3.)

The evidence shows that maximum modeled impacts are predicted to occur directly across Clawiter Road at Life Chiropractic College. The highest PM10 impacts predicted at the fence line with Fremont Bank's Operations Center are about two-thirds of the overall maximum modeled impact at the eastern end and less than one-third at the western end of the property boundary. The maximum daily PM10 and PM2.5 impacts due to routine project operation are below 10 $\mu g/m^3$ at the nearest residence, 1,100 feet northeast of the site. At Ochoa Middle School and Eden Gardens Elementary School, approximately 3,000 and 3,500 feet away, respectively, the maximum daily PM10 and PM2.5 impacts are between 4 and 8 $\mu g/m^3$.[41] (Ex. 200, p. 4.1-23.)

The analysis indicates that particulate matter emissions from routine operation will cause a significant impact since the emissions contribute to existing violations of PM10 and PM2.5 ambient air quality standards. Significant secondary impacts will also occur since emissions of particulate matter precursors (including SO_x) and ozone precursors (NO_x and POC) contribute to existing violations of the standards. Mitigation for the emissions of PM10, PM2.5, SO_x, NO_x, and POC during routine operation is necessary to comply with permit conditions. (Ex. 200, p. 4.1-24.)

5. Mitigation

Ozone. Although SCR systems and oxidation catalysts will reduce NO_x and POC emissions to levels consistent with BACT, offsets are also required for regional ozone management. Applicant has identified, but not secured, sufficient Emission Reduction Credits (ERCs) to satisfy BAAQMD rules on ozone precursor requirements. (Ex. 27, p. 20.) BAAQMD does not consider the

[41] In their briefs, Intervenors Chabot-Las Positas Community College District, Alameda County and Sarvey argue that these impacts at sensitive receptor locations raise environmental justice (EJ) concerns due to the actual increases in air pollutants near the project where EJ populations work and reside.

location of ERCs relative to the location of the emission increases since POC and NO_x are ozone precursors that are regulated as part of the District's efforts to control regional smog. Since ozone is a regional phenomenon, emission decreases in one area of the region are effective in offsetting emission increases in other areas of the region. (*Id*. at p. 23.) Applicant's proposed ERCs are listed in Staff's Air Quality Table 18, below. Condition of Certification **AQ-SC6** ensures that sufficient credits will be secured to satisfy BAAQMD's ozone management requirements prior to construction.

Air Quality Table 18
Proposed Offsets for Ozone (tons per year [tpy])

Emission Reduction Certificate Number, Location	NO_x	POC
823, Crown Cork & Seal Company, Union City	---	71.000
1015, Koch Supply and Trading LP, Fremont	---	22.778
1016, Koch Supply and Trading LP, Fremont	---	15.518
1017, Koch Supply and Trading LP, San Leandro	---	4.4
1022, Koch Supply and Trading LP, Cupertino	---	19.718
1019, Koch Supply & Trading LP, Milpitas	---	15.856
1006, Koch Supply and Trading LP, Union City	---	23.4
Total ERCs Identified	---	172.67
Total Offsets Required by BAAQMD	150.036	

Source: Ex. 200, p. 4.1-24; Ex. 27, p. 22.

According to Staff, the ability of EEC to start quickly and reach operating capacity within 30 minutes minimizes the variability of emissions that can typically occur when operating in peaking mode. Daily emissions and partial load operation are minimized by the incremental operation of the facility as each of its 14 engines can be individually dispatched. Under the foreseeable operating profile, the undisputed evidence indicates that ozone precursor emissions will be fully mitigated by the proposed offsets.[42] (Ex. 200, p. 4.1-25.)

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[42] The peak daily allowable ozone precursor emissions of 1,413 lb/day (560.3 lb/day NO_x plus 852.2 lb/day POC) will be offset by the ERCs that provide 150.036 tons of reductions over 12 months. Total offsets required by BAAQMD amount to an average of 12.5 tons per month, or about 830 lb/day. Over the life of the project, Applicant expects to operate about 200 hours per typical month during the ozone (summer) season with 25 startups per month. (Ex. 1, Appendix 8.1A, Table 8.1A-13). The expected operating profile will produce about 8 tons of ozone precursors per month. According to Staff, this is approximately 800 lb/day, if the plant operates

PM10/ PM2.5. BAAQMD does not require EEC to offset PM10 or SO_x emission increases. Only sources emitting more than 100 tpy of PM10 or SO_x must surrender offsets under BAAQMD requirements. (Ex. 27, p. 21, Rule 2-2-303.) However, Staff's CEQA analysis indicates that mitigation is appropriate during nonattainment periods when project emissions of PM10/ PM2.5 and SO_x, as a PM precursor, can contribute to background PM10 or PM2.5 concentrations that exceed ambient air quality standards. (12/17/07 RT 35-37; Ex. 200, p. 4.1-25; Ex. 6, pp. 7-10; Ex 12, p. 13 et seq., § 2.0.)

Based on the emission limits established by BAAQMD in Condition **AQ-14**, the project must provide 6.8 tons of PM10/ PM2.5 emission reductions and 1.0 ton of SO_2 reductions to offset the project's expected operating profile during the 4-month winter (November-February) nonattainment season for PM10/ PM2.5.

Applicant offered 6.8 tons of PM mitigation to offset PM10/ PM2.5 and SO_x emissions during the winter months. (Ex. 12, p. 13 et seq., § 5.0.) According to Staff, this mitigation plan assumed the project would run only 537 hours per engine over the 4-month winter period. (Ex. 200, p. 4.1-26, citing Ex. 1, Appendix 8.1A, Table 8.1A-13.) Staff believes the project's operating profile should be based on the permitted limit of 4,000 hours per engine per year since the project can operate without restriction during the winter months. Staff therefore recommended that winter emissions should be limited and sufficient ERCs should be provided to mitigate PM10 emissions under any operating profile. (Ex. 200, p. 4.1-26.)

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for 10 hours per day over 20 days of the month, below the peak daily allowable emission rate. (Ex. 200, pp. 4.1-24 and 4.1-25.) Thus, significant impacts of NO_x and POC on ozone concentrations will be mitigated with the BAAQMD offsets described in Condition **AQ-SC6**. (*Ibid*.)

Since BAAQMD issues ERCs on an annual basis, Staff's determined that 20.4 tons per year of year-round ERCs for PM are necessary to achieve a seasonal (4-month) emission reduction of 6.8 tons. Due to public concern about local impacts, Staff also proposed that the ERCs be local and that original reductions should either be upwind or near Hayward. Staff agreed with Applicant that local or upwind ERCs may not be available at any cost and that interpollutant trading of SO_x for PM mitigation would be an acceptable alternative.[43] (Ex. 200, p. 4.1-37; Ex. 15, pp. 2-3; 12/17/07 RT 46, 67-68.) Staff believes that the local area (San Francisco to Oakland to Fremont to San Jose) from which ERCs can be obtained is large enough to provide the Applicant flexibility in locating the necessary offsets.[44] (12/17/07 RT 29:1-17; Staff's Opening Brief at 6.)

Undisputed evidence indicates that SO_2 is the primary precursor to secondary PM10/PM2.5 formation. According to Staff, the project must provide 3.0 tons per year of SO_x mitigation to adequately offset the year-round SO_2 emissions. Staff therefore proposed interpollutant trading of SO_x reductions for PM10 increases at a ratio of 5.3:1 based on data from the Concord, San Pablo, and San Francisco monitoring stations.[45] (Ex. 200, pp. 4.1-27, 4.1-66: Air Quality Appendix 1.) Staff recommended this ratio in Condition **AQ-SC8**, arguing that offsetting SO_x emissions will reduce secondary pollutant impacts below significant levels. (*Ibid*.; Staff's Opening Brief at 6.)

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[43] Applicant has the burden of proving that ERCs for PM mitigation are not available at any cost.

[44] BAAQMD indicated that its emissions reductions bank includes deposits from facilities in the East Bay. (12/17/07 RT 43:24-25 and 44:1.)

[45] These locations are near Hayward and represent the inner San Francisco Bay Area. (12/17/07 RT 30.) Staff argued that Applicant's data from more distant monitoring stations were not consistent with the goal of providing a higher level of local benefits, nor was data obtained during a holiday (Christmas Day 2006) representative of normal ambient conditions. (Staff's Opening Brief at 6-7; Ex. 15, p. 3: A11-A12.)

Applicant contested the 5.3:1 ratio, asserting that it is not technically justified. According to Applicant, BAAQMD's default interpollutant trading ratio (SO_x for PM) is 3:1 since it was used for other power plant projects. (Ex. 15, pp. 3-4; 12/17/07 RT 82; Applicant's Opening Brief at 55-56.) Staff's witness testified that (1) BAAQMD has not adopted a rule requiring the 3:1 ratio; (2) interpollutant trading ratios are highly site-specific, depending on ambient chemistry and the local source inventory; and (3) ratios should be determined on a case-by-case basis. (12/17/07 RT 36:25, 37:1-7, 70:11-25.)

Staff initially proposed the 5.3:1 ratio for the Russell City Energy Center (RCEC), asserting that the higher ratio is appropriate for sources and reductions west of the East Bay Hills to focus on local mitigation rather than the regional approach used by BAAQMD. (*Id*. at 30.) We agree with Staff's rationale for the more conservative 5.3:1 ratio to ensure local mitigation per CEQA. Staff's witness testified that Condition **AQ-SC8**, which imposes the 5.3:1 ratio, is the "keystone" condition to address the project's cumulatively considerable impacts on existing PM violations. (12/17/07 RT 43:14-19; Ex. 200, p. 4.1-30.)

The evidence shows that almost 4 tons of PM2.5 per day presently results from wood combustion in Alameda County. (Ex. 200, p. 4.1-13, Air Quality Table 9, and p. 4.1-26.) In an effort to provide local mitigation, Applicant offered to fund an expansion of BAAQMD's wood-burning stove and fireplace retrofit program to supplement local ERCs for winter season PM10/ PM2.5 mitigation. (Ex. 12, p. 13 et seq., § 5.2.) Staff expressed concerns about the ability of retrofit programs to produce real and quantifiable reductions, noting that wood stove and fireplace replacement programs in the Bay Area have produced highly localized and uneven results.[46] (*Id*. at 4.1-26; 12/17/07 RT 41-43.) Intervenors and members

[46] See Exhibit 55: "Spare the Air Tonight Study" conducted by BAAQMD for the 2006-2007 winter wood smoke season in Santa Clara County, which indicates limited participation by residents eligible for wood stove/fireplace replacement or retrofit and those able to reduce use on "spare

of the public were similarly skeptical about this program and Staff therefore recommended that the retrofits and targeted emission reductions be achieved before EEC begins construction activities. (12/17/07 RT 40:20-25.)

We are satisfied that Staff's recommendations, as incorporated in Condition **AQ-SC8**, provide the most viable approach to mitigate the project's PM10 impacts and we therefore adopt Staff's version as submitted at the Evidentiary Hearing.

Fumigation. There is potential for higher concentrations to occur during fumigation conditions, which are generally short-term in nature and are compared with 1-hour standards. Applicant's analysis of air quality impacts for worst-case plant startup emissions under fumigation conditions indicated that short-term impacts would not exceed the impact levels for routine operation shown in Staff's Table 16, above. (Ex. 1, § 8.1.8.6; Ex. 200, p. 4.1-27.)

Commissioning. Prior to commercial operation, the commissioning period involves the initial firing of fuel to test equipment and emission control systems. Applicant performed the requisite modeling to identify potential commissioning impacts. (Ex. 1, § 8.1.8.4.) Conditions **AQ-1** through **AQ-6** restrict total emissions allowed during the commissioning period and limit operations to 300 hours per engine without full emission controls.. (Ex. 23, p. 27.)

6. Cumulative Impacts

"Cumulative impacts" are defined as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts." (CEQA Guidelines: tit. 14, Cal. Code Regs., § 15355.)

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the air" nights. The Air District has proposed a rule for adoption in late 2008 to reduce emissions from wood burning appliances. (12/17/07 RT 58-60.)

Staff and Applicant reviewed the combined air quality impacts of the EEC and other reasonably foreseeable projects within six miles of the EEC site. These local sources are identified with BAAQMD facility numbers as follows:

- #15847-Russell City Energy Center (01-AFC-7C), combustion turbines and heat recovery steam generators, cooling tower, and fire pump diesel engine;
- #00698-Georgia Pacific Gypsum emergency generator;
- #16440-Hayward Public Works emergency generator;
- #16451-Hayward Public Works emergency generator;
- #17037-Elder Care Alliance emergency generator;
- #17548-Alameda County natural gas boiler;
- #17553-Rohm & Haas pyrolysis furnace;
- #17553-Rohm & Haas reg. thermal oxidizer;
- #17621-Skywest emergency generator; and
- #18189-Astra Zeneca emergency generator.

The maximum modeled cumulative impacts are presented below in Staff's Air Quality Table 20, which was updated by Applicant to reflect CARB's new NO_2 standard. (See Ex. 58; Applicant's Comments on the PMPD.) The total impact was conservatively estimated by the maximum modeled impact plus existing maximum background pollutant levels. (Ex. 200, p. 4.1-31.)

Air Quality Table 20
Estimated Localized Cumulative Impacts (µg/m^3)

POLLUTANT	Averaging Time	Modeled Impact	Background	Total Impact	Limiting Standard	Percent of Standard
PM10	24 hour	27.7	**56.6**	**84.3**	50	**169**
	Annual	3.2	20.0	**23.2**	20	**116**
PM2.5	24 hour	17.3	**43.9**	**61.2**	35	**175**
	Annual	3.2	9.4	**12.6**	12	**105**
CO	1 hour	1,254	3,680	4,934	23,000	21
	8 hour	394	2,178	2,572	10,000	26
NO_2	1 hour	157.06	131.67	288.73	339	85.2
	Annual	3.36	32	35.36	57	62.0
SO_2	1 hour	9.2	102	111.2	655	17
	24 hour	4.9	24	28.9	105	27
	Annual	0.5	8	8.5	80	11

Source: Ex. 200, p. 4.1-31; Ex. 12, p. 13 et seq., § 4.0, Table WKS 4-5 (with PM10/PM2.5 revised by staff). PM2.5 is 3-year average of maximum 8th highest (for 98th percentile) 24-hour impact. Includes routine start-up and shutdown events per Ex. 1, Appendix 8.1B, Table 8.1B-2.

Maximum cumulative impacts are predicted to occur directly across Clawiter Road at Life Chiropractic College, the same as EEC alone. Cumulative impacts at the closest residences, Ochoa Middle School, and Eden Gardens Elementary School are also similar to those from EEC alone, indicating that impacts from EEC dominate the localized cumulative impacts. (Ex. 200, p. 4.1-31.)

Staff believes the project's PM emissions will be cumulatively considerable since they contribute to existing violations of the PM10 and PM2.5 ambient air quality standards. Secondary impacts will also be cumulatively considerable for PM10, PM2.5, and ozone because emissions of PM precursors (including SO_x) and ozone precursors (NO_x and POC) contribute to existing violations of the PM10, PM2.5, and ozone standards. (Ex. 200, p. 4.1-32.)

According to Staff, any potentially significant direct impact is also potentially significant in a cumulative sense. (Ex. 200, p. 4.1-32.) Condition **AQ-SC8** is specifically designed to mitigate for direct, secondary, and cumulative impacts under CEQA.

7. Intervenors

Robert Sarvey. Intervenor Robert Sarvey objected to the limits set by BAAQMD for PM emissions, arguing that the limits do not comply with Rule 2-2-206 for BACT. (Ex. 800, p. 5; Sarvey's Reply Brief at 2.) BAAQMD allows the EEC to emit from 1.3 lbs/hr up to 1.9 lbs/hr of PM10/2.5 under Condition **AQ-16**. According to Mr. Sarvey, a similar facility within the jurisdiction of the San Joaquin Valley Air Pollution Control District (SJVAPCD) has achieved in practice lower levels of PM emissions. (*Ibid*.; Sarvey's Opening Brief at 6-7.) Mr. Sarvey requested that the Commission reduce the PM limit set by BAAQMD in Condition **AQ-16**.[47]

BAAQMD responded to Mr. Sarvey's concern in a letter to Staff, dated October 17, 2007, in which the District stated it had considered the lower limit used by SJVAPCD but determined that the lower limit did not have adequate test data nor compliance margin for this source category and could not be approved as BACT. (Ex. 804, pp. 2-3; Ex. 27, pp. 15-18.) The District also indicated that the CO CEM serves to monitor PM emissions since low CO emissions generally correspond to low PM emissions since each are products of incomplete combustion. (Ex. 27, pp. 18-19.) Based on the information provided by the District, we are not persuaded that the PM emission limit in this case should be overruled.

Mr. Sarvey also argued that the project's stacks should be taller to improve dispersion and reduce the project's localized impacts. (Ex. 800, p. 6.) While the Air District and Staff agreed in theory (12/17/07 RT 95:16-23), there was no evidence presented to describe how increasing stack height could be

[47] Staff's witness testified that lower emission levels are achievable and that Staff requested a lower limit but accepted BAAQMD's determination in order to pursue a higher level of PM mitigation. (12/17/07 RT 114-115, 116:6-7.)

accomplished without implicating the conflict with land use LORS and aircraft safety.

Intervenor Sarvey maintained there was no evidence to demonstrate that SO_2 ERCs would mitigate PM impacts in the project area. (Ex. 800, p. 4; Sarvey's Opening Brief at 3-4.) Mr. Sarvey believes that the wood stove retrofit/replacement program has potential to mitigate local PM impacts but a regional strategy of SO_2 reductions would be ineffective in reducing local impacts.[48] (*Ibid*.) In cross-examination of Staff's witness, Mr. Sarvey asked whether Staff had considered other "real-time" mitigation efforts such as the Carl Moyer program to retire or retrofit fleet diesel vehicles. (12/17/07 RT 93.) Staff's witness testified that the Carl Moyer program was considered but the PM reductions are relatively small since they reflect mobile source inventories rather than stationary winter season sources, such as wood stoves. (*Id*. at 94:1-9.) Condition **AQ-SC8** requires that wood stove/fireplace retrofits be offered exclusively to Hayward residents for 12 months and all retrofits must be in place and emission reductions achieved prior to operation of the EEC.

Mr. Sarvey is concerned that the project has no mitigation for NO_x emissions, since the Air District has accepted POC ERCs in place of NO_x ERCs. Mr. Sarvey maintains that the project's NO_x emissions have the potential to cause a violation of the state's new NO_2 standard. According to Mr. Sarvey, the NO_2 standard is designed to address serious health impacts to asthmatics and children, sensitive receptors identified in the project vicinity. (Ex. 800, p. 5; Ex. 801; Sarvey's Reply Brief at 1-3.) Staff's witness testified that the new NO_2 standard had not been adopted when Staff conducted its analysis but Staff was aware of the regulatory

[48] BAAQMD offered testimony explaining that each ERC represents a reduction in the amount of pollution that is emitted, both in terms of the amount of ERCs that are granted when the facility shuts down and in the amount of ERCs that are required when a new facility begins operation. (12/17/07 RT 157-158.) The Energy Commission uses ERCs to mitigate project emission impacts in all licensing decisions.

change and the project's modeled impact for NO_2 does not exceed the new standard. The witness also noted that Staff would work with CARB to develop the proper modeling protocol for the new NO_2 standard. (12/17/07 RT 102:15-25, 103-104.) Staff asserted that the ERCs identified in Condition **AQ-SC6** would ensure compliance with the new standard. We took administrative notice that the state's new NO_2 standard was adopted in March 2008, subsequent to the Evidentiary Hearings in this matter and we reopened the record for further evidence to confirm the project's compliance with the new standard.

At the July 21, 2008 Supplemental Evidentiary Hearing, Mr. Sarvey objected to both Applicant's and Staff's air quality testimony on the new state NO_2 standard since they did not "consult" with CARB on developing new modeling protocol. (7/21/08 RT 14:12-25, 24:14-25, 25:1-2.) Staff's witness testified that he contacted CARB on this issue, that there is no new CARB-approved protocol to model the new NO_2 standard, and that the modeling protocol used by Applicant to update its data consistent with the new NO_2 standard was CARB-approved when the AFC was filed and remains in effect for the new standard. (Ex. 211, Testimony of Brewster Birdsall; Ex. 58, Testimony of Gregory Darvin; 7/21/08 RT 17-18, 20-21:1-4.) We find the supplemental air quality testimony provided by Applicant and Staff to be credible and reliable and we therefore overrule Mr. Sarvey's objection.

Mr. Sarvey also contends that the fuel sulfur content imposed by BAAQMD is unrealistically low and the Conditions do not provide for testing. (Sarvey's Opening Brief at 5.) Mr. Sarvey requests the Commission to designate a realistic sulfur content based on the experience at other Bay Area power plants and to reassess SO_2 impacts using a higher sulfur level. (Sarvey's Opening Brief at 5-6.) Since this issue was not litigated at hearing, we are not inclined to second guess BAAQMD's determination. Mr. Sarvey's request for testing is already included in Condition **AQ-7**, which requires a monthly analysis of sulfur content to be incorporated in the quarterly reports to BAAQMD.

Alameda County. Intervenor Alameda County also expressed concerns that the project's NO_2 emissions would be 97 percent of the California standard.[49] (County's Opening Brief at 20.) Although the County argued the emissions analysis did not account for startup and shutdown scenarios, the evidence indicates that the modeling included startup and shutdown as shown in Staff's Table 16, above. (Ex. 200, p. 4.1-23.)

The County asserts that regional mitigation of PM does not protect local Hayward residents from the project's actual and cumulative impacts. Further, the County believes that Applicant failed to meet its burden to identify the ERCs it expects to use so the effects could be analyzed prior to certification. (County's Opening Brief at 22.) Likewise, the County argues that SO_2 ERCs will not reduce the project's significant impacts in Hayward, particularly since the conversion of SO_2 to PM occurs over time and downwind from the project. (*Ibid*.) The County also notes there is no evidence to establish that interpollutant trading of SO_2 for PM would result in "a net air quality benefit" as required by BAAQMD Rule 2-2-303.1. (*Id*. at 23.)

Staff's mitigation proposal in Condition **AQ-SC8** is designed to meet CEQA requirements since BAAQMD offset rules do not apply to the project's PM emissions.[50] Mitigation under CEQA is designed to reduce adverse impacts to

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[49] Alameda County objected that Staff's air quality witness stated a legal conclusion in his supplemental air quality testimony, *e.g.,* that the "appropriate standards are those that were in effect at the time the application was determined to be complete, consistent with BAAQMD rules." (7/21/08 RT 13:5-15, 22:9-21 referring to Ex. 58, Testimony of Brewster Birdsall.) In response to the County's objection, Staff counsel requested that we take administrative notice of BAAQMD Rule 2-1-409, which dictates this requirement. (7/21/08 RT 21:12-25, 22:1-3, 23:7-11.) We take notice of applicable BAAQMD rules. Since Staff's testimony describes the modeling protocol currently available to analyze the project's impacts under the new NO_2 rule, we sustain the County's technical objection to the sentence from Staff's testimony (quoted above) that states a legal conclusion.

[50] See 12/17/07 RT 43:14-19; Ex. 200, p. 4.1-30; Ex. 27, p. 21.

levels below significance. In determining CEQA compliance, we rely on BAAQMD's standards and the ERC banking process but we are not compelled to find "a net air quality benefit." However, in this case, the potential unavailability of viable local offsets may preclude the EEC from meeting the CEQA requirements identified in Condition **AQ-SC8**.

Regarding Applicant's proposed fireplace/wood stove retrofit program, the County notes that Staff has not conducted any studies on the effectiveness of the program and that RCEC adopted the same program as mitigation for its impacts. (County's Opening Brief at 23.) The County's argument reflects public concern about the ability of the same untested mitigation plan offered by both projects to actually reduce the effects of their PM emissions in Hayward. The County contends that if BAAQMD adopts regulations to limit use of wood burning fireplaces and stoves, it would make the proposed mitigation plan redundant since it could allow the EEC to get credit for wood smoke PM reductions that are not connected with its retrofit proposal. (*Id*., at 24.) As we indicated above, Condition **AQ-SC8** requires EEC to provide sufficient local offsets and/or evidence of sufficient wood stove retrofits in Hayward prior to construction. The project owner must complete these milestones in a timely fashion or construction will be delayed as necessary.

9. Environmental Justice

The evidentiary record includes a discussion of local demographics to identify potential environmental justice concerns. *See* the **Environmental Justice** section of this Decision. Staff indicated that all locations outside the project fence line are considered to be sensitive receptors. (Ex. 200, p. 4.1-36.) Since air quality impacts resulting from project construction and operation would affect all populations beyond the fence line, there is no evidence of *disproportionate* air quality impacts on minority and/or low income populations. Members of the public who participated in this proceeding represented a broad spectrum of the

community and all expressed great concern about health effects from project emissions. The project's compliance with the regulatory programs established under the federal Clean Air Act and the state Health & Safety Code provide the best evidence of whether impacts will be fully mitigated. BAAQMD-required offsets and BACT measures are designed to ensure the project will be mitigated in the regional Bay Area Air Basin. Implementation of local measures required by Condition **AQ-SC8** ensures that PM10 impacts will be mitigated. We find therefore that any environmental justice issues in this case are also issues that affect everyone in the Hayward area.

FINDINGS AND CONCLUSIONS

Based on the weight of the evidence, the Commission makes the following findings and conclusions:

1. National ambient air quality standards (NAAQS) and California ambient air quality standards (CAAQS) have been established for seven air contaminants identified as criteria air pollutants, including sulfur dioxide (SO_2), carbon monoxide (CO), ozone (O_3), nitrogen dioxide (NO_2), lead (Pb), particulate matter less than 10 microns in diameter (PM10) and particulate matter less than 2.5 microns in diameter (PM2.5).

2. Construction and operation of the Eastshore Energy Center (EEC) will result in emissions of criteria pollutants and their precursors.

3. The EEC is located in the City of Hayward in Alameda County within the jurisdiction of the Bay Area Air Quality Management District (BAAQMD).

4. BAAQMD is a nonattainment area for state and federal 1-hour ozone standards, and the state PM10 and PM2.5 standards; attainment for federal PM10 and PM2.5 (subject to change in 2009) standard; and attainment for state and federal NO_2, CO, and SO_2 standards.

5. Potential impacts from power plant construction-related activities will be mitigated to insignificant levels with implementation of a Construction Mitigation Plan that specifies fugitive dust control, dust plume control, and diesel particulate reduction measures.

6. The EEC has the potential to exacerbate existing violations of the state 24-hour and annual PM10 standards and state PM2.5 standard resulting in significant direct impacts to air quality in the project vicinity.

7. Project emissions of NO_x, SO_2, and POCs, which are precursor pollutants, will result in significant secondary impacts to ambient concentrations of ozone, PM10, and PM2.5.

8. The project owner will employ the best available control technology (BACT) to limit pollutant emissions by installing SCR technology and oxidation catalysts.

9. The project's NO_x emissions will be controlled to 5 parts per million by volume, dry basis (ppmvd) corrected to 15 percent oxygen, averaged over any 1-hour period.

10. The project's POC emissions will be controlled to 25 ppmvd at 15 percent O_2 for any 1-hour period.

11. The project's CO emissions will be controlled to 13 ppmvd at 15 percent O_2 for any 1-hour period.

12. The project's ammonia slip (NH_3) will be controlled to 10 ppmvd at 15 percent O_2 for any 3-hour period.

13. The project's PM10 emissions are limited to 1.3 lb/hr on a 24-hour and annual basis but up to 1.9 lb/hr per engine.

14. The project's SO_x emissions are limited to 0.24 lb/hr.

15. Project operation is limited to 4,000 hours per engine per year.

16. BAAQMD issued a Final Determination of Compliance that finds the EEC will comply with all applicable District rules for project operation.

17. The project owner will obtain sufficient Emission Reduction Credits (ERCs or offsets) to offset ozone precursor pollutants as required by BAAQMD rules and regulations.

18. BAAQMD certified that the project's offset package complies with Public Resources Code, Section 25523(d)(2).

19. In addition to compliance with applicable BAAQMD rules, the project is subject to CEQA review, which indicates that project emissions of PM and SO_x as a PM precursor, will contribute to background PM10 and PM2.5 concentrations that exceed ambient air quality standards.

20. Condition **AQ-SC8** allows interpollutant trading of ERCs for the precursor pollutant, SO_2 to reduce PM10 at a ratio of 5.3:1 as part of the CEQA mitigation strategy.

21. The project's mitigation package includes a wood stove/fireplace retrofit program to mitigate the project's PM emissions during the winter months.

22. The project owner shall provide evidence of surrendering the ERCs required by Condition **AQ-SC8** and/or evidence that sufficient emission reductions from the wood stove/fireplace retrofit program will be achieved prior to initiating construction.

23. Mobile sources were included in the cumulative impacts analysis using past background concentrations, which represent the worst-case mobile sources.

24. Supplemental air quality evidence submitted by Applicant and Staff demonstrates that the project will comply with CARB's new NO_2 emissions standard. Implementation of all the Conditions of Certification, listed below, ensures that the EEC will be mitigated sufficiently to avoid any direct, indirect, or cumulative significant adverse impacts to air quality.

The Commission therefore concludes that implementation of the Conditions of Certification, below, and the mitigation measures described in the evidentiary record, will ensure that the Eastshore Energy Center conforms with all applicable laws, ordinances, regulations, and standards relating to air quality as set forth in the pertinent portions of **Appendix A** of this Decision.

CONDITIONS OF CERTIFICATION

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

described in this condition. The AQCMM shall not be terminated without written consent of the compliance project manager (CPM).

Verification: At least 45 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, for approval, an AQCMP that details the steps to be taken and the reporting requirements necessary to ensure compliance with Conditions of Certification **AQ-SC3, AQ-SC4,** and **AQ-SC5**.

Verification: At least 45 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 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 either 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 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 run-off 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 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 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 with the potential to be transported off the project site, 200 feet beyond the centerline of the

construction of linear facilities, or within 100 feet upwind of any regularly occupied structures not owned by the project owner indicate that existing mitigation measures are not providing 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 visible 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 additional mitigation measures will be accomplished within specified time limits.

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

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

b. All construction diesel engines with a rating of 100 hp or higher 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 that 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" for the following, as well as other, reasons.

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

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

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

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

1. The use of the soot filter is excessively reducing the normal availability of the construction equipment due to increased down time for maintenance, and/or reduced power output due to an excessive increase in back pressure.

2. The 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 implementation of the termination.

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

e. All diesel heavy construction equipment shall not idle for more than five minutes, 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) 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 the equipment has been properly maintained; and (3) any other documentation deemed necessary by the CPM and AQCMM to verify compliance with this condition. Such information may be provided via electronic format or disk at the project owner's discretion.

AQ-SC6 The project owner shall provide emission reduction credits (ERCs) to offset NO_x and POC emissions. The project owner shall demonstrate that NO_x and POC emission reduction credits are provided in the form and amount required by the District.

The project owner shall surrender the ERCs 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 to the listed credits.

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, and that the requested change(s) will not cause the project to result in a significant environmental impact. The District must also confirm that each requested change is consistent with applicable federal and state laws and regulations.

Emission Reduction Certificate Number, Location	Amount (tpy)	Pollutant
823, Crown Cork & Seal Company, Union City	71.000	POC
1015, Koch Supply and Trading LP, Fremont	22.778	POC
1016, Koch Supply and Trading LP, Fremont	15.518	POC
1017, Koch Supply and Trading LP, San Leandro	4.4	POC
1022, Koch Supply and Trading LP, Cupertino	19.718	POC
1019, Koch Supply & Trading LP, Milpitas	15.856	POC
1006, Koch Supply and Trading LP, Union City	23.4	POC

Verification: The project owner shall submit to the CPM records showing that the project's offset requirements have been met prior to initiating construction. 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-SC7 Deleted.

AQ-SC8 The project owner shall obtain and surrender emission reduction credits (ERCs) to offset 20.4 tons per year of PM10 emissions and 3.0 tons per year of SO_2 emissions. The emission reduction credits shall originate from

sources in the areas of Oakland, Hayward, Fremont, San Jose, and San Francisco.

PM10 emissions during the November 1 through February 28 (PM10 nonattainment season) shall not exceed 6.8 tons and SO_2 emissions shall not exceed 1.0 tons except as provided below. SO_2 ERCs may be substituted for PM10 ERCs at a ratio of 5.3-to-1.0. Compliance with this condition will be established by use of the most recent District-approved source test data, and the average load-based (grams/bhp-hr) PM10 and SO_2 emission rates from all engines tested.

The project owner shall notify the CPM if the project exceeds the PM10 emission limit in this condition. The owner shall surrender additional ERCs or other CPM-approved mitigation for any excess emission (equaling the difference between calculated actual emissions and the emission limit). Surrendering additional ERCs will establish a new, annual emission limitation equal to 6.8 tons PM10 and 1.0 tons SO_2 plus the quantity of reductions surrendered for November 1 through February 28.

Fireplace or wood burning stove retrofits for Hayward residents may be used to satisfy any additional mitigation requirement and shall be credited using the following factors for each certified unit retrofit: 2 lb PM10/PM2.5 per year per fireplace without insert, 19 lb PM10/PM2.5 per year per fireplace with insert, and 24 lb PM10/PM2.5 per year per wood stove. The program may be made available to all residents in the cities of Fremont, Newark, Union City, San Leandro, Oakland, Emeryville, Albany, Piedmont, Berkeley, Alameda, and the unincorporated areas of Alameda County west of the Oakland/East Bay hills after twelve (12) months from the start date of the fireplace retrofit / wood stove replacement program. The emission reductions from any fireplace or wood-burning stove retrofits must occur in accordance with the following schedule:

a. achieving 15% of the mitigation (3.1 tons per year) of PM10 within six months after start of construction,

b. achieving 30% of the mitigation (6.2 tons per year) of PM10 within nine months after start of construction.

c. achieving 50% of the mitigation (10.2 tons per year) of PM10 within twelve months after start of construction.

d. achieving 80% of the mitigation (16.3 tons per year) of PM10 within eighteen months after start of construction.

e. achieving 100% of the mitigation (20.4 tons per year) within twenty-four months after start of construction.

During the 24-month period following the start of construction, ERCs may also be used to supply additional mitigation.

Verification: Prior to initiating construction, the project owner shall submit to the CPM evidence of surrendering the emission reduction credits or evidence that sufficient emission reductions from any fireplace or wood stove retrofit program will be achieved in accordance with the specified schedule. Construction shall be delayed if the ERCs and fireplace retrofits are not sufficient to meet the requirements of this condition.

After operations begin, the project owner shall notify the CPM within 10 days of exceeding the PM10 emission limit in this condition. The owner shall surrender additional ERCs or other CPM-approved mitigation for any excess emissions (equaling the difference between calculated actual emissions and the emission limit) within 60 days of the date that actual emissions exceed the limit in this condition. Quarterly status reports on the program meeting the milestones following the start of construction shall be submitted to the CPM.

AQ-SC9 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 5 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-SC10 The project owner shall comply with all 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-SC11 Until the California Global Warming Solutions Act of 2006 (AB32) is implemented, the project owner shall either participate in a greenhouse gas (GHG) registry approved by the CPM, or report on a

annual basis to the CPM the quantity of greenhouse gases emitted as a direct result of facility electricity production.

The project owner shall maintain a record of fuels types and carbon content used on-site for the purpose of power production. These fuels shall include but are not limited to each fuel type burned: (1) all fuel burned in internal combustion engines; (2) fuel used in fuel gas heaters and emergency equipment; and (3) all fuels used in any capacity for the purpose of facility startup, shutdown, operation, or emission controls.

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

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

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

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

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

Verification: The project annual greenhouse gas emissions shall be reported, as a CO_2 equivalent, by the project owner to a climate action registry approved by the CPM, or to the CPM as part of the fourth quarterly operation report (**AQ-SC12**) or the annual air quality report, until such time that GHG reporting requirements are adopted and in force for the project as part of the California Global Warming Solutions Act of 2006.

AQ-SC12 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. The quarterly operation report will specifically note or highlight incidences of noncompliance.

Verification: The project owner shall submit quarterly operation reports to the CPM and APCO no later than 30 days following the end of each calendar quarter. The report for the fourth quarter can be an annual compliance summary for the preceding year. This information shall be maintained on-site for a minimum of 5 years and shall be provided to the CPM and District personnel upon request.

DISTRICT CONDITIONS OF CERTIFICATION

The following sources would be subject to the proposed Conditions of Certification.

S-1 Natural Gas Fired Engine Generator Set, 8.4 MW (gross), 11,660 HP, Wärtsilä Model 20V34SG, abated by A-1 Selective Catalytic Reduction System and A-15 Oxidation Catalyst

S-2 Natural Gas Fired Engine Generator Set, 8.4 MW (gross), 11,660 HP, Wärtsilä Model 20V34SG, abated by A-2 Selective Catalytic Reduction System and A-16 Oxidation Catalyst

S-3 Natural Gas Fired Engine Generator Set, 8.4 MW (gross), 11,660 HP, Wärtsilä Model 20V34SG, abated by A-3 Selective Catalytic Reduction System and A-17 Oxidation Catalyst

S-4 Natural Gas Fired Engine Generator Set, 8.4 MW (gross), 11,660 HP, Wärtsilä Model 20V34SG, abated by A-4 Selective Catalytic Reduction System and A-18 Oxidation Catalyst

S-5 Natural Gas Fired Engine Generator Set, 8.4 MW (gross), 11,660 HP, Wärtsilä Model 20V34SG, abated by A-5 Selective Catalytic Reduction System and A-19 Oxidation Catalyst

S-6 Natural Gas Fired Engine Generator Set, 8.4 MW (gross), 11,660 HP, Wärtsilä Model 20V34SG, abated by A-6 Selective Catalytic Reduction System and A-20 Oxidation Catalyst

S-7 Natural Gas Fired Engine Generator Set, 8.4 MW (gross), 11,660 HP, Wärtsilä Model 20V34SG, abated by A-7 Selective Catalytic Reduction System and A-21 Oxidation Catalyst

S-8 Natural Gas Fired Engine Generator Set, 8.4 MW (gross), 11,660 HP, Wärtsilä Model 20V34SG, abated by A-8 Selective Catalytic Reduction System and A-22 Oxidation Catalyst

S-9 Natural Gas Fired Engine Generator Set, 8.4 MW (gross), 11,660 HP, Wärtsilä Model 20V34SG, abated by A-9 Selective Catalytic Reduction System and A-23 Oxidation Catalyst

S-10 Natural Gas Fired Engine Generator Set, 8.4 MW (gross), 11,660 HP, Wärtsilä Model 20V34SG, abated by A-10 Selective Catalytic Reduction System and A-24 Oxidation Catalyst

S-11 Natural Gas Fired Engine Generator Set, 8.4 MW (gross), 11,660 HP, Wärtsilä Model 20V34SG, abated by A-11 Selective Catalytic Reduction System and A-25 Oxidation Catalyst

S-12 Natural Gas Fired Engine Generator Set, 8.4 MW (gross), 11,660 HP, Wärtsilä Model 20V34SG, abated by A-12 Selective Catalytic Reduction System and A-26 Oxidation Catalyst

S-13 Natural Gas Fired Engine Generator Set, 8.4 MW (gross), 11,660 HP, Wärtsilä Model 20V34SG, abated by A-13 Selective Catalytic Reduction System and A-27 Oxidation Catalyst

S-14 Natural Gas Fired Engine Generator Set, 8.4 MW (gross), 11,660 HP, Wärtsilä Model 20V34SG, abated by A-14 Selective Catalytic Reduction System and A-28 Oxidation Catalyst

S-15 Emergency Standby Generator Set; Diesel Engine; Caterpillar Model C9ATAAC, 369 HP

CONDITIONS FOR THE ENGINES S-1 THROUGH S-14 DURING THE COMMISSIONING PERIOD

AQ-1 The owner/operator of the Eastshore Energy Center (EEC) shall minimize emissions of carbon monoxide and nitrogen oxides from S-1 through S-14 Lean Burn Internal Combustion Engines to the maximum extent possible during the commissioning period.

a. At the earliest feasible opportunity, in accordance with the recommendations of the equipment manufacturers and the construction contractor, the owner/operator shall tune each engine S-1 through S-14 after first fire to minimize the emissions of carbon monoxide and nitrogen oxides during commissioning.

b. At the earliest feasible opportunity, in accordance with the recommendations of the equipment manufacturers and the construction contractor, the owner/operator shall install, adjust, and operate A-1 through A-14, SCR Systems, and A-15 through A-28, Oxidation Catalyst systems, to minimize the emissions during commissioning.

c. The owner/operator of the EEC shall submit a plan to the District Engineering Division and the CEC CPM prior to the firing of any of the engines that shall describe the process to be followed during the commissioning of each engine. The plan shall include a description of each commissioning activity, the anticipated duration of each activity in hours, and the purpose of the activity. The activities described shall include, but not be limited to, engine tuning activities (such as air/fuel ratio settings, engine timing, turbocharger pressure); the installation, tuning, and operation of the SCR systems and oxidation catalysts; the installation, calibration, and testing of the CO and NO_x continuous emission monitors; and any activities requiring the firing of the IC engines without abatement by their respective abatement devices. None of the engines shall be fired sooner than 28 days after the District receives the commissioning plan. (Basis: BACT, Offsets)

Verification: The project owner shall submit a monthly compliance report to the CPM during the commissioning period demonstrating compliance with this Condition.

AQ-2 During the commissioning period, the owner/operator of the EEC shall demonstrate compliance with Condition **AQ-6** through the use of properly operated and maintained continuous emission monitors and data recorders for the following parameters:

a. Firing hours for each engine

b. Fuel flow rates to each engine

c. Stack gas nitrogen oxide emission concentrations at P-1 through P-14

d. Stack gas carbon monoxide emission concentrations at P-1 through P-14

e. Stack gas oxygen concentrations at P-1 through P-14

The monitored parameters shall be recorded at least once every 15 minutes (excluding normal calibration periods or when the monitored source is not in operation) for the engines. The owner/operator shall use District-approved methods to calculate heat input rates, NO_x mass emission rates, carbon monoxide mass emission rates, and NO_x and CO emission concentrations, summarized for each calendar day. All records shall be retained on site for at least 2 years from the date of entry and made available to District staff upon request. (Basis: BACT, Offsets)

Verification: The project owner shall submit a monthly compliance report to the CPM during the commissioning period demonstrating compliance with this Condition.

AQ-3 The owner/operator shall install, calibrate, and make operational continuous emission monitors for NO_x, CO and O2 for each engine prior to first firing of that engine. After first firing of an individual engine, the detection range of the continuous emission monitor for that engine shall be adjusted as necessary to accurately measure the resulting range of CO and NO_x emission concentrations. The type, specifications, and location of these monitors shall be subject to District review and approval. (Basis: BACT, Offsets)

Verification: The project owner shall submit a monthly compliance report to the CPM during the commissioning period demonstrating compliance with this condition. In addition, the project owner shall provide evidence of the District's approval of the emission monitoring system to the CPM prior to first firing of each engine.

AQ-4 The owner/operator shall operate the facility such that the total number of firing hours of each Engine S-1 through S-14 without abatement of nitrogen oxide and CO emissions by its SCR System and Oxidation Catalyst System shall not exceed 300 hours per engine during the commissioning period. Such operation of S-1 through S-14 without abatement shall be limited to discrete commissioning activities that can only be properly executed without the SCR or Oxidation Catalyst Systems fully operational. Upon completion of these activities, the owner/operator shall provide written notice to the District Engineering Division and Enforcement and Compliance Division and the unused balance of the 300 firing hours per engine without abatement shall expire. (Basis: BACT, Offsets)

Verification: The project owner shall submit a monthly compliance report to the CPM during the commissioning period demonstrating compliance with this condition.

AQ-5 The owner/operator shall use District approved calculation methods to estimate the total mass emissions of NO_x (as NO2), CO, POC, PM10, and SO_2 that are emitted by Engines S-1 through S-14 and S-15 during the commissioning and facility startup period. These emissions

count towards the consecutive twelve-month emission limitations specified in Condition **AQ-13**. Emission totals shall include emissions during the startup and shutdown of the engines.

Verification: The project owner shall submit a monthly compliance report to the CPM during the commissioning period demonstrating compliance with this condition.

AQ-6 The owner/operator shall not operate the engines S-1 through S-14 in a manner such that the combined pollutant emissions from these sources will exceed the following limits during the commissioning period. These emission limits shall include emissions resulting from the start-up and shutdown of the engines S-1 through S-14.

NO_x (as NO2) 3058.4 pounds per calendar day
CO 4033.5 pounds per calendar day
POC (as CH4) 975.1 pounds per calendar day
Total Particulate Matter 757.8 pounds per calendar day
PM10 757.8 pounds per calendar day
PM2.5 757.8 pounds per calendar day
SO_2 79.53 pounds per calendar day
(Basis: BACT, Offsets)

Verification: The project owner shall submit a monthly compliance report to the CPM during the commissioning period demonstrating compliance with this condition.

CONDITIONS FOR THE ENGINES S-1 THROUGH S-14 POST-COMMISSIONING PERIOD

AQ-7 The owner/operator shall ensure that S-1 through S-14 IC Engines are fired on PUC natural gas exclusively. (Basis: BACT for PM10, Cumulative Increase for SO_2)

Verification: The project owner shall complete, on a monthly basis, a laboratory analysis showing the sulfur content of natural gas being burned at the facility. The sulfur analysis reports shall be incorporated into the quarterly operation reports (**AQ-SC12**).

AQ-8 The Owner/operator shall operate each engine such that the heat input rate for each engine S-1 through S-14 is less than or equal to 72.8 MMBtu/hr (HHV, 72.1 MMBtu/hr for Annual Average), averaged over an hour period, including startup/shutdown periods. The owner shall obtain heating value data for the natural gas on a monthly basis from the gas supplier. The heating value data shall be used to calculate a monthly average for heating value that may be used to demonstrate compliance with these conditions. (Basis: BACT, Cumulative Increase)

Verification: Information on the date, time, and duration of any violation of this permit condition shall be incorporated into the quarterly operation reports (**AQ-SC12**).

AQ-9 The Owner/operator shall operate each engine such that the heat input rate for each engine S-1 through S-14 is less than or equal to 1730 MMBTU/day per calendar day, including startups/shutdowns. (Basis: Cumulative Increase)

Verification: Information on the date, time, and duration of any violation of this permit condition shall be incorporated into the quarterly operation reports (**AQ-SC12**).

AQ-10 The Owner/operator shall operate each engine such that the heat input rate for all engines S-1 through S-14 combined is less than or equal to 4,036,480 MMBTU/yr on a rolling 12-month average basis, including startups/shutdowns. (Basis: Offsets)

Verification: Information on the date, time, and duration of any violation of this permit condition shall be incorporated into the quarterly operation reports (**AQ-SC12**).

AQ-11 The owner/operator shall limit the total annual operating hours for engines S-1 through S-14 to 56,000 hours. (Basis: Offsets, Cumulative Increase)

Verification: Information on the date, time, and duration of any violation of this permit condition shall be incorporated into the quarterly operation reports (**AQ-SC12**).

AQ-12 The owner/operator shall properly operate and maintain the A-1 to A-14 Selective Catalytic Reduction (SCR) Systems, except as provided during the Commissioning Period, whenever fuel is combusted at the corresponding source S-1 through S-14, respectively, and the individual catalyst bed has reached minimum operating temperature specified by the abatement device manufacturer. The owner/operator shall not inject ammonia into the SCR units (A-1 through A-14) until the catalyst bed reaches the minimum operating temperature specified by the abatement device manufacturer (Basis: BACT for NO_x).

Verification: Information on any non-operation of the selective catalytic reduction systems or operation of the ammonia injection prior to the catalyst bed reaching the minimum operating temperature shall be incorporated into the quarterly operation reports (**AQ-SC12**). The information shall include, at a minimum, the date and description of the problem and the steps taken to resolve the problem.

AQ-13 The owner/operator shall ensure that the cumulative combined emissions from S-1 through S-14 Engines and S-15 do not exceed the following limits during any consecutive twelve-month period, including emissions generated during engine startups and shutdowns:

54.35 tons of NO_x (as NO2) per rolling 12 month period;
84.45 tons of CO per rolling 12 month period;
76.11 tons of POC (as CH4) per rolling 12 month period;
40.31 tons of Total Particulate Matter per rolling 12 month period; and
40.31 tons of PM10 per rolling 12 month period; and
40.31 tons of PM2.5 per rolling 12 month period; and; and
6.63 tons of SO_2 per rolling 12 month period.
(Basis: Offsets, Cumulative Increase)

Verification: The project owner shall submit to the CPM the quarterly operation reports demonstrating compliance with this Condition. (**AQ-SC12.**)

AQ-14 The owner/operator shall comply with requirements (a) through (e) below under all operating scenarios, except during engine startup and shutdown (although startup and shutdown emissions shall be included in determining compliance with the facility-wide daily Total Particulate Matter emissions limit as set forth in subsection (c)):

a. The nitrogen oxide concentration at each point P-1 through P-14 shall not exceed 5 ppmv, on a dry basis, corrected to 15% O2, averaged over any 1-hour period. (Basis: BACT for NO_x)

b. The carbon monoxide concentration at each point P-1 through P-14 shall not exceed 13 ppmv, on a dry basis, corrected to 15% O2, averaged over any 1-hour period. (Basis: BACT for CO)

c. Total Particulate Matter, PM10, and PM2.5 emissions from any engine shall not exceed 1.3 lb/hr except as provided in Condition 16, and in any event shall not exceed 1.9 lb/hr. Total Particulate Matter, PM10, and PM2.5 emissions from all fourteen engines shall not exceed 461.65 lb/day. (Basis: BACT, Cumulative Increase)

d. The POC concentration at each point P-1 through P-14 with the corresponding engine operating at 75% or more of full load shall not exceed 25 ppmv on a dry basis, corrected to 15% O2, averaged over any 1-hour period. (Basis: BACT for POC)

e. Ammonia (NH3) emission concentrations at each point P-1 through P-14 shall not exceed 10 ppmv, on a dry basis, corrected to 15% O2, averaged over any rolling 3-hour period. The owner/operator shall quantify, by continuous recording, the ammonia injection rate to A-1 through A-14 SCR Systems. The correlation between the engine heat input and the SCR System ammonia injection rates as determined in accordance with Condition **AQ-19** shall be used to calculate the corresponding ammonia emission concentration at emission points P-1 through P-14. The facility will notify the Engineering Division Permit Evaluation Manager in writing when any engine operates for 3 consecutive hours at a calculated

ammonia slip rate equal to or greater than 10 ppmvd corrected to 15% O2 (in addition to any reporting required by District Regulation 1). The notification shall be provided to the District within one week of an engine operating at a calculated slip rate equal to or greater than 10 ppmvd corrected to 15% O2. If the parametric monitoring indicates a corresponding ammonia slip of 10 ppm corrected to 15% O2 for 3 consecutive hours, then the District may require a District approved source test for ammonia slip to demonstrate ongoing compliance and to update the parametric monitoring correlation as necessary. (Basis: Regulation 2, Rule 5)

Verification: The quarterly operation reports (**AQ-SC12**) shall include the following information:

a. operating parameters of emission control equipment, including but not limited to ammonia injection rate, NO_x emission rate, and ammonia slip;

b. total plant operation time (hours), number of start-ups, hours in start-up, and hours in shutdown;

c. date and time of the beginning and end of each start-up and shutdown period;

d. average plant operation schedule (hours per day, days per week, weeks per year);

e. all continuous emissions data reduced and reported in accordance with the district-approved CEMS protocol;

f. maximum hourly, maximum daily, total quarterly, and total calendar year emissions of NO_x, CO, PM10, POC, and SOx (including calculation protocol);

g. a log of all excess emissions, including the information regarding malfunctions/breakdowns;

h. any permanent changes made in the plant process or production that would affect air pollutant emissions, and indication of when changes were made; and

i. any maintenance to any air pollutant control system (recorded on an as-performed basis).

AQ-15 The owner/operator shall demonstrate compliance with Conditions **AQ-13** and **AQ-14** by using properly operated and maintained continuous monitors during all hours of operation including equipment start-up and shutdown periods for all of the following parameters:

a. Firing Hours and Fuel Flow Rates for each source

b. Carbon Dioxide (CO2) or Oxygen (O2) concentrations, Nitrogen Oxides (NO_x) concentrations, and Carbon Monoxide (CO) concentrations at emission points P-1 through P-14

c. Ammonia injection rate at A-1 through A-14 SCR Systems

The owner/operator shall record all of the above parameters every fifteen (15) minutes (excluding normal calibration periods) and shall summarize all of the above parameters in accordance with the relevant permit limits. The owner/operator shall use the parameters measured above and District approved calculation methods to calculate the following parameters for each engine:

d. Corrected NO_x concentrations, NO_x mass emissions (as NO2), corrected CO concentrations, and CO mass emissions at each emission point for every 1-hour period

e. Total Heat Input Rate for every clock hour

f. The cumulative total Heat Input (MMBTU) for each calendar day for each engine

g. Calculate NO_x mass emissions (as NO2) and CO mass emissions, for each calendar day for each engine, and for the previous consecutive twelve-month period using CEM data.

h. Calculate the mass emissions of PM-10, POC, and SOx (as SO_2) for each calendar day for each engine and for the previous twelve-month period using District approved emission factors. (Basis: 1-520.1, 9-9-501, BACT (except for SOx), Offsets, Cumulative Increase)

Verification: The project owner shall submit to the CPM the quarterly operation reports (**AQ-SC12**). At least 30 days before first fire, the project owner shall submit to the CPM a plan on how the measurements, recordings, and calculations required by this condition will be performed. Prior to first fire, the project owner shall provide evidence of the District's approval of the calculation methods to the CPM.

AQ-16 The owner/operator shall demonstrate compliance with the 1.3 lb/hr Total Particulate Matter emissions limit in Condition **AQ-14(c)** by performing tests for Total Particulate Matter emissions as required by these conditions. If Total Particulate Matter emissions for an engine generator set exceed 1.9 lb/hr, then that engine generator set shall be deemed to be in violation of Condition **AQ-14(c)**. If Total Particulate Matter emissions for any engine generator set exceed 1.3 lb/hr, but do not exceed 1.9 lb/hr, then that engine generator set shall not be considered to be in violation of Condition **AQ-14(c)** if the owner/operator can demonstrate, subject to approval by the APCO,

that the engine has been installed, operated, and maintained properly in accordance with all manufacturer's specifications and instructions. The owner/operator shall so demonstrate by:

(i) retesting emissions within 45 days after receiving the final test report from the initial test exceeding 1.3 lb/hr, unless the APCO determines that a retest for Total Particular Matter is not appropriate (in accordance with the source testing requirements set forth in Condition **AQ-20**);

(ii) submitting to the APCO, within 30 days after receiving the final test report from the initial test exceeding 1.3 lb/hr, adequate documentation to verify that the engine has been installed, operated, and maintained properly in accordance with all manufacturers' specifications and instructions.

Within 30 days of receipt of the results of the retest and the documentation required by subsections (i) and (ii) above, the APCO shall make a determination whether the engine has been installed, operated, and maintained in accordance with manufacturers' specifications and instructions. If the APCO determines that the engine has been properly installed, operated, and maintained, then the engine shall be deemed not to be in violation of the single-engine hourly emission limit in Condition **AQ-14(c)** (although emission from the engine will still be counted for purposes of the facility-wide limit). If the APCO determines that the given engine has not been properly installed, operated, and maintained, then the engine shall be deemed to be in violation of Condition **AQ-14(c)**. Engines that operate pursuant to the provisions of this Condition **AQ-16** shall continue to be tested on a regular basis according to these Conditions.

Verification: The project owner shall submit to the CPM the quarterly operation reports (**AQ-SC12**) demonstrating compliance with this Condition.

AQ-17 Within 136 days of the beginning of the startup period (start of commissioning period for a given engine) for each engine at EEC, the Owner/operator shall conduct a District-approved initial source test for Particulate Matter, and POC on the corresponding emission point P-1 through P-14 with the corresponding source engine operating at least 80% of full load to determine compliance with these Permit Conditions. The Owner/operator shall conduct a District-approved initial source test for SOx on one of the fourteen emission points with the corresponding source engine operating at least 80% of full load to determine compliance with these Permit Conditions. (Basis: 2-1-411).

Verification: No later than 20 working days before the commencement of the source tests, the project owner shall submit to the District and the CPM a detailed source test plan designed to satisfy the requirements of this condition. The project owner shall provide evidence of the District's approval of the source test plan to the CPM prior to executing the tests. The project owner shall notify

the District and the CPM at least 7 working days prior to the planned source test date, and source test results shall be submitted to the District and the CPM within 60 days of completing the tests.

AQ-18 Prior to the end of the commissioning period, the Owner/operator shall conduct a District and CEC Compliance Program Manager (CPM) approved source test to establish emissions during startup and shutdown. The source test shall determine NO_x, CO, POC and PM10 emissions during cold startup of the engines. The source test shall measure PM10 emissions during a cold startup of no fewer than 3 engines; one 30 minute test run shall be conducted per engine. The source test shall determine NO_x, CO, and POC emissions during shutdown of the engines. The POC emissions shall be analyzed for methane and ethane to account for the presence of unburned natural gas. Twenty (20) working days before the execution of the source tests, the Owner/operator shall submit to the District and the CEC CPM a detailed source test plan designed to satisfy the requirements of this Condition, including specification of the number of tests. The Owner/operator shall notify the District and the CEC CPM at least seven (7) working days prior to the planned source testing date. Source test results shall be submitted to the District within 60 days of the date that source testing is completed at the facility.

Verification: No later than 20 working days before the commencement of the source tests, the project owner shall submit to the District and the CPM a detailed source test plan designed to satisfy the requirements of this condition. The project owner shall provide evidence of the District's approval of the source test plan to the CPM prior to executing the tests.

AQ-19 The owner/operator shall conduct an initial District-approved source test to determine the SCR System ammonia injection rate and the corresponding NH3 emission concentration at two of the fourteen emission points P-1 through P-14. The source test shall be conducted over the expected operating load range of the engines (including, but not limited to, 75% and 100% load) to establish the ammonia injection rates necessary to achieve NO_x emission limits while maintaining ammonia slip levels. A correlation between NO_x ppmv stack exit concentration, ammonia injection rate, heat input, and ammonia exit concentration shall be established for the two engines that were source tested. The test data shall be used as input for the calculation for the remaining engines. Ongoing compliance shall be demonstrated through calculations of corrected ammonia concentrations based upon the source test correlation and continuous records of ammonia injection rate. (Basis: Regulation 2, Rule 5).

Verification: Within 136 days of start-up of the facility, the source test to satisfy this condition shall be conducted. No later than 20 working days before the commencement of the source tests, the project owner shall submit to the District and the CPM a detailed source test plan designed to satisfy the

requirements of this condition. The project owner shall provide evidence of the District's approval of the source test plan to the CPM prior to executing the tests.

AQ-20 The owner/operator shall obtain approval for all source test procedures from the Technical Services Division prior to conducting any tests. The owner/operator shall comply with all applicable testing requirements for continuous emission monitors as approved by the Technical Services Division. Twenty (20) working days before the execution of source testing, the owner/operator shall submit to the District and the CEC CPM a detailed source test plan designed to satisfy the requirements of any of these Conditions, including specification of the number of tests. The Owner/operator shall notify the District at least seven (7) working days prior to the planned source test date. Source test results shall be submitted to the District and the CEC CPM within 60 days of completing the tests. (Basis: BACT)

Verification: The project owner shall provide evidence of the District's approval of all source test procedures to the CPM prior to executing the tests.

AQ-21 The owner/operator shall conduct a District approved source test no later than 365 days after than the initial Total Particulate Matter source test. The District approved source test shall determine the NH3 emission concentration from two of the fourteen emission points to demonstrate ongoing compliance and to verify the parametric monitoring correlation. The District approved test shall measure the Particulate Matter mass emission rate and POC emission concentration at emission points P-1 through P-14 with the corresponding source engine operating at least 80% of full load to determine compliance with these Permit Conditions. (Basis: Cumulative Increase, BACT)

Verification: The project owner shall notify the District and the CPM at least 7 working days before conducting the source tests required in this condition. Source test results shall be submitted to the District and to the CPM within 60 days of the date of the tests. The project owner shall provide evidence of the District's approval of all source test procedures to the CPM prior to executing the tests.

AQ-22 After completion of the initial source test and the first annual source test, the owner/operator shall conduct a District approved source test on each engine every 8,760 hours of operation or every 3 years whichever comes first. The District approved source test shall determine the NH3 emission concentration from two of the fourteen emission points to demonstrate ongoing compliance and to verify the parametric monitoring correlation. The District approved source test shall measure the Total Particulate Matter mass emission rate and POC emission concentration at emission points P-1 through P-14 with the corresponding source engine operating at least 80% of full load to

determine compliance with these Permit Conditions. (Basis: Cumulative Increase, BACT)

Verification: The project owner shall notify the District and the CPM at least 7 working days before conducting the source tests required in this condition. Source test results shall be submitted to the District and to the CPM within 60 days of the date of the tests. The project owner shall provide evidence of the District's approval of all source test procedures to the CPM prior to executing the tests.

AQ-23 The owner/operator shall not allow the maximum projected annual toxic air contaminant emissions from all emission points P-1 through P-14 combined to exceed the following limits:

1,3-Butadiene 872 pounds per year
Formaldehyde 11,200 pounds per year
unless the following requirement is satisfied:

The owner/operator shall perform a health risk assessment to determine the total facility risk using the emission rates determined by source testing and the most current Bay Area Air Quality Management District approved procedures and unit risk factors in effect at the time of the analysis. The owner/operator shall submit the risk analysis to the District and the CEC CPM within 60 days of the source test date. The owner/operator may request that the District and the CEC CPM revise the carcinogenic compound emission limits specified above. If the owner/operator demonstrates to the satisfaction of the APCO that these revised emission limits will not result in a significant cancer risk, the District and the CEC CPM may administratively adjust the carcinogenic compound emission limits listed above. (Basis: Regulation 2, Rule 5)

Verification: The project owner shall notify the District and the CPM at least 7 working days before conducting the source tests required in this condition. Source test results shall be submitted to the District and to the CPM within 60 days of the date of the tests. The project owner shall provide evidence of the District's approval of all source test procedures to the CPM prior to executing the tests.

AQ-24 Within 136 days of start-up of the facility, the owner/operator shall conduct an initial District-approved source test on one of the fourteen emission points P-1 through P-14 with the corresponding engine operating at least 80% of full load to demonstrate compliance with Condition **AQ-23** and to demonstrate that the facility complies with Regulation 2, Rule 5. The initial District approved source test for toxic air contaminants shall quantify the emission rates from one engine of the following compounds: 1,3 Butadiene, Formaldehyde, Acetaldehyde, Benzene, Toluene, Xylene, and Polycyclic Aromatic Hydrocarbons. The toxic air contaminant source test results will be

converted into emission factors in units of lb/MMBtu, and the annual firing rates for each of the fourteen engines will be used to calculate annual emissions of toxic air contaminants from the facility. The owner/operator shall use the results of the initial source test for toxic air contaminants to perform a health risk assessment to determine the total facility risk using District approved procedures and unit risk factors.

Verification: The project owner shall notify the District and the CPM at least 7 working days before conducting the source tests required in this condition. Source test results shall be submitted to the District and to the CPM within 60 days of the date of the tests. The project owner shall provide evidence of the District's approval of all source test procedures to the CPM prior to executing the tests. Health risk assessment results shall be submitted to the District and to the CPM within 90 days of the date of the tests.

AQ-25 The owner/operator shall conduct an additional District approved source test within 3 years of the initial test on one of the fourteen emission points P-1 through P-14 with the corresponding engine operating at least 80% of full load to demonstrate compliance with Condition **AQ-23**. The toxic air contaminant source test results will be converted into emission factors in units of lb/MMBtu, and the annual firing rates for each of the fourteen engines will be used to calculate annual emissions of toxic air contaminants from the facility. (Basis: Regulation 2, Rule 5)

Verification: The project owner shall notify the District and the CPM at least 7 working days before conducting the source tests required in this condition. Source test results shall be submitted to the District and to the CPM within 60 days of the date of the tests. The project owner shall provide evidence of the District's approval of all source test procedures to the CPM prior to executing the tests.

CONDITIONS FOR S-15 EMERGENCY STAND-BY GENERATOR AT ALL TIMES

AQ-26 Operation of S-15 for reliability-related activities is limited to 50 hours per year. (Basis: Stationary Diesel Engine ATCM, 17 C.C.R. § 93115(e)(2)(A)(3).)

Verification: The project owner shall submit to the CPM the quarterly operation reports (**AQ-SC12**) demonstrating compliance with this Condition.

AQ-27 The owner/operator shall operate engine S-15 only for the following purposes: to mitigate emergency conditions, for emission testing to demonstrate compliance with a District, state or Federal emission limit, or for reliability-related activities (maintenance and other testing, but excluding emission testing). Operating hours while mitigating emergency conditions or while emission testing to show compliance with District, state or Federal emission limits is not limited. (Basis: Stationary Diesel Engine ATCM, 17 C.C.R. § 93115(e)(2)(A)(3).)

Verification: The project owner shall submit to the CPM the quarterly operation reports (**AQ-SC12**) demonstrating compliance with this Condition.

AQ-28 The owner/operator shall operate engine S-15 only when a non-resettable totalizing meter (with a minimum display capability of 9,999 hours) that measures the hours of operation for the engine is installed, operated, and properly maintained. (Basis: Stationary Diesel Engine ATCM, 17 C.C.R. § (e)(4)(G)(1).)

Verification: The project owner shall submit to the CPM the quarterly operation reports (**AQ-SC12**) demonstrating compliance with this Condition.

AQ-29 Records: The owner/operator shall maintain the following monthly records in a District-approved log for at least 36 months from the date of entry. Log entries shall be retained on-site, either at a central location or at the engine's location, and made immediately available to the District staff upon request.

a. Hours of operation of S-15 for reliability-related activities (maintenance and testing).

b. Hours of operation of S-15 for emission testing to show compliance with emission limits.

c. Hours of emergency operation of S-15.

d. For each emergency, the nature of the emergency condition.

e. Fuel usage for S-15.

(Basis: Stationary Diesel Engine ATCM, 17 C.C.R. § 93115(e)(4)(I).)

Verification: During site inspection, the project owner shall make all records and reports available to the District, ARB, U.S. EPA, or Energy Commission staff.

AQ-30 At School and Near-School Operation: If S-15 is located on school grounds or within 500 feet of any school grounds, the owner/operator shall not operate it for non-emergency use, including maintenance and testing, during the following periods:

a. Whenever a school-sponsored activity is taking place a the school (if the engine is located on school grounds).

b. Between 7:30 a.m. and 3:30 p.m. on days when school is in session. "School" or "School Grounds" means any public or private school used for the purposes of the education of more than 12 children in kindergarten or any of grades 1 to 12, inclusive, but does not include any private school in which education is primarily conducted in a private home(s). "School" or "School Grounds" includes any building or structure, playground, athletic field, or other areas of school property but does not include unimproved school

property. (Basis: Stationary Diesel Engine ATCM, 17 C.C.R. § 93115(e)(2)(A)(1).)

Verification: The project owner shall submit to the CPM the quarterly operation reports (**AQ-SC12**) demonstrating compliance with this Condition.

ACRONYMS

BTU	British Thermal Unit
AFC	Application for Certification
BAAQMD	Bay Area Air Quality Management District
BACT	Best Available Control Technology
ARB	California Air Resources Board
CEC	California Energy Commission
CEC CPM	California Energy Commission, Compliance Program Manager
CO	Carbon Monoxide
CO_2	Carbon Dioxide
EO/APCO	Executive Officer/Air Pollution Control Officer
FDOC	Final Determination of Compliance
GHG	Greenhouse Gases
NH_3	Ammonia
NMHC	Non-methane Hydrocarbons
NO_x	Nitrogen Oxides
O_2	Oxygen
PDOC	Preliminary Determination of Compliance
PM10	Particulate Matter less than 10 Microns in Diameter
PM2.5	Particulate Matter less than 2.5 Microns in Diameter
POC	Precursor Organic Compounds
ppmvd	Parts Per Million by Volume, Dry
PSD	Prevention of Significant Deterioration
PUC	Public Utilities Commission
SCAQMD	South Coast Air Quality Management District
SCR	Selective Catalytic Reduction
SJVAPCD	San Joaquin Valley Air Pollution Control District
SO_2	Sulfur Dioxide
SOx	Sulfur Oxides
TAC	Toxic Air Contaminant
TBACT	Toxics Best Available Control Technology
VOC	Volatile Organic Compounds

B. PUBLIC HEALTH

The public health analysis supplements the previous discussion on air quality and considers the potential public health effects from project emissions of toxic air contaminants. In this analysis, the Energy Commission determines whether such emissions would exceed limits established for health protection and result in significant adverse public health impacts.[51]

SUMMARY AND DISCUSSION OF THE EVIDENCE

Project construction and operation will result in routine emissions of toxic air contaminants (TACs), which are identified as non-criteria pollutants because there are no ambient air quality standards established to regulate their emission levels.[52] (Ex. 200, p. 4.7-4.) In the absence of standards, state and federal regulatory programs have developed a health risk assessment procedure to evaluate potential health effects from TAC emissions.[53] The California Air Toxics "Hot Spots" Information and Assessment Act requires power plant facilities to identify and quantify TAC emissions by category and by proximity to sensitive receptors. (Health and Safety Code, § 44320 et seq.) This inventory requirement is administered by the air district where the facility is located, in this

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[51] This Decision discusses other public health concerns in pertinent sections as follows: the accidental release of hazardous materials is discussed in Hazardous Materials Management and Worker Safety and Fire Protection; electromagnetic fields are discussed in Transmission Line Safety and Nuisance; potential impacts to soils and surface water sources are discussed in Soil and Water Resources; and hazardous and non-hazardous wastes are described in Waste Management.

[52] Criteria pollutants, discussed in the Air Quality section, are pollutants for which ambient air quality standards have been established by state and federal regulatory agencies. The emission control technologies employed by EEC to mitigate criteria pollutant emissions are considered effective for controlling non-criteria pollutant emissions from the same source. (Ex. 1, § 8.6.4; BAAQMD Regulation 2 Rule 5; Ex. 6, p. 39; Ex 201, pp. 8-9.)

[53] The health risk assessment protocol is set forth in the Air Toxics "Hot Spot" Program Risk Assessment Guidelines developed by the California Air Pollution Control Officers Association

case BAAQMD, which requires facilities that exceed specified TAC emission limits to conduct a health risk assessment to determine potential health effects. (*See* Health & Safety Code, § 44360; BAAQMD Regulation 2 Rule 5; Ex. 1, § 8.1.3.4.7.)

1. Health Risk Assessment

Applicant performed a health risk assessment that was reviewed by Staff and approved by BAAQMD in its Final Determination of Compliance (FDOC). (Ex. 200, p. 4.7-1 et seq.; Ex. 201, pp. 24-25, Appendix B.) Applicant's risk assessment employed a scientifically accepted methodology consistent with CAPCOA guidelines and with methods developed by the California Office of Environmental Health Hazard Assessment (OEHHA). (Ex. 1, § 8.6 et seq., Appendix 8.1D; Ex. 200, p. 4.7-5.) This approach emphasizes a worst-case "screening" analysis to evaluate the highest level of potential impact. (Ex. 200, p. 4.7-5.) The screening level risk assessment incorporates assumptions that are intentionally biased toward the protection of public health by:

- Using the highest levels of pollutants that could be emitted from the plant;
- Assuming weather conditions that would result in the maximum ambient concentration of pollutants;
- Using the air quality modeling program that predicts the greatest plausible impacts;
- Assuming health risks at the location where the pollutant concentrations are calculated to be the highest;
- Using health-based standards designed to protect the most sensitive members of the population (i.e., the young, elderly, and individuals with respiratory illnesses);
- Including exposure to substances that could affect non-inhalation pathways such as soil ingestion, dermal exposure, and mother's milk; and

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(CAPCOA) pursuant to the Air Toxics "Hot Spots" Information and Assessment Act (Health and Safety Code, § 44300 et seq.). (Ex. 1, § 8.6, Appendix 8.1D; Ex. 200, p. 4.7-5.)

- Assuming an individual's exposure to cancer-causing agents occurs for 70 years. (Ex. 200, p. 4.2-5.)

Using the assumptions listed above, the risk assessment consists of the following steps:

- Identify the types and amounts of hazardous substances that the project could emit to the environment;
- Estimate worst-case concentrations of project emissions in the environment using dispersion modeling;
- Estimate amounts of pollutants to which people could be exposed through inhalation, ingestion, and dermal contact; and
- Characterize potential health risks by comparing worst-case exposure to safe standards based on known health effects. (Ex. 1, § 8.6.2.2; Ex. 200, pp. 4.7-4 and 4.7-5.)

The health risk assessment addresses three categories of health impacts: acute (short-term), chronic (long-term), and carcinogenic health effects. (Ex. 1, § 8.6.2.2; Ex. 200, p. 4.7-5.) Since there was extensive public comment on potential project-related health effects in this case, we include a discussion of the scientific methodology underlying the risk assessment.[54]

Regulatory agencies use the hazard index method to assess the likelihood of acute or chronic non-cancer effects. The analysis for non-cancer health effects compares the maximum project contaminant levels to safe levels called "reference exposure levels" or RELs, which are designed to protect the most

[54] According to Applicant, health risk assessments (HRAs) are used to estimate whether current or future chemical exposures will pose health risks to a broad population in a city or community. By contrast, epidemiological studies evaluate whether past chemical exposures may be responsible for health problems in a specific group of people. Neither HRAs nor epidemiological studies prove that a specific toxic substance caused an individual's illness. (Ex. 1, Appendix 8.1D, p. 1.)

sensitive individuals in the population.[55] The RELs incorporate the most sensitive adverse health effects reported in the medical and toxicological literature and include margins of safety. The margins of safety address uncertainties associated with inconclusive scientific and technical information available and are intended to provide a reasonable degree of protection against hazards that research has not yet identified. Health protection is achieved if the estimated worst-case exposure is below the pertinent REL. In such a case, it is presumed that an adequate margin of safety exists between the predicted exposure and the estimated threshold for toxicity. (Ex. 200, pp. 4.7-6 and 4.7-7.)

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 substance. In conformance with CAPCOA guidelines, the health risk assessment assumes that the effects of each substance are additive for a given organ system. In cases where the interactions may be synergistic (the effects are greater than the sum), this approach may underestimate the health impact. The evidence indicates, however, that the potential to underestimate the synergistic interactions for some substances is balanced by the conservative health-protective nature of the overall risk assessment.[56] (Ex. 200, p. 4.7-6; Ex. 1, § 8.6.2.2.3.)

The hazard index is a ratio that compares exposure from facility emissions with the pertinent REL. The hazard index for every toxic substance, which has the

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[55] Staff identified these sensitive individuals to include infants, the aged, and people suffering from illness or disease, which would make them more susceptible to the effects of toxic substance exposure, and any minority or low income populations that are likely to be disproportionately affected by impacts because these populations often have a greater incidence of pre-existing medical conditions. (Ex. 200, p. 4.7-8.)

[56] Intervenor Alameda County's expert witness on public health asserted that the potential for air contaminants to act synergistically requires an analysis of the overall toxic burden associated with locating the EEC at the proposed site since low-income/minority populations have been historically exposed to a higher burden of environmental toxicity. (Ex. 532, p. 5.)

same type of health effect, is added to yield a total hazard index. A total hazard index of less than 1.0 establishes that the cumulative worst-case exposures are less than the RELs.[57] Under these conditions, health protection is likely to be achieved even for sensitive members of the population. (Ex. 200, p. 4.7-4.)

For inhalation cancer risk, the estimated airborne concentration level for each carcinogen released is multiplied by the respective inhalation unit risk. For non-inhalation exposures, the estimated exposure for each carcinogen released is multiplied by the potency factor for that carcinogen. The cancer unit risk factors and cancer potency factors are established by OEHHA. Once all the individual inhalation and non-inhalation cancer risks are determined, the total cancer risk is computed by summing the cancer risks for each carcinogen.[58] (12/17/07 RT 222:18-25; Ex. 200, p. 4.7-7; Ex. 1, § 8.6.2.6.) The chief exposure assumption is one of continuous exposure to a maximally exposed individual over a 70-year period at each identified receptor location. The calculated risk is not meant to project the actual expected incidence of cancer, but rather a theoretical upper-bound number based on worst-case assumptions. The conservative nature of the screening assumptions ensures that actual cancer risks are likely to be considerably lower than estimated. (Ex. 1, § 8.6.2.2.3; Ex. 200, p. 4.7-6.)

According to Staff, the threshold of significance for cancer risk is an incremental risk of ten in one million. (Ex. 200, p. 4.7-7.) This significance level is consistent with the standard used by BAAQMD and other air districts to comply with Health

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[57] The hazard index ratio is calculated separately for acute and chronic effects. (Ex. 200, p. 4.7-6.)

[58] The following non-criteria pollutants were considered with regard to possible cancer risk: acetaldehyde, benzene, 1,3 butadiene, carbon tetrachloride, hexavalent chromium, diesel PM exhaust, formaldehyde, para-dichlorobenzene, methylene chloride, and perchloroethylene. (Ex. 1, § 8.6, Table 8.6-5.)

and Safety Code section 44362(b), which requires notification of nearby residents when there is a significant health risk from a facility.[59] (*Ibid*.)

2. Potential Impacts

The topography of the site is essentially flat, with a mean elevation of approximately 23 feet above mean sea level. Elevations surrounding the site are also relatively low, with elevations of 100 feet or greater at distances about 3.4 miles from the site at the East Bay foothills. (Ex. 1, § 8.6.1.1.) The site is located in an urban environment with the nearest residential area approximately 1,100 feet east of the site. Applicant collected data on sensitive receptors located within a six- mile radius of the site, including schools, day care centers, hospitals, and residential housing. (Ex. 1, § 8.6.1.2, Appendix 8.1D, Figure 8.D-1, EDR Off-Site Receptor Report.)[60] For purposes of the health risk assessment, computer modeling is used to estimate the effects of air pollution based on conservative assumptions that replicate the worst-case estimate of exposure. The computer model predicts the risk at the point of maximum impact.[61] (Ex. 1, § 8.6.2.2.2; 12/17/07 RT 206.)

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[59] Under the Air Toxics "Hot Spots" and the Proposition 65 programs, a risk of 10 in a million is considered significant and used as a threshold for public notification. 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. (Ex. 200, pp. 4.7-7 and 4.7-8.) The Air District allows an incremental risk of ten in a million for a source such as EEC where the best available control technology for air toxics (T-BACT) is used. (BAAQMD Air Toxic Risk Evaluation Procedure and Risk Management Policy; BAAQMD Regulation 2, Rule 5; Ex. 1, § 8.6.3.4.)

[60] The Off-Site Receptor Report in Exhibit 1, Appendix 8.1D, includes Intervenor Chabot College at p. 10.

[61] The computer modeling used to determine the location of maximum public health impact includes meteorological and terrain considerations and a range of possible human exposure from those who stay inside to those who jog in the afternoon when pollution levels are highest. (Ex. 1, Appendix 8.D1: "Health Risk Assessment Support Data.") In this case, the point of maximum cancer and chronic non-cancer impact is 50 yards to the east of the project site at a parking lot. The maximum acute health impact is located near the north end of the site fenceline. Health risk is reduced dramatically within three blocks of the site and thus, it was not necessary to model

a. Construction Phase

The construction phase is expected to take approximately 18 months. Potential construction-related public health impacts could result from exposure to (1) contaminated soils; (2) diesel fuel emissions from heavy equipment and vehicles used in construction, and (3) windblown dust from grading and other construction-related activities. (Ex. 200, pp. 4.7-8 and 4.7-9.)

As described in the **Waste Management** section, Conditions **WASTE-1** and **WASTE-2** provide appropriate guidance on handling any soil or groundwater contamination encountered during construction.

Particulate emissions from diesel-fueled engines are listed in the California Air Resources Board (CARB) inventory of toxic air contaminants. Exposure to diesel exhaust can result in both short and long-term adverse health effects, including lung cancer. (Ex. 200, pp. 4.7-8 and 4.7-9.) To protect worker health and safety during construction, safe work practices will be implemented as described in the **Worker Safety** section of this Decision. According to Applicant, no significant off-site public health effects are expected during construction since construction-related emissions are temporary (risk estimates are based on assumed exposures of 70 years) and potential exposure at the nearest commercial and residential receptors falls below significance levels.[62] (Ex. 1, Appendix 8.1E, § 8.1E.5; see also, Ex. 200, p. 4.7-9.)

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risks beyond one mile of the site. (12/17/08 RT 205; Ex. 1, Appendix 8.D1, Figures 8.1D3, 8.1D4, & 8.1D5; Ex. 6, p. 38, Figures 35(i) and 35 (ii); Ex. 200, p. 4.7-58 et seq.)

[62] Applicant found that the estimated off-site worker and resident cancer risks due to diesel PM10 exhaust are 6.7 in one million and 0.60 in one million, respectively, below the 10 in one million significance level. The estimated chronic hazard index due to diesel PM10 exhaust is 0.30, below the significance value of 1.0. (Ex. 1, Appendix 8.1E, § 8.1E.5.)

Condition **AQ-SC5** in the **Air Quality** section requires the project owner to use low-sulfur diesel fuel and to install soot filters on diesel-fueled equipment to reduce particulate matter, carbon monoxide, and hydrocarbon emissions. Conditions **AQ-SC3** and **AQ-SC4** require the project owner to implement a Fugitive Dust Mitigation Plan and a Dust Plume Response Plan to minimize the potential for adverse health effects from dust inhalation. Implementation of these mitigation measures will ensure that potential construction-related health effects are reduced to insignificant levels.

b. Operation

Emission sources during project operation include 14 lean-burn natural gas-fired internal combustion engines and one ARB diesel fuel oil-fired emergency ("black start") generator. (Ex. 200, p. 4.7-10.)

Applicant identified the non-criteria pollutants emitted by project combustion sources and their emission factors based on the California Air Toxics Emission Factors (CATEF II) database.[63] (Ex. 1, Appendix 8.1D, Tables 8.1D1 and 8.1D2.) Applicant also provided toxicity values used to characterize cancer and non-cancer health impacts from project pollutants. The toxicity values include RELs, which are used to calculate short-term and long-term non-cancer health effects, and cancer unit risks used to calculate the lifetime risk of developing cancer based on the OEHHA Guidelines. (Ex. 1, § 8.6, Table 8.6-4; Ex. 200, p. 4.7-10.)

Maximum hourly emissions are required to calculate acute (one-hour) non-cancer health effects, while estimates of maximum emissions on an annual basis

[63] Since stack emissions from the 14 Wärtsilä engines have not been measured by a "source test," the analysis relies on emission factors from similar engines identified in the CATEF II database. The predicted project emission rates were incorporated in the computer model to

are required to calculate cancer and chronic (long-term) non-cancer health effects. (Ex. 200, p. 4.7-10; Ex. 1, § 8.6.2.2.2.)

Staff's **Public Health Table 2**, replicated below, lists toxic emissions and shows how each contributes to the health risk analysis.

PUBLIC HEALTH Table 2
Types of Health Impacts and Exposure Routes Attributed to Toxic Emissions*

Substance	Oral Cancer	Oral Noncancer	Inhalation Cancer	Noncancer (Chronic)	Noncancer (Acute)
Acetaldehyde			✔	✔	
Acrolein				✔	✔
Ammonia				✔	✔
Arsenic	✔	✔	✔	✔	✔
Benzene			✔	✔	✔
1,3-Butadiene			✔	✔	
Cadmium		✔	✔	✔	
Chromium VI		✔	✔	✔	
Copper				✔	✔
Diesel Exhaust			✔	✔	
Ethylbenzene				✔	
Formaldehyde			✔	✔	✔
Hexane				✔	
Lead	✔		✔		
Mercury		✔		✔	✔
Naphthalene		✔	✔	✔	
Nickel		✔	✔	✔	✔
Polycyclic Aromatic Hydrocarbons (PAHs)	✔	✔	✔	✔	
Propylene				✔	
Propylene oxide			✔	✔	✔
Toluene				✔	✔
Xylene				✔	✔
Zinc				✔	

*Source: OEHHA 2003 Appendix L; Ex. 200, p. 4.7-11.

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estimate the concentration of contaminants at exposure locations. Potential emissions were then quantified by conducting a "worst case" analysis. (Ex. 200, p. 4.7-10.)

The Applicant used the CARB/OEHHA Hotspots Analysis and Reporting Program (HARP) modeling program to estimate the ambient concentrations of toxic substances based on an air dispersion model and assuming conditions that result in maximum impacts. Ambient concentrations were used in conjunction with RELs and cancer unit risk factors to estimate health effects that could result from exposure to facility emissions. As noted above, exposure pathways or ways in which people might come into contact with toxic substances include inhalation, dermal (through the skin) absorption, soil ingestion, consumption of locally grown plant foods, and mother's milk.

Applicant's **Table 8.6-6**, replicated below, shows that cancer risk and both acute and chronic hazard indices are below significance levels, indicating that no short-term or long-term adverse health effects are expected. (Ex. 1, § 8.6.3.1.)

Applicant's Table 8.6-6
Operational Health Risk Assessment Summary

Risk Category	Maximum Risk, 14 Lean-Burn Engines	Maximum Risk, 1 Black Start Diesel Engine	Facility Cumulative Maximum Risk[2]	Applicable Significance Threshold
Cancer Risk per Million	8.3	0.50	8.5	<=10.0 with T-BACT
Acute Hazard Index with acrolein;	0.65	0.018	0.66	1.0
without acrolein (BAAQMD)[1]	0.11	0.018	0.11	
Chronic Hazard Index with acrolein:	0.23	0.0003	0.23	<=1.0 with T-BACT
without acrolein (BAAQMD)[1]	0.15		0.15	<=0.2 without T-BACT

Source: Ex. 1, § 8.6.3.1

[1]Because of concerns regarding source testing procedures, BAAQMD does not require acrolein to be included in health risk assessments per the *Air Toxics NSR Program Health Risk Screening Analysis (HRSA)Guidelines* (June 2005).

[2]The maximum risks from the 14 lean-burn engines (combined) alone, and from the black start diesel engine alone, occur at separate locations. The maximum project cumulative risk location is the same as the location of maximum risk from the 14 lean-burn engines.

Staff conducted an independent quantitative analysis also using the HARP model but the results show different estimates for cancer, chronic, and acute hazard risks. (Ex. 200, pp. 4.7-12 and 4.7-13.) A comparison of the results is presented below in Staff's **Public Health Table 4**.

Staff's Public Health Table 4
Comparison of Applicant and Staff Results

	Maximally Impacted Receptor		
	Applicant	**Staff**	**Applicable Significance Threshold**
Cancer Risk	8.5 in one million	3.7 in one million	<= 10 in a million with T-BACT
Chronic HI	0.23	0.10	1.0
Acute HI	0.66	0.32	1.0

Source: Ex. 200, p. 4.7-13.
HI = Hazard Index and T-BACT = Best Available Control Technology for control of toxic emissions.

According to Staff, since both estimates are below significance levels, the inconsistent results are not substantive. However, in response to public concerns, Staff also conducted an assessment using different sets of CATEF emissions factors and different assumptions on the effectiveness of the T-BACT oxidative (CO) catalyst. (Ex. 200, p. 4.7-13.)

The initial assessment relied on average emission factors and assumed that the oxidative catalyst would remove 40% of TACs from stack emissions, a conservative underestimate of the efficiency of the air pollution control devices. In Staff's re-assessment model, the maximum values shown in the CATEF database were assumed with credit for pollution control efficiency and compared with the mean values from CATEF without any credit for pollution controls. Staff believes these scenarios are unrealistic but even with the most conservative assumptions, the risk under these scenarios is not significant. (Ex. 200, p. 4.7-13; Ex. 6, p. 39.) The results are shown in Staff's **Public Health Table 6**, below

Staff's Public Health Table 6
Risk and Hazard Using Different Assumptions

	Mean CATEF w/ 40% reduction	Mean CATEF no reduction	Max CATEF w/ 40% reduction
Cancer Risk	3.7 in one million	6.1 in one million	7.8 in one million
Chronic HI	0.1	0.17	0.37
Acute HI	0.33	0.53	0.93

Source: Ex. 200, p. 4.7-14.

Conditions **AQ-23**, **AQ-24**, and **AQ-25** in the **Air Quality** section of this Decision establish the limits and testing protocols for project-emitted TACs to ensure compliance with BAAQMD's Toxic Risk Management Policy.

To further guarantee that public health effects are, de facto, below significance levels, Condition of Certification **PUBLIC HEALTH-1** requires the project owner to conduct source testing after project operation begins and to submit a new health risk assessment based upon the source test data. If the results of the risk assessment exceed significance levels, power plant operation shall be restricted until the risk can be reduced below levels of significance.

As proposed by Staff, Condition **PUBLIC HEALTH-1** would require the project owner to test four engine stacks and if any contaminant exceeds the arithmetic mean for that contaminant by two standard deviations, an additional four stacks would be tested. Applicant disagreed with Staff's proposal to test four stacks, arguing that it would be too costly and redundant to require data collection from identical engines. Applicant referred to Condition **AQ-24**, which only requires testing one engine under BAAQMD's source testing protocol.[64] Under **AQ-24**, BAAQMD allows three test runs from a single engine rather than requiring tests of several engines. Applicant also objected to Staff's proposal to test acrolein emissions since neither CARB nor BAAQMD has established a valid acrolein

[64] We note that BAAQMD's Condition **AQ-18** requires testing of at least three engines for startup/shutdown emissions and **AQ-19** requires testing of two engines for ammonia emissions.

measurement method. (Ex. 19, pp. 1-3; Ex. 201, p. 24.) Applicant offered to conduct acrolein testing if CARB or BAAQMD should adopt an acrolein testing method prior to implementation of Condition **PUBLIC HEALTH-1**.

Staff's expert witness testified that evaluating four engines provides a better level of confidence since test data from one engine does not assure that it will reflect the operation of all 14 engines. (12/17/07 RT 197:14-24, 258-261.) The witness was also concerned that the CATEF database does not contain emission factors for the EEC's exact engines. (*Id*. at 96:7-14). While we acknowledge Applicant's assertion that the EEC's Wärsilä engines with state-of-the-art emission controls will produce lower emissions than the older uncontrolled generators listed in the CATEF database,[65] extensive public concern regarding project-related TAC emissions necessitates an added measure of caution. (*Id*. at 195:21-25, 196:1-5.) We therefore adopt the more restrictive testing requirements recommended by Staff in Condition **PUBLIC HEALTH-1**.[66]

3. Intervenors

Intervenor Group Petitioners argues that since CARB does not endorse CATEF emission factors for acrolein due to limited test data, Staff should rely on U.S. EPA emission factors to calculate effects of acrolein emissions.[67] Staff's expert witness testified that he is required to use California standards in conducting the risk assessment. (12/17/07 RT, pp. 199-201.) Staff's witness also explained that CATEF and U.S. EPA acrolein emission factors are based on the same methodology and that consideration of the toxicological endpoint, the strength

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[65] Exhibit 19, at p. 3.

[66] We have revised timelines in Condition **PUBLIC HEALTH-1** consistent with Condition **AQ-24**.

[67] A comparison of the CATEF database with U.S. EPA emission factors (referred to as AP-42 emission factors) is included in Exhibit 200, p. 4.7-51 et seq., Public Health Appendix B.

and interpretation of the health studies, and the magnitude of combined safety factors indicate that an exceedence of the acute REL for acrolein does not result in a significant adverse health impact.[68] Staff believes that the actual acrolein emissions will be lower than the values used in the risk assessment and that the airborne concentrations at the point of maximum impact and at residences will be lower than predicted. (Ex. 200, p. 4.7-19 et seq.) Condition **PUBLIC HEALTH-1** requires testing for actual acrolein emissions using the older, more stringent OEHHA standard in consultation with Staff. (12/17/07 RT 257-258.)

Intervenor Alameda County presented the expert testimony of its Deputy Director of Planning, Policy, and Health Equity for the Alameda County Public Health Department. According to the witness, there are three low-income census block groups within a three-mile radius of the project site where at least 20% of residents live in poverty and 80% are non-white. In the two Hayward zip codes closest to the site, the rates of respiratory and circulatory diseases are significantly higher for all age groups than in the rest of Alameda County. The high incidence of these illnesses represents an existing burden of toxic pollution in the project vicinity indicating a more vulnerable demographic profile than the hypothetical sensitive receptors incorporated in the health risk assessment model. (Ex. 532, pp. 2-4.) The witness asserts that Staff's sensitive receptor analysis should factor in the actual individuals living in the community and how they would actually experience a particular impact especially due to

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[68] According to Staff's witness, the question is not about acrolein status as a toxic substance, rather it is the level of concentration of the substance that will cause a problem. The amount of acrolein emitted by the EEC will be below the level of concentration that will cause a problem. (12/17/07 RT 227:3-12.) Staff's witness also noted that OEHHA has reduced the presumed toxicity of acrolein by increasing the REL from 0.19 micrograms per cubic meter of air to 2.3 micrograms per cubic meter. (*Id.* at 201:2-9.) That would reduce the hazard index even lower than reflected in the risk assessment in this case. According to the Staff witness, OEHHA has found acrolein is more than ten times *less* toxic to humans than previously established. (*Id*. at 201:10-21). However, Staff will continue to use the older, more stringent standard because the new standard not been formally adopted. Even under the previous OEHHA standard, Staff believes the project's acrolein emissions will be less than significant. (*Id*. at 202:1-2.)

environmental justice concerns. (*Id*. at 5; Alameda County's Opening Brief at 28-30.)

According to undisputed evidence, the air dispersion model predicts a point of maximum impact for chronic non-cancer and cancer impacts in the parking lot about 50 yards to the east of the site and acute non-cancer impacts at the project's north fenceline. (12/17/07 RT 205.) The risk assessment did not model impacts beyond one mile since risk drops off greatly at that distance. (*Ibid*.) Accordingly, the scientific data supports a finding that actual residents living near the project will not be exposed to health risks due to project-related TAC emissions. We do not believe that the public health analysis ignores the environmental justice demographics in the project vicinity since adverse health effects due to TAC emissions will not occur beyond the project fenceline or parking lot. Thus, there is no evidence of disproportionate impacts on the environmental justice community.[69] See discussion in the **Environmental Justice** section of this Decision.

Intervenor Chabot-Las Positas Community College District (Chabot) also challenged the public health assessment, in particular, because Staff's witness testified that the assessment did not specifically identify students, faculty or staff at the Chabot College campus, located about one mile from the project site. (12/17/07 RT 250-252.) Chabot argued that the unique characteristics of the student body, primarily minority and low-income individuals, should have been included in the modeling assumptions since they represent a highly susceptible demographic due to multiple stressors as a result of their socioeconomic status and limited access to health care. (Chabot College Post-Hearing Brief at 8-10.)

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[69] Alameda County maintains that since the population within a three-mile radius of the site is 80% non-white and 20% live in poverty and the death rate from chronic lower respiratory diseases is 43% higher than in the County overall, the potential unmeasured synergistic effects of TAC emissions on these already overburdened populations require additional in-depth studies to

In response to cross-examination by Chabot's counsel, Staff's public health witness explained the scientific method used by regulatory agencies, which consider physical effects but not other vulnerabilities, as follows:

> [I]f you have disparate impacts in populations but they're both below a level of significance is there any type of significant impact. And I would say no there is not, even though you might be able to calculate something. Even though there is some difference they are both below the level of significance. If we are looking at a human population in which to base our reference exposure level then we have at least human error. And I am sure you aware that many of the reference exposure levels are based on animal data. So obviously we don't, we can't factor in things other than biologic mechanisms. But what we try and do and what Cal-EPA scientists do is look at the most sensitive, toxicological end point, regardless of whether someone might consider it to be mild or inconsequential, and then add various safety factors. So it is not like we're looking at overt toxicity and then just say that the reference exposure level is a microgram per cubic meter below that level and causes overt organ system failure. Instead we look at the most sensitive end point, add safety factors to take into account the sensitivity. The best that we can as scientists. I recognize there are emerging technologies, so does Cal-EPA. Cal-EPA will use these emerging technologies as they become scientifically defensible. (12/17/07 RT 269:16-25; 270:1-21, *see also* 235.)

As noted above, Chabot College was identified in the Applicant's Off-Site Receptor Report, which listed all potential sensitive receptors within a six-mile radius of the site. Since Chabot College is located beyond the point of maximum impact for the health risk assessment, the record indicates it was not necessary to calculate project-related health risk at the campus. We disagree with Chabot's contention that the risk assessment did not account for disproportionate impacts on the environmental justice community described by both Alameda County's Chabot's expert witnesses. Indeed, the OEHHA modeling protocol includes

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identify disproportionate impacts. The County believes the public health analysis failed to account for these factors. (County of Alameda Comments on the PMPD, pp. 4-5.)

objective toxicological and medical evidence and physiologic parameters that account for even the most susceptible individuals with preexisting medical conditions. (12/17/07 RT 236-237, 243, 250.)

In response to public concern, Staff also analyzed potential project impacts on the high incidence of asthma patients in the Hayward area and found there is no scientific correlation that links gas-fired combustion-related air emissions as a cause or exacerbation of asthma. (Ex. 200, pp. 4.7-15, 4.7-27 et seq. Public Health Appendix A.) *However, see footnote on the next page regarding CARB's recent report on respiratory disease in the East Bay*. See also, Alameda County Public Health Department's data on asthma and chronic pulmonary disease. (Ex. 532, pp. 3-6.)

4. Cumulative Impacts

When toxic pollutants are emitted from multiple sources within a given area, the cumulative or additive impacts of such emissions could lead to significant health impacts, even when such pollutants are emitted at insignificant levels from the individual sources involved. Analyses of such emissions have shown, however, that the peak impacts of such toxic pollutants are normally localized within relatively short distances from the source. Those toxic pollutant levels beyond the point of maximum impact normally fall within ambient background levels. The use of reformulated gasoline, as well as other toxics reduction measures, have led to a decrease of ambient levels of toxics and associated cancer risk during the past few years. In the Bay Area, cancer risk was calculated at 342 in one million in 1992; however, the average inhalation cancer risk decreased to 162 in one million by 2002, the most recent year when data was available. In comparison, the maximum cancer risk as a result of all emissions from the EEC

is estimated at 3.7 in one million, a value that reflects 2.2% of the existing background cancer risk.[70] (Ex. 200, p. 4.7-4.)

BAAQMD maintains several TAC monitoring stations in the East Bay, including San Leandro, Oakland (3 locations), Fremont, Richmond, and San Pablo. According to Staff, the TAC monitoring stations in Oakland, San Leandro, and Fremont adequately characterize the airborne TAC concentrations that currently exist in the Hayward area. (Ex. 200, p. 4.7-4.)

Staff conducted a detailed public health cumulative risk assessment to analyze cumulative emissions of toxic air contaminants from the EEC and the Russell City Energy Center (RCEC), located approximately 3,280 feet to the west of the EEC site. The cumulative analysis included 27 sources from the two facilities. Results of this cumulative analysis show the risk of cancer due to emissions from both the EEC and RCEC is well below the level of significance. The cumulative chronic and acute hazards are also insignificant, although the estimated location of the combined impacts is different than the points of maximum impact for the EEC facility alone. Nevertheless, all impacts at all receptors, including sensitive receptors such as schools, are below the level of significant impact. (Ex. 200, pp. 4.7-16, 4.7-62 et seq., Public Health **Figures 5-8.**) Staff's Public Health **Table 7**, below, shows the results of the cumulative impacts analysis.

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[70] We take administrative notice of CARB's March 19 2008, preliminary report on the disproportionate burden of cancer and respiratory disease in the East Bay and in particular, the City of Oakland due to diesel pollution from trucks traversing freeways and roadways in the Oakland area and marine vessel emissions in the Port of Oakland. ("Diesel Particulate Matter Health Risk Assessment for Oakland Community," Mar 19, 2008.) At the July 21, 2008, Supplemental Evidentiary Hearing, both Staff and Applicant submitted testimony indicating that data compiled by CARB for the Oakland area HRA would not change Staff's cumulative public health analysis nor affect the required compliance demonstration under Condition **PUBLIC HEALTH-1**. (See Exs. 58 and 211.).

Staff's Public Health Table 7
Cumulative Risks Eastshore Energy Center and Russell City Energy Center

EEC & RCEC	*Maximally Impacted Receptor*		
	Eastshore only (AFC)	**Eastshore only (Staff)**	**Cumulative (Staff)**
Cancer Risk	8.5 in a million	3.7 in a million	3.9 in a million
Chronic HI	0.23	0.10	0.11
Acute HI	0.66	0.33	0.40

Since criteria and non-criteria emissions from each of the power plant projects will be mitigated to insignificant levels (see **Air Quality** section), the evidentiary record indicates that the potential incremental impact of additional risk posed by the EEC will not be cumulatively considerable. (Ex. 200, p. 4.7-17.)

FINDINGS AND CONCLUSIONS

Based on the weight of the evidence, the Commission makes the following findings and conclusions:

1. During project construction, exposure to emissions from diesel-fueled construction equipment and from fugitive dust during excavation and grading activities could potentially result in adverse health effects.

2. The temporary nature of the construction phase and the implementation of EEC's Air Quality Construction Mitigation Plan ensure that construction-related emissions will not result in adverse public health effects.

3. During project operation, the EEC will emit criteria and non-criteria pollutants (toxic air contaminants) that could potentially result in adverse public health effects.

4. Project emissions of criteria pollutants will be mitigated to levels consistent with applicable regulatory standards as discussed in the **Air Quality** section of this Decision.

5. Best Available Control Technology (BACT) used to control emissions of criteria pollutants is also effective to control emissions of toxic air contaminants from the same source.

6. Applicant performed a health risk assessment, using well-established scientific protocol, to analyze potential adverse health effects of toxic air contaminants emitted by EEC within a six-mile radius of the project site.

7. There are sensitive receptors within a three-mile radius of the site; however the health risk assessment assumed any receptor within the area was a sensitive receptor.

8. Applicant's health risk assessment is based on worst-case assumptions using the highest emission factors, assuming the worst weather conditions, and calculating effects at the point of maximum impact so that actual risks are expected to be much lower at any other location.

9. The health risk assessment determined the point of maximum cancer and chronic non-cancer impact is 50 yards to the east of the project site in a parking lot. The maximum acute health impact is located near the north end of the site fenceline.

10. The EEC will comply with BAAQMD's Toxic Risk Management Policy and implement the required T-BACT mitigation measures for air toxics.

11. Applicant calculated the maximum incremental lifetime cancer risk during project operation at 8.5 in one million, which is below the ten in one million significance threshold.

12. Applicant calculated the total chronic hazard index at 0.23, which is below the 1.0 REL significance level.

13. Applicant calculated the maximum acute non-cancer hazard index at 0.66, which is below the 1.0 REL significance threshold.

14. Staff's calculations for cancer risk, chronic non-cancer, and acute risk resulted in lower levels than Applicant's calculations but the discrepancies could not be explained; however, Staff's more conservative re-assessment using mean and maximum CATEF values with or without pollution controls also showed results below the significance thresholds for cancer, chronic non-cancer, and acute hazard risks.

15. Results of the health risk assessment indicate that potential public health risks from exposure to emissions of toxic air contaminants during project operation will be insignificant.

16. CATEF and U.S. EPA acrolein emission factors are based on the same methodology; consideration of the toxicological endpoint, the strength and interpretation of the health studies, and the magnitude of combined safety

factors indicate that an exceedence of the acute REL for acrolein does not result in a significant adverse health impact especially since Cal-EPA has recently considered increasing the REL for acrolein.

17. Scientific evidence does not establish that gas-fired combustion-related emissions are correlated to an exacerbation or increase in the incidence of asthma.

18. There is no evidence of project-related disproportionate public health impacts on the environmental justice community.

19. After operation begins, the project owner will conduct source testing on at least four generator stacks to ensure that project emissions are actually below significance levels and if significance levels are exceeded, project operations will be curtailed until compliance is achieved.

20. Source testing described in Finding 19, above, will include acrolein emissions.

21. There is no evidence of cumulative public health impacts from project emissions; the data compiled by CARB's March 19, 2008, Health Risk Assessment on diesel particulate matter in the Oakland area was not shown to impact Staff's cumulative public health analysis.

The Commission concludes that project emissions of non-criteria pollutants do not pose a significant direct, indirect, or cumulative adverse public health risk. All Conditions of Certification that control project emissions are specified in the **Air Quality** section of this Decision, except for Condition of Certification **PUBLIC HEALTH-1**, below. Compliance with Condition of Certification **PUBLIC HEALTH-1** will reduce the potential risk of exposure to toxic air contaminants to insignificant levels.

CONDITION OF CERTIFICATION

PUBLIC HEALTH-1 Within 136 days of start-up of the facility, the project owner shall initiate source tests on four (4) engine exhaust stacks as required below, and within 270 days of start-up provide a completed human health risk assessment (HRA) based on the source tests to the Compliance Project Manager (CPM). The source tests and HRA shall be conducted according to established scientific protocol subject to review and comment by the Bay Area Air Quality Management District and for review and

approval by the CPM. The source tests and HRA shall include the quantitative analysis and assessment of the following toxic air contaminants: acetaldehyde, acrolein, benzene, 1,3-butadiene, ethyl benzene, formaldehyde, naphthalene and all PAHs (including speciation of all PAHs emitted in the gaseous and particulate phases), propylene, toluene, and xylenes.

Protocol: ***Each*** of the 4 engines shall be tested consistent with Conditions **AQ-23**, **AQ-24**, and **AQ-25,** including 3 trial runs per engine, if necessary.

The source test results and HRA shall confirm that the theoretical maximum cancer risk at the point of maximum impact is less than 10 in one million and the Acute and Chronic Hazard Indices are less than 1.0. If the health risk assessment shows a cancer risk greater than 10 in one million or a Hazard Index greater than 1.0, operation of the power plant shall be restricted to the number of engines that the CPM determines will represent a risk of less than 10 in one million or a Hazard Index of less than 1.0 until the project owner can certify that the risk of operating all engines does not create a theoretical maximum cancer risk greater than 10 in one million or an Acute or Chronic Hazard Index greater than 1.0 at the point of maximum impact.

Protocol: The project owner shall use OEHHA's more stringent REL for acrolein emissions at 0.19 micrograms per cubic meter of air.

Protocol: The project owner shall include data from CARB's March 18, 2008, Health Risk Assessment on diesel emissions and ambient toxic air contaminants in the Oakland area, or more current data, if available, when the project begins operation.

The number of engine exhaust stacks to be sampled shall be determined in the following manner:

1. Four (4) engines shall be randomly chosen by the owner for stack testing and approved by the CPM. If stack testing results for each contaminant described above on all four engines falls within two standard deviations of the arithmetic mean of each individual contaminant, no further engines need be tested.

2. If any contaminants measured in the stack test fall outside two standard deviations of the arithmetic mean for that contaminant, an additional 4 engines, chosen at random by the owner and approved by the CPM, shall be stack tested for all contaminants that fell outside two standard deviations of the arithmetic mean. If stack testing results for each contaminant described above on all eight engines tested fall within two standard deviations of the arithmetic

mean of each individual contaminant, no further engines need be tested. The project owner may request relief from further stack testing requirements by providing the CPM a written request with documentation explaining that further testing would not result in a significant change in the HRA results.

3. This process shall be continued until either the results for all engines tested fall within two standard deviations of the arithmetic mean of each individual contaminant for all engines tested or all 14 engines are tested.

4. The HRA described above shall be based on all data produced for all engines tested under this protocol.

Verification: No later than 60 days after the start of commercial operations, the project owner shall provide a copy of the source test and human health risk assessment protocols to the BAAQMD for review and comment and to the CPM for review and approval. Included in the test protocol shall be the list of 4 engines randomly chosen for the initial sampling. Subsequent to the initial testing, any additional engines chosen for testing shall be submitted to the CPM for review and approval.

No later than 30 days after the date that each group of 4 source tests has been completed, the project owner shall provide the source test results to the BAAQMD and the CPM. If additional tests are required, the project owner shall submit in sequence the next set of randomly chosen engines for testing to the CPM for approval until either all testing conforms to the protocol described above or all 14 engines are tested.

If the source testing is consistent with item #2 above, the project owner shall submit the HRA to the BAAQMD for review and comment and to the CPM for review and approval no later than 60 days after the source tests are completed.

When the project owner has fulfilled the requirement for testing as described above, the project owner shall submit all test results and the HRA to the BAAQMD for review and comment and to the CPM for approval within 60 days of the date of the last test or no later than 270 days after the date of starting commercial operations, whichever occurs sooner.

C. WORKER SAFETY AND FIRE PROTECTION

Industrial workers are exposed to potential health and safety hazards on a daily basis. This analysis reviews whether Applicant's proposed health and safety plans are designed to protect industrial workers and provide adequate fire protection and emergency response in accordance with all applicable laws, ordinances, regulations, and standards (LORS).

SUMMARY AND DISCUSSION OF THE EVIDENCE

1. Potential Impacts to Worker Safety

During construction and operation, workers may be exposed to chemical spills, hazardous wastes, fires, gas explosions, moving equipment, live electric conductors, confined space entry and egress problems. (Ex. 200, p. 4.14-5.) Exposure to these hazards can be minimized through adherence to appropriate design criteria and administrative controls, use of personal protective equipment (PPE), and compliance with applicable LORS.[67] (*Ibid.*)

2. Mitigation Measures

The project owner will develop and implement a "Construction Safety and Health Program" and an "Operation Safety and Health Program," in consultation with the appropriate agencies prior to project construction and operation. (Ex. 1, § 8.7.4.3; Ex. 200, p. 4.14-5 et seq.) Separate Injury and Illness Prevention Programs, Personal Protective Equipment Programs, Exposure Monitoring Programs, Emergency Action Plans, Fire Protection and Prevention Plans, and other general safety procedures will be prepared for both the construction and

[67] California Occupational Health and Safety Administration (Cal/OSHA) regulations (Cal. Code Regs., tit. 8, § 337 et seq. and § 1500 et seq.) and other applicable federal, state, and local laws affecting industrial workers are identified in Appendix A of this Decision. (*See* Ex. 1, § 8.7.2; Ex. 200, p. 4.14-2 et seq.)

operation phases of the project. (*Ibid*.) These comprehensive programs will contain more specific plans dealing with the site and auxiliary facilities, such as the Emergency Action Plan, as well as additional programs under the General Industry Safety Orders, Electrical Safety Orders, and Unfired Pressure Vessel Safety Orders. (*Ibid.*) Conditions **WORKER SAFETY-1** and **WORKER SAFETY-2** require the project owner to consult with the Hayward Fire Department (HFD) and to submit the plans for approval to the Energy Commission's Compliance Project Manager (CPM) to ensure compliance with applicable LORS.

OSHA and Cal-OSHA standards encourage employers to monitor worker safety by employing a "competent person" who has knowledge and experience with enforcing OSHA/Cal-OSHA standards, can identify workplace hazards, and has authority to take appropriate action. (Ex. 200, p. 4.14-10.) To implement the intent expressed in OSHA/Cal-OSHA standards, Condition **WORKER SAFETY-3** requires the project owner to designate a power plant Construction Safety Supervisor to coordinate and implement the Construction and Operation Safety and Health programs and to investigate any safety-related incidents and emergency responses.

To reduce and/or eliminate safety hazards during project construction and operation, Staff believes it is necessary to employ a professional Safety Monitor on-site to track compliance with OSHA/Cal-OSHA regulations and to periodically audit safety compliance during construction, commissioning, and the transition to operational status.[68] (Ex. 200, p. 4.14-11.) Condition **WORKER SAFETY-4** describes the role of a Safety Monitor, who is hired by the project owner but reports to the Chief Building Official (CBO) and CPM, and serves as an on-site OSHA expert to ensure that safety procedures and practices are fully

[68] Safety audits conducted by Staff in 2005 at CEC-certified power plants revealed safety and health hazards and LORS violations due to errors, misunderstandings and/or the failure to properly train supervisors and workers. (Ex. 200, p. 4.14-11.)

implemented. In this capacity, the Safety Monitor is also authorized to review the work of the Construction Safety Supervisor.

3. Fire Protection and Prevention Plans

The project will include comprehensive on-site fire protection and suppression systems as first line defense in the event of fire. The project will also rely on local fire protection services. (Ex. 200, p. 4.14-12.) To ensure that the fire protection and suppression systems comply with current standards, Condition **WORKER SAFETY-1** requires the project owner to obtain approval of the Construction Fire Protection and Prevention Plan from the HFD and any other fire protection agencies serving the EEC at least 30 days before the start of construction activities. Condition **WORKER SAFETY-2** requires the project owner to provide a Fire Protection and Prevention Program for review by the fire protection agencies serving the EEC prior to the start of project operation.

The on-site fire protection system provides the first line of defense for small fires. During construction, portable fire extinguishers will be located throughout the site within 100 feet from any work area. The project owner will ensure extinguishers are fully charged and safety procedures and training will be implemented. In addition, HFD will be notified about any fire incident during construction. According to Staff, the fire prevention plan described in the evidentiary record will comply with applicable LORS.[69] (Ex. 6, pp. 52-54; Ex. 200, p. 4.14-12.)

During project operation, fire suppression elements will include both fixed and portable fire extinguishing systems. Water for fire suppression will be supplied via a new site service line, which will be extended from an existing city main line service connection on the plant side of Clawiter Road. This connection will be sized in accordance with National Fire Protection Association (NFPA) guidelines

[69] *See* Ex. 1, § 8.7.2, Table 8.7-3; Ex. 200, p. 4.14-5 et seq.

to provide protection from the worst-case single fire. (Ex. 1 § 2.2.12; Ex. 200, p. 4.14-12.)

A wet pipe sprinkler fire protection system will be provided for the generators and accessory equipment. The system includes fire and gas detection sensors that will trigger alarms, turn off ventilation, close ventilation openings, and automatically activate the sprinkler system. For project components where the use of fire sprinklers is not recommended, an FM-200 or comparable fire protection system will release a fire suppression agent and deactivate equipment controlled by any device or power plant system engulfed in a fire. A fire wall will be installed to separate the two 60 percent main switchyard transformers. (Ex. 1, § 2.3.2.1.1.)

In addition to the fixed fire protection system, smoke detectors, flame detectors, temperature detectors, and appropriate portable extinguishers and fire hydrants will be located throughout the facility at code-approved intervals. These systems meet standard NFPA and UFC requirements to ensure adequate fire protection. (Ex. 200, p. 4.14-12; Ex. 6, p. 53.)

The HFD will provide fire support services to the site. Fire Station No. 6, located at 1401 West Winton Avenue, is the nearest station to the EEC and could respond to the site in approximately 3 to 4 minutes. Station No. 6 has one fire engine and three fire fighters. The stations that back-up Station No. 6 include Station No. 1 (22690 Main Street), Station No. 2 (360 West Harder Road), and Station No. 4 (27826 Loyola Avenue). These three stations combined have16 firefighters including a battalion chief, four engines and one truck. (Ex. 1, § 8.7.4.5; Ex. 6, pp. 54-56; Ex. 200, p.4.14-3.)

Hazardous materials (hazmat) permits and spills are handled and investigated by the HFD. There is no designated hazmat team since all HFD firefighters are trained to HazMat First Responder Operational level. First responder Station No.

6 could respond to hazmat spills at the site, including aqueous ammonia, in approximately 3 to 4 minutes. (Ex. 200, p. 4.14-3.)

Staff summarized the location of fire department responders and associated response times in the Table shown below. (Ex. 200, p. 4.14-4.)

WORKER SAFETY AND FIRE PROTECTION Table 1
Equipment and Personnel at HFD*

HFD Station	Response Time**	Distance to EEC	Equipment	Number of Firefighters per shift	EMS/HazMat Capability***
Station #6	3 to 4 min.	1.1 mi	1 fire engine	3	Y/Y
Station #1	10 to 13 min.	3.9 mi	1 Battalion Chief 1 fire engine 1 fire truck	7	Y/Y
Station #2	9 to 12 min.	3 mi	1 fire engine	3	Y/Y
Station #4	6 to 8 min.	2.2 mi	1 fire engine	3	Y/Y

*Source: Ex. 1, p. 4.14-4.
**Estimated response times are dependent upon traffic conditions, railroad delays, and other variables.
***All personnel are trained to EMT-1 level and at least one paramedic per apparatus.

The project owner will maintain an automatic defibrillator on-site to provide immediate response in the event of a medical emergency.[70] Condition **WORKER SAFETY-5** requires the project owner to ensure that a portable automatic cardiac defibrillator is located on-site during construction and operation and that appropriate personnel are trained to use it.

In addition to construction and operations worker safety issues, the site has the potential for soil and groundwater contamination. See the section on **Waste Management** in this Decision. Conditions **WASTE-6** and **WASTE-7** require that

[70] Staff asserts that the potential for both work-related and non work-related heart attacks exists at power plants. The quickest medical intervention can be achieved with the use of an on-site defibrillator since response time from an off-site provider could take too long. Many modern industrial and commercial enterprises maintain defibrillators for emergency use. Staff therefore believes it is an appropriate safety and health precaution in a power plant environment to maintain an on-site defibrillator. (Ex. 200, p. 4.14-13.)

the site is adequately characterized and remediated so that any residual contamination represents an insignificant risk to the on-site construction and operations workers, the off-site public, and to ecological receptors.

4. Cumulative Impacts

Staff reviewed the potential for EEC and RCEC emergency calls as well as other emergencies to result in cumulative impacts on HFD's fire and emergency response capabilities. The HFD utilizes the "Opticom" system on its fire trucks that allows them to control traffic signals. According to Staff, the HFD Fire Marshall indicated a need to improve the system since the first responder (Station No. 6) could be occupied elsewhere when an emergency call comes from the EEC. An improved "Opticom" system could ensure a timely response from the other stations. The Alameda County Hazardous Material Incidence Team (HIT) could also use HFD's Opticom system if the system were improved. Based upon the HFD Fire Marshall's comments, Staff had preliminarily determined that the project's incremental effect would be cumulatively considerable and had urged the Applicant to discuss mitigation with HFD.[71] (Ex. 200, pp. 4.14-13 and 4.14-14.)

Staff initially proposed a Condition of Certification to require the project owner to negotiate improvements to Opticom and other appropriate mitigation but the Condition was withdrawn since HFD never responded to Staff's request for more information about the costs or feasibility of Opticom improvements. (Ex. 200, p. 4.14-13.) In the absence of corroborative information from HFD, Staff relied on its own professional judgment and experience in deciding that HFD resources are adequate to respond to any emergency at the EEC site. According to Staff,

[71] EEC's nearest neighbor, Fremont Bank, also expressed concern regarding the lack of assurances from HFD about its ability to respond to emergency calls to the site. (Ex. 1, p. 4.14-15.)

incidents at power plants that require fire or EMS response are infrequent and represent an insignificant impact on the local fire departments. (*Id*. at 4.14-15.)

Committee Directive

The Committee was concerned that no mitigation was proposed to address Staff's preliminary finding that the project's incremental effect on fire and emergency response would be cumulatively considerable. Although the HFD did not provide information on the costs of upgrading Opticom, the HFD's failure to respond did not obviate the project's potential cumulative impact on HFD services. The Committee therefore directed the Applicant, Staff, and City of Hayward to draft a Condition of Certification to resolve this issue. At the July 21, 2008 Supplemental Evidentiary Hearing, the City provided an estimate of $149,350 for improvements to the HFD's Opticom system to ensure adequate fire and emergency services if the EEC is built. (Ex. 419; 7/21/08 RT 51-52.) Both Applicant and Staff asserted that EEC should only be required to mitigate its portion of cumulative impacts, which was estimated at one-half of the total cost. (Ex. 211; 7/21/08 RT 54.) The City agreed. (7/21/08 RT 54.) Condition **WORKER-SAFETY-7** is based on the City's estimate and requires the project owner to pay no more than $75,000 to the HFD to upgrade the Opticom system.

FINDINGS AND CONCLUSIONS

Based on the uncontroverted evidentiary record, the Commission makes the following findings and conclusions:

1. Industrial workers are exposed to potential health and safety hazards on a daily basis.

2. To protect workers from job-related injuries and illnesses, the project owner will implement comprehensive Safety and Health Programs for both the construction and operation phases of the project; each of the programs will include an Injury/Illness Prevention Program, a Personal Protective Equipment Program, an Exposure Monitoring Program, an

Emergency Action Plan, a Fire Protection and Prevention Plan, and other general safety procedures.

3. The EEC will include on-site fire protection and suppression systems for first line defense in the event of fire.

4. The Hayward Fire Department (HFD) will provide fire protection and emergency response services to the project.

5. Fire Station No. 6, located at 1401 West Winton Avenue, is the nearest station to the EEC and could respond to the site in approximately 3 to 4 minutes. Fire Stations No. 1, 2, and 4 will provide back-up response to the EEC site with an average response time of about 6 to 13 minutes.

6. HFD Fire Station No. 6 is the assigned hazmat first responder. Back-up hazmat support will be provided by Fire Stations No. 1, 2, and 4.

7. Existing fire and emergency service resources are adequate to meet project needs.

8. The project owner will maintain an automatic defibrillator on-site to provide immediate response in the event of a medical emergency.

9. The EEC's incremental effect on fire and emergency response will be mitigated by providing the project's contribution to the overall costs of funding an upgrade to the HFD's Opticom system as set forth in Condition **WORKER SAFETY-7**

10. Implementation of the Conditions of Certification, below, and the mitigation measures described in the evidentiary record will ensure that the project conforms with all applicable laws, ordinances, regulations, and standards on industrial worker health and safety as discussed in the evidentiary record and identified in the pertinent portions of **Appendix A** of this Decision.

The Commission, therefore, concludes that implementation of the project's Construction and Operation Safety and Health Programs and Fire Protection measures will reduce potential adverse impacts on the health and safety of industrial workers to levels of insignificance.

CONDITIONS OF CERTIFICATION

WORKER SAFETY-1 The project owner shall submit to the Compliance Project Manager (CPM) a copy of the Project Construction Safety and Health Program containing the following:

- A Construction Personal Protective Equipment Program;
- A Construction Exposure Monitoring Program;
- A Construction Injury and Illness Prevention Program;
- 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 Hayward Fire Department for review and comment prior to submittal to the CPM for approval.

Verification: At least 30 days prior to the start of construction, the project owner shall submit to the CPM for review and approval a copy of the Project Construction Safety and Health Program. The project owner shall provide a copy of a letter to the CPM from the Hayward 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 Hayward Fire Department for review and comment.

Verification: At least 30 days prior to the start of first-fire or commissioning, the project owner shall submit to the CPM for approval a copy of the Project Operations and Maintenance Safety and Health Program. The project owner shall provide a copy of a letter to the CPM from the Hayward 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 regarding power plant construction activities and relevant laws, ordinances, regulations, and standards, is capable of identifying workplace hazards relating to the construction activities, and has authority to take appropriate action to assure compliance and mitigate hazards. The CSS shall:

- Have overall authority for coordination and implementation of all occupational safety and health practices, policies, and programs;
- Assure that the safety program for the project complies with Cal/OSHA & federal regulations related to power plant projects;
- Assure that all construction and commissioning workers and supervisors receive adequate safety training;
- Complete accident and safety-related incident investigations, emergency response reports for injuries, and inform the CPM of safety-related incidents; and
- Assure that all the plans identified in **Worker Safety-1** and**-2** are implemented.

Verification: At least 30 days prior to the start of site mobilization, the project owner shall submit to the CPM the name and contact information for the Construction Safety Supervisor (CSS). The contact information for any replacement (CSS) shall be submitted to the CPM within one business day.

The CSS shall submit in the Monthly Compliance Report a monthly safety inspection report to include:

- Record of all employees trained for that month (all records shall be kept on site for the duration of the project);
- Summary report of safety management actions and safety-related incidents that occurred during the month;
- Report of any continuing or unresolved situations and incidents that may pose danger to life or health; and
- Report of accidents and injuries that occurred during the month.

WORKER SAFETY-4 The project owner shall make payments to the Chief Building Official (CBO) for the services of a Safety Monitor based upon a

reasonable fee schedule to be negotiated between the project owner and the CBO. Those services shall be in addition to other work performed by the CBO. The Safety Monitor shall be selected by and report directly to the CBO, and will be responsible for verifying that the Construction Safety Supervisor, as required in **Worker Safety-3**, implements all appropriate Cal/OSHA and Commission safety requirements. The Safety Monitor shall conduct on-site (including linear facilities) safety inspections at intervals necessary to fulfill those responsibilities.

Verification: Prior to the start of construction, the project owner shall provide proof of its agreement to fund the Safety Monitor services to the CPM for review and approval.

WORKER SAFETY-5 The project owner shall ensure that a portable automatic cardiac defibrillator is located on-site during construction and operation, shall implement a program to ensure that workers are properly trained in its use, and shall ensure that the equipment is properly maintained and functioning at all times. During construction and commissioning, a representative number of workers consistent with American Heart Association guidelines shall be trained in its use. During operations, all power plant employees shall be trained in its use. The training program shall be submitted to the CPM for review and approval.

Verification: At least 30 days prior to the start of site mobilization the project owner shall submit to the CPM proof that a portable automatic cardiac defibrillator exists on-site as well as a copy of the training and maintenance program for review and approval.

WORKER SAFETY-6 The project owner shall immediately notify the Hayward Fire Department and the CPM of any incident involving fire, hazardous materials, or an Emergency Medical Service response, however small or short-lived, that occurs within the power plant site as soon as power plant personnel become aware of the incident.

Verification: At least 30 days prior to the start of site mobilization, the project owner shall submit to the CPM a copy of the Policy and Procedures that direct all power plant personnel to immediately notify the Hayward Fire Department and the CPM when an incident occurs within the project site.

WORKER SAFETY-7 The project owner shall provide half of the cost up to $75,000 to the Hayward Fire Department (HFD) for mitigation of project specific and cumulative impacts associated with providing fire, EMS, and hazardous materials release response for the Eastshore Energy Center. The total payment shall not exceed half the cost of the requisite improvement to the “Opticom” system used by the HFD for emergency response.

Verification: At least 30 days prior to commencement of commissioning, the project owner shall provide the CPM with evidence of payment of the mitigation fee to the Hayward Fire Department.

D. HAZARDOUS MATERIALS MANAGEMENT

This analysis considers whether the construction and operation of the EEC will create significant impacts to public health and safety resulting from the use, handling, or storage of hazardous materials at the facility. Related issues are addressed in the **Waste Management, Public Health, Worker Safety, Facility Design,** and **Traffic and Transportation** portions of this Decision.

SUMMARY AND DISCUSSION OF THE EVIDENCE

Several locational factors affect the potential for project-related hazardous materials to cause adverse impacts, including local meteorological conditions, terrain characteristics, special site factors, and the proximity of population centers and sensitive receptors. The evidentiary record incorporates these factors in the analysis of potential impacts. (Ex. 1, § 8.12.3; Ex. 200, p. 4.4-5 et seq.)

1. Potential Impacts

The nearest sensitive receptors are Life Chiropractic College, about 0.2 mile from the site and Eden West Convalescent Hospital about 0.5 mile from the site. In addition, Ochoa Intermediate School, Courtyard Care Center, and Eden Gardens Elementary School are located approximately 0.5 to 0.7 mile from the site. Two hospitals, Kaiser Foundation Hospital and St. Rose Hospital, are located 1.6 miles from the site.[76] (Ex. 1, § 8.12.3, Appendix 8.1, Table 8.1D-4.)

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[76] Sensitive receptors within a 6-mile radius of site are provided in the Applicant's August 2006 "Offsite Receptor Report," prepared by Environmental Data Resources. (Ex. 1, Appendix 8.1D, Health Risk Assessment.) Intervenor Chabot College is listed in the survey at page 10.

Hazardous Materials Appendix B (incorporated in Condition of Certification **HAZ-1** at the end of this section) lists the hazardous materials that will be used and stored on-site. (Ex. 1, § 8.12, Tables 8.12-2, 8.12-3; Ex. 6, p. 31, Table HM-1; Ex. 200, p. 4.4-6.) None of these materials, however, will be used or stored in excess of regulated threshold quantities under the California Accidental Release Prevention (CalARP) Program[77] except for aqueous ammonia.[78] The other substance of concern is natural gas, which will be used in large quantities, but not stored on-site. (Ex. 200, pp. 4.4-2 and 4.4-7.) Condition **HAZ-1** prohibits the project owner from using any hazardous materials not listed in Appendix B or in greater quantities than those identified in Appendix B without prior approval of the Energy Commission's Compliance Project Manager.

During project construction, the only hazardous materials proposed for use are paint, paint thinner, cleaners, solvents, sealants, gasoline, diesel fuel, motor oil, hydraulic fluid, lubricants, and welding flux. Any impact due to spills or other releases of these materials will be limited to the site because of the small quantities involved, their infrequent use, and/or the temporary containment berms used by contractors. Petroleum hydrocarbon-based motor fuels, mineral oil, lube

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[77] The CalARP Program includes both federal and state programs established to prevent accidental release of regulated toxic and flammable substances. (CA Health & Safety Code, § 5531 et seq.; Cal. Code Regs., tit. 19, § 2720 et seq.) Regulated substances are those stored or used in amounts exceeding threshold planning quantities (TPQs) that would require the filing of a Risk Management Plan under the CalARP program. (Ex. 1, § 8.12.4.)

[78] Aqueous ammonia (19 percent ammonia in aqueous solution) is the only *acutely* hazardous material proposed to be used or stored at the project site in quantities exceeding the reportable amounts defined in the California Health and Safety Code, section 25532 (j). (Ex. 1, § 8.12, Table 8.12-4). The use of aqueous ammonia significantly reduces the risk associated with anhydrous ammonia, which is stored as a liquefied gas at high pressure, and could explode in an accidental release resulting in large quantities of down-wind concentrations. Aqueous ammonia spills are easier to physically contain and emissions are limited by the slow mass transfer of the spilled material. (Ex. 200, p. 4.4-1.)

oil, and diesel fuel have low volatility and do not pose off-site hazards. (Ex. 200, p. 4.4-6.)

During operations, the project will use and/or store hazardous chemicals such as biocides, cleaning agents, lube oil, sulfuric acid in batteries, and other chemicals in small amounts, which do not pose off-site hazards because of their small quantities, low volatility, and/or low toxicity. (Ex. 200, p. 4.4-7.)

a. Aqueous Ammonia

Aqueous ammonia is used in the Selective Catalytic Reduction (SCR) process to control NOx emissions from 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. The EEC will store aqueous ammonia in two above-ground storage tanks each with an approximate 10,000 gallon capacity. The tanks will be surrounded by secondary containment structures capable of holding the full contents of the tanks plus rainwater accumulated for a 24-hour period from a 25-year storm event. Truck deliveries will be unloaded on a bermed unloading apron adjacent to the storage tank. The floor of the unloading apron will be sloped to a drain that empties into the secondary containment area.[79] (Ex.1, § 8.12.4.2.)

Applicant performed an Off-Site Consequences Analysis (OCA) to evaluate potential public health impacts for two potential "worst case scenarios" that assumed one of the ammonia storage tanks was punctured and the entire

[79] In response to public comment concerning the stability of ammonia pipelines from the storage tanks to the 14 engines, Applicant clarified that ammonia sensors will be installed in the storage tank area and along the supply lines to ensure prompt leak detection and all piping will be secured to the building. (Ex. 12, p. 33; Ex. 200, p. 4.4-17.)

contents spilled into the catch basin or bermed area beneath the tank. (Ex. 1, § 8.2.5, Appendix 8.12A.)

Staff considers the threshold significance level to be a one-time exposure to 75 parts per million (ppm) of ammonia gas.[80] (Ex. 200, p. 4.4-8 et seq.) According to Applicant, the OCA indicated that concentrations above the significance value of 75 ppm would not extend beyond the project site. (Ex. 6, Appendix 3.5B, p. 4.)

Staff's independent modeling results were inconsistent with the Applicant's OCA conclusions. Staff found that an aqueous ammonia spill in an uncovered secondary containment structure would result in significant impacts to the off-site public due to ammonia vapor migration at concentrations of 75 ppm up to 1,181 feet (a little over two blocks) from the site. (Ex. 200, p. 4.4-9.)

Under Staff's scenario, standard engineering mitigation measures are necessary to reduce the potential risk of exposure to insignificant levels. Staff asserted that the most probable accidental release would occur during transfer from the delivery truck to the storage tank. Staff therefore recommended the use of a subsurface vault to contain the spilled aqueous ammonia, or the placement of a cover on top of the secondary containment structure, to limit the surface area of the aqueous ammonia pool and reduce the rate of vapor loss from the pool. Staff modeled the potential vapor migration from a structure where the spilled pool of aqueous ammonia would be open to the atmosphere through a drain opening (or spaces between the cover and the containment walls) and found the off-site airborne concentration would be below the significance level. (Ex. 200, pp. 4.4-10, 4.4-43 [Appendix C].)

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[80] Staff's Hazardous Materials Appendix A (replicated at the end of this section) discusses the criteria for ammonia exposure guidelines and their applicability to sensitive populations and exposure-specific conditions. (Ex. 200, p. 4.4-8.)

We have adopted several Conditions of Certification to ensure that the project owner implements the necessary engineering and administrative controls to reduce potential risks of exposure to insignificant levels. (Ex. 200, p. 4.10 et seq.) Condition **HAZ-2** requires that a Risk Management Plan (RMP) be approved prior to first delivery of aqueous ammonia.[81] Condition **HAZ-3** requires development of a Safety Management Plan for delivery of aqueous ammonia to the site. Condition **HAZ-4** requires that the aqueous ammonia storage tank be designed to certain specifications in compliance with applicable law, that the secondary containment structure be subsurface or covered, and that ammonia sensors be placed around the tank and transfer pad. Concern about storage tank failure in the event of seismic activity is addressed in the **Facility Design** section of this Decision, which requires all project components including hazmat storage tanks, to comply with current CBC standards for seismic design. (Ex. 200, p. 4.4-14.)

Regarding the issue of spill response raised by members of the public, the EEC's Emergency Response Plan, required by Condition **HAZ-2,** shall include the protocol on hazardous materials contingency and emergency response procedures, spill containment and prevention systems, personnel training, spill notification, on-site spill containment, prevention equipment and capabilities, as well as procedures for evacuation, spill cleanup, hazard prevention, and emergency response.[82] See the **Worker Safety and Fire Protection** section of this Decision.

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[81] The project owner will submit an RMP as required by CalARP that incorporates the required engineering controls for handling aqueous ammonia as well as a Hazardous Materials Business Plan required by state law that includes worker training, use of protective equipment, and safe operation procedures for approval by the Hayward Fire Department. (Ex. 1, § 8.12.8.4.)

[82] The Hayward Hazardous Materials Team, stationed at Hayward Fire Department (HFD) Station No. 6, is located approximately one mile from the project site and designated as the first

According to Staff, the transportation of aqueous ammonia poses the predominant risk associated with the transport of hazardous materials. (Ex. 200, p. 4.4-12.) The evidentiary record indicates that compliance with state and federal regulatory programs related to shipment of hazardous materials on California highways will ensure safe handling in general transportation.[83] Aqueous ammonia must be transported in U.S. Department of Transportation (DOT) certified vehicles that meet or exceed the specifications of DOT Code MC-307. These high integrity tankers are designed to haul caustic materials such as ammonia with a capacity of 6,500 gallons. (*Id.* at 4.4-13.) Condition **HAZ-5** requires that all vendors delivering aqueous ammonia to EEC must use tankers that meet or exceed DOT Code MC-307 specifications.

The EEC's maximum annual use of aqueous ammonia will require about 36 tanker truck deliveries of 6,000 gallons per year (3 deliveries a month). Each delivery will travel about 0.5 mile from SR-92 along Clawiter Road to the facility. (Ex. 200, p. 4.4-13.) In response to public concerns about traffic accidents, Staff developed a transportation risk assessment model to calculate the risk of a delivery truck spilling ammonia on the route from the freeway to the facility[84]. The results show the risk of an accident is insignificant. The transportation of similar volumes of hazardous materials on the nation's highways is neither

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responder to hazardous materials incidents. The HFD response time to a hazardous materials emergency at the EEC site is approximately three to four minutes. (Ex. 1 § 8.8.3.6.3.)

[83] *See* the Federal Hazardous Materials Transportation Act at 49 USC § 5101 et seq, the U.S. Department of Transportation Regulations at 49 CFR Subpart H, § 172-700, and California DMV Regulations on Hazardous Cargo. (Ex. 1 § 8.12.8.3; Ex. 200, p. 4.12 et seq.)

[84] The frequency of release of hazardous materials in the U.S. is between 0.06 and 0.19 releases per 1 million miles traveled on well-designed roads and highways. Data from the U.S. DOT show that the actual risk of a fatality over the past five years from all modes of hazardous material transportation (rail, air, boat, and truck) is approximately 0.1 in 1 million. Staff calculated about 18 miles of delivery tanker truck travel in the project area per year. The results of Staff's analysis show a risk of 0.2 in 1 million for one trip and 3.6 in 1 million for 36 deliveries. (Ex. 200, p. 4.4-13.)

unique nor infrequent. (*Id*. at 4.4-14.) Condition **HAZ-6** requires the use of one specific route to the site (north on Clawiter Road from SR-92) and the use of a flagman at the entrance to the site to further ensure that the accident risk is insignificant.

b. Natural Gas

The project requires large amounts of natural gas, which creates a risk of both fire and explosion. However, the probability of such an event can be reduced to insignificant levels through adherence to applicable codes and implementation of effective safety management practices. To prevent gas explosions, the National Fire Protection Association (NFPA) Code 85A requires (1) the use of double block and bleed valves for gas shut-off; (2) automated combustion controls; and (3) burner management systems. The Hazardous Materials Business Plan required by Condition **HAZ-2** shall address the handling of natural gas and establish protocol to reduce the potential for equipment failure due to improper maintenance or human error. (Ex. 200, p. 4.4-7.)

Natural gas will be continuously delivered via an underground lateral owned by PG&E and connected to PG&E Line 153. (Ex. 200, p. 4.4-7.) Condition **MECH-1** in the **Facility Design** section of this Decision ensures the pipeline will comply with American National Standards Institute (ANSI) Code B31.2 on gas pipeline construction. These requirements also address seismic design to prevent pipeline failure during earthquakes. We conclude that implementation of these regulatory requirements will reduce the risk of natural gas release to levels of insignificance.

2. Site Security

The hazardous materials used by the EEC are listed by several federal agencies (USEPA, Homeland Security, DOE) in Vulnerability Assessments requiring special site security measures to prevent unauthorized access. (Ex. 200, p. 4.4-

15.) Staff recommended several security measures, including perimeter fencing, guards, alarms, law enforcement contact in the event of security breach, and fire detection systems. Conditions **HAZ-7** and **HAZ-8** require the implementation of construction and operation Site Security Plans to ensure these measures are implemented.

3. Cumulative Impacts

Cumulative impacts are theoretically possible but not probable due to the engineering and administrative safeguards that are designed to prevent and control an accidental release. Since the likelihood of one uncontrolled ammonia gas release is remote, the potential of two or more releases occurring simultaneously, with resulting airborne plumes mingling to create a significant impact, is even more remote and considered insignificant. (Ex. 200, p. 4.4-16.)

Facilities that use hazardous materials within one mile of the EEC include Berkeley Farms, which uses anhydrous ammonia, and Russell City Energy Center (RCEC), which will use aqueous ammonia. In the highly unlikely event of a simultaneous tank failure at both EEC and Berkeley Farms or RCEC (considering the factors that impact vapor migration such as temperature, wind direction, wind speed, atmospheric stability, and amount released), the vapor plumes would not combine to produce an airborne concentration that would present a significant risk. (Ex. 200, pp. 4.4-16, 4.4-41 [Appendix C].)

4. Closure

The requirements for handling hazardous materials remain in effect until such materials are removed from the site regardless of closure. In the event that the project owner abandons the facility in a manner that poses a risk to surrounding populations, emergency action will be coordinated by federal, state, and local agencies to ensure that any unacceptable risk to the public is eliminated. See

Conditions **COM-11** and **COM-12** in the **General Conditions** section of this Decision.

FINDINGS AND CONCLUSIONS

Based on the uncontroverted evidence of record, the Commission makes the following findings and conclusions:

1. The EEC will use hazardous materials during construction and operation, including the *acutely hazardous* aqueous ammonia and natural gas.

2. The major public health and safety hazards associated with these hazardous materials include the accidental release of aqueous ammonia and fire and explosion from natural gas.

3. Staff's independent analysis indicated that appropriate design measures to contain spilled ammonia are necessary to ensure that no significant off-site public health consequences will result from an accidental ammonia release.

4. Compliance with appropriate engineering and regulatory requirements for safe transportation, delivery, and storage of ammonia will reduce potential risks of accidental release to insignificant levels.

5. The risk of fire and explosion from natural gas will be reduced to insignificant levels through adherence to applicable codes and the implementation of effective safety management practices.

6. Potential impacts from the other hazardous substances used on-site are not considered significant since quantities will be limited and appropriate storage will be maintained in accordance with applicable law.

7. The project owner will submit an approved Safety Management Plan for handling aqueous ammonia, an approved Hazardous Materials Business Plan, and an approved Risk Management Plan prior to delivery of any hazardous materials to the site.

8. The project owner will ensure that truck deliveries of aqueous ammonia are restricted to the hazmat truck delivery route identified in the evidentiary record.

9. The likelihood of cumulative impacts from simultaneous releases of hazardous materials from the EEC and nearby facilities is statistically remote and considered insignificant.

10. Implementation of the mitigation measures described in the evidentiary record and contained in the Conditions of Certification, below, ensures that the project will not cause significant impacts to public health and safety as the result of handling hazardous materials.

11. With implementation of the Conditions of Certification, below, the EEC will comply with all applicable laws, ordinances, regulations, and standards related to hazardous materials management as identified in the evidentiary record and in the pertinent portion of **Appendix A** of this Decision.

The Commission concludes, therefore, that the use of hazardous materials by the EEC will not result in any significant adverse public health and safety impacts.

CONDITIONS OF CERTIFICATION

HAZ-1 The project owner shall not use any hazardous materials not listed in Appendix B, following, or in greater quantities or strengths than those identified by chemical name in Appendix B, 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 contained at the facility.

HAZ-2 The project owner shall concurrently provide a Business Plan and a Risk Management Plan (RMP) prepared pursuant to the California Accidental Release Program (CalARP) to the Hazardous Materials Division of the Hayward Fire Department and the CPM for review. After receiving comments from the Hazardous Materials Division of the Hayward Fire Department 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 Hazardous Materials Division of the Hayward Fire Department for information and to the CPM for approval.

Verification: At least 30 days prior to receiving any hazardous material on the site for commissioning or operations, the project owner shall provide a copy of a final Business Plan to the CPM for approval. At least 30 days prior to delivery of aqueous ammonia to the site, the project owner shall provide the final RMP to the CUPA for information and to the CPM for approval.

HAZ-3 The project owner shall develop and implement a Safety Management Plan for delivery of aqueous ammonia and other liquid hazardous materials. The plan shall include procedures, protective equipment requirements, training, and a checklist. It shall also include a section describing all measures to be implemented to prevent mixing of incompatible hazardous materials including provisions to maintain lockout control by a power plant employee not involved in the delivery or transfer operation. This plan shall be applicable during construction, commissioning, and operation of the power plant.

Verification: At least 30 days prior to the delivery of any liquid hazardous material 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 tank shall be designed to either the ASME Pressure Vessel Code and ANSI K61.6 or to API 620. In either case, the storage tank and the tanker truck transfer pad shall include a subsurface or covered 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 tank and transfer pad shall also be equipped with ammonia sensors. The final design drawings and specifications for the ammonia storage tank, secondary containment structure, and the number, location, and specifications of the ammonia sensors shall be submitted to the CPM.

Verification: At least 30 days prior to delivery of aqueous ammonia to the facility, the project owner shall submit final design drawings and specifications for the ammonia storage tank, the secondary containment structure, and the number, location, and specifications of ammonia sensors to the CPM for review and approval.

HAZ-5 The project owner shall direct all vendors delivering aqueous ammonia to the site to use only tanker truck transport vehicles which meet or exceed the specifications of DOT Code MC-307.

Verification: At least 30 days prior to receipt of aqueous ammonia on site, the project owner shall submit copies of the notification letter to supply vendors indicating the transport vehicle specifications to the CPM for review and approval.

HAZ-6 The project owner shall direct all vendors delivering any hazardous material to the site to use only the route approved by the CPM. Trucks will travel on SR-92 and exit at the Clawiter Road interchange and then travel north along Clawiter Road to the plant site. When aqueous ammonia is transported to the power plant, the project owner shall provide a flagman on Clawiter Road to stop traffic and assist the tanker truck in making the left turn into the power plant site. The project owner shall obtain approval of the CPM if an alternate route is desired.

Verification: At least 30 days prior to receipt of any hazardous materials on site, the project owner shall submit copies of the required transportation route limitation direction to the CPM for review and approval.

HAZ-7 Prior to commencing construction, a site-specific Construction Site Security Plan for the construction phase shall be prepared and made available to the CPM for review and approval. The Construction Security Plan shall include the following:

1. Perimeter security consisting of fencing enclosing the construction area;
2. Security guards;
3. Site access control consisting of a check-in procedure or tag system for construction personnel and visitors;
4. Written standard procedures for employees, contractors and vendors when encountering suspicious objects or packages on-site or off-site;
5. Protocol for contacting law enforcement and the CPM in the event of suspicious activity or emergency; and
6. Evacuation procedures.

Verification: At least 30 days prior to commencing construction, the project owner shall notify the CPM that a site-specific Construction Security Plan is available for review and approval.

HAZ-8 The project owner shall also prepare a site-specific security plan for the commissioning and operational phases that will be available to the CPM for review and approval. The project owner shall implement site security measures that address physical site security and hazardous materials storage. The level of security to be implemented shall not be less than that described 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 operated or motorized;
3. evacuation procedures;
4. protocol for contacting law enforcement and the CPM in the event of suspicious activity or emergency;
5. written standard procedures for employees, contractors, and vendors when encountering suspicious objects or packages on-site or off-site;

6. (a) a statement (refer to sample, **Attachment A**), signed by the project owner certifying that background investigations have been conducted on all project personnel. Background investigations shall be restricted to determine the accuracy of employee identity and employment history, and shall be conducted in accordance with state and federal laws regarding security and privacy;

   (b) a statement(s) (refer to sample, **Attachment B**), signed by the contractor or authorized representative(s) for any permanent contractors or other technical contractors (as determined by the CPM after consultation with the project owner), that are present at any time on the site to repair, maintain, investigate, or conduct any other technical duties involving critical components (as determined by the CPM after consultation with the project owner) certifying that background investigations have been conducted on contractors who visit the project site;

7. site access controls for employees, contractors, vendors, and visitors;

8. a statement(s) (refer to sample, **Attachment C**), signed by the owners or authorized representative of hazardous materials transport vendors, certifying that they have prepared and implemented security plans in compliance with 49 CFR 172.880, and that they have conducted employee background investigations in accordance with 49 CFR Part 1572, subparts A and B;

9. closed circuit TV (CCTV) monitoring system, recordable, and viewable in the power plant control room and security station (if separate from the control room) capable of viewing, at a minimum, the main entrance gate and the ammonia storage tank; and

10. additional measures to ensure adequate perimeter security consisting of either:

    a. a security guard present 24 hours per day, 7 days per week;

    <u>or</u>

    b. power plant personnel on-site 24 hours per day, 7 days per week, and **all** of the following:

        1. the CCTV monitoring system required in number 9., above, shall include cameras able to pan, tilt, and zoom, 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 those 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, and compressors, depending upon 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 both appropriate law enforcement agencies and the project owner.

Verification: At least 30 days prior to the initial receipt of hazardous materials on site, the project owner shall notify the CPM that a site-specific operations site security plan is available for review and approval. In the annual compliance report, the project owner shall include a statement that all current project employee and appropriate contractor background investigations have been performed, and that updated certification statements have been appended to the operations security plan. In the annual compliance report, the project owner shall include a statement that the operations security plan includes all current hazardous materials transport vendor certifications for security plans, and employee background investigations.

SAMPLE CERTIFICATION (Attachment A)

Affidavit of Compliance for Project Owners

I, _____
(Name of person signing affidavit)(Title)

do hereby certify that background investigations to ascertain the accuracy of the identity and employment history of all employees of

_____
_____
_____
(Company Name)

for employment at:
_____
_____
_____
(Project name and location)

have been conducted as required by the California Energy Commission Decision for the above- named project.

_____
(Signature of Officer or Agent)

Dated this _____ day of _____, 20 _____.

THIS AFFIDAVIT OF COMPLIANCE SHALL BE APPENDED TO THE PROJECT SECURITY PLAN AND SHALL BE RETAINED AT ALL TIMES AT THE PROJECT SITE FOR REVIEW BY THE CALIFORNIA ENERGY COMMISSION COMPLIANCE PROJECT MANAGER.

SAMPLE CERTIFICATION (Attachment B)

Affidavit of Compliance for Contractors

I, _____
(Name of person signing affidavit)(Title)

do hereby certify that background investigations to ascertain the accuracy of the identity and employment history of all employees of

_____
_____
_____
(Company Name)

for contract work at:

_____
_____
_____
(Project name and location)

have been conducted as required by the California Energy Commission Decision for the above- named project.

_____
(Signature of Officer or Agent)

Dated this _____ day of _____, 20 _____.

THIS AFFIDAVIT OF COMPLIANCE SHALL BE APPENDED TO THE PROJECT SECURITY PLAN AND SHALL BE RETAINED AT ALL TIMES AT THE PROJECT SITE FOR REVIEW BY THE CALIFORNIA ENERGY COMMISSION COMPLIANCE PROJECT MANAGER.

SAMPLE CERTIFICATION (Attachment C)

Affidavit of Compliance for Hazardous Materials Transport Vendors

I, _____
(Name of person signing affidavit)(Title)

do hereby certify that the below named company has prepared and implemented security plans in conformity with 49 CFR 172.880 and has conducted employee background investigations in conformity with 49 CFR 172, subparts A and B,

_____
_____
_____
(Company Name)

for hazardous materials delivery to:

_____
_____
_____
(Project name and location)

as required by the California Energy Commission Decision for the above- named project.

_____
(Signature of Officer or Agent)

Dated this _____ day of _____, 20 _____.

THIS AFFIDAVIT OF COMPLIANCE SHALL BE APPENDED TO THE PROJECT SECURITY PLAN AND SHALL BE RETAINED AT ALL TIMES AT THE PROJECT SITE FOR REVIEW BY THE CALIFORNIA ENERGY COMMISSION COMPLIANCE PROJECT MANAGER.

APPENDIX A

BASIS FOR STAFF'S USE OF 75 PPM AMMONIA EXPOSURE CRITERIA

Staff uses a health-based airborne concentration of 75 PPM to evaluate the significance of impacts associated with potential accidental releases of ammonia. While this level is not consistent with the 200-ppm level used by EPA and Cal/EPA in evaluating such releases pursuant the Federal Risk Management Program and State Accidental Release Program, it is appropriate for use in Staff's CEQA analysis. 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 changes 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. Table 2 provides a summary of adverse effects, which might be expected to occur at various airborne concentrations of ammonia.

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)	200 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 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 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
WHO, World Health Organization

APPENDIX A TABLE 2

SUMMARY OF ADVERSE HEALTH EFFECTS OF AMMONIA

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
- 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.

Hazardous Materials

Appendix B

Hazardous Materials Proposed for Use at the EEC

June 2007

Hazardous Materials Appendix B
Hazardous Materials Proposed for Use at the EECa

Material	CAS No.	Application	Hazardous Characteristics	Maximum Quantity On Site	CERCLA SARA RQ[b]
Aqueous Ammonia 19 % solution	1336-21-6	NO_X Emissions Control	Health: irritation to permanent damage from inhalation, ingestion, and skin contact Physical: reactive, vapor is combustible	20,000 gallons	100 lb
Biocides: Diethylene glycol, monomethy ether (80-85%)	111-77-3	Biocide for diesel fuel	Health: irritation to skin, eyes, respiratory tract;	Up to 1 gallon	n/a
2-Thiocyano Methylthio Benzothiazol (1 to 5%)	21564.17-0	Biocide for diesel fuel	Health: irritation to skin, eyes, respiratory tract	Up to 1 gallon	n/a
Methylene bis-thiocyanate (1-5%)	6317-18-6	Biocide for diesel fuel	Health: irritation to skin, eyes, respiratory tract	Up to 1 gallon	n/a
Cleaning chemicals/ Detergents	None	Periodic cleaning	Health: various Physical: various	Up to 50 gallons	n/a
Corrosion Inhibitor (Potassium 2-ethylhexanoate 10-30%)	3164-85-0	Cooling tower cooling water corrosion inhibitor	Health: irritant to eyes, skin, and respiratory tract Physical: reactive	50 gallons	n/a
1H-Benzotriazole, methyl-	29385-43-1	Cooling tower cooling water corrosion inhibitor	Health: irritant to eyes, skin, and respiratory tract Physical: reactive	50 gallons	n/a

Diesel No. 2	None	Black-start generator fuel	Eye and skin irritation	100 gallons	n/a
Hydraulic oil	n/a		Health: hazardous if ingested Physical: may be flammable/combustible	50 gallons	42 gallons
Lubrication Oil With:0.03 % zinc 0.33% Phosphoro-Dithoic acid, O,O-Di C1-14-AlkylEasters, Zinc Salts 1-5% Poly Butenyl Succinimide	7440-66-6 68649-42-3 n/a	Lubricate rotating equipment	Health: hazardous if ingested Physical: may be flammable/combustible	18,000 gallons	42 gallons
Mineral Transformer Insulating Oil	8012-95-1	Transformers/switch yard	Health: hazardous if ingested Physical: may be flammable/combustible	20,000 gallons	42 gallons
Sulfuric Acid (93%)	7664-93-9	In batteries only	Health: strong irritant to all tissues, may cause minor burns to permanent damage Physical: reactive	In batteries only	1,000 lb

a. Source: EEC 2006a Tables 8.12-2, 8.12-3, and CH2MHill 2007a Table HM-1

b. Reportable quantities for a pure chemical, per the Comprehensive Environmental Response, Compensation, and Liability Act.

E. WASTE MANAGEMENT

The EEC will generate hazardous and nonhazardous wastes during construction and operation. This section reviews the Applicant's waste management plans for reducing the risks and environmental impacts associated with the handling, storage, and disposal of project-related nonhazardous and hazardous wastes.

Nonhazardous wastes are degradable or inert materials, which do not contain soluble pollutants in concentrations that would cause degradation of water quality, and may be deposited at Class II or III disposal facilities. (Cal. Code Regs., tit. 14, § 17200 et seq.)

Hazardous waste is material that exceeds the criteria for toxicity, corrosivity, ignitability, or reactivity as established by the Department of Toxic Substances Control (DTSC).[85] Hazardous waste generators must obtain EPA identification numbers and use permitted treatment, storage, and disposal facilities. Registered hazardous waste transporters must handle the transfer of hazardous waste to appropriate Class I disposal facilities. (Cal. Code Regs., tit. 22, § 66262.10 et seq.)

SUMMARY AND DISCUSSION OF THE EVIDENCE

1. Site Excavation

The 6.22-acre site features one 100,000 square-foot industrial building, a paved parking area, and a wastewater treatment area. The building occupies most of the central and northwestern portion of the site. From the early 1960's to 1998, Sonoco operated the site as an epoxy-coated tube manufacturing facility. In 1998, Cowden Metal Finishing began metal operations and Trend Technologies

[85] California Health and Safety Code § 25100 et seq. (Hazardous Waste Control Act of 1972, as amended) and Title 22, California Code of Regulations.

continued metal stamping operations until facility closure in 2005. (Ex. 1, § 8.13.3.)

Due to the age of the existing building and the type of operations performed, there is potential for asbestos deposits, lead-based paint materials, and soil contamination in and around the building. The Applicant's Phase I Environmental Site Assessment (ESA) confirmed the potential for soil contamination from equipment pits and wastewater treatment activities, however, asbestos-containing materials (ACM) were not observed.[86] Since previous site inspections in 1997 and 2000 indicated the presence of ACM, the Phase I ESA recommended that potential asbestos and lead-based materials be further surveyed, and that soil samples be taken in areas where contamination could have occurred. (Ex. 1, § 8.13.3.1.1, Appendix 8.13A.)

The Applicant subsequently conducted a Limited Subsurface Investigation in April 2006 to address the issues identified in the Phase I ESA. Subsurface investigations detected low levels of petroleum hydrocarbons, volatile organic compounds (VOCs), and pesticides. Concentrations were generally below levels at which regulatory agencies require clean-up. Concentrations of metals were consistent with typical background levels and no polychlorinated biphenyls (PCBs) were detected in soil samples. The subsurface investigation report recommended, however, that additional sampling be performed during building demolition, and that surveys be conducted to determine if lead-based paint and/or ACM are present in and around the building. The report also recommended sampling of groundwater conditions to determine whether leaking

---

[86] For any proposed power plant site, the project proponent must provide documentation of soil or water contamination at the site. The certification process requires a Phase I ESA to provide the history of the use of the site and a list of hazardous waste releases within a certain distance of the site. If there is reasonable potential that the site contains hazardous waste, a Phase II ESA must be conducted to analyze the soil/groundwater and a remediation plan must be implemented. (Ex. 200, p. 4.13-4.) Applicant's Phase I ESA was completed in October 2005. (Ex. 1, Appendix 8.13A.)

underground storage tanks (LUSTs) at the adjacent gas station north of the site could be contaminating groundwater in the site vicinity. (Ex. 1, § 8.13.3.1.2, Appendix 8.13B; Ex. 8.)

Implementation of the mitigation measures described in the Conditions of Certification will ensure that any unknown contaminated materials at the site and along the linear alignments are managed appropriately. Condition **WASTE-1** requires the project owner to designate a Registered Professional Engineer or Geologist for consultation during soil excavation and grading activities to monitor any soil or groundwater contamination encountered during ground moving activities. Condition **WASTE-2** establishes the process for handling potentially contaminated materials unearthed at the site and along the linear alignments.

In conjunction with the certification process, the DTSC reviewed Applicant's Phase I ESA and Subsurface Investigation and concurred that additional soil and groundwater sampling should be conducted at the project site and that appropriate remediation measures should be adopted. (Ex. 200, p. 4.13-6.) The DTSC's recommendations are incorporated in Condition **WASTE-6** to ensure that any risk of exposure to contaminated soils or groundwater is reduced to insignificant levels.

2. Construction

Prior to demolition of the 100,000-square-foot building, the project owner must notify the Bay Area Air Quality Management District (BAAQMD) and determine if asbestos is present at the site. If asbestos is found, the project must comply with BAAQMD regulations, which require proper removal and disposal practices. (Ex. 200, p. 4.13-6.) Condition **WASTE-7** incorporates this requirement.

Site preparation and construction of the power plant and its associated facilities will generate both nonhazardous and hazardous wastes in solid and liquid forms

(Ex. 1, § 8.13.4.1.) Condition **WASTE-5** requires the project owner to develop and implement a Construction Waste Management Plan that must identify all waste streams and the methods of managing each waste.

a. Nonhazardous wastes

Construction activities will generate up to 10,000 cubic yards of nonhazardous solid waste products comprised of excess concrete, lumber, scrap metal, insulation, packaging materials, empty non-hazardous chemical containers, paper, glass, plastics, some amount of vegetation debris from grading activities, and excess bentonite drilling mud. Waste metal will be segregated and recycled where practical. Non-recyclable wastes will be collected and deposited at a Class II or III landfill. (Ex. 1, § 8.13.4.)

Nonhazardous liquid wastes generated during construction are discussed in the **Soils and Water Resources** section of this Decision. Stormwater runoff will be managed in accordance with a Drainage, Erosion, and Sediment Control Plan approved by the appropriate agencies prior to construction. Wastewater will be sampled to determine whether disposal via the City of Hayward sewer system is acceptable. Contaminated water will be accumulated and transported offsite to a wastewater treatment facility for disposal. (Ex. 1, § 8.13.4.1.1; Ex. 200, p. 4.13-6.)

b. Hazardous Wastes

Approximately 20,000 gallons of hazardous waste will be generated during construction, including waste oil, spent welding materials, spent batteries, waste paint, and spent solvents. The quantities of these wastes and disposal methods are listed in the Applicant's Table 8.13-2. (Ex. 1, § 8.13.4.1, Table 8.13-2.) Staff reviewed the disposal methods described Table 8.13-2 and concluded that all wastes will be disposed in accordance with applicable LORS. (Ex. 200, p. 4.13-7.) Condition **WASTE-4** requires the project owner to notify the Energy

Commission Compliance Project Manager if any construction waste management-related enforcement action is taken or initiated by a regulatory agency.

The construction contractor will be a generator of hazardous wastes during construction. Hazardous wastes will be accumulated at satellite locations and transported daily to the construction contractor's 90-day hazardous waste storage area. The accumulated wastes will be properly manifested, transported, and disposed of by licensed hazardous waste collection and disposal companies. (Ex. 1, § 8.13.4.1.2.)

3. Operation

Condition **WASTE-5** requires the project owner to develop and implement an Operation Waste Management Plan to identify all waste streams and the methods of managing each waste.

a. Nonhazardous Waste

Applicant expects about 150 tons per year of nonhazardous waste materials will be generated during project operation including trash, office wastes, empty containers, broken or used parts, used packaging, used filters, and other wastes from routine maintenance activities. Non-recyclable solid wastes will be stored in a two cubic yard dumpster that will be emptied once a week and transported by a permitted waste hauler to the Altamont Landfill or other appropriate disposal facilities in Alameda County. Metal parts will be recycled to the extent feasible. (Ex. 1, § 8.13.4.2; Ex. 9.)

Nonhazardous liquid wastes generated during project operation are discussed in the **Soil and Water Resources** section of this Decision. Stormwater runoff will be managed in accordance with the project's Drainage, Erosion, and Sediment

Control Plan. General facility drainage will be discharged to the facility's discharge effluent collection tank and discharged to the City of Hayward's sewer connection unless the wastewater contains chemicals or otherwise does not meet discharge criteria, in which case it would be trucked offsite for disposal at an approved wastewater disposal facility. (Ex. 1, § 8.13.4.2.2.)

b. Hazardous Waste

Since the project will generate hazardous wastes during operation, Condition **WASTE-3** requires the project owner to obtain a hazardous waste generator identification number. Hazardous wastes generated during routine project operation include waste oil, oily rags, oil absorbent, Selective Catalytic Reduction (SCR) catalysts, and used chemical cleaning solutions. Applicant's Table 8.13-4 provides a list of hazardous wastes, the amounts expected to be generated, and their disposal methods. (Ex. 1, § 8.13.4.2.3, Table 8.13-4.)

Hazardous wastes will be stored onsite in designated storage areas for not more than 90 days and collected by registered, licensed hazardous waste transporters for disposal at authorized hazardous waste management Class I facilities. (Ex. 1, § 8.13.6.2.2.)

4. Potential Impacts on Waste Disposal Facilities

Non-hazardous solid waste would be collected by the City of Hayward for disposal at the Altamont landfill disposal facility. The Vasco Road landfill could serve as an alternative disposal site. Both landfills have significant remaining capacity and their estimated closure dates are 2025 and 2015, respectively. The total amount of nonhazardous waste generated from project construction and operation will amount to less than one percent of available landfill capacity. Thus, disposal of the solid wastes generated by the EEC will not significantly

impact the capacity or remaining life of either of these facilities. (Ex. 1, § 8.13.4.2.1, Table 8.13-3; Ex. 200, 4.13-8.)

Hazardous wastes will be transported to one of California's three Class I landfills: Clean Harbor's Buttonwillow landfill in Kern County, and Westmoreland landfill in Imperial County; and Waste Management's Kettleman Hills landfill in Kings County. The Kettleman Hills facility also accepts Class II, and III waste. In total, there is a combined excess of 16 million cubic yards of remaining hazardous waste disposal capacity at these landfills, with at least 20 years remaining in their 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 2035-2045 at its current disposal rate. (Ex. 1, § Section 8.14.3.5.2.)

Most of the hazardous waste generated by the EEC will occur during the construction and start up phases due to use of flushing and cleaning liquids. The SCR catalysts will require regeneration or replacement every three to five years, resulting in a total of 153 cubic yards of hazardous waste that could require disposal in a Class I facility if recycling or regeneration is not feasible. The relatively minimal volume of hazardous waste requiring off-site disposal therefore will not significantly impact either the capacity or remaining life of the California Class I facilities. (Ex. 200, p. 4.13-9.)

Regarding potential cumulative impacts, there are three large projects proposed for construction in Alameda County: EEC, Russell City Energy Center (RCEC), and the Route 92/I-880 Interchange Reconstruction Project. As proposed, the quantities of solid waste and hazardous wastes generated during construction and operation of these three projects would add to the total quantities of waste generated in California. Both EEC and RCEC propose to use the same Class II and III landfills. Combined, the Altamont and Vasco Road landfills have 155,742,205 cubic yards of capacity remaining. During construction of the power

plant projects, the combined waste streams will be less than 12,000 cubic yards of nonhazardous waste. Recycling efforts would be prioritized wherever and capacity is available in a variety of treatment and disposal facilities. Due to the minor amounts of wastes generated during project construction and operation, the insignificant impacts on individual disposal facilities and the availability of additional regional landfills, cumulative impacts would be insignificant for both hazardous and nonhazardous waste disposal. (Ex. 200, p. 4.13-9.)

FINDINGS AND CONCLUSIONS

Based on the uncontroverted evidence of record, the Commission makes the following findings and conclusions:

1. Applicant's Phase I Environmental Site Assessment and Limited Subsurface Investigation identified potential soil and groundwater contamination at the site due to previous industrial activity and recommended additional surveys where contamination could have occurred.

2. The project owner will implement appropriate characterization, disposal, and remediation measures to ensure that any risk of exposure to contaminated soils or groundwater is reduced to insignificant levels.

3. The project will generate nonhazardous and hazardous wastes during demolition of site structures, excavation, construction, and operation of the project and linear facilities.

4. The project will recycle hazardous and nonhazardous wastes to the extent possible and in compliance with applicable law.

5. Hazardous wastes that cannot be recycled will be transported by registered hazardous waste transporters to appropriate Class I landfills.

6. Solid nonhazardous wastes that cannot be recycled will be deposited at Class II and III landfills in the local area.

7. Disposal of project wastes will not result in any significant direct, indirect, or cumulative impacts to existing waste disposal facilities.

8. The Conditions of Certification, below, and the waste management practices described in the evidentiary record will reduce potential impacts to insignificant levels and ensure that project wastes are handled in an environmentally safe manner.

The Commission therefore concludes that the management of the project wastes will comply with all applicable laws, ordinances, regulations, and standards related to waste management as identified in the pertinent portions of **Appendix A** of this Decision.

CONDITIONS OF CERTIFICATION

WASTE-1 The project owner shall provide the resume of a Registered Professional Engineer or Geologist, who will be available for consultation during soil excavation and grading activities, to the CPM for review and approval. The resume shall demonstrate 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 could disturb contaminated soil.

Verification: At least 30 days before the start of site mobilization, the project owner shall submit the resume of the Registered Professional Engineer or Geologist to the CPM for review and approval.

WASTE-2 If potentially contaminated soil is unearthed during excavation at either the proposed site or at linear facilities, as indicated 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 to the CPM stating his or her recommended course of action.

Depending upon the nature and extent of contamination, the Registered Professional Engineer or Geologist shall have the authority to temporarily suspend construction 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 City of Hayward Fire Department and the CPM 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 operations.

Verification: The project owner shall keep its copy of the identification number on file at the project site and notify the CPM of its receipt in the relevant monthly compliance report.

WASTE-4 Upon learning of any impending waste management-related enforcement action by any local, state, or federal authority for violation of requirements imposed by federal law, the project owner shall notify the CPM of any 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 learning of an impending enforcement action. The CPM shall notify the project owner of any changes that will be required to the manner in which project-related wastes are managed.

WASTE-5 The project owner shall prepare both a Construction Waste Management Plan and an Operation Waste Management Plan for all wastes generated during construction and operation of the facility, and shall submit both plans to the CPM for review and approval. The plans shall contain, at a minimum, the following:

- A description of all waste streams, including projections of frequency, amounts generated, and hazard classifications; and

- Methods of managing each waste, including temporary on-site storage, treatment methods, 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 fewer than 30 days before 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 fewer than 30 days before 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 with those 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 that a clean-up plan or soil management plan is developed describing the number and location of samples of soil, soil gas, and groundwater to be obtained and analyzed, as well as soil removal and disposal plans. The project owner shall assure this plan is submitted to the City of Hayward Fire Department for review and comment, and to the CPM for review and approval. Sampling related to the potential migration of chemicals from within the building shall be conducted at the time the building is demolished and concrete flooring removed. If contaminated soil is found, the project owner shall contact the City of Hayward Fire Department and the CPM 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: Following demolition and at least 30 days before the start of construction, the project owner shall provide 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 City of Hayward Fire Department to the CPM within 10 days of its receipt. In the event that certain specific site activities need to start before full characterization and remediation, the project owner shall request review and approval from the CPM.

WASTE-7 Before demolition of the building, the project owner shall conduct an asbestos survey to determine if lead-based paint and/or asbestos-containing material are present in the building. The project owner shall remove any such materials, and any other regulation building materials such as lead-based-paints, following the proper removal and disposal practices defined in the BAAQMD Regulation 11-2 procedures.

Verification: At least 60 days before the start of site mobilization, the project owner shall provide any results submitted to the BAAQMD to the CPM for review and comment.

VI. ENVIRONMENTAL ASSESSMENT

A. BIOLOGICAL RESOURCES

The Commission must consider the potential impacts of project-related activities on biological resources, including state and federally listed species, species of special concern, wetlands, and other topics of critical biological interest such as unique habitats. The following review describes the biological resources in the vicinity of the project site and linear alignments, assesses the potential for adverse impacts on biological resources, and determines whether mitigation measures are necessary to ensure compliance with applicable laws, ordinances, regulations, and standards (LORS).

SUMMARY AND DISCUSSION OF THE EVIDENCE

1. The Setting

The EEC's 6.22-acre site has been used for industrial purposes and the surrounding area has also been developed for industrial, commercial, and residential uses. The nearest biologically significant area is the Hayward Regional Shoreline, a protected area located on the shore of San Francisco Bay approximately one mile west of the project site. Other biologically significant protected lands within the project vicinity include Don Edwards San Francisco Bay National Wildlife Refuge, Garin/Dry Creek Regional Park, Eden Landing Ecological Reserve, Lake Chabot Regional Park, and Coyote Hills Regional Park. (Ex. 200, p. 4.2-3; Ex. 1, § 8.2.4.5.)

Habitat types within a one-mile radius of the project site include salt ponds, grassland, marshland, ruderal grasslands, tidal channel, and landscaped areas. (Ex. 1, § 8.2.4.5 et seq.) Staff's **Biological Resources Table 1,** replicated below, lists special status species potentially found in the project area.

Biological Resources Table 1

Special Status Species Potentially Occurring in the Project Area

Scientific Name	Common Name	Federal/State/CNPS *
Plants		
Astragalus tener var. *tener*	Alkali milk-vetch	--/--/List 1B
Acanthomintha duttonii	San Mateo thorn-mint	E/E/List 1B
Balsamorhiza macrolepis var. *macrolepis*	Big-scale balsamroot	--/--/List 1B
Centromadia parryi spp. *congdonii*	Congdon's tarplant	--/--/List 1B
Chorizanthe robusta var. *robusta*	Robust spineflower	E/--/List 1B
Cirsium fontinale var. *fontinale*	Fountain thistle	E/E/List 1B
Cordylanthus maritimus ssp. *palustris*	Point Reyes bird's-beak	--/--/List 1B
Dirca occidentalis	Western leatherwood	--/--/List 1B
Eriophyllum latilobum	San Mateo wooly sunflower	E/E/List 1B
Fritillaria liliacea	Fragrant fritillary	--/--/List 1B
Heliantella castanea	Diablo helianthella	--/--/List 1B
Hesperolinon congestum	Marin western flax	T/T/List 1B
Holocarpha macradenia	Santa Cruz tarplant	T/E/List 1B
Lasthenia conjugens	Contra Costa goldfields	E/--/List 1B
Layia carnosa	Beach layia	E/E/List 1B
Monardella villosa spp.*gglobosa*	Robust monardella	--/--/List 1B
Navarretia myersii spp. *myersii*	Pincushion navarretia	--/--/List 1B
Pentachaeta bellidiflora	White-rayed pentachaeta	E/E/List 1B
Plagiobothrys glaber	Hairless popcorn flower	--/--/List 1A
Sanicula maritima	Adobe sanicle	--/R/List 1B
Streptanthus albidus spp. *peramoenus*	Most beautiful jewelflower	--/--/List 1B
Suaeda californica	California seablite	--/--/List 1B
Mammals		
Reithrodontomys raviventris	Salt marsh harvest mouse	E/E
Birds		
Haliaeetus leucocephalus	Bald eagle	T/E
Charadrius alexandrinus nivosus	Western snowy plover	T/CSC
Laterallus jamaicensis coturniculus	California black rail	BCC/T
Pelacanus occidentalis californica	California brown pelican	E/E
Athene cunicularia	Burrowing owl	BCC/CSC
Rallus longirostris obsoletus	California clapper rail	E/E
Riparia riparia	Bank swallow	--/T
Sterna antillarum browni	California least tern	E/E

Reptiles		
Thamnophis sirtalis tetrataenia	San Francisco garter snake	E/E
Masticophis lateralis euryxanthus	Alameda whipsnake	T/T
Amphibians		
Ambystoma californiense	California tiger salamander	T/CSC
Rana aurora draytonii	California red-legged frog	T/CSC
Fish		
Oncorhynchus kisutch	Coho salmon	E/E
Oncorhynchus mykiss	Central California Valley steelhead	T/--
Oncorhynchus tshawytscha	Central Valley spring-run chinook salmon	T/T
Invertebrates		
Branchinecta lynchi	Vernal pool fairy shrimp	T/T
Microcina lumi	Fairmont micro-blind harvestman	--/--
Euphydryas editha bayensis	Bay checkerspot butterfly	T/--
Incisala mossii bayensis	San Bruno elfin butterfly	E/--
Speyeria zerene myrtleae	Myrtle's silverspot	E/--

*** Status Categories**:
Codes used in the table are:
E= Endangered; **T**= Threatened; **CSC**= CDFG Species of special concern; **FSC** = USFWS Species of concern; BCC = Birds of Conservation Concern; **R** = Rare; CNPS (California Native Plant Society - *Inventory of Rare and Endangered Plants of California*, 2007) List: **1A**= Presumed extinct in California; **1B**= Rare or endangered in California and elsewhere
Sources: Ex. 1, § 8.2, Table 8.2-3, USFWS 1998.

2. Potential Impacts

The potential for project-related impacts to special status species is low because the site is located in a highly developed area. Vegetation on the site is limited to ruderal vegetation and landscape species that do not provide habitat for any special status wildlife known to exist in the area.[87] (Ex. 200, p. 4.2-5.) Use of the construction laydown area may impact common species such as house sparrows, mourning doves, or house finches, but impacts will not be significant due to the limited biological resource value of the parcel and the absence of special status species habitat. The project's overhead electric transmission line

[87] Habitat loss on the project site is not expected to be significant. The project owner must provide new landscape vegetation to comply with City of Hayward landscaping requirements that would provide new wildlife habitat very similar to any wildlife habitat lost during project construction. (Ex. 200. p. 4.2-9.) The **Visual Resources** section of this Decision discusses landscape vegetation requirements in detail.

to the Eastshore Substation will be constructed in a fully developed area and will not impact biological resources, except for ornamental landscaping trees with limited biological resource value. (*Id*. at p. 4.2-6; Ex. 1, § 8.2.4.)

The habitat communities found within a one-mile radius of the site are related to the Hayward Regional Shoreline, which covers 817 acres along the San Francisco Bay between Highway 92 and San Lorenzo Creek. Special status wildlife species likely to occur in the Hayward Regional Shoreline include the salt marsh harvest mouse (*Reithrodontomys raviventris*), California clapper rail (*Rallus longirostris*), western snowy plover (*Charadrius alexandrinus nivosus*), California brown pelican (*Pelicanus occidentalis californicus*), and the California least tern (*Sterna antilarium browni*). (Ex. 1, § 8.2.10.) Since the habitats for these wildlife species will not be disturbed by construction of the EEC, no adverse impacts are expected. (Ex. 200, p. 4.2-6.)

The burrowing owl (*Athene cunicularia*), a California species of special concern found in the Hayward Regional Shoreline, occurs in open habitats such as grasslands or sparse desert scrublands, and occasionally vacant, grassy lots in urbanized areas. Although the project site, laydown area, and linear facility alignments are either paved or barren of vegetation, the land surrounding the Eastshore Substation is an undeveloped field dominated by non-native annual grasses that could support the burrowing owl. The evidentiary record indicates that burrowing owls have been reported approximately 750 feet south of the Eastshore Substation.[88] (Ex. 200, p. 4.2-7.)

Construction activities associated with the project's transmission line at the east side of the Eastshore Substation will result in disturbance to existing grassland habitat with potential impacts to burrowing owls. (Ex. 200, p. 4.2-7.)

[88] Applicant's June 2006 survey did not detect burrowing owls in the field surrounding the Eastshore Substation, but the potential for encountering the species requires additional surveys to confirm whether mitigation measures are necessary. (Ex. 200, p. 4.2-7; Ex. 1, § 8.2.7.)

Condition **BIO-10** requires that surveys for the burrowing owl be conducted in accordance with the California Department of Fish and Game's *Staff Report on Burrowing Owl Mitigation* (CDFG 1995). If the burrowing owl species is observed, the project owner shall implement appropriate avoidance and mitigation measures to prevent significant adverse impacts to this species.

Several special status plants known to occur in the project vicinity are listed above in **Biological Resources Table 1**. The California Natural Diversity Database indicates a record of Contra Costa goldfields (*Lasthenia conjugens)*, a federally endangered species, within one mile of the project site. Contra Costa goldfields grow in vernal pools within open grassy areas. There is no evidence, however, of direct impacts to Contra Costa goldfields or other special status plants due to lack of suitable habitat on the site, laydown area, and along linear facility alignments. (Ex. 200, p. 4.2-7.)

3. Mitigation

Conditions **BIO-1** through **BIO-4** require the project owner to employ a qualified Biologist with authority to implement mitigation and other compliance measures necessary to prevent adverse impacts to protected species. Condition **BIO-5** requires the project owner to prepare a Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP) that incorporates the mitigation and compliance measures required by local, state, and federal LORS regarding biological resources.[89] Condition **BIO-6** requires the Project Owner to develop a Worker Environmental Awareness Program to train construction crews on preventing impacts to sensitive species and their habitats.

[89] Applicant must consult with the U.S. Fish and Wildlife Service (USFWS) to determine whether a Biological Opinion is necessary. The Applicant's request for consultation with the USFWS was submitted January 2007. (Ex. 6, p. 16.) Results of the consultation shall be included in the BRMIMP.

a. Noise

Construction or operation noise could impact special status species and other wildlife by disturbing foraging, nesting, or other activities in the vicinity of the project site. However, since the highly developed area surrounding the site provides minimal habitat for wildlife, noise impacts are considered insignificant. (Ex. 200, p. 4.2-9; Ex. 1, § 8.2.10.5.)

b. Avian Collisions

San Francisco Bay is located along the Pacific Flyway, one of four major bird migration routes in North America. The project's proximity to the Pacific Flyway creates the potential for direct impacts to birds by electrocution or collision with transmission lines, towers, and exhaust stacks. (Ex. 200, p. 4.2-10; Ex. 1, § 8.2.10.4.) To avoid potential electrocution impacts, Condition **BIO-7** requires that the transmission line be designed and built in accordance with the Avian Power Line Interaction Committee's *Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006*, including the appropriate spacing of conductor wires. [90] Condition **BIO-9** requires the installation of bird flight diverters on the overhead transmission line ground wire.

Night lighting on tall structures attracts migratory birds and creates another potential cause of avian collision. (Ex. 200, p. 4.2-11.) To minimize avian collision with the project's exhaust stacks, Condition **BIO-7** requires that project lighting be designed to avoid side casting. Project lighting will also be shielded, directed inward to the facility, and used only for security purposes to reduce negative impacts on wildlife in the vicinity. (Ex. 1, § 8.2.10.5.)

[90] These guidelines provide methods of configuring utility lines and spacing distances between the utility line components to reduce the likelihood of avian electrocution. (Ex. 200, p. 4.2-10.)

c. Nitrogen deposition

Operation of the EEC will result in emissions of toxic air contaminants (TACs) and criteria pollutants. To minimize air pollutant emissions, the project will employ best-available control technology and comply with air quality standards that are designed to protect human health, vegetation, and wildlife. As a result, the potential for direct impacts of TACs and criteria pollutants on vegetation and wildlife will not be significant. (Ex. 200, p. 4.2-11.) See the **Air Quality** and **Public Health** sections of this Decision.

In response to public concerns, Staff assessed the levels of nitrogen deposition on sensitive biological resources, including salt marshes and serpentine plant communities.[91] Staff's **Biological Resources Table 2**, replicated below, summarizes the cumulative nitrogen deposition rates at biologically sensitive areas at distances up to six miles from the EEC site. These values include NOx and NH3 emissions from all cumulative sources, including the Russell City Energy Center (RCEC) and the sources listed in the **Air Quality** section on cumulative impacts. (Ex. 200, 4.2-11 et seq.) **Table 2** indicates that nitrogen deposition rates at biologically sensitive locations in the project vicinity would not substantially contribute to the adverse effects of nitrogen on plant communities, aquatic ecosystems, or special status species in the project vicinity. Moreover, there is no evidence of threatened or endangered butterflies or other herbivorous insects dependent on native hostplants in the project area that would be affected by increased nitrogen deposition. (*Id.*, at p. 4.2-14.)

[91] Nitrogen deposition consists of the input of reactive nitrogen from the atmosphere to the biosphere. Pollutants that contribute to nitrogen deposition derive mainly from nitrogen oxides (NOx) and ammonia (NH3) emissions during project operation. (Ex. 200, p. 4.2-11.)

Biological Resources Table 2
Cumulative Nitrogen Deposition Rates at Biologically Sensitive Areas near the East shore Energy Center

Location of Biologically Sensitive Area (UTM)	CNDDB Record (Occurrence No.)	N Deposition Rate (kg/ha/yr)
Sulphur Creek at Hayward Shoreline, 1.5 miles west of project area (Zone-10 N4168503 E574491)	Clapper rail (#107)	1.435
Roberts Landing, 4 miles northwest of project area (Zone-10 N4170723 E573489)	Salt marsh harvest mouse (#100)	0.800
Mouth of Alameda Creek, five miles southwest of project area (Zone-10 N4161062 E576677)	Clapper rail (#9)	1.048
Oak Hill Canyon, Garin Regional Park, six miles east of project area (Zone-10 N4165784 E585066)	Most beautiful jewelflower (#67)	1.081
Fairmont Ridge near Lake Chabot, Valley needlegrass grassland, five miles northeast of project area) Zone-10 N4174951 E577783	Valley needlegrass grassland (#52)	1.777

Source: Ex. 200, p. 4.2-14.

4. Cumulative Impacts

Potential cumulative impacts to sensitive species could result from construction of the EEC and the RCEC transmission lines that will both interconnect at the Eastshore Substation. The combined effects could increase impacts on migratory birds and burrowing owl habitat at the Eastshore Substation. The Conditions of Certification for both projects, which require installation of bird diverters and other design measures to prevent avian electrocutions, will reduce these impacts to insignificant levels. Further, after installation of the transmission lines, the habitat value of the land surrounding the Eastshore Substation will be substantially unchanged. Due to the low potential for impact and the temporary nature of potential impacts to burrowing owls, the cumulative impacts to burrowing owls are not expected to be significant. (Ex. 200, p. 4.2-15 et seq.)

FINDINGS AND CONCLUSIONS

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

1. The EEC site, laydown area, and linear facility alignments are located in a highly developed area where the value of special species habitat is considered low or non-existent.

2. The nearest biologically significant area is the Hayward Regional Shoreline, along the San Francisco Bay approximately one mile west of the project site.

3. The project owner will conduct pre-construction surveys of burrowing owl habitat surrounding the Eastshore Substation and, if necessary, implement appropriate avoidance and mitigation measures to prevent significant adverse impacts to this species

4. The project owner will implement a construction mitigation management plan by educating workers on habitat protection, and designating a qualified biologist and biological monitors with authority to halt activities to avoid impacts to sensitive resources.

5. The project owner will submit a Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP) incorporating all biological mitigation and compliance measures required by applicable local, state, and federal LORS.

6. The project owner will consult with the United States Fish and Wildlife Service (USFWS) to determine whether a Biological Opinion must be provided under the BRMIMP.

7. Nitrogen deposition rates at biologically sensitive locations in the project vicinity will not substantially contribute to the adverse effects of nitrogen on plant communities, aquatic ecosystems, or special status species in the project vicinity

8. Implementation of mitigation measures identified in the Conditions of Certification on air quality will reduce potential impacts from air pollutant emissions on biological resources to insignificant levels.

9. Transmission lines will be designed to reduce the risk of avian electrocutions and nighttime lighting will be designed to reduce avian collisions with the project's exhaust stacks.

10. Potential effects of construction noise and nighttime lighting on surrounding wildlife will be mitigated to insignificant levels.

11. With implementation of the mitigation measures described in the evidentiary record and incorporated into the Conditions of Certification below, the EEC will not result in cumulative impacts to biological resources.

12. With implementation of the mitigation measures described in the evidentiary record and incorporated into the Conditions of Certification listed below, the EEC will conform with all applicable laws, ordinances, regulations, and standards related to biological resources as identified in the pertinent portions of **Appendix A** of this Decision.

The Commission concludes, therefore, that implementation of the Conditions of Certification, below, will ensure the Eastshore Energy Center conforms with all applicable laws, ordinances, regulations, and standards relating to biological resources.

CONDITIONS OF CERTIFICATION

DESIGNATED BIOLOGIST SELECTION

BIO-1 The project owner shall submit the resume, including contact information, of the proposed designated biologist to the compliance project manager (CPM) for approval.
The designated biologist must meet the following minimum qualifications:

1. A Bachelor's degree in biological sciences, zoology, botany, ecology, or a closely related field;

2. Three years of experience in field biology or current certification of a nationally recognized biological society such as The Ecological Society of America or The Wildlife Society; and

3. At least one year of field experience with biological resources found in the project area.

If a designated biologist needs to be replaced, the specified information of the proposed replacement must be submitted to the CPM at least 10 working days before the termination or release of the preceding designated biologist.

Verification: The project owner shall submit the specified information at least 60 days before the start of any site (or related facilities) mobilization. Site and

related facility activities shall not begin until an approved designated biologist is available on site.

Designated Biologist Duties

BIO-2 The designated biologist shall perform the following during any site (or related facilities) mobilization, ground disturbance, grading, construction, operation, and closure activities:

1. Advise the project owner's construction/operation manager and supervising construction and operations engineer on the implementation of the biological resources Conditions of Certification;

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

3. Clearly mark sensitive biological resource areas and inspect these areas at appropriate intervals for compliance with regulatory terms and conditions;

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

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

Verification: The designated biologist shall maintain written records of both the tasks described above and the summaries of these records. Both shall be submitted in the monthly compliance reports.

During project operation, the designated biologist shall submit record summaries in the annual compliance report.

BIOLOGICAL MONITOR QUALIFICATIONS

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

Biological monitor(s)' training by the designated biologist shall include familiarity with the Conditions of Certification and the biological resources mitigation implementation and monitoring plan (BRMIMP), worker environmental awareness program, and all permits.

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

DESIGNATED BIOLOGIST AND BIOLOGICAL MONITOR AUTHORITY

BIO-4 The project owner's construction/operation manager shall act on the advice of the designated biologist and biological monitor(s) to ensure compliance with the biological resources Conditions of Certification.

If required by the designated biologist and biological monitor(s), the project owner's construction operation manager shall halt all site mobilization, ground disturbance, grading, construction, and operation activities in areas specified by the designated biologist.

The designated biologist shall:

1. Require a halt to all activities in any area when he or she determines that there would be an unauthorized adverse impact to biological resources if the activities continued;

2. Inform the project owner and the construction/operation manager when to resume activities; and

3. Notify the CPM if there is a halt to any activities and advise the CPM of any corrective actions that have been taken, or will be taken, as a result of the work stoppage.

If the designated biologist is unavailable for direct consultation, the biological monitor shall act on behalf of the designated biologist.

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

Whenever corrective action is taken by the project owner, a determination of success or failure will be made by the CPM within 5 working days after receipt of notice that corrective action is completed, or the project owner will be notified by the CPM that coordination with other agencies will require additional time before a determination can be made.

BIOLOGICAL RESOURCES MITIGATION IMPLEMENTATION AND MONITORING PLAN

BIO-5 The project owner shall submit to the CPM for review and approval a copy of the final BRMIMP and, once approved, shall implement the measures identified in the plan.

The BRMIMP shall identify:

a. All biological resources mitigation, monitoring, and compliance measures proposed and agreed to by the project owner;

b. All biological resource conditions included in the Energy Commission's final decision;

c. All locations, on a map of suitable scale, of areas requiring temporary protection and avoidance during construction;

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

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

f. All performance standards and remedial measures implemented if performance standards are not met;

g. A discussion of biological resource-related facility closure measures;

h. A process for proposing plan modifications to the CPM;

i. A discussion of bird flight diverters and how they will be installed, replaced, and maintained during the life of the project; and

j. Detailed descriptions of all measures that will be implemented to avoid and/or minimize impacts to special status species and reduce habitat disturbance.

Verification: At least 30 days before the start of any site mobilization activities, the project owner shall provide the CPM with the final version of the BRMIMP for the project and the CPM will determine the plan's acceptability. The project owner shall notify the CPM 5 working days before implementing any CPM-approved modifications to the BRMIMP.

Within 30 days after completion of project construction, the project owner shall provide to the CPM, for review and approval, a written report identifying which items of the BRMIMP have been completed, a summary of all modifications to mitigation measures made during the project's construction phase, and what mitigation and monitoring plan items are still outstanding.

WORKER ENVIRONMENTAL AWARENESS PROGRAM

BIO-6 The project owner shall develop and implement a CPM-approved worker environmental awareness program in which each of its employees, as well as employees of contractors and subcontractors who work on the project site or related facilities during construction and operation, are informed about sensitive biological resources associated with the project.

The worker environmental awareness program must:

i. Be developed by the designated biologist and consist of an on-site or training center presentation in which supporting written material is made available to all participants;

ii. Discuss the locations and types of sensitive biological resources on the project site and adjacent areas;

iii. Present the reasons for protecting these resources;

iv. Present the meaning of various temporary and permanent habitat protection measures; and

v. Identify whom to contact if there are further comments and/or questions about the material discussed in the program.

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

Each participant in the on-site worker environmental awareness program shall sign a statement declaring that the individual understands and shall abide by the guidelines set forth in the program materials. The person administering the program shall also sign each statement.

Verification: No fewer than 30 days before the start of any site mobilization activities, the project owner shall provide copies of the worker environmental awareness program, all supporting written materials prepared by the designated biologist, and the name and qualifications of the person(s) administering the program to the CPM for approval. The project owner shall state in the monthly compliance report the number of persons who have completed the training in the prior month and keep a record of all persons who have completed the training to date. The signed statements for the construction phase shall be kept on file by the project owner and made available for examination by the CPM for a period of at least 6 months after the start of commercial operation. During project operation, signed statements for active project operational personnel shall be kept on file for the duration of their employment and for 6 months after their termination.

IMPACT AVOIDANCE MEASURES

BIO-7 Anytime the project owner modifies or finalizes the project design, it shall incorporate all feasible measures that avoid or minimize impacts to the local biological resources, including the following:

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

2. Design, install, and maintain transmission lines and all electrical components in accordance with the Avian Power Line Interaction Committee's (APLIC) *Suggested Practices for Avian Protection on Power Lines*: *The State of the Art in 2006*, to reduce the likelihood of the electrocution of large birds;

3. Eliminate any California exotic pest plants of concern (CalEPPC) List A species from landscaping plans;

4. Prescribe a road sealant that is non-toxic to wildlife and plants and use only fresh water when adjacent to wetlands, rivers, or drainage canals;

5. Design, install, and maintain facility lighting to prevent side casting of light; and

6. Install bird flight diverters at 5-meter intervals on aboveground transmission lines.

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

FACILITY CLOSURE

BIO-8 The project owner will incorporate into the planned permanent or unexpected permanent closure plan measures that address local biological resources. The biological resource facility closure measures will also be incorporated into the project BRMIMP.

Verification: At least 12 months (or a mutually agreed upon time period) before the beginning of closure activities, the project owner shall address all biological resource related issues associated with facility closure in a biological resources element. The biological resources element will be incorporated into the facility closure plan and include a complete discussion of both local biological resources and proposed facility closure mitigation measures.

BIRD FLIGHT DIVERTERS

BIO-9 Bird flight diverters shall be placed on the overhead ground wire associated with the Eastshore transmission line. During construction of the transmission line, bird flight diverters shall be installed to the manufacturer's specifications. Energy Commission staff will provide the final approval of the bird flight diverter to be installed.

Verification: No fewer than 30 days before energizing the new Eastshore transmission line, the project owner will provide photographic verification to the Energy Commission CPM that bird flight diverters have been installed to the manufacturer's specifications. A discussion of how the bird flight diverters will be maintained during the life of the project will be included in the project's BRMIMP.

BURROWING OWL MITIGATION

BIO-10 Burrowing owl surveys shall be conducted before any ground disturbing activities. Survey methods shall be consistent with those described in the CDFG's *Staff Report on Burrowing Owl Mitigation* (CDFG 1995), and shall include winter surveys (December 1 through January 31) and nesting season surveys (April 15 through July 15). If resident burrowing owls or active burrow nest sites are discovered within approximately 500 feet from proposed construction activities, avoidance and mitigation measures outlined in CDFG's *Staff Report on Burrowing Owl Mitigation* (CDFG 1995) shall be implemented before performing ground disturbing activities.

Verification: Survey results shall be provided to the CPM within 14 days for the completion of surveys. If burrowing owls are found on the project site, a report on the mitigation measures implemented and the results of those measures shall be provided to the CPM within 14 days of completion.

B. SOIL AND WATER RESOURCES

This section focuses on the soil and water resources associated with the project, specifically the project's potential to induce erosion and sedimentation, adversely affect water supplies, and degrade water quality. Several mitigation measures are included in the Conditions of Certification to ensure that the project complies with all applicable federal, state, and local LORS.

SUMMARY AND DISCUSSION OF THE EVIDENCE

1. Erosion Prevention and Storm Water Management

Construction of the project involves soil excavation, grading, building construction, and installation of utility connections. These ground disturbance activities could potentially result in soil erosion, soil compaction, loss of soil productivity, and the movement of saturated soils. (Ex. 200, p. 4.9-8.)

Soil erosion may cause stormwater impacts if run-off flow rates and volume discharge from the project site increase flooding down slope from the site. Consequently, water quality could be adversely affected by the discharge of eroded sediments from the site, the release of hazardous materials during construction, or the migration of existing hazardous materials present in the subsurface soil and groundwater. (Ex. 200, p. 4.9-8.)

According to Staff, the magnitude, extent, and duration of these potential impacts depends on several factors, including the proximity of the site to surface water, the soils affected, and the method, duration, and time of year of construction activities. Prolonged periods of precipitation or high intensity and short duration run-off events, coupled with soil-disturbing activities, create the potential for on-site erosion. In addition, high winds during grading and excavation activities can result in wind-borne erosion, releasing particulate emissions that degrade air

quality. The implementation of appropriate erosion control measures is necessary to conserve soil resources, maintain water quality, prevent accelerated soil loss, and protect air quality. (Ex. 200, p. 4.9-9.)

The topography of the project site, laydown area, and linear features is nearly level and the risk of erosion for the clayey soils at the site is negligible to slight. Impervious surfaces (buildings and pavement) on the site and surrounding properties impede ground-level winds that could cause excessive wind erosion, thus reducing erosion potential to insignificant levels. (Ex. 1, §§ 8.9.3, 8.9.3.2.) To further limit the potential for project-related wind erosion that could contribute to a significant cumulative impact on air quality, Conditions **AQ-SC2** through **AQ-SC4** in the **Air Quality** section of this Decision require the project owner to follow a series of protocols to eliminate fugitive dust during construction activities. (Ex. 200, p. 4.9-19.)

Most of the existing asphalt and concrete at the site will be demolished and removed. The excavated soil and fill will be used for grading and leveling the site.[92] Condition of Certification **SOIL & WATER 2** requires the project owner to develop a Drainage Erosion and Sediment Control Plan (DESCP) consistent with Alameda County's most current grading and drainage requirements and to incorporate Best Management Practices (BMPs) into project design to minimize erosion and sedimentation impacts during construction and operation. (Ex. 200, p. 4.9-10.) Specific measures that the project owner must include in the final plans to ensure the BMPs are effective include: mulching, physical stabilization, dust suppression, drainage swales, storm drain inlet protection, and sediment basins. With implementation of the DESCP and the required BMPs, soil loss and PM10 emissions from fugitive dust will be minimized to insignificant levels. (Ex. 1, § 8.9.3.2; Ex 6, pp. 46-47.)

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[92] No significant grading would occur in the laydown area, which the Applicant proposes to cover with gravel. The gravel layer would protect the exposed soil from wind and water and serve as a mitigation measure to reduce erosion. (Ex. 1, § 8.9.3.2.1; Ex. 6, p. 46.)

Potential soil and groundwater contamination at the site could result in off-site transport of eroded sediments causing significant water quality impacts to the San Francisco Bay and related surface water areas. Condition **WASTE-6** in the **Waste Management** section of this Decision requires the project owner to develop a soil management clean-up plan to characterize the soil and groundwater for contamination and to remediate, if necessary, for hazardous waste.[93] Implementation of an appropriate site clean-up plan, combined with erosion control measures, should minimize the potential for contaminates to cause off-site impacts. (Ex. 1, Appendix 8.13A.) The project owner is not permitted to begin construction before verifying that the site has been adequately remediated.

The volume of stormwater run-off will not measurably increase as a result of construction activities since the site is currently covered by impervious surfaces similar to the plans for project development. (Ex. 200, p. 4.9-12.) Condition **SOIL & WATER-1** requires the project owner to submit a construction Stormwater Pollution Prevention Plan (SWPPP) as well as the DESCP to the City of Hayward outlining a strategy to prevent off-site migration of sediment and other pollutants and to manage run-off from the construction site to the stormwater system. The SWPPP must include treatment control BMPs to protect water quality and to minimize the amount of pollutants carried by stormwater to the stormwater system. During construction, the City will conduct periodic inspections to ensure compliance with both the SWPPP and DESCP. (Ex. 200, p. 4.9-12.)

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[93] To determine the extent of polluted groundwater plumes in the site vicinity, a database search was performed on both the San Francisco Bay Regional Water Quality Control Board (SFBRQCB) and Department of Toxic Substance Control (DTSC) databases. The SFRWQCB database identified several facilities in the immediate area with leaking underground storage tanks (LUSTs) that could be impacting groundwater, including a service station to the north of the project site. However, the tank and piping at the gas station have been removed and there are monitoring wells on-site. Groundwater sampling at the monitoring wells located north and northwest of the site found that the contaminated groundwater plume is shrinking. (Ex. 200, p. 4.9-5; Ex. 8, p. 27.)

The project must also comply with the most current Alameda Countywide National Pollutant Discharge Elimination System (NPDES) Permit for Discharges of Stormwater Associated with Construction Activity for municipal stormwater and urban run-off discharges. Condition **SOIL & WATER-1** incorporates this requirement. With the implementation of the construction SWPPP, the NPDES Municipal Stormwater Permit, and the DESCP, soil loss and water contamination due to stormwater runoff will be reduced to insignificant levels. (Ex. 200, p. 4.9-10; Ex. 6, pp. 46-47.)

Groundwater on the site was observed at about 12 feet below ground surface (bgs). Groundwater below 200 feet bgs contains relatively high concentrations of total dissolved solids, chloride, nitrate, and sulfate; however, water quality improves below this level with total dissolved solids of less than 450 milligrams per liter. (Ex. 1, § 8.14.3.2; Ex. 200, 4.9-11.)

If groundwater is encountered during construction, the project owner will implement dewatering BMPs that require storage in portable tanks. Any groundwater encountered must be sampled prior to off-site disposal. The evidentiary record indicates that the likelihood of encountering groundwater during construction is remote. Implementation of the dewatering BMPs in the construction SWPPP and DESCP ensures that no impact to groundwater resources will occur during construction. (Ex. 200, p. 4.9-11; Ex. 6, p. 46-47.)

During operation, the entire site will be covered with impervious material, gravel, or landscaping and no soil will be exposed. Condition **SOIL & WATER-3** requires the project owner to implement a site-specific Industrial SWPPP to comply with the city's most current Municipal Stormwater NPDES permit. Both structural and treatment BMPs must be incorporated into final design plans for the Industrial SWPPP, including details for structural stormwater treatment, an on-site detention basin, containment of hazardous materials, and permanent erosion and sediment control through site landscaping or other vegetative cover.

(Ex. 1, Appendix 8.14B). With implementation of the site-specific industrial SWPPP, no significant impacts to soil resources or groundwater from project operation are expected. (Ex. 200, pp. 4.9-14 and 4.9-15.)

The development of roads, buildings, and other impermeable surfaces related to the project will not substantially increase either the stormwater run-off rate or volume from the project site. Stormwater will be discharged to the city's stormwater system. Site-specific BMPs will identify and mitigate pollutants of concern in accordance with Industrial SWPPP requirements. (Ex. 1, § 8.14.6.3.) Implementation of Condition **SOIL & WATER-3** requirements will ensure that the potential for impacts to surface water from increased stormwater run-off is reduced to insignificant levels. (Ex. 200, p. 4.9-15.)

2. Water Supply

The project will use potable water supplied through an existing connection to the city's municipal water main on Clawiter Road adjacent to the project site. (Ex. 1, § 2.2.7.2.) Condition **SOIL & WATER**-4 requires the project owner to provide an executed Water Supply Agreement with the City of Hayward. The Applicant obtained a "will-serve" letter, dated January 11, 2007, which obligates the city to supply 1,400 to 1,500 gallons per day (gpd) of potable water to the EEC in accordance with the Hayward Municipal Code.[94] (Ex. 1, § 8.14.4.1; Ex. 200, p. 4.9-6.) The letter states that the Hayward water system is operated under permit from the California Department of Health Services, and water is required to be potable at all times. See the "will-serve" letter attached at the end of this section.

The total amount of water used during construction will be less than 1.5 acre feet over the anticipated 12-month construction period. Potable water provided by

[94] The city purchases water from San Francisco's Hetch Hetchy system, which is owned and operated by the San Francisco Public Utilities Commission (SFPUC). (Ex. 200, p. 4.9-6; Ex. 6, p. 42.)

the city will serve all construction purposes except for personal consumption and hygiene. Construction water demand is not expected to impact the city's ability to supply potable water to other municipal and industrial customers. (Ex. 6, pp. 32-34.)

During operation, the project will use approximately 1.61 acre feet per year (AFY) of potable water. According to Staff, this volume is equivalent to the amount of water consumed by three single-family households per year. (Ex. 1, §§ 7.0, 8.14.4.1; Ex. 200, p. 4.9-18.)

Applicant asserts that operational water use will be sporadic and concentrated on personal domestic uses, irrigation, fire protection, and equipment washdowns. Quantities used for industrial process purposes are limited to turbocharger washes (every 150 fired hours) and to refilling the closed-loop engine cooling systems (required after maintenance/overhauls). (Ex. 6, p. 44.) According to the Applicant, the EEC's water demand is a "miniscule" fraction of the city's overall water delivery system and will not impact its ability to deliver water to other customers. (*Ibid*.) There is no evidence in the record to suggest otherwise.

Wastewater will be generated primarily from domestic sources with a small amount from industrial processes. The EEC plans to discharge all wastewater to the city's sanitary sewer system via an existing sewer main located in Clawiter Road. (Ex. 1, § 2.2.7.2.) Industrial wastewater will be tested and trucked off-site if not acceptable for discharge. (*Id*., at § 8.14.4.2.) Condition **SOIL & WATER-5** requires the project owner to provide all data necessary to comply with an Industrial Wastewater Discharge Permit from the City of Hayward prior to commercial operation. (*Id*., at § 8.14.6.4.) Further, the project owner must provide water quality reports and evidence of any corrective actions taken in the event of violations of the city's wastewater discharge standards.

3. State Water Policy

California Water Code Section 13551 declares that the use of potable water for industrial and irrigation uses is a waste or unreasonable use of potable water within the meaning of Article X of the State Constitution if recycled water is available. The State Water Resource Control Board's policy on the Use and Disposal of Inland Waters Used for Power Plant Cooling (Resolution 75-58) states that the use of fresh inland water should only be used for power plant cooling if other sources would be environmentally undesirable or economically unsound. The Commission's regulations require the Applicant to provide information on the source of water supply, the rationale for its selection, and if fresh water is to be used for cooling purposes, to discuss all other potential sources and why they were not considered feasible. [Cal. Code Regs., § 20, (following § 2012) Appendix B subd. (g)(14)(C)(i).]

The Applicant contends that Resolution 75-58 is not relevant since the project does not include cooling towers and water needed for industrial purposes is minimal. (Ex. 6, pp. 44-45.) Consistent with the Commission's regulations, however, Staff requested the Applicant to evaluate the feasibility of using recycled water from the City of Hayward's Water Pollution Control Facility (WPCF), a distance of about 4,000 feet from the project site. According to the Applicant, construction of a pipeline from the project site to the WPCF would cost approximately $320,000. Additional costs to procure easements and provide treatment of the secondary effluent for unrestricted use would increase installation costs to over $500,000. (*Ibid.*)

It could be argued that $500,000 is a small percentage of the capital investment of $140 million (in 2006 dollars) for this project and with anticipated revenues from power sales to PG&E over the next 20 years, investment in recycled water infrastructure is not, *prima facie*, economically infeasible. (Ex. 1, § 8.8.4.3.5; Ex. 200, p. 4.8-7.) The 2003 Integrated Energy Policy Report (*IEPR*) provides that

"…the Commission will approve the use of fresh water for cooling purposes …only where alternative water supply sources and alternative cooling technologies are shown to be "environmentally undesirable" or "economically unsound." (2003 *IEPR*, p. 41.) Economically unsound is defined as economically or otherwise infeasible. Feasible means capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors. (*Ibid*.)

While we believe the estimated added costs of building a pipeline, on-site treatment, and future operation and maintenance of the treatment system are not unreasonable, the circumstances of this case (there is no cooling tower, potable water consumption is minimal, and water is needed primarily for domestic rather than industrial purposes) do not require use of recycled water under Water Code Section 13551.

The evidence indicates that the City of Hayward's water supply agreement with the SFPUC does not limit the amount of water to be supplied by the SFPUC; rather, the only limitation is based on the city's storage and distribution system. The city's projected demand increases from approximately 21,300 AFY in 2005 to approximately 31,300 AFY in 2030. Thus, the use of potable water (1.61 AFY) for plant operation will not cause adverse impacts to the city's current and future potable water supply. (Ex. 200, p. 4.9-18.)

FINDINGS AND CONCLUSIONS

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

1. Soils at the EEC site are susceptible to erosion during excavation and construction.

2. Stormwater runoff at the EEC site has the potential to pollute groundwater and surface water.

3. The project owner will submit a Stormwater Pollution Prevention Plan (SWPPP) and a Drainage, Erosion and Sediment Control Plan (DESCP) for both the construction and operation phases of the EEC.

4. The SWPPP and DESCP plans will be consistent with Alameda County and City of Hayward requirements, including Best Management Practices (BMPs), and shall comply with requirements of the San Francisco Bay Regional Water Quality Control Board (SFBRWQCB).

5. The project owner will submit a Notice of Intent for construction under the General National Pollutant Discharge Elimination System (NPDES) Permit for Discharges of Stormwater Associated with Construction Activity consistent with requirements of the SFBRWQCB.

6. The project owner will obtain a General NPDES Permit for Discharges of Stormwater Associated with Industrial Activity consistent with requirements of the SFBRWQCB.

7. During operation, the project will require 1.61 acre feet of water (AFY) per year for domestic and industrial purposes.

8. The EEC will use potable water supplied through an existing connection to the City of Hayward's municipal water main on Clawiter Road adjacent to the project site.

9. The use of potable water for plant operation will not cause adverse impacts to the city's current and future potable water supply.

10. Project design does not include cooling towers so water use for industrial processes will be minimal.

11. The circumstances of this case (no cooling tower, potable water consumption is minimal, and used primarily for domestic rather than industrial purposes) do not require use of recycled water under Water Code Section 13551.

12. The project will discharge all wastewater to the city's sanitary sewer system via an existing sewer main located in Clawiter Road and comply with the requirements of an Industrial Wastewater Discharge Permit from the City of Hayward.

13. No adverse cumulative impacts to soils or water resources were identified in the evidentiary record.

14. Implementation of the Conditions of Certification, below, ensures that the project will conform with all applicable laws, ordinances, regulations, and standards (LORS) concerning erosion and sedimentation impacts to soil and water resources as described in the evidentiary record and identified in the pertinent portions of **Appendix A** attached to this Decision.

We therefore conclude that with implementation of the Conditions of Certification listed below, the project will not result in any significant adverse direct, indirect, or cumulative impacts to soil or water resources, and will comply with all applicable laws, ordinances, regulations, and standards (LORS).

CONDITIONS OF CERTIFICATION

SOIL & WATER-1 The project owner shall comply with the requirements of the General National Pollutant Discharge Elimination System (NPDES) Permit for Discharges of Stormwater Associated with Construction Activity. The project owner shall develop and implement a Stormwater Pollution Prevention Plan (SWPPP) for the construction of the Eastshore site, laydown area, and all linear facilities. The construction SWPPP shall conform with the city of Hayward's (city) Stormwater Management and Urban Runoff Control Ordinances (Chapter 11, Article 5) set forth in NPDES Permit No. CA0029831 and San Francisco Bay Regional Water Quality Control Board (SFBRWQCB) Order R2-2003-0021.

Verification: The project owner shall submit to the CPM a copy of the construction SWPPP that has been reviewed and approved by the SFBRWQCB, which includes the requirements of Hayward Municipal Code Chapter 11, Article 5, for Stormwater Management and Urban Runoff Control (Provision C.3 requirements), prior to site mobilization and retain a copy on site. The project owner shall submit copies to the CPM of all correspondence between the project owner and the SFBRWQCB about the construction SWPPP within 10 days of its receipt or submittal. The project owner shall submit copies to the CPM of all correspondence between the project owner and the city about the city's Stormwater Management and Urban Runoff Control Ordinances within 10 days of its receipt or submittal. This information shall include copies of the Notice of Intent and Notice of Termination for the project.

SOIL & WATER-2 Prior to site mobilization, the project owner shall obtain CPM approval for a site-specific Drainage, Erosion and Sedimentation Control Plan (DESCP) which will ensure the protection of water quality and soil resources at the Eastshore site, laydown area, and all linear facilities for both the mobilization and construction of the project. The DESCP shall address appropriate methods and actions, both temporary and permanent,

for the protection of water quality and soil resources, demonstrate no increase in the potential for off-site flooding, meet the County of Alameda (county) Development Services Department grading and drainage 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 Stormwater Pollution Prevention Plan (SWPPP) developed in conjunction with any NPDES permit. At a minimum, the DESCP shall contain the following elements:

A. **Vicinity Map** – A map(s) at a minimum scale of 1”=100’ shall be provided that shows the location of all project elements, with depictions of all significant geographic features including swales, storm drains, and sensitive areas.

B. **Site Delineation** – All areas subject to soil disturbance for the Eastshore project (project site, laydown area, all linear facilities, landscaping areas, and any other project elements) shall be delineated showing the boundary lines of all construction areas and the locations of all existing and proposed structures, pipelines, roads, and drainage facilities.

C. **Watercourses and Critical Areas** – The DESCP shall show the location of all nearby watercourses including swales, storm drains, and drainage ditches, as well as indicate the proximity of those features to the Eastshore project construction, laydown, and landscape areas and all transmission and pipeline construction corridors.

D. **Drainage Map** – The DESCP shall provide a topographic site map(s) at a minimum scale 1”=100’ showing all existing, interim, and proposed drainage systems and drainage area boundaries. On the map, spot elevations and contours shall be extended off-site for a minimum distance of 100 feet.

E. **Drainage Narrative** – The DESCP shall include a narrative of the drainage measures to be taken to protect the site and downstream facilities. The narrative shall include the summary pages from the hydraulic analysis prepared by a professional engineer/erosion control specialist. The narrative shall also state the watershed size(s), in acres, used in the calculation of drainage control measures. The hydraulic analysis shall be used to support the selection of BMPs and structural controls to divert off-site and on-site drainage around or through the Eastshore project construction and laydown areas.

F. **Clearing and Grading Plans** – The DESCP shall provide a delineation of all areas to be cleared of vegetation and areas to be preserved. The plan shall provide elevations, slopes, locations, and the extent of all proposed grading as shown by contours, cross sections, or by other means. The locations of any disposal areas, fills, or other special features shall also be shown. It shall also illustrate existing and proposed topography, tying in proposed contours with existing topography.

G. **Clearing and Grading Narrative** – The DESCP shall include a table with the quantities of material excavated or filled for the site and all project elements of the Eastshore project (project site, laydown areas, transmission corridors, and pipeline corridors). This shall include those materials removed from the site due to demolition. The table shall distinguish whether such excavations or fill are temporary or permanent, and the amount of material to be either imported or exported.

H. **Best Management Practices** – The DESCP shall identify on the topographic site map(s) the location of the site-specific BMPs to be employed during each phase of construction (initial grading/demolition, excavation and construction, and final grading/stabilization). Treatment control BMPs used during construction should facilitate the testing of stormwater run-off prior to discharge to the storm-water system. BMPs shall include measures designed to prevent wind and water erosion in areas with existing soil contamination. Treatment control BMPs used during construction should facilitate the testing of both groundwater and stormwater. if run-off shows unacceptable levels of contaminants including petroleum hydrocarbons, VOC, or insecticide constituents, the run-off must be treated to acceptable levels before it is discharged.

I. **Best Management Practices Narrative** – The DESCP shall show the location (as identified in **H**., above), timing, and maintenance schedules of all erosion and sediment control BMPs to be used prior to initial grading/demolition and during project excavation and construction, final grading/stabilization, and post-construction. Separate BMP implementation schedules shall be provided for each project element for each phase of construction. The maintenance schedule shall include the post-construction maintenance of structural control BMPs or provide a statement when the information is available.

Verification: No later than 90 days prior to the start of site mobilization, the project owner shall submit a copy of the DESCP to the county's Development and Services Department for review and comment. The DESCP shall meet the

county's grading and drainage requirements and include a completed Drainage Review Checklist. No later than 60 days prior to the start of site mobilization, the project owner shall submit the DESCP and the county's comments to the CPM for review and approval. The CPM shall consider comments received from the county on the DESCP before issuing his or her approval. The DESCP shall be consistent with the grading and drainage plan as required by Condition of Certification **CIVIL-1,** and relevant portions of the DESCP shall clearly show approval by the Chief Building Official. The DESCP shall be consistent with the SWPPP developed in conjunction with the city's municipal NPDES Permit No. CA0029831 for Construction Activity. The project owner shall provide a narrative in the monthly compliance report on the effectiveness of the drainage, erosion, and sediment control measures, the results of monitoring and maintenance activities, and the dates of any dewatering activities.

SOIL & WATER- 3 The project owner shall comply with the requirements of the General NPDES Permit for Discharges of Stormwater Associated with Industrial Activity. The project owner shall develop and implement a Stormwater Pollution Prevention Plan (SWPPP) for operation of the Eastshore project. The Industrial SWPPP shall conform with by the city of Hayward's Stormwater Management and Urban Runoff Control Ordinances (Chapter 11, Article 5) set forth in NPDES Permit No. CA0029831.

Verification: The project owner shall submit to the CPM a copy of the Industrial SWPPP, including all requirements of Hayward Municipal Code Chapter 11, Article 5 for Stormwater Management and Urban Runoff Control that has been review and approved by the San Francisco Bay Regional Water Quality Control Board (SFBRWQCB) prior to commercial operation, and retain a copy on site. The project owner shall submit copies to the CPM of all correspondence between the project owner and the SFBRWQCB about the Industrial SWPPP within 10 days of its receipt or submittal. The project owner shall submit copies to the CPM of all correspondence between the project owner and the city about the city's Stormwater Management and Urban Runoff Control Ordinance within 10 days of its receipt or submittal. The Industrial SWPPP shall include a copy of the Notice of Intent for the project.

SOIL & WATER-4 Prior to site mobilization, the project owner shall provide the CPM with 2 copies of an executed and final Water Supply Agreement in accordance with the city of Hayward (city) Municipal Code Section 11, Article 2, and any other service agreements with the city for obtaining potable water for the construction and operation of the Eastshore project. The agreement(s) shall detail any requirements, conditions, or restrictions on the project owner for the use of potable water. The project owner shall not connect to the city's potable water system without final approval from the city. The project owner shall provide the CPM copies of the final approval from the city and all monitoring or other reports required by the agreement(s). The project owner shall notify the CPM of any violations of

the agreement(s) terms and conditions, the actions taken or planned to bring the project back into compliance with the agreement(s), and the date(s) compliance was reestablished.

Verification: At least 60 days prior to site mobilization, the project owner shall submit to the CPM 2 copies of the executed water supply agreement and any other service agreements between the project owner and the city for obtaining potable water for construction and operation of the Eastshore project, in accordance with the city of Hayward Municipal Code Section 11, Article 2. The project owner shall submit results of any water quality monitoring required by the city to the CPM in the annual compliance report. The project owner shall submit any notice of violation of the agreement's terms and conditions to the CPM within 10 days of receipt and fully explain the corrective actions taken in the next monthly compliance report or annual compliance report, as appropriate.

SOIL & WATER-5 Prior to commercial operation, the project owner shall provide the CPM and the city of Hayward (city) with all information and data necessary to satisfy city of Hayward Municipal Code Section 11, Article 3, for the discharge of sanitary and plant wastewater into the city's municipal sewer system. During operation, any monitoring reports provided to the city shall also be provided to the CPM. The CPM shall be notified of any violations of discharge limits or amounts.

Verification: At least 60 days prior to commercial operation, the project owner shall submit the information and data required to satisfy city of Hayward Municipal Code Section 11, Article 3, to the city for review and comment, and to the CPM for review and approval. During operations, the project owner shall submit any water quality monitoring required by the city to the CPM in the annual compliance report. The project owner shall submit any notice of violations from the city to the CPM within 10 days of receipt and fully explain the corrective actions taken in the annual compliance report.

SOIL & WATER-6 The project owner shall use potable water supplied by the city of Hayward (city) for construction and operation of the Eastshore project. Prior to the use of potable water from the city, the project owner shall install and maintain metering devices as part of the water supply and distribution system to monitor and record (in gallons per day) the total volume of water supplied to the Eastshore project. These metering devices shall be operational for the life of the project.

The project owner shall prepare an annual water use summary which shall include both: 1) the monthly range and monthly average of daily potable water consumption (in gallons per day); and 2) total water used by the project on a monthly and annual basis, expressed in acre feet. Potable water use on-site shall be recorded monthly. For subsequent years, the annual water use summary shall also include both the yearly range and the yearly average water use by the project. The annual water use

summary shall be submitted to the CPM as part of the annual compliance report.

Verification: At least 60 days prior to mobilization for the Eastshore project, the project owner shall submit to the CPM evidence that metering devices have been installed and are operational on the potable water supply and distribution system. Potable water use may be based upon either metering or billing statements from the city.

The project owner shall submit a water use summary to the CPM in the monthly compliance report during project construction, and in the annual compliance report during project operation. The project owner shall also provide a report on the servicing, testing, and calibration of the metering devices in the annual compliance report.

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DATE JAN 11 2007
RECD. JAN 25 2007

January 11, 2007

Tierra Energy
710 S. Pearl Street, Suite A
Denver, CO 80209
Attention: Mr. Greg Trewitt

Subject: Water and Sanitary Sewer Service for Proposed Eastshore Energy Center

Dear Mr. Trewitt:

Water and sanitary sewer services are available from the City of Hayward to the proposed Eastshore Energy Center located at 25101 Clawiter. The City understands that the water consumption at this facility will average between 1,400 and 1,500 gallons per day. These services will be provided in accordance with applicable provisions of the Hayward Municipal Code and subject to compliance with the Conditions of Approval for the project.

Water service is subject to payment of costs and fees in effect at the time of connection to the public water system. Sewer system capacity must be purchased at the rates in effect at the time of purchase.

The Hayward Water System is operated under permit of the State of California Department of Health Services, and water is required to be potable at all times. There are no connections between potable and non-potable water systems. The Water System operates under continuous pressure in order to insure adequate fire protection.

This letter in no way should be construed as the City's endorsement of or support for this project.

Sincerely,

Alex Ameri
Deputy Director of Public Works

cc: Jesús Armas, City Manager
Robert Bauman, Director of Public Works

DEPARTMENT OF PUBLIC WORKS
UTILITIES ADMINISTRATION
777 B STREET, HAYWARD, CA 94541-5007
TEL: 510/583-4700 • FAX: 510/583-3610 • TDD: 510/247-3340

C. CULTURAL RESOURCES

Cultural resources such as artifacts, structures, or land modifications reflect the history of human development. Places that are important to Native Americans or other ethnic groups are also considered valuable cultural resources. This topic reviews the structural and cultural evidence of human development in the project vicinity, where cultural resources could be disturbed by excavation and construction. Federal and state laws require a project developer such as the Applicant to implement mitigation measures to minimize potential adverse impacts to *significant* cultural resources.

SUMMARY AND DISCUSSION OF THE EVIDENCE

The term "cultural resource" is used broadly to include the following categories of resources: prehistoric and historic archaeological sites, buildings, structures, objects, and historic districts. When a cultural resource is determined to be significant, it is eligible for inclusion in the California Register of Historic Resources (CRHR). (Pub. Res. Code, § 5024.1; Cal. Code Regs., tit. 14, § 4850 et seq.) An archaeological resource that does not qualify as an historical resource may be considered a "unique" archaeological resource under CEQA. (*See* Pub. Res. Code, § 21083.2.) In addition, structures older than 50 years (or less if the resource is deemed exceptional) can be considered for listing as significant historic structures. (Cal. Code Regs., tit. 14, § 4852 (d)(2) [CRHR].) Since there is often a five year lag between resource evaluation and the date that eligibility is decided, cultural resource specialists may use 45 years as a criterion for considering potential eligibility. (Ex. 200, p. 4.3-1 et seq.)

1. Background

Throughout California, significant archaeological and historic artifacts related to Native American cultures, Spanish and Mexican settlements, Chinese immigrant

labor, and/or American frontier settlements may be discovered during project construction activities. Sensitivity for historic and archaeological resources in the project area is low. Early historic uses included salt processing but this industry was abandoned and remnants are poorly preserved. Remnants of several railroad tracks and spurs built in the early 20th century crisscross the area. (Ex. 1, § 8.3.3.4.4.)

2. Methodology

a. Archival Research

The investigation of cultural resources in the project vicinity involved both archival research and field surveys. The study area of potential effect (APE) was defined as the immediate project site and corridors extending 50 feet to either side of the linear utility centerlines. Archival research included records searches at the Northwest Information Center of the California Historical Resources Information System (CHRIS) at Sonoma State University.[95] (Ex. 1, § 8.3.3.5.1.)

The CHRIS files indicated there had been 16 previous cultural resource surveys within the project vicinity, with one recorded cultural resource. The recorded resource, identified as the Eastshore-Grant Transmission Line (Site 19-002269), was originally constructed by PG&E in 1921-22. The towers are now part of a line connecting the Grant Substation to the Newark Substation in Fremont through the Eastshore Substation. The towers are not significant from an architectural, historical, or engineering perspective, especially since similar towers are located throughout California, and therefore, Site 19-002269 was

[95] Archival research was also conducted at the National Register of Historic Places (NRHP) at the State Office of Historic Preservation (SHPO), the Historic Property Directory, the California Inventory of Historical Resources, the City of Hayward's Historic Property List; and the files of the Hayward Area Historical Society as well as historic maps showing the project area. (Ex. 1, § 8.3.3.5; Ex. 6; Ex. 200, p. 4.3-9.)

deemed ineligible for listing with the CRHR. (Ex. 1, § 8.3.3.5.1, Appendix 8.3C; Ex. 200, p. 4.3-11.)

b. Field Surveys

In July 2006, Applicant's consulting archaeologist conducted a pedestrian survey of the entire APE at the site and along the linear corridors. No archaeological or architectural resources were observed. Due to previous ground disturbance from industrial activity in the area, Applicant believes it is likely that any remaining cultural resources would have already been destroyed.[96] Applicant's archaeologist also conducted a "drive-by" architectural reconnaissance of the APE but identified no significant buildings or structures. (Ex. 1, § 8.3.3.5.2.)

Staff noted that the 1899/1906 United States Geological Survey (USGS) Map of the "Haywards" quadrangle showed the Mt. Eden train station was next to railroad tracks previously owned by Southern Pacific RR in a location within the project's laydown area. Staff's investigative field survey was inconclusive since it appeared that remains of the Mt. Eden station are now located within the Union Pacific Railroad right-of-way to the east of the laydown area and outside the Berkeley Farms fence. Since neither Applicant nor Staff could definitively locate the Mt. Eden Station, this potential resource was not evaluated for CRHR eligibility. (Ex. 200, p. 4.3-9 et seq., Ex. 12.)

3. California Native American Heritage Commission

The Native American Heritage Commission (NAHC) maintains records and maps of traditional resource sites and sacred lands located throughout the state. NAHC's records did not indicate the presence of sacred lands in the project area. (Ex. 1, § 8.3.3.5.3.) To obtain further information about Native American

[96] Applicant's geotechnical exploration at the project site failed to identify soils consistent with cultural deposits. (Ex. 1, Appendix 10G; Ex. 200, p. 4.3-11.)

resources near the site, Applicant sent letters and maps to Native American groups and individuals identified by the NAHC. (*Id*., Appendix 8.3A) Applicant received four responses. Two representatives of the Ohlone Tribe, one from the Amah/Mutsun Tribal Band, and one from the Marine Ruano Family responded that they had no concerns about cultural resources in the vicinity of the project site. Staff also sent letters to eight Native American representatives, including individuals affiliated with the Miwok tribe, but no responses were received. (Ex. 200, p. 4.3-12, p. 4.3-19.) In the event that Native American artifacts should be discovered during site mobilization and construction, Condition **CUL-6** requires the project owner to implement a monitoring program consistent with NAHC guidelines.

4. Potential Impacts

No standing structures either on or near the project site, laydown area, or transmission line route have been recommended as eligible for the CRHR, so no assessment of the impacts from the project to this class of cultural resources is required. (Ex. 200, p. 4.3-11.) Further, the evidentiary record did not identify any potential indirect impacts to cultural resources so no mitigation measures for indirect impacts are required. (*Id*. at 4.3-17.)

Ground disturbance during construction at the site, along the linear facility routes, and at the laydown area could result in direct impacts to unknown archaeological resources. Since archival research indicated that area soils were known to contain cultural materials, project-related excavation has the potential to adversely affect unknown buried archaeological resources.[97] If any newly found archaeological resources are eligible for the CRHR, the direct impacts from construction could materially impair the resources. (Ex. 200, p. 4.3-14 et seq.)

[97] The possibility of prehistoric deposits is suggested by the resources-rich nature of the marshy prehistoric landscape and by the geologic landform—an alluvial plain, which could mask prehistoric archaeological remains under deposited sediments—on which the project would be built. (Ex. 200, p. 4.3-14.)

Conditions **CUL-1** through **CUL-7** incorporate Applicant's proposed mitigation measures as well as Staff's recommendations to ensure that unknown archaeological deposits are properly identified and treated and that project-related impacts are reduced to insignificance. These Conditions require the project owner to implement a Cultural Resources Monitoring and Mitigation Plan (CRMMP) and to employ a Cultural Resources Specialist to monitor all construction locations where ground excavation activities occur. The Conditions also include a worker education program and procedures for halting construction in the event of an archaeological discovery. Impacts to cultural resources could also occur during project operation if the gas or water pipeline requires repair via excavation that could uncover previously unknown subsurface archaeological resources. The mitigation measures described in Conditions **CUL-1** though **CUL-7** shall apply under any circumstances when project-related ground disturbance is necessary. (Ex. 200, p. 4.3-17 et seq.)

5. Cumulative Impacts

The evidentiary record indicates that potential cumulative impacts to cultural resources due to construction of both the EEC and the RCEC are not significant. Both power plant projects will implement Conditions of Certification to mitigate impacts and similar protocols can be applied to other current and future projects in the area. As a result, any incremental effect of the EEC project when viewed in conjunction with other projects will not be cumulatively considerable. (Ex. 200, p. 4.3-18.)

FINDINGS AND CONCLUSIONS

Based on the uncontroverted evidence of record, the Commission makes the following findings and conclusions:

1. The Native American Heritage Commission has not recorded any sacred Native American properties within the project vicinity.

2. Archival research did not reveal any known archaeological or historic resources within the Area of Potential Effect (APE) for the immediate project site and corridors extending 50 feet to either side of the linear utility centerlines.

3. Archaeological Site 19-002269, identified as the Eastshore-Grant Transmission Line in the project vicinity, was deemed ineligible for listing with the California Register of Historical Resources (CRHR) since it was not a significant resource from an architectural, historical, or engineering perspective.

4. Pedestrian surveys of the APE did not reveal additional sites that may be eligible for listing as historic resources in the CRHR.

5. The potential for impacts to unknown cultural resources may not be discovered until subsurface soils are exposed during excavation and construction.

6. The project owner will implement a Cultural Resources Monitoring and Mitigation Plan (CRMMP) to protect known and unknown resources, including avoidance, physical demarcation and protection, worker education, archeological monitoring, Native American monitoring, authority of monitor to halt construction, and the filing of a cultural resources report and significance review.

7. The potential for cumulative impacts to cultural resources is insignificant.

8. The mitigation measures contained in the Conditions of Certification below ensure that any direct, indirect, or cumulative adverse impacts to cultural resources resulting from project-related activities will be insignificant.

The Commission therefore concludes that implementation of the Conditions of Certification, below, will ensure the project conforms with all applicable laws, ordinances, regulations, and standards relating to cultural resources as set forth in the pertinent portions of **Appendix A** of this Decision.

CONDITIONS OF CERTIFICATION

CUL-1 Prior to the start of preconstruction site mobilization, construction ground disturbance, construction grading, boring and trenching, and construction, the project owner shall obtain the services of a Cultural Resources Specialist (CRS) and one or more alternates, if alternates are needed. The CRS shall manage all monitoring, mitigation, curation, and reporting activities required in accordance with the Conditions of Certification (Conditions). The CRS may elect to obtain the services of Cultural Resources Monitors (CRMs) and other technical specialists, if needed, to assist in monitoring, mitigation, and curation activities. The project owner shall ensure that the CRS makes recommendations regarding the eligibility to the California Register of Historical Resources (CRHR) of any cultural resources that are newly discovered or that may be affected in an unanticipated manner (Discovery). No preconstruction site mobilization, construction ground disturbance; construction grading, boring and trenching, or construction shall occur prior to CPM approval of the CRS unless such activities are 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

The resumes for the CRS and alternate(s) shall include information demonstrating to the satisfaction of the CPM that their training and backgrounds conform to the U.S. Secretary of Interior's Professional Qualifications Standards, as published in the Code of Federal Regulations, 36 CFR Part 61. In addition, the CRS shall have the following qualifications:

1. The CRS's qualifications shall be appropriate to the needs of the project and shall include a background in anthropology, archaeology, history, architectural history, or a related field; and

2. At least three years of archaeological or historic, as appropriate, resource mitigation and field experience in California.

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 demonstrate that the CRS has the appropriate education and experience to accomplish the cultural resources tasks that must be addressed during ground disturbance, grading, construction, and operation.

CULTURAL RESOURCES MONITORS

CRMs shall have the following qualifications:

1. a BS or BA degree in anthropology, archaeology, historical archaeology or a related field, and one year experience monitoring in California; or

2. an AS or AA degree in anthropology, archaeology, historical archaeology or a related field, and four years experience monitoring in California; or

3. enrollment in upper division classes pursuing a degree in the fields of anthropology, archaeology, historical archaeology or a related field, and two years of monitoring experience in California.

CULTURAL RESOURCES TECHNICAL SPECIALISTS

The resume(s) of any additional technical specialists, e.g., historical 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 preconstruction site mobilization, construction ground disturbance, construction grading, boring and trenching, and construction, the project owner shall submit the resume for the CRS, and alternate(s) if desired, to the CPM for review and approval.

At least 10 days prior to a termination or release of the CRS, or within 10 days after the resignation of a CRS, the project owner shall submit the resume of the proposed new CRS to the CPM for review and approval. At the same time, the project owner shall also provide to the proposed new CRS the AFC and all cultural documents, field notes, photographs, and other cultural materials generated by the project.

At least 20 days prior to preconstruction site mobilization, construction ground disturbance, construction grading, boring and trenching, and construction, the CRS shall provide a letter naming any CRMs for the project and stating that the identified CRMs meet the minimum qualifications for cultural resources 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 5 days prior to the CRMs beginning on-site duties.

At least 10 days prior to beginning tasks, the resume(s) of any additional technical specialists shall be provided to the CPM for review and approval.

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

CUL-2 Prior to the start of preconstruction site mobilization, construction ground disturbance, construction grading, boring and trenching, and construction, if the CRS has not previously worked on the project, the project owner shall provide the CRS with copies of the AFC, data responses, and confidential cultural resources reports for the project. The project owner shall also provide the CRS and the CPM with maps and drawings showing the footprint of the power plant and all linear facilities. Maps shall include the appropriate USGS quadrangles and a map at an appropriate scale (e.g., 1:2000 or 1" = 200') for plotting cultural features or materials. If the CRS requests enlargements or strip maps for linear facility routes, the project owner shall provide copies to the CRS and CPM. The CPM shall review submittals and, in consultation with the CRS, approve those that are appropriate for use in cultural resources planning activities. No preconstruction site mobilization, construction ground disturbance, construction grading, boring and trenching, and construction activities shall occur prior to CPM approval of maps and drawings unless such activities are specifically approved by the CPM.

If construction of the project would proceed in phases, maps and drawings, not previously provided, shall be submitted prior to the start of each phase. Written notification identifying the proposed schedule of each project phase shall be provided to the CRS and CPM.

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

The project owner shall notify the CRS and CPM of any changes to the scheduling of the construction phases.

Verification:

At least 40 days prior to the start of preconstruction site mobilization, construction ground disturbance, construction grading, boring and trenching, and construction, the project owner shall provide the AFC, data responses, and confidential cultural resources documents to the CRS, if needed, and the subject maps and drawings to the CRS and CPM. The CPM will review submittals in consultation with the CRS and approve maps and drawings suitable for cultural resources planning activities.

If there are changes to any project-related footprint, revised maps and drawings shall be provided at least 15 days prior to start of preconstruction site mobilization, construction ground disturbance, construction grading, boring and trenching, and construction for those changes.

If project construction is phased, if not previously provided, the project owner shall submit the subject maps and drawings 15 days prior to each phase.

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

Within 5 days of identifying changes, the project owner shall provide written notice of any changes to the scheduling of construction phase.

CUL-3 Prior to the start of preconstruction site mobilization, construction ground disturbance, construction grading, boring and trenching, and construction, the project owner shall submit the Cultural Resources Monitoring and Mitigation Plan (CRMMP), as prepared by or under the direction of the CRS, to the CPM for review and approval. The 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 construction manager. No preconstruction site mobilization, construction ground disturbance, construction grading, boring and trenching, or construction shall occur prior to CPM approval of the CRMMP unless such activities are specifically approved by the CPM.

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

1. A proposed general research design that includes a discussion of archaeological research questions and testable hypotheses specifically applicable to the project area, and a discussion of artifact collection, retention/disposal, and curation policies as related to the research questions formulated in the research design. A prescriptive treatment plan may be included in the CRMMP for limited resource types. A refined research design will be prepared for any resource where data recovery is required.

2. The following statement shall be included in the Introduction: "Any discussion, summary, or paraphrasing of the Conditions in this CRMMP is intended as general guidance and as an aid to the user in understanding the Conditions and their implementation. The Conditions, as written in the Commission Decision, shall supersede any summarization, description, or interpretation of the Conditions in the CRMMP. The Cultural Resources Conditions of Certification from the Commission Decision are contained in Appendix A."

3. Specification of the implementation sequence and the estimated time frames needed to accomplish all project-related tasks during ground disturbance, construction, and post-construction analysis phases of the project.

4. Identification of the person(s) expected to perform each of the tasks, their responsibilities, and the reporting relationships between project construction management and the mitigation and monitoring team.

5. A description of the manner in which Native American observers or monitors will be included, the procedures to be used to select them, and their role and responsibilities.

6. A description of all impact-avoidance measures (such as flagging or fencing) to prohibit or otherwise restrict access to sensitive resource areas that are to be avoided during construction and/or operation, and identification of areas where these measures are to be implemented. The description shall address how these measures would be implemented prior to the start of construction and how long they would be needed to protect the resources from project-related effects.

7. A statement that all cultural resources encountered shall be recorded on a State of California Department of Parks and Recreation DPR-523 form, mapped, and photographed. In addition, all archaeological materials collected as a result of the archaeological investigations (survey, testing, data recovery) shall be curated, in accordance with the State Historical Resources Commission's *Guidelines for the Curation of Archaeological Collections*, into a retrievable storage collection in a public repository or museum.

8. A statement that the project owner will pay all curation fees and a copy of an agreement with, or other written commitment from, a curation facility to accept artifacts from this project. Any agreements concerning curation will be retained and available for audit for the life of the project.

9. A statement that the CRS has access to equipment and supplies necessary for site mapping, photographing, and recovering any cultural resources materials encountered during construction.

10. A description of the contents and format of the Cultural Resources Report (CRR), which shall be prepared according to ARMR guidelines.

Verification:

At least 30 days prior to the start of preconstruction site mobilization, construction ground disturbance, construction grading, boring and trenching, and construction, the project owner shall submit the subject CRMMP to the CPM for review and approval. Preconstruction site mobilization, construction ground disturbance, construction grading, boring and trenching, or construction may not commence until the CRMMP is approved, unless specifically approved by the CPM.

At least 30 days prior to the start of preconstruction site mobilization, construction ground disturbance, construction grading, boring and trenching, and construction, a letter shall be provided to the CPM indicating that the project owner agrees to pay curation fees for any materials collected as a result of the archaeological investigations (survey, testing, data recovery).

CUL-4 The project owner shall submit the Cultural Resources Report (CRR) to the CPM for approval. The CRR shall be written by or under the direction of the CRS and shall be provided in the ARMR format. The CRR shall report on all field activities including dates, times and locations, findings, samplings, and analyses. All survey reports, DPR-523 forms, and additional research reports not previously submitted to the California Historical Resources Information System (CHRIS) and the State Historic Preservation Officer (SHPO) shall be included as an appendix to the CRR.

If the project owner requests a suspension of construction activities, then a draft CRR that covers all cultural resources activities associated with the project shall be prepared by the CRS and submitted to the CPM for review and approval on the same day as the suspension/extension request. The draft CRR shall be retained at the project site in a secure facility until construction resumes or the project is withdrawn. If the project is withdrawn, then a final CRR shall be submitted to the CPM for review and approval at the same time as the withdrawal request.

Verification:

Within 90 days after completion of ground disturbance (including landscaping), the project owner shall submit the CRR to the CPM for review and approval. If any reports have previously been sent to the CHRIS, then receipt letters from the CHRIS or other verification of receipt shall be included in an appendix.

Within 10 days after CPM approval, the project owner shall provide documentation to the CPM that copies of the CRR have been provided to the SHPO, the CHRIS, and the curating institution if archaeological materials were collected.

Within 30 days after requesting a suspension of construction activities, the project owner shall submit a draft CRR to the CPM for review and approval.

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

1. A discussion of applicable laws and penalties under the law;

2. Samples or visuals of artifacts that might be found in the project vicinity;

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

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

5. An informational brochure that identifies reporting procedures in the event of a Discovery;

6. An acknowledgement form signed by each worker indicating that they have received the training; and

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

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

Verification:

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

On a monthly basis, the project owner shall provide in the Monthly Compliance Report (MCR) the WEAP Training Acknowledgement forms of persons who have completed the training in the prior month and a running total of all persons who have completed training to date.

CUL-6 The project owner shall ensure that the CRS, alternate CRS, or CRMs monitor preconstruction site mobilization, construction ground disturbance, construction grading, boring and trenching, and construction full time to ensure there are no impacts to undiscovered resources and to ensure that known resources are not impacted in an unanticipated manner (Discovery), anywhere there is excavation into undisturbed native soils on the plant site, at the HDD bore pits, and at each location where a new transmission line pole is installed or an old transmission line pole is removed along the transmission line route.

Full-time archaeological monitoring for this project shall be the archaeological monitoring of all native soil removing activities on the construction site or along the linear facility routes for as long as the activities are ongoing. Full-time archaeological monitoring shall require at least one monitor per excavation area where machines are actively removing native soils. If an excavation area is too large for one monitor to effectively observe the soil removal, one or more additional monitors shall be retained to observe the area.

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

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

On forms provided by the CPM, CRMs shall keep a daily log of any monitoring and other cultural resources activities and any instances of non-compliance with the Conditions and/or applicable LORS. From these logs, the CRS shall compile a monthly monitoring summary report to be included in the MCR. Copies of the daily monitoring logs shall be provided by the CRS to the CPM if requested by the CPM. If there are no monitoring activities, the summary report shall specify why monitoring has been suspended. The CRS or alternate CRS shall report daily to the CPM on the status of cultural resources related activities at the construction site, unless reducing or ending daily reporting is requested by the CRS and approved by the CPM.

The CRS, at his or her discretion or at the request of the CPM, may informally discuss cultural resource monitoring and mitigation activities with Energy Commission technical staff (Staff).

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

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

A Native American monitor shall be obtained to monitor ground disturbance in areas where Native American artifacts have been discovered. Informational lists of concerned Native Americans and guidelines for monitoring shall be obtained from the Native American Heritage Commission. Preference in selecting a monitor shall be given to Native Americans with traditional ties to the area that shall be monitored.

Verification:

At least 30 days prior to the start of preconstruction site mobilization, construction ground disturbance, construction grading, boring and trenching, and construction, the CPM will provide to the CRS an electronic copy of a form to be used as a daily monitoring log. While monitoring is ongoing, the project owner shall include in each MCR a copy of the monthly summary report of cultural resources related monitoring prepared by the CRS.

Daily, the CRS shall provide a statement that “no cultural resources over 50 years of age were discovered” to the CPM as an e-mail, or in some other form acceptable to the CPM. If the CRS concludes that daily reporting is no longer necessary, a letter or e-mail providing a detailed justification for the decision to reduce or end daily reporting shall be provided to the CPM for review and approval at least 24 hours prior to reducing or ending daily reporting.

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

CUL-7 The project owner shall grant authority to halt construction to the CRS, alternate CRS, and the CRMs in the event of a Discovery. Redirection of

ground disturbance shall be accomplished under the direction of the construction supervisor in consultation with the CRS.

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

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

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

3. The CRS, the project owner, and the CPM have conferred and the CPM has concurred with the recommended eligibility of the Discovery and approved the CRS’s proposed data recovery, if any, including the curation of the artifacts or other appropriate mitigation, and any necessary data recovery and mitigation have been completed.

Verification:

At least 30 days prior to the start of preconstruction site mobilization, construction ground disturbance, construction grading, boring and trenching, and construction, the project owner shall provide the CPM and CRS with a letter confirming that the CRS, alternate CRS, and CRMs have the authority to halt construction activities in the vicinity of a cultural resources Discovery, and that the project owner shall ensure that the CRS notifies the CPM within 24 hours of a Discovery, or by Monday morning if the cultural resources Discovery occurs between 8:00 AM on Friday and 8:00 AM on Sunday morning.

Completed DPR form 523s shall be submitted to the CPM for review and approval no later than 24 hours following the notification of the CPM, or 48 hours following the completion of data recordation/recovery, whichever is more appropriate for the subject cultural material.

D. GEOLOGY AND PALEONTOLOGY

This section discusses whether the project will result in significant adverse impacts to geological, mineralogical, and paleontological resources. In addition, this section considers whether project-related activities will cause public exposure to geological hazards; and if so, whether proposed mitigation measures will adequately protect public health and safety.

SUMMARY AND DISCUSSION OF THE EVIDENCE

The project site is relatively level and consists of reclaimed tidal flats. The site is immediately underlain by artificial fill, younger bay mud (intertidal deposits), alluvial terrace deposits, basin deposits, floodplain deposits, and alluvial fan and fluvial deposits. The artificial fill across the existing building footprint is approximately 5 to 6.5 feet deep. This material is classified as medium dense to very dense clay gravel. Although the artificial fill could contain fossils, any such fossils would lack stratigraphic context and represent very limited scientific and educational value. (Ex. 200, p. 5.2-3; Ex. 1, § 8.15.3.2; Ex. 6.)

The native materials underlying the fill generally consist of clay soils with thin interbeds of granular materials. These materials exhibit consolidation potential when loaded, and are subject to substantial changes in volume with changes in moisture content. The interbeds of granular soils are found below a depth of 10 feet in 3 to 10-foot-thick layers. These soils are classified as loose to medium dense. (Ex. 200, p. 5.2-3; Ex, 6.)

With the exception of artificial fill, the materials that underlie the site have produced numerous significant plant, invertebrate, and vertebrate fossils at previously recorded fossil sites and, as a result, have a high potential for additional similar fossils to be uncovered by excavations for project construction that extend into native materials. (Ex. 200, p. 5.2-3; Ex, 6.)

1. Potential for Seismic Events

The project area is designated Seismic Zone 4 for the highest level of earthquake activity as defined by the California Building Code (CBC). Pursuant to the CBC, the Applicant provided a site-specific Geotechnical Investigation to assess the potential for ground rupture, liquefaction, dynamic compaction, hydrocollapse, subsidence, expansive soils, and landslides beneath or adjacent to project components that would present potential hazards associated with strong seismic shaking and/or unusual water infusion. (Ex. 6; Ex. 200, p. 5.2-4.)

The evidentiary record indicates there is potential for occurrence of these phenomena at the project site in the event of seismic activity; however, such geologic hazards can be effectively mitigated by implementing the design measures included in the Geotechnical Investigation as well as Conditions **GEN-1**, **GEN-5**, and **CIVIL-1** in the **Facility Design** section of this Decision. (Ex. 1, § 8.15.3.4; Appendix 10G; Ex. 6; Ex. 200, p. 5.2-4 et seq.)

No active or potentially active faults are known to cross the power plant footprint or its associated linear facilities. However, three Class A faults were identified within 32 kilometers (19.9 miles) of the EEC site. [98] (Ex. 200, p. 5.2-6; Ex. 1, § 8.15.3.3.)

The closest is the Hayward Fault, located approximately 5.3 kilometers (3.3 miles) east of the site. The maximum moment magnitude earthquake for the segment of the Hayward Fault closest to the project is a moment magnitude 7.3 event. The San Andreas Fault is located approximately 24.2 kilometers (15.0 miles) west of the project site. The maximum moment magnitude earthquake for the segment of the San Andreas Fault closest to the project is a moment

[98] Under the CBC, a fault with a maximum moment magnitude greater than 7 and a slip rate in excess of 5 mm/year is classified a Class "A" fault. The maximum moment magnitude

magnitude 7.9 event. The Calaveras Fault is located approximately 17.7 kilometers (11.0 miles) east of the project site. The maximum moment magnitude earthquake for the segment of the Calaveras Fault closest to the project is a 6.8 moment magnitude event. (Ex. 200, p. 5.2-6.)

Evidence indicates that ground water at the site is present at shallow depths and that a loose to medium dense clayey sand layer is present at the site and along the linear alignments.[99] This layer exhibits potential for liquefaction during major earthquakes.[100] As a result, the site represents a moderate potential for liquefaction during a large earthquake; however, this potential impact can be mitigated to less than significant through facility design measures required by the CBC and incorporated in the Conditions set forth in the **Facility Design** section of this Decision.

Dynamic compaction of soils results when relatively unconsolidated granular materials experience vibration associated with seismic events. Since the site is generally underlain by fine grain and clay soils, with interbeds of granular materials, the potential for localized areas of dynamic compaction is considered low for the site and associated linear facilities. (Ex. 200, p. 5.2-7.)

Hydrocompaction due to collapsible soil occurs when partially saturated soils such as sand and silt lose cohesion due to prolonged underwater submergence. Since the plant site and linear facilities are generally underlain by fine grain and clay soils with a relatively shallow ground water table, the potential for hydrocompaction of site soils is considered low. (Ex. 200, p. 5.2-7.)

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earthquake is defined as the largest earthquake that a given fault is considered capable of generating. (Ex. 200, p. 5.2-6.)

[99] Ground water was measured at a depth of 12 feet below existing grade at the time of site exploration. (Ex. 200, p. 5.2-3; Ex. 6.)

[100] Liquefaction is a condition in which a cohesionless soil loses its shear strength due to a sudden increase in pore water pressure. (Ex. 200, p. 5.2-6.)

Ground subsidence is caused when ground water is drawn down by irrigation, which increases the weight of the soil mass and causes settlement of the underlying soils. Since the EEC will obtain water via an existing city water supply pipeline, drawdown of the water table due to project operation is not anticipated. Therefore, the potential for ground subsidence is considered low. (Ex. 200, p. 5.2-7 et seq.) However, the presence of compressible fine grain and clay soils across the entire site could cause differential settlement since conventional foundation surcharge loads could be excessive. According to Staff, design of the heavier structures at the site requires ground improvement techniques or deep foundations to minimize differential settlement to acceptable levels. (*Id.* at p. 5.2-8.) This potential impact will be mitigated to less than significant through facility design as required by Conditions **GEN-1**, **GEN-5**, and **CIVIL-1** in the **Facility Design** section of this Decision.

Soil expansion occurs when added moisture in clay-rich soils causes an increase in the overall volume of the soil. This increase in volume can correspond to movement of overlying structures. The native clay soils across the project site exhibit medium to high expansion potential when subjected to changes in moisture content. (Ex. 200, p. 5.2-8.) This potential impact can be mitigated to less than significant through facility design as required by Conditions **GEN-1**, **GEN-5**, and **CIVIL-1** in the **Facility Design** section.

Finally, the evidence indicates that the potential of landslides, tsunamis, and/or seiches to affect operation of the facility is considered low. (Ex. 200, p. 5.2-8.)

Regarding public comments indicating concern about project-related seismic impacts, Conditions **GEN-1**, **GEN-5**, and **CIVIL-1** in the **Facility Design** section of this Decision require the project owner to submit the appropriate design calculations and specifications and the required CBC geotechnical reports for approval before project construction.

2. Potential Impacts to Paleontological Resources

No geological or mineralogical resources are known to exist in the site vicinity. However, paleontological resources have been documented within 3 miles of the site. Therefore, due to the high probability of encountering paleontological resources during project construction (specifically, grading and ground-moving activities), Staff proposed several measures to mitigate potential impacts, including an on-site Paleontologic Resource Specialist to monitor activities and the implementation of a Paleontologic Resources Monitoring and Mitigation Plan. (Ex. 200, p. 5.2-9.) These mitigation measures are incorporated in Conditions of Certification **PAL 1** through **PAL-7**, below.

FINDINGS AND CONCLUSIONS

Based on the uncontroverted evidence of record, the Commission makes the following findings and conclusions:

1. The project is located in Seismic Zone 4, which presents significant earthquake hazards.

2. The project will be designed to withstand strong earthquake shaking in accordance with the requirements for Seismic Zone 4 established in the California Building Code (CBC).

3. Final project design will comply with the CBC and include measures to mitigate potential risk from ground rupture, liquefaction, dynamic compaction, hydrocollapse, subsidence, expansive soils, and landslides associated with strong seismic shaking.

4. There is no potential for flooding at the site from earthquake-induced tsunamis or seiches.

5. There is no evidence of existing or potential geological or mineralogical resources at the project site or along the linear alignments.

6. Paleontological resources have been identified within 3 miles of the site and the probability of encountering paleontologic resources during project construction is high.

7. The project owner will implement several mitigation measures to avoid impacts to paleontological resources, including a Paleontological Monitoring and Mitigation Plan.

8. Compliance with the Conditions of Certification specified below will ensure the Project conforms with all applicable laws, ordinances, regulations, and standards related to geological, mineralogical, and paleontological resources as identified in **Appendix A** of this Decision.

The Commission therefore concludes that implementation of the Conditions of Certification in the **Facility Design** section of this Decision and the Conditions listed below ensure that Project activities will not cause adverse impacts to either geological, mineralogical, or paleontological resources or expose the public to geological hazards.

General Conditions of Certification with respect to geological resources are covered under Conditions of Certification **GEN-1**, **GEN-5**, and **CIVIL-1** in the **Facility Design** section. Conditions of Certification to protect paleontological resources are listed below.

CONDITIONS OF CERTIFICATION

PAL-1 The project owner shall provide the Compliance Project Manager (CPM) with the resume and qualifications of its Paleontological Resource Specialist (PRS) for review and approval. If the approved PRS is replaced prior to completion of project mitigation and submittal of the Paleontological Resources Report, the project owner shall obtain CPM approval of the replacement PRS. The project owner shall 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 the project as he or she deems necessary. Paleontologic resource monitors (PRMs) 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 or strip maps for linear facility routes, the project owner shall provide copies to the PRS and CPM. The site grading plan and the plan and profile drawings for the utility lines are be acceptable for this purpose. The plan drawings shall show the location, depth, and extent of all ground disturbances and can be at a scale of 1 inch = 40 feet to 1 inch = 100 feet range. If the footprint of the power plant or linear facility changes, the project owner shall provide maps and drawings reflecting these changes to the PRS and CPM.

If construction of the project will proceed in phases, maps and drawings may be submitted prior to the start of each phase. A letter identifying the proposed schedule of each project phase shall be provided to the PRS and CPM. Prior to work commencing on affected phases, the project owner shall notify the PRS and CPM of any construction phase scheduling changes.

At a minimum, the project owner shall ensure that the PRS or PRM consults weekly with the project superintendent or construction field manager to confirm area(s) to be worked during the next week, until ground disturbance is completed.

Verification: 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.

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.

If there are changes to the scheduling of the construction phases, the project owner shall submit a letter to the CPM within 5 days of identifying the changes.

PAL-3 The project owner shall ensure that the PRS prepares, and the project owner submits to the CPM for review and approval, a Paleontological Resources Monitoring and Mitigation Plan (PRMMP) to identify general and specific measures to minimize potential impacts to significant paleontological resources. Approval of the PRMMP by the CPM shall occur prior to any ground disturbance. The PRMMP shall function as the formal guide for monitoring, collecting, and sampling activities and may be modified with CPM approval. This document shall be used as a basis for discussion in the event that on-site decisions or changes are proposed. Copies of the PRMMP shall reside with the PRS, each monitor, the project owner's on-site manager, and the CPM.

The PRMMP shall be developed in accordance with the guidelines of the Society of Vertebrate Paleontology (SVP, 1995) and shall include, but not be limited to, the following:

1. Assurance that the performance and sequence of project-related tasks, such as any literature searches, pre-construction surveys, worker environmental training, fieldwork, flagging or staking, construction monitoring, mapping and data recovery, fossil preparation and collection, identification and inventory, preparation of final reports, and transmittal of materials for curation will be performed according to the PRMMP procedures;

2. Identification of the person(s) expected to assist with each of the tasks identified within the PRMMP and the Conditions of Certification;

3. A thorough discussion of the anticipated geologic units expected to be encountered, the location and depth of the units relative to the project when known, and the known sensitivity of those units based on the occurrence of fossils either in that unit or in correlative units;

4. An explanation of why, how, and how much sampling is expected to take place and in what units. Include descriptions of different sampling procedures that shall be used for fine-grained and coarse-grained units;

5. A discussion of the locations 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 which meets the Society of Vertebrate Paleontology standards and requirements for the curation of paleontological resources;

9. Identification of the institution that has agreed to receive any data and fossil materials collected, requirements or specifications for materials delivered for curation and how they will be met, and the name and phone number of the contact person at the institution; and

10. A copy of the paleontological Conditions of Certification.

Verification: At least 30 days prior to ground disturbance, the project owner shall provide a copy of the PRMMP to the CPM. The PRMMP shall include an affidavit of authorship by the PRS and acceptance of the PRMMP by the project owner evidenced by a signature.

PAL-4 Prior to ground disturbance and for the duration of construction, the project owner and the PRS shall prepare and conduct weekly CPM-approved training for all recently employed project managers, construction supervisors, and workers who are involved with or operate ground disturbing equipment or tools. Workers shall not excavate in sensitive units prior to receiving CPM-approved worker training. Worker training shall consist of an initial in-person PRS training during the project kick-off for those mentioned above. Following initial training, a CPM-approved video or in-person training may be used for new employees. The training program may be combined with other training programs prepared for cultural and biological resources, hazardous materials, or any other areas of interest or concern. If appropriate, multi-lingual training shall be provided for workers not fluent in English. 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: 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.

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.

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.

In the Monthly Compliance Report (MCR) the project owner shall provide copies of the WEAP Certification of Completion forms with the names of those trained and the trainer or type of training (in-person or video) offered that month. The MCR shall also include a running total of all persons who have completed the training to date.

PAL-5 The project owner shall ensure that the PRS and PRM(s) monitor consistent with the PRMMP all construction-related grading, excavation, trenching, and augering in areas where potentially fossil-bearing materials have been identified, both at the site and along any constructed linear facilities associated with the project. In the event that the PRS determines full time monitoring is not necessary in locations that were identified as potentially fossil-bearing in the PRMMP, the project owner shall notify and seek the concurrence of the CPM.

The project owner shall ensure that the PRS and PRM(s) have the authority to halt or redirect construction if paleontological resources are encountered. The project owner shall ensure that there is no interference with monitoring activities unless directed by the PRS. Monitoring activities shall be conducted as follows:

1. Any change of monitoring different from the accepted schedule presented in the PRMMP shall be proposed in a letter or email from the PRS and the project owner to the CPM prior to the change in monitoring and included in the Monthly Compliance Report. The letter or email shall include the justification for the change in monitoring and be submitted to the CPM for review and approval.

2. The project owner shall ensure that the PRM(s) keeps a daily log of monitoring of paleontological resource activities. The PRS may informally discuss paleontological resource monitoring and mitigation activities with the CPM at any time.

3. The project owner shall ensure that the PRS immediately notifies the CPM within 24 hours of the occurrence of any incidents of non-

compliance with any paleontological resources Conditions of Certification. The PRS shall recommend corrective action to resolve the issues or achieve compliance with the Conditions of Certification.

4. For any significant paleontological resources encountered, either the project owner or the PRS shall notify the CPM within 24 hours (or Monday morning in the case of a weekend) when construction has been halted due to a paleontological find.

The project owner shall ensure that the PRS prepares a summary of the monitoring and other paleontological activities that will be placed in the Monthly Compliance Reports (MCR). The summary will include the name(s) of PRS or PRM(s) active during the month, general descriptions of training and monitored construction activities, and general locations of excavations, grading, etc. A section of the report shall include the geologic units or subunits encountered; descriptions of sampling within each unit; and a list of identified fossils. A final section of the report will address any issues or concerns about the project relating to paleontologic monitoring including any incidents of non-compliance and any changes to the monitoring plan that have been approved by the CPM. If no monitoring took place during the month, the report shall include an explanation in the summary as to why monitoring was not conducted.

Verification: The project owner shall ensure that the PRS submits the summary of monitoring and paleontological activities in the MCR. When feasible, the CPM shall be notified 10 days in advance of any proposed changes in monitoring different from the plan identified in the PRMMP. If there is any unforeseen change in monitoring, the notice shall be given as soon as possible prior to implementation of the change.

PAL-6 The project owner, through the designated PRS, shall ensure that all components of the PRMMP are adequately performed including collection of fossil materials, preparation of fossil materials for analysis, analysis of fossils, identification and inventory of fossils, the preparation of fossils for curation, and the delivery for curation of all significant paleontological resource materials encountered and collected during the project construction.

Verification: The project owner shall maintain in its compliance file copies of signed contracts or agreements with the designated PRS and other qualified research specialists. The project owner shall maintain these files for a period of three years after completion and approval of the CPM-approved Paleontological Resource Report (See **PAL-7**). The project owner shall be responsible to pay any curation fees charged by the museum for fossils collected and curated as a result

of paleontological mitigation. A copy of the letter of transmittal submitting the fossils to the curating institution shall be provided to the CPM.

PAL-7 The project owner shall ensure preparation of a Paleontological Resources Report (PRR) by the designated PRS. The PRR shall be prepared following completion of the ground disturbing activities. The PRR shall include an analysis of the collected fossil materials and related information, and submitted to the CPM for review and approval.

The report shall include, but is not limited to: a description and inventory of recovered fossil materials; a map showing the location of paleontological resources encountered; determinations of sensitivity and significance; and a statement by the PRS that project impacts to paleontological resources have been mitigated below the level of significance.

Verification: Within 90 days after completion of ground disturbing activities, including landscaping, the project owner shall submit the Paleontological Resources Report under confidential cover to the CPM.

Certification of Completion
Worker Environmental Awareness Program
Eastshore Energy Center (Docket #06-AFC-6)

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
1.			
2.			
3.			
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19.			
20.			

Cultural Trainer: _____ Signature:_____Date: ___/___/____

Paleo Trainer: _____ Signature:_____Date: ___/___/____

Biological Trainer: _____ Signature:_____Date: ___/___/__

Signature_____ Date ___/___/____

VII. LOCAL IMPACT ASSESSMENT

In general, a power plant may be incompatible with existing or planned land uses resulting in significant impacts such as unmitigated noise, dust, public health or safety hazards, adverse traffic or visual effects, or an excessive burden on local community services. The following sections of the Decision discuss local impacts under the technical topics of land use, traffic and transportation, visual resources, noise, and socioeconomics.

A. LAND USE

To determine whether the EEC project will result in a significant impact on land use, the analysis focuses on two main issues (1) whether the project is consistent with local land use plans, ordinances, and policies; and (2) whether the project is compatible with existing and planned land uses.

Summary and Discussion of the Evidence

According to CEQA Guidelines[101] a project results in significant land use impacts if it would:

- Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use.
- Conflict with existing zoning for agricultural use or a Williamson Act contract.
- Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural uses.
- Physically disrupt or divide an established community.
- Conflict with any applicable habitat conservation plan or natural community conservation plan.

[101] Title 14, Cal. Code Regs., Section 15000 et seq., Appendix G, Sections II, IX, XVI.

- Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction, or that would normally have jurisdiction, over the project. This includes, but is not limited to, a General Plan, community or specific plan, local coastal program, airport land use compatibility plan, or zoning ordinance.
- Create individual environmental effects which, when considered with other impacts from the same project or in conjunction with impacts from other closely related past, present, and reasonably foreseeable future projects, are considerable, compound, or increase other environmental impacts.

Local ordinances and policies applicable to the EEC include the City of Hayward's General Plan (2002 Update) and Municipal Code (HMC), and the Alameda County Airport Land Use Policy Plan (ALUPP).

Staff's Land Use Tables 2 and 3, below, describe the general plan and zoning designations within the one-mile radius of the site.

Land Use Table 2
General Plan Land Use Designations
Within the One-Mile Radius Project Study Area

Jurisdiction	General Plan Land Use Designation*
City of Hayward	North: Industrial Corridor, Residential (low and medium density residential and mobile home park to the northwest); Retail and Office Commercial; Public and Quasi-Public South: Industrial Corridor, Transportation Corridor (State Route [SR] 92 Freeway) East: Industrial Corridor; Residential (low, limited medium, and high density residential); Public and Quasi-Public; Retail and Office Commercial; isolated strip of Park and Recreation to the southeast. West: Industrial Corridor; Open Space (Baylands)

Source: Ex. 200, p. 4.5-4

Land Use Table 3
Zoning Designations
Within the One-Mile Radius Project Study Area

Jurisdiction	Zoning Designation*
City of Hayward	North: Industrial (I); Planned Development (PD; northwest); Single Family Residential/Minimum Lot Size – 5,000 ft^2 (RS); Medium Density Residential/Minimum Lot Area – 2,500 ft^2 (RM); Mobile Home Park; Central Business South: Industrial East: o Single Family Residential/Minimum Lot Size – 5,000 ft^2 (RS) o Medium Density Residential/Minimum Lot Area – 2,500 ft^2 (RM) o High Density Residential/Minimum Lot Area – 1,250 ft^2 (RH) o Neighborhood Commercial (CN) o Industrial; Light Manufacturing (LM); Business Park (BP) o Planned Development West: Industrial; Flood Plain (FP)

Source: Ex. 200, p. 4.5-5.

1. The Site

The project site is located within the City's Industrial Corridor and bounded on the north by the Union Pacific Rail Corridor, several warehouses, and a gasoline station with propane tanks. The Berkeley Farms processing plant is located to the east of the site; a commercial business park and Herning Investments (industrial trucking and storage) to the south; and Depot Industrial Properties (industrial warehousing) to the west. The site is approximately one mile south of the Hayward Executive Airport, within the airport's airspace and the Airport Influence Area, as identified in the ALUPP. (Ex. 200, p. 4.5-4.)

Proximity to Sensitive Receptors. Under CEQA, a project site may be considered unacceptable if it presents a new source of pollution or creates a hazard in close proximity to a sensitive receptor. Sensitive receptor sites include

schools, day-care centers, hospitals, nursing homes, and residential areas.[102] Close proximity is defined as "within 1,000 feet" of a school (California Health & Safety Code § 42301.6 et seq.) or within 0.25 mile of a sensitive receptor under CEQA. Proximity is not necessarily the deciding factor for a potentially significant impact but it is the threshold generally used to require further evaluation. (Ex. 200, p. 4.5-25.)

The EEC's location in the eastern Industrial Corridor area is approximately 0.5 mile from most areas zoned for residential, public, and retail commercial use. There are five schools (Life Chiropractic College West (LCCW), ITT Technical Institute, Eden Gardens Elementary School, Anthony W. Ochoa Middle School, and Lea's Montessori Christian School) within a one-mile radius of the project site. The closest, LCCW, is located *less* than 1,000 feet east of the site. LCCW and ITT are vocational/trade schools, which were approved by the City as compatible uses within the Industrial Corridor. Ochoa Middle School, the nearest public school, is located approximately 0.5 mile east of the site. Other potential sensitive receptors within one mile of the site include Eden West Convalescent Hospital and Senior Group Home (approximately 1.0 mile northeast) and the Waterford Apartments (approximately 1,850 feet east). (Ex. 200, p. 4.5-26; Ex. 1, Appendix 8.1D: Table 8.1D-4 and Figure 8.1D-1.)

The closest single family residence is approximately 1,120 feet northeast of the project site but most residences are located east of Industrial Boulevard outside the Industrial Corridor and at least 0.5 mile to the east-northeast of the site. Residences are no longer a permitted use in the Industrial Zoning District. There are individual, isolated residences within the Industrial Corridor but they are non-conforming uses that lawfully existed when the area was rezoned Industrial and were allowed to remain. (Ex. 200, p. 4.5-26.)

[102] Sensitive receptor locations include those sites where people who would be more adversely affected by pollutants, toxins, noise, dust, or other project-related consequence or activity are likely to live or gather. Children, people who are ill or immune-compromised, or the elderly are

2. Potential Impacts

Conversion of Farmland. There is no evidence that the EEC will result in the conversion of farmland to non-agricultural use or conflict with existing agricultural zoning or Williamson Act contracts. (Ex. 200, p. 4.5-6; Ex. 1 § 8.4.6.2.)

Division of Existing Community. There is no evidence that the project will physically divide or disrupt an established community. (Ex. 200, pp. 4.5-6 to 4.5-7; Ex. 1 § 8.4.6.2.)

Conflict with Habitat or Conservation Plan. There is no regulatory habitat or Natural Community Conservation Plan specifically applicable to the EEC. (Ex. 200, p. 4.5-7; Ex. 1 § 8.4.6.2.)

3. Consistency with Land Use LORS.

The site is zoned Industrial (I) pursuant to Section 10-1.1600 of the Hayward Zoning Ordinance. The purpose of the I District is to encourage the development of industrial uses in suitable areas and to promote a desirable and attractive working environment with a minimum of detriment to surrounding properties. (HMC, § 10-1.605.)

The Land Use Element of the Hayward General Plan provides that the Industrial Corridor be divided into multiple zoning districts for integration or separation of land uses based on the presence of hazardous materials or intensity of use, the need for additional parking, or an increase in minimum parcel size to accommodate large scale manufacturing or research and development operations. (Ex. 406, p. 2-12, et seq.)

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generally considered more at risk from environmental pollutants. (Ex. 200, p. 4.5-25; Health and Safety Code, § 42100 (n).)

City Council Resolution 07-028. By unanimous vote on March 13, 2007, the Hayward City Council determined that the EEC is not consistent with the General Plan and Industrial Zoning District. The Council declared that:

> [the project is not] in harmony with the applicable General Plan policies that seek to 'promote and protect the appearance of the Business and Technology Corridor to encourage quality development' in that the 6.2-acre site proposed for the power plant is near the eastern edge of the industrial area of the City, abutting residential areas…. [The area] …would be more appropriately developed with emerging and higher technology businesses that tend to cluster and generate higher paying jobs. [In addition] …such uses (emerging and higher technology businesses) would have higher numbers of employees than the expected 15-20 employees anticipated for operation of the plant. (Ex. 404.)

Staff. Staff disagrees with the City Council Resolution arguing that the project is consistent with the General Plan since the project site is located in the Industrial Corridor, which is primarily devoted to industrial uses. (Ex. 200, p. 4.5-13.) Staff reviewed the following General Plan land use policies:

- **Land Use Policy 7**. Land Use Policy 7 describes the transition of the Industrial Corridor (Business and Technology Corridor) from a manufacturing-based economy to an information-based economy in industrial areas. (Ex. 406, p. 2-19, et seq.) Land Use Strategy 7(1) recommends that the City adopt multiple zoning districts within the Industrial Corridor to provide for a concentration of similar types of uses, such as manufacturing, warehouse/ distribution, or research and development/offices. (*Id*. at p. 2-19.)

  To implement Strategy 7(1), the City created zoning designations identified as Business Park District (BP) and Light Manufacturing; Planning/Research and Development District (LM). The BP District encourages the establishment of high quality business office parks within the Industrial Corridor. The LM District allows limited manufacturing and other light industrial uses within the Industrial Corridor compatible with business parks and adjacent residential areas. (HMC, §§ 10-1.1700 and 10-1.1800.)

  According to Staff, the City has neither approved any development of these districts near the EEC site nor taken formal action to exclude areas near the site from heavy manufacturing uses. Notably, the project site is adjacent to

the existing Berkeley Farms facility, which stores and uses anhydrous ammonia, a more potent and hazardous product than the aqueous ammonia proposed for the EEC. Other properties surrounding the site are primarily manufacturing, warehousing, and small wholesale, retail, and construction businesses. Staff therefore believes the EEC does not conflict with the goals expressed in Policy 7 nor obstruct implementation of Strategy 7(1) since it is grouped with other properties with similar uses in the Industrial Corridor. (Ex. 200, p. 4.5-11.)

- **Economic Policy 2**. Policy 2 of the General Plan's Economic Development Element encourages the creation of a sound local economy to attract investment, increase the tax base, create employment opportunities, and generate public revenues. (Ex. 407.)

  Economic Strategy 2(1) encourages revitalization of declining commercial and industrial areas through rezoning, redevelopment, rehabilitation, and other available means. (Ex. 407, p. 4-17.) According to Staff, the EEC will redevelop an existing industrial lot by replacing a vacant warehouse with a state-of-the-art energy facility that would provide tax revenues and employment opportunities. Staff therefore believes the project is consistent with Strategy 2(1). (Ex. 200, p. 4.5-12.)

  Economic Strategy 2(3) requires adequate infrastructure to support existing and new development. (Ex. 407, p. 4-17.) According to Staff, implementation of proposed Condition **LAND-1** would ensure that adequate infrastructure would be in place prior to the start of plant operations so that the EEC would be consistent with Strategy 2(3). (Ex. 200, p. 4.5-12.)

  Economic Strategy 2(5) limits uses that would erode the integrity of the Business and Technology Corridor and Strategy 2(7) directs the City to promote and protect the appearance of the Business and Technology. (Ex. 407, pp. 4-17 and 4-18.) Staff asserts that the EEC is consistent with Economic Strategies 2(5) and 2(7) because the City has not identified the Business and Technology Corridor as an area separate and distinct from the Industrial Corridor.[103] (Ex. 200, p. 4.5-12.)

[103] Staff asserted that the project is consistent with other uses currently permitted within the Industrial Corridor and adjacent to an existing facility with similar hazardous materials usage. Staff also notes that the EEC site does not *abut* a residential area as stated in Resolution 07-028, but is situated in the eastern half of an area set aside for industrial purposes. Additionally, the

- **Economic Policy 3**. Policy 3 of the Economic Development Element directs the City to facilitate the development of employment opportunities. Strategy 3(1) promotes commercial and industrial development to create and maintain the maximum job opportunities for area residents. (Ex. 407, p. 4-18.) Staff believes the EEC is consistent with Strategy 3(1) since it does not preclude limited employment at Industrial Corridor properties. (Ex. 200, p. 4.5-13.)

Applicant. Applicant believes the City's policy to encourage information-based industry is unenforceable and undefined. Echoing Staff's position, Applicant notes that the City has not identified the area proximate to the project site as a Business and Technology corridor and has never enacted or codified an ordinance to make the policy enforceable.[104] (Applicant's Opening Brief at 28; Ex. 404, p. 2; 1/14/2008 RT 177:3-6.) Applicant reiterated this argument in its 7/14/08 Comments on the PMPD, noting that, the City has not adopted any new BP or LM district encompassing the EEC site. (Ex. 406. p. 2-19; 1/14/2008 RT 176:25, 177:1-2, 225:14-25, 226:1-3; Ex. 200, p. 4.5-11; Applicant's PMPD Comments at 2-3.)

Applicant argues that Resolution No. 07-028 contradicts the City's previous Resolution No. 01-104, which found the RCEC was consistent with the General Plan and Industrial Corridor zoning. (Applicant's Opening Brief at 26; Ex. 50.) Thus, according to Applicant, the City has already determined that a power plant is a form of manufacturing, a permitted use within the Industrial Zone. Applicant contends it is inappropriate for the City to use factors such as location and environmental effects in reviewing whether the EEC is consistent with zoning. Rather, the City should only review whether the use is "similar to and not more

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Visual Resources Conditions require landscaping to reduce the project's visual impact and provide visual compatibility with surrounding properties. (Ex. 200, pp. 4.5-12 and 4.5-13.)

[104] However, Applicant's review of recent development in the area indicates the trend toward more intensive development in the Industrial Corridor. Applicant noted that a significant portion of the properties already devoted to industrial uses are changing to more intensive land uses based on trends for conversion or redevelopment as office or research space. "New construction activity, as well as data on conversion activity in terms of the amount of warehouse space changing to office or research and development space indicates the trend toward more intensive development is continuing throughout the Industrial Corridor." (Ex. 1, § 8.4.4.)

objectionable or intensive than the uses listed" in the Zoning Ordinance. (Ex. 7, citing Hayward Municipal Code (HMC), § 10-1.140.) Applicant asserts that Section 10-1.140 merely requires a comparison of the proposed use to other specified uses within the Industrial Zone. (Applicant's Opening Brief, pp. 24-29; Ex. 17, pp. 3 and 7.) Applicant further argues that even if the City believes it necessary to engage in "site-specific" review of the EEC, the project replaces an unattractive, aging warehouse with an energy center about one-half the size of the existing building, about one-third the size of the RCEC, and all potential environmental impacts identified by the City will be mitigated to insignificant levels. (*Id*.; Ex. 7, pp. 4-5.)

City of Hayward. The City explained that the difference in LORS applicable to RCEC was based on General Plan policies and strategies: the RCEC is located in the western area of the Industrial Corridor, away from residential areas, adjacent to the City's wastewater treatment plant, wrecking yards, and the Rohm and Haas chemical plant with its 180-foot tall emissions stack. The City believes RCEC's stacks will blend in and be compatible with surrounding uses. The separation of RCEC from residential areas provides better access for emergency responders to evacuate and isolate a hazardous event compared with EEC, which is closer to residential and commercial facilities. Approval of the EEC within less than one mile of RCEC would intensify uses in the area that would be detrimental to surrounding properties. (Ex. 401, p. 9, citing Ex. 408: HMC, § 10-1.1605.)

The City argues that the EEC is subject to discretionary review under the Exclusionary Zoning Ordinance.[105] Since the Zoning Ordinance is exclusionary, any use that is not listed as a permitted use is prohibited unless the Planning

[105] Hayward Municipal Code Section 10-1.140 states: "[w]hen a use is not specifically listed in the sections devoted to 'Uses Permitted,' it shall be assumed that such uses are prohibited unless it is determined by the Planning Director or on appeal to the Planning Commission that the use is similar to and not more objectionable or intensive that the uses listed." (Ex. 408.) Determination whether a particular use is "similar to and not more objectionable" is made on a case-by-case basis. (1/14/08 RT 210-211, 229-230.)

Department exercises discretion to allow the use. A power plant is not permitted as of right in the Industrial Zone. (Exs. 304, 401; City's Opening Brief at 16.)

From the City's perspective, the EEC does not represent "smart growth" principles promoted by the General Plan 2002 Update to address problems endemic to urban sprawl, including traffic congestion, poor quality housing, and air pollution. (Ex. 401, p. 4, citing Ex. 406, p. 2-6.) The City seeks to attract high-tech, information based businesses to a "new economy" in Hayward to transition from traditional industrial development. (Ex. 406, p. 2-19, et seq.) In this context, the City believes the EEC is contrary to the General Plan objective because it does not fit the definition of "information based economy." (Ex. 401, p. 5.) The City is in the process of implementing this objective by supporting heavy industrial uses in the western portion of the Industrial Corridor, i.e., RCEC, the wastewater treatment plant, and the Rohm and Haas chemical plant, while approving high-tech development (computer chip manufacturing) in the eastern portion of the industrial zone along Clawiter Road. Thus, the City believes the EEC would disrupt the City's future land use planning goals.[106] (*Ibid*.)

In addition, the City asserts the EEC will erode the integrity of appearance of the Business and Technology Corridor since its fourteen 70-foot tall stacks and new 80 to 90 foot-tall transmission line poles interspersed with existing poles would not be compatible with nearby uses. (Ex. 401, p. 6.)

Finally, the City notes that even if the Zoning Ordinance permitted power plants as of right, the EEC's use of hazardous materials would require the project owner to obtain a Conditional Use Permit (CUP) from the City.[107] (Ex. 200, p. 4.5-16;

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[106] See, *e.g.,* the letter from Fremont Bank adjacent to the EEC site opposing the project. (Ex. 302.) See also Exhibits 207 and 305.

[107] Under the Zoning Ordinance, conditional use permit approvals evaluate whether "certain specified uses…are permitted where there is community need, and to assure said uses occur in maximum harmony with the area and in accordance with official City policies." (Ex. 408: HMC, § 10-1.3205.)

Ex. 408: HMC, § 10-1.1620; Ex. 401, p. 7.) Since the Energy Commission has exclusive jurisdiction, we typically request the local permitting agency to identify the findings that would be necessary to obtain a CUP. Section 10-1.3225 of the City's Zoning Ordinance lists *four* required findings discussed below:

a. The proposed use is desirable for the public convenience or welfare.

Staff asserts the project will support sustainability of the area's power grid even though the power generation would not be solely dedicated to the Hayward area. (Ex. 200, p. 4.5-16.) The City believes the potential environmental effects and aviation hazards associated with the EEC outweigh power grid benefits and are not desirable for public convenience or welfare of the Hayward community. (Ex. 401, p. 8.) We agree.[108] In the **Override** section of this Decision we conclude that the EEC is not "required" for "public convenience and necessity." The "desirable for the public convenience or welfare" criterion appears easier for a project to meet, but in assessing it we believe it is appropriate to consider all of a project's attributes, both positive and negative. The City of Hayward shares this view (Ex. 401, p. 8), and we give substantial weight to the City's interpretation of its own laws. Considering the modest benefits of the project (see the **Override** section) and its adverse impact on aviation safety (see the **Traffic and Transportation** section), we concur with the City that EEC is not desirable for the public convenience or welfare.

b. The proposed use will not impair the character and integrity of the zoning district and surrounding area.

The City asserts that introduction of highly visible 70-foot tall exhaust stacks, which will be seen from residential areas to the east, is incompatible with the heights of existing facilities in the area. According to the City, the visual and

[108] See discussion of aviation hazards below and in the **Traffic and Transportation** section of this Decision. See also the **Override** section on the issue of public convenience and necessity.

aesthetic impacts of the stacks cannot be mitigated and the addition of the project's stacks in conjunction with other negative aspects including noise, aviation hazards, visual, and hazardous materials, will impair the character and integrity of the zoning district and surrounding area, i.e., residential and public areas along the eastern edge of the Industrial Corridor. (Ex. 401, p. 8.) Staff disagreed with the City, arguing that the project's stacks were consistent with existing uses in the Industrial Zone. Although we find that the project's visual impacts can be mitigated to insignificant levels, we believe the City's attempt to implement its General Plan by restricting future heavy manufacturing uses to the western area of the Industrial Zone carries great weight. (See **Visual Resources** section.) In addition, we find the project's adverse impacts on aviation safety will impair the integrity of the zoning district. (See the **Traffic and Transportation** section.)

c. The proposed use will not be detrimental to the public health, safety, or general welfare.

The City asserts that mitigation measures approved by BAAQMD, which accepts emission reduction credits on a regional basis, will not reduce local impacts from EEC's emissions and the City is also skeptical about Staff's proposed CEQA mitigation for air quality impacts.[109] Thus, the City believes the project would be detrimental to public health, aviation safety, and general welfare in conjunction with the other detrimental aspects identified by the City. (Ex. 401, p. 8.) Staff relies on the proposed air quality and hazmat mitigation measures to argue that the EEC will not result in significant environmental impacts and that the EEC is consistent with other uses in the area such as the Berkeley Farms facility, which processes anhydrous ammonia. (Ex. 200, p. 4.5-17.) However, as discussed in the **Traffic and Transportation** section, we have concluded that EEC's adverse impacts on aviation safety are detrimental to public health and safety.

[109] See discussion of air quality mitigation measures in the **Air Quality** section of this Decision.

d. The proposed use is in harmony with applicable city policies and the intent and purpose of the zoning district involved.

According to the City, the EEC represents an intensity of use that is outside the scale and character of uses in the area and would not be in harmony with City policies. (Ex. 401, pp. 8-9, citing Ex. 408, § 10-1.110: Purpose of the Zoning Ordinance.) The City asserts that its General Plan 2002 Update policies are set forth with sufficient specificity to alert Applicant that a power plant project is inconsistent with the City's land use goals to develop a Business and Technology Corridor. We agree. The 2002 Update was adopted before Applicant proposed to develop the EEC in Hayward. Applicant's argument that the City has not made progress on a designated Business and Technology Corridor does not prove that the City cannot or will not pursue its goals.

In its 7/28/08 Brief in Support of the PMPD, the City provided legal authority for its position, noting that a general plan is a comprehensive, long-term development plan for the City. (Cal. Gov't. Code § 65300.) The general plan functions as the "'constitution for all future developments,"' and land use decisions must be consistent with the general plan and its elements. (*Citizens of Goleta Valley* v*. Board of Supervisors* (1990) 52 Cal.3d 553, 570.) A "project is consistent with the general plan if, considering all of its aspects, it will further the objectives and policies of the general plan and not obstruct their attainment. [Citation.]" *Corona-Norco Unified School District* v*. City of Corona* (1993) 17 Cal.App.4th 985, 994. Perfect conformity is not required, but a project must be compatible with the objectives and policies of the general plan. *Families Unafraid to Uphold Rural Etc. County* v*. Board of Supervisors, supra,* 62 Cal.App.4th at 1336. Although the courts have articulated various standards of review regarding a local agency's determination of a project's consistency with a general plan, the common theme is judicial deference to the agency's determination. (City's 7/28/08 Brief at 4-5.)

Applicant cited *Endangered Habitats League* v. *County of Orange* (*Rutter Development*) (2005) 131 Cal.App.4th 777 to argue that the City of Hayward acted in an "arbitrary and capricious" manner in determining that EEC is inconsistent with the City's general plan policies.[110] (Applicant's PMPD Comments at 2-3.) The City of Hayward contends, however, that *Endangered Habitats League* actually supports its position that the City made a rationale determination and that the Energy Commission should properly defer to the City's interpretation of its own general plan policies. (City's 7/28/08 Brief at 5.)

In *Endangered Habitats League*, the court directed Orange County to set aside its land use approvals for a project because the County's approval was *inconsistent* with stated general plan policies related to traffic. *Endangered Habitats League* noted that "decisions regarding consistency with a general plan [are reviewed] under the arbitrary and capricious standard…[i.e.,] whether the decision is arbitrary, capricious, entirely lacking in evidentiary support, unlawful, or procedurally unfair. (Citations.) Under this standard, [the court] defer[s] to an agency's fact finding of consistency unless no reasonable person could have reached the same conclusion on the evidence before it." (Citation.) (*Id.* at 782.) The *Endangered Habitats League* court concluded that no reasonable person could have found the proposed project consistent with the traffic policies of Orange County's general plan since all the evidence demonstrated the project would have unmitigable impacts on the traffic levels of service inconsistent with general plan policies. (*Id.*)

[110] Applicant also cites *City of Banning v. Desert Outdoor Advertising, Inc.* (1962) 209 Cal.App.2d 152 and *Kuzinich* v. *County of Santa Clara* (9th Cir. 1982) 689 F.2d 1345. Neither case supports Applicant's argument. In both cases, the court rejected the argument that the public agency's enforcement of its ordinance was discriminatory. The courts presumed that the agencies had acted in accordance with the law and their official duties in the absence of direct evidence to the contrary.

Applying the rationale of *Endangered Habitats League* here,[111] we cannot agree with Applicant that the City acted in an arbitrary and capricious manner. The City evaluated the EEC under its adopted General Plan 2002 Update policies and found, *inter alia*, that the EEC was inconsistent with Land Use Policy 7. This determination was reasonable especially because a power plant is not listed as a permitted use in the Industrial Zone and would otherwise be prohibited unless the City exercised discretion to allow the use. Locating a power plant in the heart of the planned transition area would not "further the objectives and policies of the general plan" because a power plant is not consistent with an "information-based economy" and would "obstruct the attainment" of the general plan policies since it could discourage information-based companies from relocating to this portion of Hayward. (Ex. 404: City's March 13, 2007, Resolution.)

Applicant argues that the normal deference afforded a local agency's interpretation of its own policies should not apply here based on what Applicant characterizes as "a flagrant inconsistency in the jurisdictions [sic] actions". (Applicant's PMPD Comments at 3.) Applicant claims that the EEC and RCEC present "equal conditions" and that the City should have approved EEC based on the RCEC approval. We find this argument is without merit since (1) the City may exercise discretion in land use determinations, particularly in this case where power plants are not uses listed in the Industrial Zone designation, and (2) the General Plan 2002 Update policies that apply to the EEC area (information technology) are different than those identified for the RCEC area (heavy industry: RCEC is adjacent to the wastewater treatment facility), and the proximity of EEC to the Hayward Airport flight patterns compared with the RCEC site.

We further reject Applicant's negative characterization of the City's actions. Public agencies and their officers are legally presumed to have performed their

[111] *Endangered Habitats League* reiterated the judicial standard that courts must defer to a local agency's determination of consistency but in that case, there was no evidence to support the County's determination.

official duties consistent with the law. (Cal. Evid. Code § 664.) The Energy Commission has recognized this presumption by requiring the Staff to give due deference to a local agency's recommendations regarding a project's conformance with LORS under that agency's jurisdiction. (Cal. Code Regs., tit. 20, §§ 1714.5(b) and 1744(e).) In order to overcome this legal presumption, a party must demonstrate bias through more than just inference and mischaracterization.[112] Not only has Applicant failed to establish bias in the City's exercise of its discretion but Applicant has also highlighted the City's efforts to implement the salutary purposes of its general plan policies. Thus, we find the EEC is not in harmony with the intent and purpose of the zoning district.

We also find the EEC is inconsistent (not in harmony) with various City regulations and policies regarding aviation safety, including Hayward Municipal Code §§ 10-1.140, 10-1.1620, and 10-6.00 (airport zoning). (See. the **Traffic and Transportation** section of this Decision and discussion below on Airport Zoning Regulations). Therefore, the project is inconsistent with CUP Finding (d) since it is not in harmony with City policies to transition the Industrial Corridor to information-based technology or to ensure public health and safety.

Since all four CUP findings cannot be made, we find the project is inconsistent with Hayward Municipal Code Sections 10-1.1620(b)(1)(a) and 10-1.3225. (Ex. 200, p. 4.5-18.)

Airport Approach Zoning Regulations. The City owns and operates the Hayward Executive Airport. Aircraft regularly fly over the EEC site, which is

[112] *See e.g., Breakzone Billiards v. City of Torrance* (2000) 81 Cal.App.4th 1205 (to prevail on a claim of bias violating due process, "a party must establish 'an unacceptable probability of actual bias on the part of those who have actual decision-making power over their claims'." (See *U.S. v. State of Or* (9th Cir. 1994) 44 F.3d 758, 772.) A mere suggestion of bias is not sufficient to overcome the presumption of integrity and honesty. (*Brooks v. New Hampshire Supreme Court* (1st Cir. 1996) 80 F.3d 633, 640; *Stivers v. Pierce* (9th Cir. 1995) 71 F.3d 732, 74.)

located about 400 feet from the traffic pattern for Runway 10R/28L.[113] Federal laws and FAA standards require the City to restrict land use in the airport vicinity to prevent airport hazards. (Ex. 402, p. 3, citing Ex. 411: FAA Order 5190.6A, pp. 19-20.)

The City's Airport Approach Zoning Regulations (Ex. 409: HMC, § 10-6.00, et seq., Appendix F in this Decision) are designed to protect the health, safety, and general welfare of Hayward residents by preventing hazards in the airport vicinity and by preventing destruction or impairment of the utility of the airport. The airport zoning regulations describe the area included in the Airport Approach Zoning Plan (AAZP) and implement portions of Alameda County's Airport Land Use Policy Plan (ALUPP) related to the Hayward Executive Airport. The AAZP map, identified in Section 10-6.20 of the Municipal Code, is consistent with the Hazard Prevention Zone/General Referral Boundary (also known as the Airport Influence Area or AIA) identified in the ALUPP. Properties within the AAZP, which extends approximately two miles out from the airport runways, and the AIA with irregular boundaries extending outward up to three miles from the airport, are subject to restrictions regarding land uses that could create a hazard to aircraft navigation. (Ex. 200, pp. 4.5-19 and 4.5-20.)

The AAZP area is identified in Municipal Code Section 10-6.20 as "all of the land outside the boundaries of the airport and within approximately two …miles of the landing area of the airport [which] is hereby divided into airport approach zones, airport turning zones, airport transition zones, and airport clear zones, the boundaries of which are shown on a map designated as *The Airport Approach Zoning Plan for Hayward Air Terminal, Hayward, Alameda County, California*."

[113] See discussion in the **Traffic and Transportation** section of this Decision. As noted, the EEC site is adjacent to the traffic pattern for Runway (RY) 10R/28L and the recommended VFR downwind departure for RY 28L. (Ex. 200, p. 4.5-22.)

The EEC site is within the airport's AAZP, AIA, and airspace boundaries and therefore subject to the City's Airport Approach Zoning Regulations.[114] (Ex. 200, p. 4.5-21.)

The City's Airport Approach Zoning Regulations were enacted to:

- Prevent the creation or establishment of airport hazards or obstructions.
- Prevent the destruction or impairment of the utility of the airport and the public investment therein. (Ex. 409: HMC, § 10-6.00, Appendix F in this Decision.)

As described in the **Traffic and Transportation** section of this Decision, the EEC will produce high-velocity, thermal plumes that could cause turbulence and loss of control to aircraft flying at low altitude over the project in the traffic pattern zone, creating a safety hazard within the airport zoning area. Pilots would have to divert their attention from flying their aircraft, look for other aircraft in the pattern, and follow instructions from the tower controllers, thus adding to pilot workload during takeoff and landing at low altitude. (Ex. 200, p. 4.5-22.)

Land uses that impair the utility of the airport are incompatible with the Airport Approach Zoning Regulations. The utility of an airport depends, in part, on the safe and efficient movement of air traffic and use of the surrounding airspace. The presence of the EEC would further complicate an already complex airspace, impairing the utility of the airport. (Ex. 200, p. 4.5-22.)

Operations at the Hayward Executive Airport are expected to increase over the next 20 years. If airspace is restricted over the EEC, congestion would increase in other areas. Thus, in addition to interfering with and restricting existing operations at the airport, the project would also restrict future airport operations.

[114] The AIA, identified in the Airport Land Use Policy/Compatibility Plans, is the area in which current or future airport-related noise, overflight, safety, and/or airspace protection factors may significantly affect land uses or necessitate restriction on those uses. Since the City is responsible for defining the Traffic Pattern Zone (TPZ), we accept the City's interpretation indicating that the EEC site is just outside the TPZ but within the AAZP, AIA, and airspace boundaries shown in the AAZP regulatory map. (Ex. 200, p. 4.5-21.)

According to Staff, the EEC is therefore inconsistent with the City's Airport Approach Zoning Regulations since it conflicts with the airport land use compatibility plan at the proposed project location. (Ex. 200, p. 4.5-22.)

Alameda County. The ALUC's 1986 Airport Plan (Ex. 535), which is still in effect, does not require a formal land use consistency determination for the EEC since the Airport Plan does not restrict facilities that emit thermal plumes.[115] (County Reply Brief at 9.) However, reflecting its obligation to ensure public and pilot safety and to coordinate the safe and orderly expansion of airports, the ALUC passed a resolution on October 17, 2007, finding that the EEC poses an aviation hazard and should be sited outside the Airport Influence Area. (Ex. 513.) According to the County, the ALUC's resolution is consistent with the other aviation expert agencies weighing against the EEC location. (County Opening Brief at 14-15.)

Regarding land use incompatibility, the County argues that the EEC will negatively impact the County's Eden Area Redevelopment Project, which is designed to eliminate blight and revitalize the surrounding neighborhood over the next 20 years, including construction of 150 new residences. (Ex. 504 at 2.) Under the annexation agreement between Alameda County and the City of Hayward, the County retains redevelopment authority over a series of unincorporated "islands" in the Mt. Eden Redevelopment area, about 0.5 mile from the EEC site. (1/14/08 RT 167:15-168:18; Exs. 504, 506.) The County believes that introduction of a power plant in this area has the potential to create a negative perception in the community that could deter development or depress

[115] For several years, the ALUC has been in the process of updating its 1986 Airport Plan and published a draft in December 2007, which added a new restriction on locating power plants or other facilities that emit thermal plumes in the Airport Influence Area. (Ex. 534.) This new restriction was based on information provided during the RCEC proceeding regarding the effect of industrial thermal plumes on low-altitude flight. (Ex. 515 at 3.) The County argues that if the ALUC adopts the revised Airport Plan, the Energy Commission must find the EEC is incompatible with the ALUC's land use policy. (County Reply Brief at 10.) We decline to make this finding since it was not litigated during the evidentiary hearings. However, we are persuaded that the EEC is incompatible with the City's Airport Approach Zoning Regulations for the reasons set forth herein.

property values and reduce the tax base necessary to fund infrastructure improvements. (1/14/08 RT 165:19-166:19.) Several members of the public reiterated this perception about property values. However, we find the County's argument is based on speculative opinion that does not constitute reliable evidence. See the **Socioeconomics** section of this Decision.

4. Cumulative Impacts

Section 15130(a) of the CEQA Guidelines provides that the lead agency shall discuss cumulative impacts of a project when its incremental effect is cumulatively considerable. (Cal. Code Regs., tit. 14, § 15130(a).) The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time. (*Id*. at § 15355(b).)

Both the EEC and RCEC sites are located within the southwest quadrant of the Hayward Executive Airport's airspace. RCEC mitigation includes notification to Traffic Control at both Hayward Executive and Oakland International Airports to preclude the vectoring of aircraft over the RCEC and to avoid overflight of the RCEC at less than 1,000 feet AGL.[116] Adding the EEC to the airspace would introduce additional thermal plumes that are potentially hazardous to aircraft flying below 1,000 feet AGL. Alternative mitigation such as pilots seeing and avoiding both power plants is impractical and unattainable especially since aircraft regularly fly at low altitudes over the EEC site. See **Traffic and Transportation** section of this Decision. The weight of the evidence establishes that the addition of the EEC in conjunction with the RCEC will increase the potential for serious impairment to the utility of the airport by increasing the complexity of the airspace. Indeed, if airspace is restricted over the EEC,

[116] RCEC Decision, CEC-800-2007-003 (Docket No. 01-AFC-7C) at 190: Condition **TRANS-10**.

congestion would increase in other areas. We therefore find the EEC will result in a cumulatively considerable impact to Hayward Airport airspace that cannot be avoided at the proposed EEC site.

5. Commission Discussion

Under the Energy Commission's regulations, Staff shall give due deference to a local agency's comments and recommendations regarding a project's conformance with LORS under that agency's jurisdiction. (Cal. Code Regs., tit. 20, §§ 1714.5(b) and 1744(e).) Staff must conduct such analyses needed to resolve any significant concerns of the agency, or to satisfy any remaining substantive requirements for the issuance of a final permit by the agency, which would have jurisdiction but for the commission's exclusive authority. (*Id*. at § 1714.5(a)(2).) We believe deference to local agency determinations includes the City of Hayward's interpretation of its General Plan policies and Zoning Regulations and thus, we give great weight to the City's perspective.

The City's Exclusionary Zoning Ordinance (HMC, § 10-1.140) allows for discretionary review of a project that is not specifically listed under permitted uses. Although the RCEC was allowed as a manufacturing facility in the Industrial Zone, power plants are not listed as a permitted use.[117] Since RCEC

[117] Although Applicant argues the Zoning Ordinance does not allow for site-specific review, the City performed such review for both RCEC and EEC. (See, Ex. 408: HMC § 1-1.1600.) Indeed, the RCEC amendment was based on the RCEC's relocation to a more appropriate industrial site. The City adopted Resolution #01-104 (Ex. 50) in 2001 for the initial RCEC site. When relocation of the RCEC was proposed, the City Council adopted Resolution #05-125 (Ex. 49) in 2005 supporting an exchange of property between RCEC and the City to relocate the project adjacent to the City's wastewater facility. Resolution #06-068 was adopted in 2006 amending the property exchange option. The City Council did not address the consistency of the new RCEC site with the General Plan 2002 Update and did not amend the 2001 Resolution but merely expressed support for RCEC at the relocated site. (Ex. 29, p. 4.5-13.) Since the RCEC was initially approved prior to adoption of the General Plan 2002 Update, it appears that the City allowed RCEC to relocate without the scrutiny required to meet the General Plan's transition goals for the Industrial Corridor. That is, it appears the RCEC was "grandfathered" in as a previously approved project. In 2007, the City distinguished the RCEC from EEC under the General Plan 2002 Update, by implementing the transition goals for the eastern area of the Industrial Corridor. (1/14/08 RT 227-232, 236.)

uses hazardous materials, a CUP was required for that project as it is for the EEC. The City evaluates CUPs on a case-by-case basis. The City's conclusion that RCEC could meet the CUP requirements is not precedential for this case and neither is our concurrence with the City in the RCEC Decision.[118]

In this case, the General Plan 2002 Update represents the City's predominant land use policy. Under the City's interpretation of its General Plan, the EEC does not fit the type of facility sought by the City to transition the Industrial Corridor to high-tech, information based development. It is not surprising that the City refused to embrace a second power plant proposal within one mile of the RCEC, especially given the mandate to improve City's economy and land use objectives with "smart growth" strategies.[119] We find the EEC is inconsistent with Policy 7 of the Land Use Element of the General Plan since it would disrupt the City's future land use planning goals. Indeed, Applicant concedes that the trend for conversion of warehouse space to office or research space in the Industrial Corridor is continuing throughout the Industrial Corridor.

More critically, however, we find the location of the EEC conflicts with the City's Airport Approach Zoning Regulations (HMC, § 10-6.00) and the ALUPP, which limit development in the vicinity of the airport that endangers the landing, takeoff, or maneuvering of aircraft. The Airport Zoning Regulations define airport hazard as "any structure of tree or use of land which obstructs the airspace required for the flight of aircraft in landing or taking off at the airport or is otherwise hazardous to such landing or taking off of aircraft." (*Id*. at § 10-6.12.) Evidence is uncontroverted that aircraft fly over the site at low altitude where the project's invisible thermal plumes have the potential to cause flight turbulence. This

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[118] *Russell City Energy Center,* CEC-800-2007-003 (Docket No. 01-AFC-7C) at 187.

[119] Applicant argues that the City's treatment of the EEC compared to the RCEC was arbitrary and capricious and/or intentionally discriminatory. (Applicant's Reply Brief at 18-19.) We are not persuaded. The EEC site is located in the area of the Industrial Corridor slated for transition and it is also within AIA boundaries raising a concern about aviation safety that was mitigable in the RCEC proceeding. The EEC's conflict with airport zoning regulations cannot be resolved in this case due to its location in the airport Traffic Pattern Zone (TPZ).

aviation hazard will significantly restrict uses of the Hayward airspace for aircraft transit, maintenance flights, training procedures, and normal departures/arrivals that cannot be avoided if the project is developed at the proposed location.

The Applicant did not provide substantial evidence of feasible mitigation that would either (1) eliminate thermal plumes or (2) prevent the constriction of navigable airspace that would impair the utility of the airport. Accordingly, we find the EEC does not comply with finding (d) for a CUP: the project would not be in harmony with applicable city policies and the intent and purpose of the zoning district. (Ex. 408: HMC, § 10-1.1605.) Therefore, the EEC represents an intensity of use that is outside the scale and character of uses in the area and would not be in harmony with city policies since it creates a detriment to the operation and utility of the Hayward Executive Airport.

FINDINGS AND CONCLUSIONS

Based on the weight of the evidence, the Commission makes the following findings and conclusions:

1. There is no evidence that the EEC will result in the conversion of farmland to non-agricultural use or conflict with existing agricultural zoning or Williamson Act contracts.

2. There is no evidence that the EEC will physically divide or disrupt an established community.

3. There is no regulatory Habitat or Natural Community Conservation Plan specifically applicable to the EEC.

4. The project site is approximately 0.5 mile from areas zoned for residential, public, and retail commercial use; the closest single family residence is approximately 1,120 feet northeast of the site.

5. Local ordinances and policies applicable to the EEC include the City of Hayward's General Plan 2002 Update, the Hayward Municipal Code (HMC), and the Alameda County Airport Land Use Policy Plan (ALUPP).

6. The project site is zoned Industrial and located in the eastern portion of the City's Industrial Corridor approximately 1.0 mile south of the Hayward Executive Airport and adjacent to the aircraft traffic pattern for Runway 10R/28L.

7. The purpose of the Industrial Zone is to encourage the development of industrial uses in suitable areas and to promote a desirable and attractive working environment with a minimum of detriment to surrounding properties. (HMC, § 10-1.605.)

8. The Land Use Element of the Hayward General Plan 2002 Update provides that the Industrial Corridor may be divided into multiple zoning districts for integration or separation of land uses.

9. The EEC's high-velocity, thermal plumes could cause turbulence and loss of control to aircraft flying at low altitude over the project site, creating a safety hazard within the airport zoning area.

10. Aircraft regularly fly over the EEC site at low altitude.

11. The project is inconsistent with the City's Airport Approach Zoning Regulations, which are designed to: 1) prevent the creation or establishment of airport hazards or obstructions; and 2) prevent the destruction or impairment of the utility of the airport and the public investment therein. (HMC, § 10-6.00.)

12. A power plant is not listed as a permitted use in the Industrial Zone. (HMC, § 10-1.1605.)

13. Any use that is not listed as a permitted use is prohibited unless the City determines the use is similar to and not more objectionable or intensive than the uses listed. Determination is made on a case-by-case basis. (HMC, § 10-1.140.)

14. The Hayward City Council adopted Resolution # 01-104 in 2001 to allow the Russell City Energy Center (RCEC) power plant in the Industrial Zone.

15. The Hayward City Council adopted Resolution # 07-028 on March 13, 2007, finding, *inter alia*, that the EEC is not consistent with the General Plan 2002 Update (adopted subsequent to approval of RCEC) to transition the eastern portion of the Industrial Corridor to information technology.

16. Based on the City's stated goal for land use permitting, the project is incompatible with Land Use Policy 7 of the General Plan 2002 Update Land Use Element, which describes the City's goal to transition the eastern

area of the Industrial Corridor (Business and Technology Corridor) from a manufacturing-based economy to an information-based economy.

17. The use of hazardous materials by the EEC requires the project owner to comply with the four required findings for a Conditional Use Permit (CUP) under the City's Zoning Ordinance. (HMC, §§ 10-1.1620, 10-1.3225.)

18. The EEC is inconsistent with CUP finding (a) since the potential aviation hazards associated with the project outweigh power grid benefits and are not desirable for public convenience or welfare of the Hayward community. (HMC, § 10-1.3225.)

19. The EEC is inconsistent with CUP finding (b) although the visual impacts of its 14 stacks are similar to existing stacks in the area and can be mitigated, the placement of the power plant at the proposed site is "more objectionable" than existing uses and impairs the character and integrity of the zoning district and surrounding area, which are slated for conversion to information technology facilities. (HMC, §§ 10-1.3225, 10-1.140.)

20. The EEC is inconsistent with CUP finding (c) since the project's invisible thermal plumes create an aviation safety hazard that is detrimental to public health and safety or general welfare. (HMC, § 10-1.3225.)

21. The EEC is inconsistent with CUP finding (d) since it does not meet the criteria for transition to information technology in the area and it creates an aviation safety hazard affecting the operation and utility of the Hayward Executive Airport, which is not in harmony with applicable City policies. (HMC, §§ 10-1.3225, 10-6.00.)

22. The EEC is inconsistent with the City's zoning requirements for a CUP since the project "would not operate at a minimum of detriment to surrounding properties" and is therefore incompatible with Sections 10-1.140, 10-1.1605, 10-1.1620, 10-3225, and 10-6.00 of the Hayward Municipal Code.

23. The Applicant failed to provide substantial evidence of feasible mitigation that would either (1) eliminate thermal plumes or (2) prevent the constriction of navigable airspace that would impair the utility of the airport.

24. The EEC is inconsistent with Alameda County's Airport Land Use Policy Plan (ALUPP), which limits development in the vicinity of the airport that endangers the landing, takeoff, or maneuvering of aircraft.

25. The EEC in conjunction with the RCEC will result in a cumulatively considerable impact to Hayward Airport airspace.

We conclude, therefore, that construction and operation of the EEC will result in direct, indirect, and cumulative land use impacts and that certification should be ***denied***.

If the inconsistent uses can be cured at the proposed site to comply with requirements for certification, adoption of Condition of Certification **LAND-1** will ensure the project is constructed and operated in accordance with the City's Industrial Zoning District standards.

Note: The following Condition is applicable only if the project is certified:

CONDITION OF CERTIFICATION

LAND-1 The project owner shall ensure that the project and its associated facilities, including the temporary construction parking and laydown area(s), are constructed and operated in compliance with the city of Hayward's Industrial Zoning District's lot and yard requirements, height limits, minimum design and performance standards, and other applicable municipal code requirements.

The project owner shall submit a development plan to the city of Hayward Planning Department in sufficient time for review and comment, and to the Energy Commission's Compliance Project Manager (CPM) for review and approval prior to the proposed start of construction. The development plan shall include all elements normally required for review and permitting of a similar project including site plan, structural dimensions, design and exterior elevation(s), and proof of any required permits.

Verification: At least 90 calendar days prior to the start of construction, including any grading or site remediation on the power plant project site or its associated easements, the project owner shall submit the proposed development plan to the city of Hayward Planning Department for review and comment and to the CPM for review and approval. The project owner shall also provide the CPM with a copy of the transmittal letter to the city of Hayward.

At least 30 calendar days prior to the start of construction, the project owner shall provide copies of any comment letters received from the local jurisdiction, along with any changes to the proposed development plan, to the CPM for review and approval.

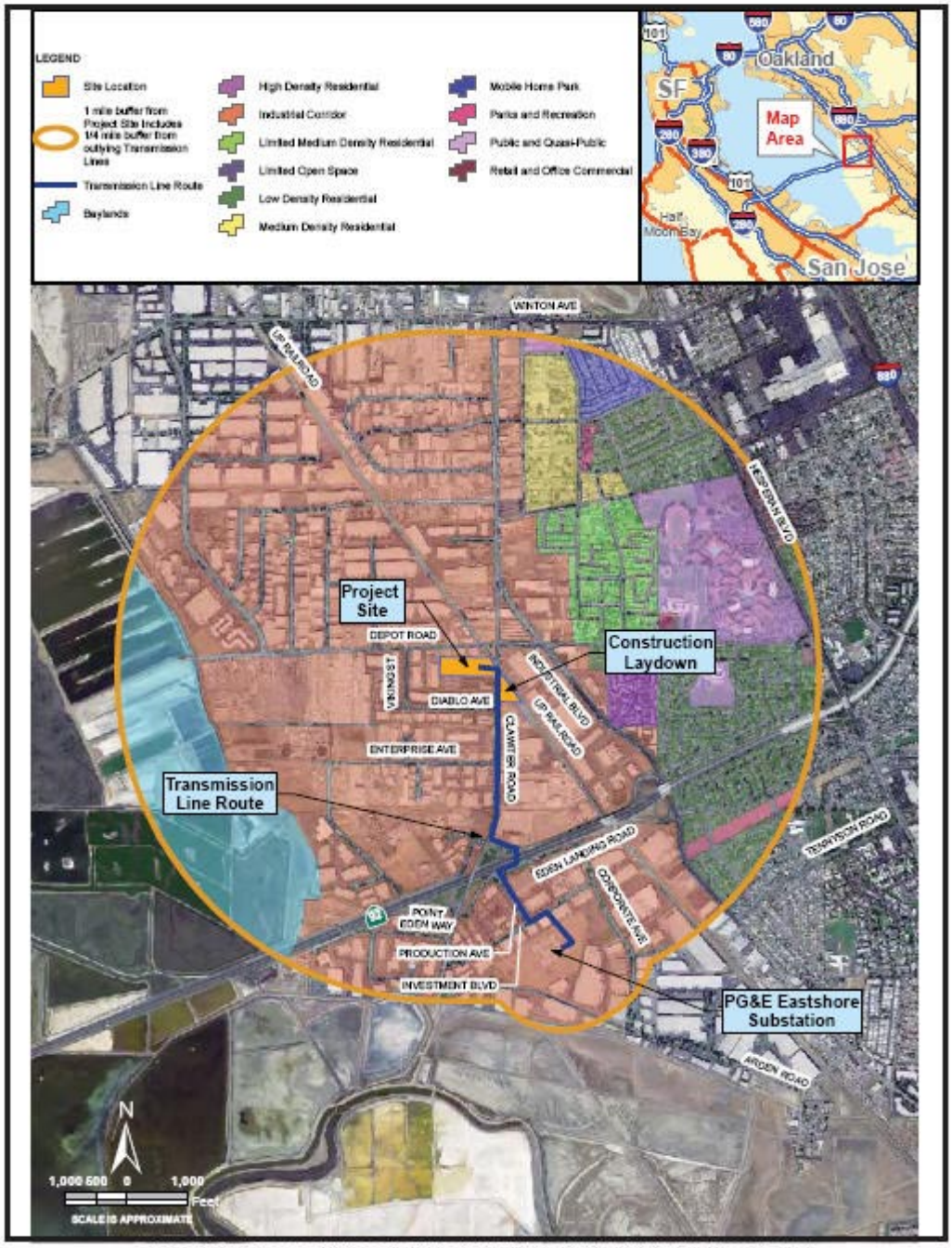
LAND USE Table 4
Project Compliance with Adopted Land Use LORS
(Resource: Ex. 200, p. 4.5-23 et seq.)

Applicable Law	***Description***	***Consistency***
Federal	None	
State **State Aeronautics Act**	The State Aeronautics Act (California Public Utilities Code §§21001 *et seq*) gives the California Department of Transportation (Caltrans) and local governments the authority to protect the airspace in California.	State Aeronautics Act requirements, as implemented in the Alameda County Airport Land Use Policy Plan, are discussed below.
Local		
Alameda County Alameda County Airport Land Use Policy Plan (ALUPP)	The Alameda County Airport Land Use Policy Plan (ALUPP) provides for the orderly growth of airports and the area surrounding the airports within the jurisdiction of the Alameda County Airport Land Use Commission (ALUC), excluding existing land uses. Hayward Executive Airport is within the ALUC's jurisdiction. Noise and safety are the two fundamental compatibility concerns identified in the statutes. Impacts of aircraft overflights in locations beyond the normally mapped noise contours are addressed. Safety compatibility policies address both protection of people and property on the ground near airports and protection of airport airspace from obstructions and other hazards to flight. The Alameda County ALUPP works in concert with the Hayward General Plan and Zoning Codes, and the Hayward Executive Airport Master Plan.	Inconsistent: The Eastshore project would be inconsistent with the intent of the ALUPP to promote orderly expansion of airports and land uses compatible with the airport operations and the safe, efficient use of an airport's airspace. Note: the ALUC adopted a revised ALUPP in 2008 that establishes restrictions on locating power plants near airports in Alameda County. (Ex. 534.)
City of Hayward General Plan 2002 Update	The Hayward General Plan contains seven elements and is the basis for determining acceptable land uses and related park, road, and other infrastructure needs within city of Hayward jurisdiction**.** The Land Use Element (Policy 7) of the Hayward General Plan identifies the goals and policies necessary to maintain and enhance neighborhoods, commercial and industrial areas, and surrounding open space. The Economic Development Element identifies the current economic conditions, constraints, and opportunities in the city of Hayward and, in conjunction with Land Use, Circulation, and Housing Elements, provides guidance when considering specific projects and analysis of long-term impacts. Hayward Executive Airport development and operations are discussed in the Airport Master Plan (see below).	Inconsistent: The Eastshore project is inconsistent with the goals and policies of the 2002 General Plan Land Use Element Policy 7 to transition to high tech, information based industry.
Hayward Executive Airport Master Plan (Revised 2002)	This plan identifies the current operational status for the Hayward Executive Airport, including descriptions of airport airspace, flight procedures, and current aviation uses. It also includes projections of future use and proposes development plans to accommodate that increased use through the 20-year planning period for this Master Plan.	Eastshore project consistency with this Master Plan is determined primarily by consistency with various airport-related Municipal Code sections. (See City's Airport Approach Zoning Regulations, HMC, § 10-600 et seq.)

Municipal Code §§10-1 *et seq*	The city of Hayward Municipal Code, Chapter 10 contains ordinances that deal with planning, zoning, and subdivision standards, requirements, and restrictions. Article 1 of this chapter, also known as the Hayward Zoning Ordinance, specifically provides regulations that implement the goals, objectives, and policies of the Hayward General Plan, pursuant to the mandated provisions of State Planning and Zoning Law, California Environmental Quality Act (CEQA), and other applicable state and local requirements The following sections of the Municipal Code are specifically applicable to the project: • §10-1.135 Exceptions *to General Provisions of the Zoning Code* • §10-1.140 Exclusionary Zoning Ordinance • §§10-1.1600 *et seq* - Industrial District (I); identifies permitted uses, standards, and restrictions applicable to development in those areas zoned Industrial. • §10-1.3200 Conditional Use Permits, identifies the procedures for reviewing and conditioning projects requiring a conditional use permit before they can be approved and occupied, or before business can be conducted.	§10-1.135 - Industrial Zoning District height restrictions, setbacks, and minimum design and performance standards do not apply to the project's transmission line and underground pipelines. <u>Inconsistent</u>: §10-1.140 - The project would result in impacts that are more objectionable than other uses within the Industrial District that would create less of a detriment to surrounding properties (e.g. airport). Therefore, siting of the project at the proposed location is inconsistent with §10-1.140. <u>Inconsistent</u>: §§10-1.1600 *et seq* – The project would not be consistent with the requirements of §§10-1.1600 *et seq*, in that a CUP is required for this use and all findings to approve a CUP could not be made. <u>Inconsistent</u>: §10-1.3200 - The project is inconsistent (not in harmony) with various City ordinances, regulations, and policies, including Municipal Zoning Code §§10-1.140, 10-1.1620, and 10-6. All findings required to justify approval of a CUP cannot be made. Approval of the project without meeting the requirements for a CUP would be inconsistent with Hayward Municipal Code §10-1.1620(b)(1)(a) and §10-1.3225.
Municipal Code §10-6 - Airport Approach Zoning Regulations	This ordinance (adopted by Hayward City Council Resolution #64-038; 9/15/64) is intended to prevent the creation or establishment of airport hazards, thereby protecting the lives and property of the users of the Hayward Executive Airport and of the occupants of the land in its vicinity, and prevent destruction or impairment of the utility of the airport and the public investment therein.	<u>Inconsistent</u>: § 10-600 et seq. The EEC's plumes could be hazardous to aircraft at traffic pattern altitude flying over the project site. The project has the potential to directly impair the utility of the airport by increasing the complexity of the airspace. The project is therefore inconsistent with the purposes expressed in §10-6.00 if sited at the proposed location.

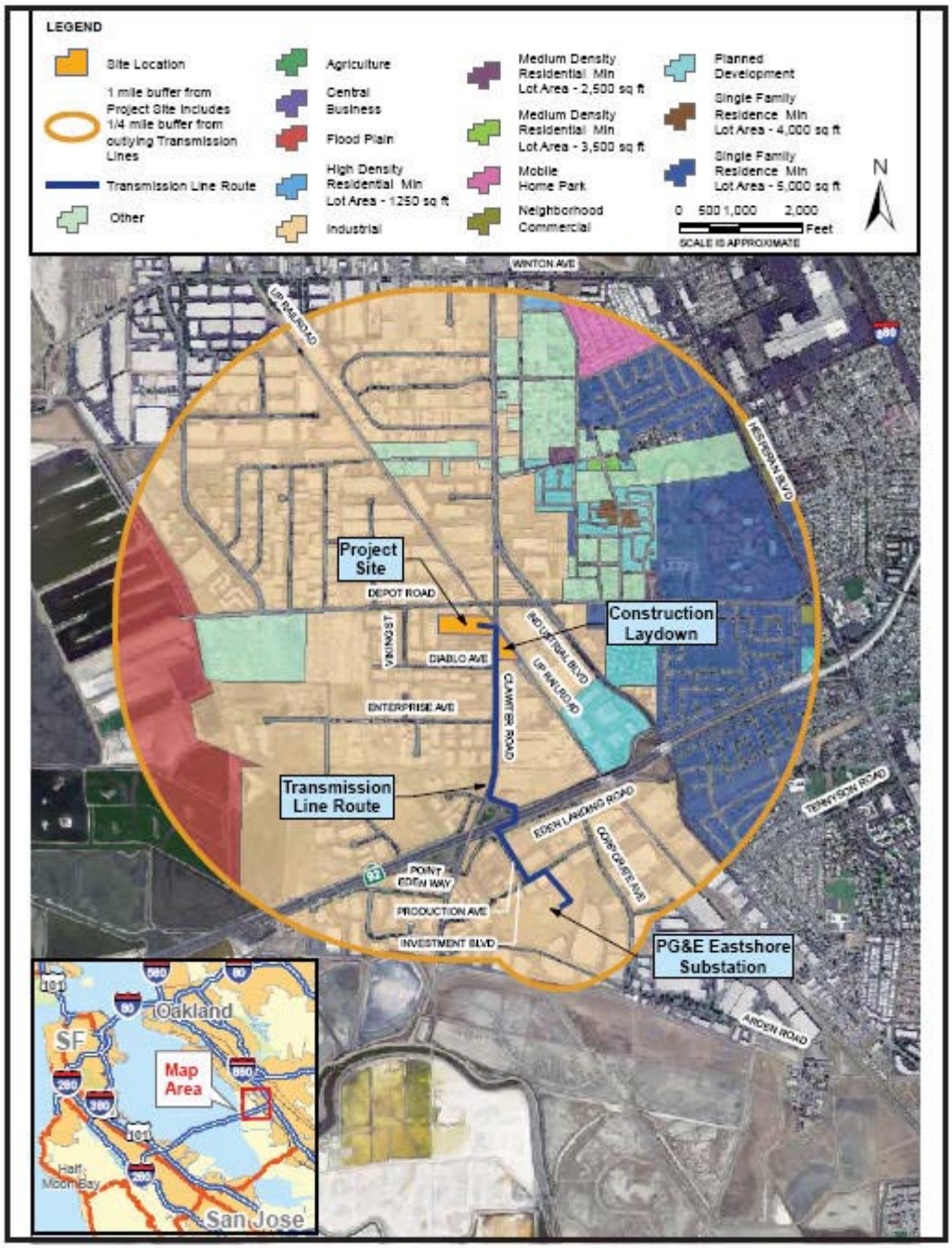
[8] Hayward Municipal Code §10-6.12 defines an "airport hazard" as any structure or tree or use of land which obstructs the airspace required for the flight of aircraft in landing or taking off at the airport or is otherwise hazardous to such landing or taking off of aircraft.

LAND USE - FIGURE 1
Eastshore Energy Center - City of Hayward General Plan Land Use Designation



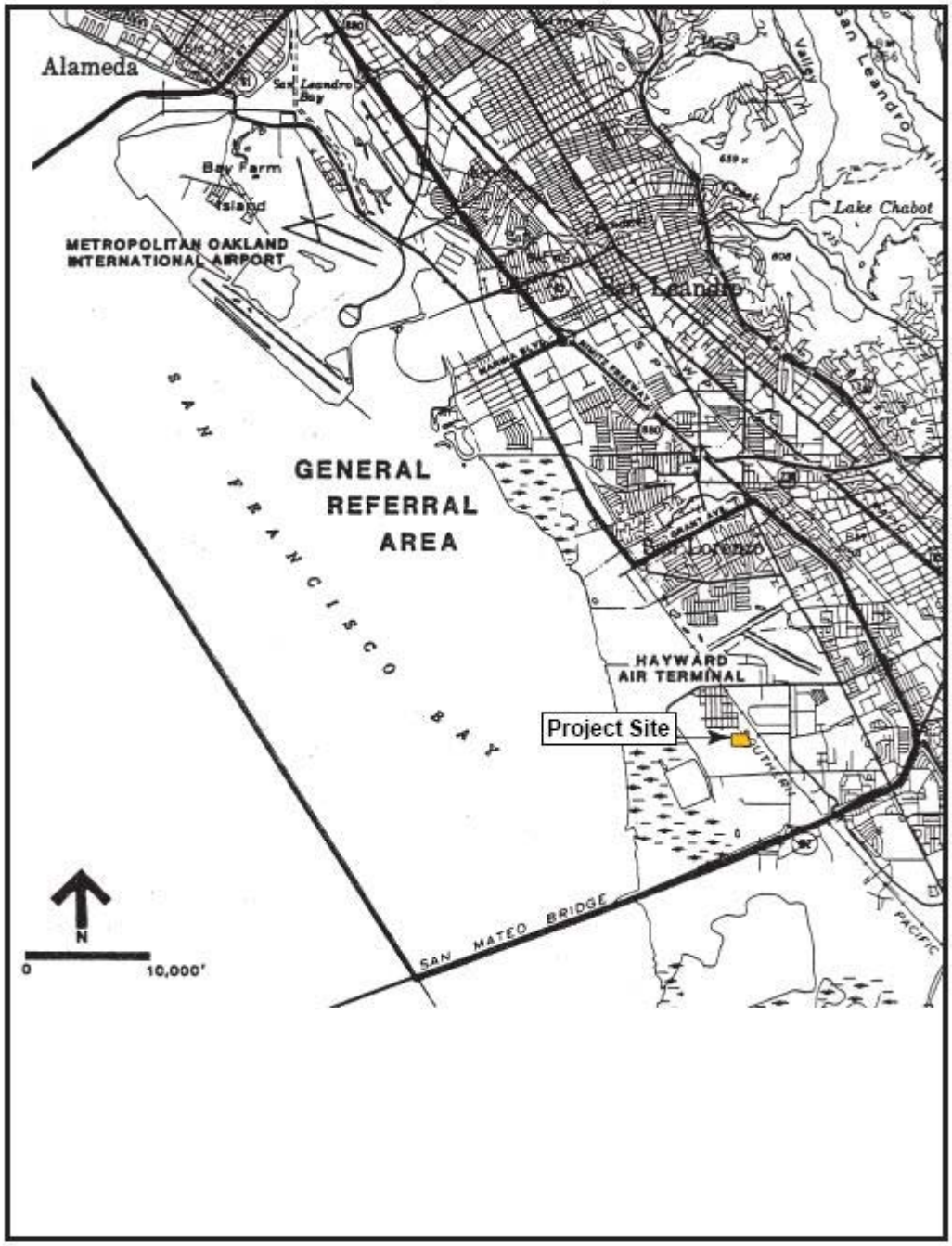
Source: Ex. 200

LAND USE - FIGURE 2
Eastshore Energy Center - City of Hayward Zoning District Designations



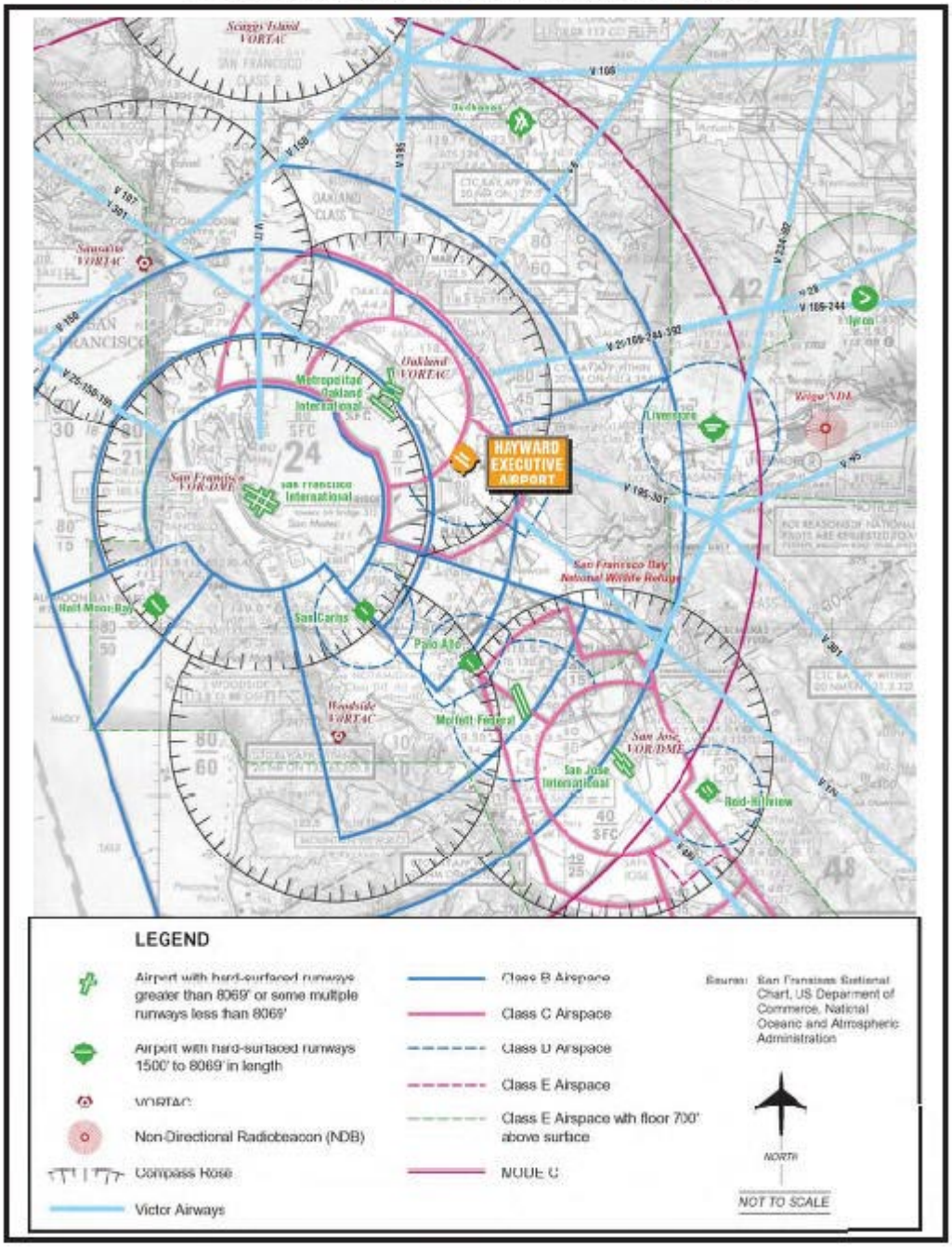
Source: Ex. 200

LAND USE - FIGURE 3
Eastshore Energy Center - Hayward Executive Airport Influence Area*



Source: Ex. 200

LAND USE - FIGURE 4
Eastshore Energy Center - Hayward Executive Airport Area Airspace



Source: Ex. 200

LAND USE - FIGURE 5

Eastshore Energy Center - Hayward Executive Airport Safety Zones

Source: Ex. 200

B. TRAFFIC AND TRANSPORTATION

In this section, we examine the extent to which construction and operation of the project will affect regional and local transportation systems. During the construction phase, workers arriving and leaving during peak traffic hours and the delivery of large pieces of equipment could increase roadway congestion and affect traffic flow. During plant operation, traffic impacts tend to be minimal due to the limited number of vehicles involved; however, an increase in hazardous materials delivery to the area is expected. Any transport of hazardous materials must comply with federal and state laws.

The evidentiary record contains a review of relevant roads and routings in the vicinity; the potential traffic problems associated with those routes; the deliveries of oversized/overweight equipment; the potential encroachments upon public rights-of-way; and the routes associated with delivery of hazardous materials. (Ex. 1, § 8.10; Ex. 200, p. 4.10-4 et seq.)

The record also includes extensive testimony on the project's potential adverse impacts on aviation safety and aircraft traffic connected with the Hayward Executive Airport.

SUMMARY AND DISCUSSION OF THE EVIDENCE

According to Applicant and Staff, the significance criteria applicable to the project's potential traffic and transportation impacts include the following:[120]

- A substantial increase in traffic measured by the volume-to-capacity ratio on roads or congestion at intersections;

[120] The significance criteria are derived from CEQA Guidelines (Cal. Code Regs., tit. 14, § 15000, Appendix G) and federal, state, and local LORS. (Ex. 200, pp. 4.10-2 to 4.10-3 and 4.10-23 et seq.; Ex. 1, § 8.10.4.1.)

- An exceedence, either individually or cumulatively, of the applicable LOS standard;
- A substantial increase in traffic hazards due to a design feature (*e.g.,* sharp curves or dangerous intersections) or incompatible uses (*e.g.,* farm equipment);
- A substantial increase in traffic causing inadequate emergency access;
- Inadequate parking capacity;
- A conflict with adopted policies, plans, or programs supporting alternative transportation (*e.g.,* bus turnouts, bicycle racks);
- A change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks;
- Endangerment to the takeoff, landing, or maneuvering of aircraft within an airport approach zone, airport turning zone, or airport transition zone.
- Production of a high-velocity thermal plume within an airport approach zone, airport turning zone, or airport transition zone.
- Production of a thermal plume in an area where flight paths are expected to occur below 1,000 feet from the ground.
- Environmental effects which, when considered with other impacts from the same project or in conjunction with impacts from other projects, are considerable, compound, or increase other environmental impacts.

1. Background

The City of Hayward is surrounded by three interstate highways (I-880, I-580, and I-238), as well as three major state highways [State Routes (SR) 92, 185, and 238]. It is also serviced by two Bay Area Rapid Transit (BART) lines, with connectors to a third line, and Amtrak Capitol Corridor train. AC Transit bus routes also cross the area, providing access to local neighborhoods, shopping, jobs, government offices, and surrounding communities. (Ex. 200, p. 4.10-4.)

Major access roads are described below:

- SR-92 is a six-to-eight lane, east-west highway connecting Hayward and Half Moon Bay. It passes approximately one mile south of the project site and features a High Occupancy Vehicle (HOV) lane on the westbound approach from Hesperian Boulevard to the San Mateo Bridge toll plaza. The project site is accessible from SR-92 via exits at Clawiter Road and Industrial Blvd.

- I-880 is an eight-lane, north-south freeway that extends from Oakland to San Jose, connecting with I-80 at both locations. It passes east of the project site with one HOV lane in each direction. The project site is accessible from I-880 via the Winton Road exit or west on SR-92 to Clawiter Road.

- Depot Road is a two-lane, east-west connector road that extends from Hesperian Boulevard to approximately one mile west of Clawiter Road, where it terminates adjacent to the City levees, floodplain, and designated open space. It crosses Clawiter Road just north of the project site.

- Industrial Boulevard is a four-lane, southeast-northwest arterial road that terminates at Clawiter Road, just north of Depot Road. Industrial Boulevard forms the nominal northeast boundary for the Industrial Corridor.

- Clawiter Road is a two-lane, north-south arterial road that intersects SR-92 approximately one mile south of the project site. The site is located on the west side of the road at 25101 Clawiter Road and can be accessed locally from Depot Road or West Winton Road to the north. (Ex. 1, § 8.10.3.2.)

Intersections are usually the critical elements of the roadway system when assessing adequate travel capacity, safety, and environmental impacts. The operating conditions of a roadway system, including intersections, are described by the term “level of service” (LOS), which describes a driver’s experience based on the level of congestion (delay). Although LOS is not a measure of safety or accident potential, the evidentiary record focuses on whether project-related traffic will affect existing LOS in the project vicinity. LOS categories range from “A”, representing free-flow conditions with little or no delay, to “F”, representing gridlock conditions with substantial delay. (Ex. 200, pp. 4.10-5 to 4.10-6, p. 4.10-46 et seq.)

The City of Hayward uses LOS factors to qualitatively measure operational characteristics of local roadways. Intersections are analyzed by peak hour intersection capacity and operations rather than daily roadway capacity: LOS A through D is acceptable; LOS E (delays of 55 to 80 seconds) is considered marginal; and LOS F is unacceptable. (Ex. 200, p. 4.10-6.)

Staff's Traffic and Transportation Table 2, below, summarizes the current volume-to-capacity (V/C) ratios and LOS for roadways in the project vicinity and freeways that may be affected during construction and/or operation. The intersections nearest the project, Clawiter at Depot Road and Clawiter at Industrial Blvd, both currently operate at LOS A during the AM peak hour (7-8 am) and at LOS A and LOS B, respectively, during the PM peak hour (5-6 pm).

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Traffic and Transportation Table 2

Existing LOS for Roadways Affected by Project

NAME	CLASSIFICATION	PEAK AM V/C	PEAK LOS AM	PEAK PM V/C	PEAK LOS PM
SR-92 I-880 to Hesperian Blvd.	Highway	Not Available	N/A	0.75	C
SR-92 Hesperian Blvd. to Clawiter Rd.	Highway	N/A	N/A	0.69	B
SR-92 Clawiter Rd. to San Mateo Bridge	Highway	N/A	N/A	0.86	D
I-880 Winton Rd. to SR-92	Freeway	N/A	N/A	1.08	F
I-880 SR-92 to Tennyson Road	Freeway	N/A	N/A	0.95	E
Clawiter Rd. Industrial Blvd. to SR-92 Westbound Ramp	Arterial	0.89	D	0.94	E
Clawiter Rd. @ SR-92 Westbound & Eastbound Ramps	Arterial	0.74	C	0.78	B
Depot Rd. Dodge Ave. to Clawiter Rd.	Arterial	0.33	A	0.47	A
Depot Rd. Clawiter Rd. to Viking St.	Arterial	0.58	A	0.47	A
Industrial Blvd. Clawiter Rd. to Depot Rd.	Major Arterial	0.25	A	0.32	A
Industrial Blvd. Depot Rd. to SR-92	Major Arterial	0.38	A	0.48	A

Source: Ex. 200, p. 4.10-7; Ex. 1, p.8.10-11.

2. Potential Traffic Impacts and Mitigation

Construction. During the 18-month construction period, the workforce will reach a maximum of 230 workers in months 8-12. During peak employment, an average of 226 workforce vehicle trips per weekday is expected, with a maximum of 424 trips occurring during months 10-11. Workers are expected to commute from the East Bay area and will use I-880, SR-92, and a network of local roadways to access the construction site. The most direct access route is SR-92 to the Clawiter Road exit, and north on Clawiter to the temporary parking area

immediately across Clawiter from the site entrance. (Ex. 200, pp. 4.10-9 and 4.10-10.)

Major truck traffic will include dump trucks to remove demolition materials and delivery trucks carrying heavy graders or other construction equipment. Trucks will deliver materials directly to the site or the construction laydown area across Clawiter Road. Trucks will also transport materials to and from the laydown area to the site on a daily basis. The primary truck route is SR-92 to the Clawiter Road exit, and north along Clawiter Road to the site or laydown area. Secondary routes are from SR-92 along Industrial Blvd. to Clawiter Road or from I-880 along W. Winton Road, and south on Clawiter Road to the site.[121] (Ex. 200, p. 4.10-10.)

As shown in Staff's Traffic and Transportation Table 4, below, construction activities will increase congestion at five intersections during the morning commute and at four intersections during the evening commute. Although all intersections will retain an "acceptable" standard of delay or congestion based on the City of Hayward's LOS standards, introduction of project-related traffic during peak construction constitutes a significant adverse impact under CEQA by creating a substantial increase during congested commute windows.

[121] The EEC's construction period may overlap with major reconstruction of the I-880/SR-92 interchange. In anticipation of the reconstruction effort, Caltrans adopted a Transportation Management Plan to reduce traffic congestion caused by reconstruction activities. Staff believes that implementation of the Caltrans plan will prevent significant traffic impacts at the Clawiter Road and Industrial Blvd. exits used by EEC-related traffic. (Ex. 200, p. 4.10-11.)

Traffic and Transportation Table 4
Construction Impacts on LOS for Intersections Affected by Project

INTERSECTION	EXISTING LOS (AM)	LOS DURING CONSTRUCTION (AM)	EXISTING LOS (PM)	LOS DURING CONSTRUCTION (PM)
No Change to I-880 or SR-92 LOS				
Clawiter Rd. and West St.	B	B	B	B
Clawiter Rd. and Industrial Blvd	A	A	B	B
Clawiter Rd. and Depot Rd.	A	**B**	A	**C**
Industrial Blvd. and Depot Rd.	B	**C**	B	B
Clawiter Rd/Breakwater Ave. at SR-92 Westbound ramps	B	B	B	B
Clawiter Rd/Eden Landing Rd at SR-92 Eastbound ramps	C	C	E	E
Industrial Blvd/Cryer St. at SR-92 Westbound ramps	B	**D**	C	**D**
Clawiter Rd. at the Project Site Entrance	A	**C**	A	**D**
Clawiter Rd. at the Temporary Parking Lot Entrance	A	**C**	A	**C**

Source: Ex. 200, p. 4.10-12.
BOLD indicates a change in the LOS from existing conditions.

Condition of Certification **TRANS-1** requires the project owner to develop a Traffic Management Plan (TMP) to address the movement of vehicles and materials, including arrival and departure schedules, designated workforce and delivery routes, hazardous materials delivery routes and schedules, coordination with Caltrans, and other traffic-related activities during construction and operation. (Ex. 200, pp. 4.10-10 to 4.10-11; Ex. 8, pp. 14-16; Ex. 12, p. 21 et seq.) The TMP must also identify mitigation to address worker safety and increased traffic delays and congestion related to workers crossing Clawiter Road to the parking/laydown area and the construction site. In addition, the TMP must include a Heavy Haul Plan (HHP) to address the transport and delivery of heavy and oversized loads that require state and federal permits. (*Ibid*.)

The TMP shall designate Industrial Blvd. as the primary access route for construction-related traffic to reduce the impact on Clawiter since the addition of workforce vehicle trips will degrade the LOS from D to E on sections of Clawiter Road. The TMP shall also direct workers to arrive and depart during non-commute hours to reduce the project-related contribution to traffic to a less than significant level. (Ex. 200, pp. 4.10-10, 4.10-13; Ex. 8, p. 21 et seq..) Delivery of heavy equipment and hazardous materials shall also be limited to off-peak hours and coordinated by traffic markers and flaggers to prevent the creation of potentially hazardous situations or any significant contribution to traffic congestion in the project vicinity. (*Ibid.*)

Condition **TRANS-2** requires the project owner to implement a parking plan to accommodate commuter vehicles and truck deliveries during construction and operation. Condition **LAND-1** in the **Land Use** section of this Decision directs the project owner to comply with the City's parking configuration, surfacing, and encroachment requirements. Condition **TRANS-2** also directs the project owner to comply with the City's emergency access requirements for law enforcement, fire services, utilities, compliance inspections, and other safety-related vehicles. (Ex. 200, p. 4.10-18.)

Condition **TRANS-3** requires the project owner to obtain appropriate encroachment permits from the City for any construction within the public right-of-way along the project's linear alignments. Condition **TRANS-4** requires that any road damaged by project construction be repaired to original condition.

Operation. The project will employ approximately 13 full-time, permanent employees: five employees working 8 a.m. to 5 p.m., and the remaining eight employees working in rotating shifts (two employees per shift). Thus, the permanent workforce will only generate a maximum of seven new vehicle trips during the morning and evening commutes, respectively. Six additional vehicle trips will occur during the remainder of the day. (Ex. 1, § 8.10.43.) According to

Staff, these additional trips are considered de minimus and will not cause any significant adverse impact on overall traffic counts, congestion, or LOS along any of the routes or roadway intersections that access the project site. (Ex. 200, p. 4.10-16.)

Operation-related truck traffic will not exceed 60 trips per month, with an average of two or fewer trips per day, including up to eight tanker truck deliveries of aqueous ammonia each month. (Ex. 1, § 8.10.4.3.2.) Staff's Traffic and Transportation Table 5, below, shows anticipated truck deliveries:

Traffic and Transportation Table 5
Operational Truck Traffic

Delivery Type	Number and Frequency of Truck Trips*
Aqueous ammonia	16 per month
Lubricating oil	2 per month
Water Treatment Chemicals	4 per year
Cleaning chemicals	2 per month
Oily Water Waste Removal	8 per year
Trash Removal	2 per week
Sparing Replenishment	4 per year

Source: Ex. 200, p. 4.10-16; Ex. 1, § 8.10.4.3.2, Table 8.10-8
* Each delivery counts as two trips

Although service and delivery trucks will arrive during normal business hours, all deliveries of hazardous materials should occur outside of normal commute times. Except for hazardous materials, the operation-related truck trips described in the evidentiary record will not cause significant adverse impacts on overall traffic counts, congestion, or LOS along the routes and intersections used to access the project site. (Ex. 200, p. 4.10-17.)

According to Staff, the primary designated hazardous materials route for the EEC is SR-92 to the Clawiter Road exit, and north along Clawiter Road to the site. Condition **TRANS-1** requires the project owner to identify the appropriate route for hazardous materials deliveries and to comply with all LORS governing the

transport, storage, and use of hazardous materials to protect public safety. (Ex. 200, p. 4.10-18.) See the **Hazardous Materials** section of this Decision.

3. Potential Aviation Impacts

The most contested issues in the EEC proceeding are whether 1) the invisible thermal plumes from the project's stacks and radiators will result in significant turbulence at an altitude where aircraft flying over the site could be affected and 2) whether the presence of the project itself would unreasonably constrict navigable airspace near the Hayward Executive Airport. We conclude that EEC is likely to create an aviation hazard in three ways: 1) turbulence from the invisible plumes rising to an altitude where airplanes fly; 2) the project site itself adds complexity to an already constricted airspace where pilots would need to take additional measures in the cockpit to avoid potential invisible plumes; and 3) the project would result in cumulatively considerable impacts to navigable airspace in conjunction with the nearby RCEC project. Therefore, we find that the EEC will result in significant, adverse public health and safety impacts that cannot be mitigated in violation of applicable LORS and CEQA.

a. The Hayward Executive Airport and the EEC Site

The project site is located approximately one mile south of the Hayward Executive Airport, adjacent to the downwind departure route for Runway 10R/28L and within the southwestern quadrant of the Airport airspace, which falls within the boundaries of the Hayward Airport Approach Zoning Plan (AAZP) *turning zone,* as defined in Section 10-6.20 of the City of Hayward Airport Approach Zoning Ordinance and the Hazard Prevention Zone/General Referral Boundary (AIA) identified in Alameda County's Airport Land Use Policy Plan (ALUPP). The site is adjacent to the Hayward airport *traffic pattern zone* and a few hundred feet south of the downwind departure for Runway 28L, which follows the Union Pacific Railway tracks that run along the project's northeastern boundary. The

site is also adjacent to the preferred arrival and departure route for the helicopter landing pad at the southern edge of the Airport. (Ex. 200, pp. 4.10-4.4 and 4.10-20; See also, Exs. 409, 534.) There were approximately 130,000 takeoffs and landings at the Hayward Airport in 2006 and approximately 147,000 in 2007. (12/18/07 RT 270.) See, Staff's Transportation and Traffic Figure 5 (Hayward Executive Airport Traffic Pattern Zone) at the end of this section.

The proximity of the EEC site to the Hayward Executive Airport, particularly its location within the airspace, is problematic in an already congested area. The airspace is subject to several operational restrictions to accommodate the high level of aircraft activity at numerous airports in the Bay Area. The relevant Hayward Airport airspace extends approximately four nautical miles to the northeast and southwest, but only one nautical mile to the northwest due to potential conflicts with flights in and out of Oakland International Airport. (Similarly, although the Oakland International Airport is 7.9 miles away, *its* airspace extends to within 1.8 miles of the EEC site.) (Ex. 200, p. 4.10-19.) The movement of aircraft within the Hayward airspace is further constrained by noise abatement procedures designed to protect residential developments in the north, northeast, and southeast areas surrounding the airport. As a result, the southwest quadrant of the Hayward Airport airspace is the only relatively unobstructed area for aircraft transit, maintenance flights, student pilot training procedures, and normal departures/arrivals. (Ex. 200, p. 4.10-19.)

At the Hayward Airport, available airspace and traffic patterns are a concern not only horizontally but also vertically. The airspace extends upwards only to 1,500 feet Mean Sea Level (MSL), in order to provide adequate separation between aircraft using the Hayward Airport and operations at the Oakland and San Francisco International airports. Furthermore, the published pattern altitude for the Hayward Airport is 600-800 feet MSL, approximately 550-750 feet above ground level (AGL) for fixed wing aircraft and 550 feet AGL for helicopters while the prescribed minimum altitude for fixed wing aircraft outside the traffic pattern

in unobstructed airspace is 500 feet MSL. (Ex. 200, p. 4.10-19.) Indeed, as the Caltrans witness explained, the Hayward Airport has the "lowest traffic pattern altitude in the state, for good reason, to deconflict with instrument approach aircraft flying into Oakland and also to stay below the Class B airspace at San Francisco International. It is a very unusual situation and we feel it warrants unique scrutiny by all concerned parties." (12/18/07 RT 116-117.)

The available airspace is not the only concern. Although the typical traffic pattern extends out about a mile from the runways, the actual tracks flown by aircraft entering and leaving the pattern may extend out 1.5 miles or more, depending on the type and volume of the traffic. Aircraft may also be held outside the pattern by tower controllers to provide additional spacing between aircraft or to avoid impacts on smaller aircraft from the turbulence created by larger aircraft landing at Hayward or commercial jetliners inbound to Oakland. (Ex. 200, p. 4.10-19.) Aircraft operating in the Hayward Airport airspace must be in contact with the air traffic control (ATC) tower during operating hours from 7 a.m. to 9 p.m. daily. During other times, the airspace reverts to Class E airspace, which requires only those aircraft conducting instrument flights to remain in contact with ATC facilities, such as San Francisco Bay Approach Control, Oakland ATC tower, or Oakland Air Route Traffic Control Center. (Ex. 200, p. 4.10-19.)

Aircraft operating under visual flight rules[122] (VFR) are not required to be in radio communication with any ATC facility and their flight paths need not conform to published instrument approach or departure patterns within the Hayward airspace. Under VFR rules, aircraft are generally allowed to enter the standard pattern from any direction, provided it does not interfere with other aircraft or violate local noise abatement restrictions. (Ex. 200, p. 4.10-19.)

[122] Visual Flight Rules (VFR) identify conditions under which a pilot may fly without positive control from an ATC facility and can "see and be seen" by other pilots. (Ex. 200, p. 4.10-19.)

b. Flights Over the EEC Site

Uncontroverted evidence shows that aircraft fly over or within 974 horizontal feet (within a 297 meter "gate")[123] of the site, at altitudes below 1,000 feet AGL, more than 45 times per month. Many other flights, especially mid-field departures, skirt either side of the airspace above the site on a daily basis. (Ex. 200, p. 4.10-20; Ex. 208).[124] April 2007 data show flights between 505 to 919 feet, and in June 2007 flights were as low as 330 feet AGL over the Eastshore "gate." (*Ibid.*) The Caltrans witness testified that although the Hayward traffic pattern altitude is 650 MSL (600 AGL), pilots are given tolerance to 100 feet deviation from the assigned altitude and in some cases a pilot could fly as low as 393 feet AGL in landing mode (the FAA-approved circling altitude is 493 feet) and still be within legal operating regulations. (12/18/07 RT 120-122). Moreover, as daily airport traffic increases and as airport operations increase over the next ten years, so too will the size of the traffic pattern, placing an increasing number of aircraft directly over the EEC site. (*Id*. at 141 - 142.)

c. Plumes from the EEC

The EEC will emit high velocity, invisible, thermal plumes from its fourteen 70-foot high stacks at 4,614.16 feet per minute (23.44 meters per second at 100 percent load, at 59º F ambient temperature). (Ex. 1, Table 8.1-11.) The plant's 42 radiators, each supplied with 12 fans (504 total) for cooling will also emit plumes. (Ex. 1, § 2.2.8.) Plume velocity will create turbulence, which can affect

[123] An aircraft penetration or analysis "gate", as identified in this analysis, is an imaginary "window in the sky" established in the Airport Noise and Operations Monitoring System (ANOMS) that allows the user to evaluate any aircraft that penetrates the gate for type, speed, altitude, and noise events. The gate for the Eastshore location was a circle with a radius of approximately 974 horizontal feet (297 meters), centered over the project location. (Ex. 200, p. 4.10-20, fn. 4.)

[124] Exhibit 208 shows the Hayward airport penetration gate plot over "Gate East Shore" near the site during the period of April 2-29, 2007. Flight altitudes identified in the aircraft tracks provided for April 2007 identify helicopter and single engine fixed wing aircraft transits between 505 to 919 feet AGL. (Ex. 200, p. 4.10-20.)

the maneuverability of aircraft flying through, or in the immediate vicinity of, the plumes. As plumes rise and dissipate, their speed (and thus their ability to cause turbulence), will decline. Staff and Applicant agreed that the project's vertical plumes would cause turbulence up to several hundred feet above the plant site, but they differed on precisely how high or how often such plumes would occur under worst-case calm wind conditions. (Ex. 200, p. 4.10-20, 4.10-41; Ex. 20.)

(1) Staff's Plume Velocity Analysis

In the Russell City proceeding, Staff testified that the calculation of vertical plume velocity is not currently an option in USEPA-approved air dispersion models. While there are air dispersion and computational fluid dynamics models available from Australia and Europe, the modeling approaches require use of proprietary models, which are unavailable; therefore, Staff used a calculation approach that provides reasonably conservative estimates of the average plume vertical velocity values. (Ex. 29, p. 4.10-26: RCEC Final Staff Assessment.) This approach is based on a Plume Velocity Analysis developed by Katestone Environmental, an Australian-based company, using a proprietary model called the "Spillane Approach" as presented in the "Aviation Safety and Buoyant Plumes" paper by consultant Peter Best (known as the "Best paper").[125] (*Id*., pp. 4.10-26 and 4.10-27; see also Exs. 30, 31, 32.)

Staff performed a Plume Velocity Analysis for the EEC based on the "Spillane approach," which is limited to worst-case calm wind conditions, to determine plume velocities at different heights above the stacks and associated radiator fans. (Ex. 200, p. 4.10-41 et seq.) Australian aviation authorities have established that an "exhaust plume with a vertical velocity in excess of 4.3

[125] The Katestone methodology was developed in conjunction with the Australian Government Civil Aviation Safety Authority (CASA) approach and is described in a technical paper by Peter Best et al. (2003), "Aviation Safety and Buoyant Plumes" (See Exs 30, 31, and 32.) Both Staff and Applicant relied on this CASA method for analyzing plume velocity but they disagreed on the input data and equations used to calculate velocity as discussed below.

meters per second (m/s) may cause damage to an aircraft airframe or upset an aircraft when flying at low levels." (Ex. 26, Australian Government Civil Aviation Safety Authority (CASA) Advisory Circular (AC) [2004] 139-05.) The Federal Aviation Administration (FAA) has also accepted this threshold "as a valid representation of hazardous exhaust velocities." (Ex. 200, p. 4.10-20; Ex. 39, p. 6.)[126] Staff's calculations showed that under calm wind conditions, the EEC's vertical plume velocities would equal or exceed 4.3 m/s at 480 feet AGL or higher.[127] (*Id.* at 4.10-43 to 4.10-45.)

Staff measured plume velocity for seven of the fourteen exhaust stacks, stating that "this simplified multiple stack plume velocity calculation method predicts somewhat lower velocity values than the full Spillane approach methodology as given in data results presented in the Best paper (citation). However, the Best paper does not present the multiple stack calculations in a manner that has allowed Staff to determine the exact methodology and duplicate the results shown in the paper." (Ex. 200, p. 4.10-42.)

For worst case modeling purposes, Staff modeled the EEC engines and radiators assuming seven stacks form a merged plume. Using the Spillane approach, the plume velocity at different heights above ground was determined. Staff's calculated plume velocity values are provided below in Staff's Plume Velocity Table 2. (Ex. 200, p. 4.10-43.)

[126] In January 2006, the FAA published a Safety Risk Analysis on aircraft overflight of industrial exhaust plumes. (Ex. 39.) The FAA's Safety Risk Analysis is discussed below in the context of Alameda County's testimony.

[127] The calm weather condition calculation represents the worst-case since vertical velocity is *reduced* when wind speed increases. (Ex. 200, p. 4.10-42.)

Plume Velocity Table 2
Engine and Radiator Predicted Plume Velocities

	Engine Plume Velocity (m/s)		Radiator Plume Velocity (m/s)	
Height (ft)	**32°F**	**59°F**	**32°F**	**59°F**
300	4.44	4.38	5.20	5.20
400	3.91	3.85	4.44	4.44
500	3.57	3.51	4.00	4.00
600	3.32	3.27	3.70	3.69
700	3.13	3.08	3.47	3.47
800	2.98	2.93	3.30	3.29
900	2.85	2.81	3.15	3.15
1,000	2.74	2.70	3.03	3.03
1,100	2.65	2.61	2.93	2.93
1,200	2.57	2.53	2.84	2.84
1,300	2.50	2.46	2.76	2.76
1,400	2.43	2.40	2.69	2.69
1,500	2.37	2.34	2.62	2.62
1,600	2.32	2.29	2.56	2.56
1,700	2.27	2.24	2.51	2.51
1,800	2.23	2.19	2.46	2.46
1,900	2.19	2.15	2.42	2.41
2,000	2.15	2.11	2.37	2.37

Staff explained that its conservative (worse-case to give maximum protection to public safety) analysis necessarily considered peak velocity as well as average velocity. (12/18/07 RT 101-103.) According to Staff, the EEC's exhaust plumes have two forms of energy, mechanical energy (momentum) and thermal energy (buoyancy), and both forms of energy need to be considered in calculating plume vertical velocities. Staff believes that merged heated plumes would likely exceed 480 feet AGL if more refined modeling methods were available. (12/18/07 RT 107.)

Staff had several meteorological file options available to analyze conditions at the EEC site, including BAAQMD website data. Since the wind speed and temperature statistics were of greatest concern, Staff used data from the nearest BAAQMD monitoring station, Union City, located about four miles southeast of the project site. Staff's Plume Velocity Table 3, below, provides wind speed and

temperature statistics for Union City as averaged over seven years of available data.

PLUME VELOCITY Table 3
Wind Speed and Temperature Statistics for Union City

Wind Speed		Temperature		Temperature and Wind Speed	
≤ 1 m/s	8.29%	< 40F	2.60%	≤ 1 m/s, < 40F	0.70%
≤ 2 m/s	37.99%	< 50F	16.82%	≤ 1 m/s, < 50F	3.49%
≤ 3 m/s	59.83%	< 60F	60.12%	≤ 1 m/s, < 60F	6.94%
≤ 4 m/s	74.09%				
≤ 5 m/s	92.72%				

Source: Staff data reduction of Union City meteorological data (Ex. 200, p. 4.10-44.).

Staff found that although calm conditions/low wind speeds are not frequent in the site area, they do occur and during lower temperatures, are more likely to create higher velocity conditions for the thermally buoyant gas plumes emitted from the project's stacks. (Ex. 200, p. 4.10-44.) Staff notes that its calculation method provides the "plume average" velocity for the area of the plume at a given height above the ground. Staff doubled the calculation since the maximum velocity could potentially be somewhere around a value of "two times" the average. (12/18/07 RT 103:15-18.) Thus, Staff concluded that although the calculated calm wind vertical plume velocities from the project's engines and radiators are predicted to be less than 4.3 m/s at 500 feet AGL, the worst-case peak plume centerline velocities will exceed 4.3 m/s well into and perhaps above the flight pattern height for the Hayward Airport. This would result in turbulence with the potential to affect the maneuverability of aircraft flying over or in the immediate vicinity of the plumes at or below that altitude. (Ex. 200, p. 4.10-20.)

According to Staff, worst-case low wind speed conditions (less than 1 m/s hourly average) will occur more than 8.0 percent of the time when small aircraft could fly over the project's stacks, presenting a significant risk to aviation safety. (*Id*., at 4.10-20.)

(2) Applicant's Plume Velocity Analysis and Helicopter Flyover Report

Applicant asserted that Staff did not accurately adhere to the CASA-approved Katestone modeling methodology.[128] According to Applicant's witness, where a project has an exhaust plume with an average vertical velocity exceeding the limiting value (4.3 m/s at the Obstacle Limitation Surface), the first step requires a calm wind analysis followed by the use of TAPM (The Air Pollution Model) to conduct plume rise assessments for single exhaust plumes. The Katestone method is appropriate for multiple plume analysis using the TAPM derived vertical winds or calm wind case to assess the average plume vertical velocity and extent due to two or more plumes. (Ex. 20, Corbin and Darvin at 4.)

Applicant performed a vertical plume velocity analysis using the Katestone method, assuming worst-case winter stack parameters for the engines and radiator fans, based on a 32º F ambient temperature to calculate the maximum expected plume velocities. Applicant's worst-case assessment assumes calm winds for the entire length and height of the plume. Applicant noted that the most important meteorological conditions that could result in significant plume rise and high vertical velocities at significant elevations are calm or light winds from ground level through the lower atmosphere. Based on the results of the TAPM generated winds using site-specific weather data developed for the RCEC project, almost identical to the meteorological conditions at the EEC site, the scenario of calm wind (i.e., zero m/s) throughout the lower atmosphere is extremely conservative and unlikely to happen in reality. (Ex. 20, Corbin and Darvin at 5.) The results of Applicant's worst-case scenario are shown below in Applicant's Table1:

[128] It is not clear in the record whether Applicant's reference to the Katestone method here includes the "Spillane approach" referenced by Staff. Both parties dispute each other's characterization of the appropriate modeling methodology. Exhibits 30 and 31 include the Spillane approach and Best paper.

Applicant's Table 1: Summary of Heights Where the Vertical Velocity is Reduced to 4.3 m/s for Single & Multiple Plumes for Worst-Case Scenario

Scenario	IC Engine – Scenario 1	Radiator Fans
Single Plume	146 Feet	42 Feet
Merged Plume	193 Feet	330 Feet

Source: Ex. 20, Testimony of Darvin, p. 5.

Applicant asserted that the theoretical predictions shown in Table 1 overestimate the expected vertical velocities because the worst-case does not account for the normal substantial increase in horizontal wind speed with height when surface winds are present. Increasing horizontal wind speed would cause the vertical plumes to bend and dissipate more rapidly and at lower altitudes than predicted by the calm wind methodology. Applicant's method assumed no horizontal wind for the entire height of the plume. Under Applicant's worst-case scenario, the average vertical velocity within the plume drops below the CASA threshold of 4.3 m/s at about 330 feet AGL with all units operating. The average vertical plume velocity would drop below 4.3 m/s at much lower levels when horizontal wind speeds greater than zero are assumed. (Ex. 20, Corbin and Darvin at 5-6, 9.)

Applicant contended that Staff incorrectly calculated the thermal plume's peak velocity by doubling the average velocity, assuming no separation between the stacks or between the radiator fans, and not accounting for the plume dispersal effects of wind. (Ex. 20: Testimony of Corbin and Darvin at 7 to 10.) Applicant also criticized Staff for not conducting further analysis, stating that the 4.3 m/s speed was designed as a screening level tool to trigger further assessment. (*Id.* at 10.)

According to Applicant's expert witness, the general CASA requirement is to determine the height at which the plume(s) could exceed an *average* in-plume vertical velocity threshold of 4.3 m/s and to determine the dimensions of the plume in these circumstances. (Ex. 20, Corbin and Darvin, at 3 citing CASA AC

Section 6.3.) If initial calculations, generally based on conservative assumptions of dead-calm ("still-air") conditions, exceed the 4.3 m/s average velocity at the lowest height an aircraft may travel, then a more refined analysis should be undertaken. Applicant's witness noted that CASA requires the use of model(s) to generate a probability distribution for the height and lateral limit of the plume vertical velocity of 4.3 m/s and that the models should use site-specific meteorology to determine frequency of in-plume vertical velocities at the lowest altitude an aircraft may fly over the site and at other heights as required. (*Ibid*, citing CASA AC Sections 7.6 through 8.3 and 9.4 through 9.19.)

Applicant argues that Staff's reliance on the worst-case calm wind scenario is not consistent with the CASA AC since it is not representative of site-specific meteorology.[129] Further, Applicant contends that Staff incorrectly assumed no distance between the project's generator stacks and thus, assumed plume merging at 320 feet AGL instead of 193 AGL as shown in Applicant's calculations. Applicant also contends that Staff's merging of stacks did not account for space between each stack and radiator fan that would have zero vertical velocity. Thus, Applicant believes, Staff over-predicted the height and buoyancy effects of the plume. Finally, Applicant asserts that Staff incorrectly used peak velocity as the significance level since the CASA method uses average velocity. According to Applicant, the 2.0 multiplier used by Staff to establish peak velocity does not provide information about the altitude at which the peak velocity occurs. (Ex. 20, Corbin and Darvin at 8-10.).

Applicant also presented the results of its consultants' helicopter flyover of the Barrick power plant near Reno, Nevada on November 28, 2007. (Ex. 20: "*Turbulence Felt in a Light Helicopter Caused by a Power Plant Thermal Plume:*

[129] "In the absence of reliable meteorological data, plume rise has often been assessed in still air conditions. Whilst this represents a worst case scenario, the probability of this occurrence in actual weather conditions at the development site is usually quite low." (Ex. 20, Corbin and Darvin at 7, citing CASA AC Section 8.2.) According to Applicant, calm wind conditions occur rarely in the Union City meteorological dataset that is representative of the site location – only 9 calm hours occurred in seven years of data, i.e., 0.02% of the time compared with Staff's estimate of calm weather occurring 8.0 % of the time. (*Id*. at 9.)

Final Report" [Final Report], Dec. 5, 2007, Testimony of Blumenthal, Testimony of MacDonald; 12/17/07 RT 61 et seq.) The Barrick plant is similar but not identical to the EEC; it uses the same number of Wärsilä engines proposed for the EEC, but the Barrick stacks are arranged in groups of threes and fours, instead of individual stacks arranged linearly as proposed by EEC; the Barrick stacks are 55 feet high, while EEC's are 70 feet tall; and Barrick is at 4,340 feet MSL, compared to EEC's anticipated elevation of 15-20 feet MSL. (Ex. 20: Final Report at 6; Ex. 1, Figure 2.2-2A; Ex. 200, p. 5.2-8; 12/17/07 RT 62, 76, 256.) On the day of the flyover, 11 of the 14 engines at the Barrick plant were operating. (Ex. 20: Testimony of Corbin and Darvin at 11-12; Final Report at 7.)

The Barrick flyover test was conducted in cold, calm weather, which the Applicant asserts, is most conducive for formation of thermal plumes. (12/18/07 RT 260:11-14, 62:23-25, 73:12-16.) The helicopter flew over the Barrick plant twelve times at altitudes from 500 feet to 300 feet AGL and from different directions. Light turbulence from the plumes was detected by the accelerator on three of the passes at 300 feet AGL. The most noticeable turbulence was actually about 255 AGL, as registered by GPS data.[130] (Ex. 20: Final Report at 11, 16-17; 12/18/07 RT 66-71.)

Staff believes that the Barrick flyover test is unrepresentative of the worst-case conditions that will exist at the EEC site. Staff notes that the test was conducted during low ambient temperature conditions, resulting in a low heat-reject load and thus low radiator fan use. Staff regarded this as particularly important because radiator stacks have a greater vertical velocity potential than engine stacks. (Ex. 200, p. 4.10-43.) Staff also noted that the plumes at the Barrick plant were "bent"

[130] Since the helicopter did not fly below 300 feet AGL, turbulence levels were registered by GPS data. (Ex. 20: Final Report, at 7, 10.) The helicopter pilot encountered very light turbulence on seven of the passes at 300 feet AGL or above, which did not affect his ability to fly the helicopter. He stated that if he had not known about the thermal plume, he would not have noticed flying over a power plant. (12/17/07 RT 71-72; Ex. 20: Testimony of Bellotto; Ex. 20: Final Report, at 11.) However, our concern here is whether pilots would encounter *unexpected* turbulence above the site, not whether they would be looking for it.

as a result of wind, indicating that worst-case calm conditions were not present when the test was conducted. (Staff's Reply Brief at 11-12 citing 12/18/07 RT 240-260; Ex. 20: Testimony of Corbin and Darvin at 5-6.)

(3) Resolution of the Dispute on Plume Height

First, we find that despite the parties' disagreements and debates about the appropriate methodology and input data used to determine the height and frequency of significant plume velocity, the results of their independent analyses are remarkably similar. Indeed, in response to Committee questioning at the Evidentiary Hearing, Staff's expert witness acknowledged that there is a close correlation in the results. (12/18/07 RT 107; Ex. 209.) Essentially, the evidence shows a difference of approximately 150 vertical feet above the site where significant turbulence due to vertical plume velocity could occur.

Second, the testimony of the aviation agency experts established that pilots flying in the EEC vicinity do not always stay within a narrow flight pattern altitude and that a difference of 150 feet, even during favorable (windy) meteorological conditions, would not provide a sufficient buffer to protect pilots from exposure to unexpected turbulence. (12/18/07 RT 116-117,120-122.)

Third, even if we discount Staff's conservative modeling results of a 4.3 m/s plume at 480 feet AGL and we accept Applicant's assertion that significant plume velocity would not exceed 330 feet AGL, we would have to conclude that plumes will reach into the range of 300 to 400 feet AGL in which aircraft are likely to fly over the EEC. (12/18/07 RT 120-122; 176-178, 251; Exs. 204, 402, 416.)

We are unable to rely on the Applicant's Barrick flyover to estimate the EEC's plume height and level of turbulence, because in assessing risks to public safety, we must be assured that we are accounting for the worst-case conditions that could arise. This was not the case with the Barrick test, because: 1) not all

engines were operating; 2) the cold conditions reduced radiator fan use; and 3) the presence of wind meant that the weather conditions were not worst-case (plumes rise higher in still air) and as a result, the plumes were bent by the prevailing wind conditions. In addition, several other factors made the Barrick test potentially unrepresentative of the conditions at EEC: the use of a hand-held anemometer to measure ground-level wind speed but not wind speed at the flight altitudes, the different configuration of engines at the Barrick site, failure to measure the plume's width, the use of a helicopter rather than fixed-wing aircraft, and the different geography, climate, and higher altitude of the Barrick site compared with the EEC site.[131] Even if the Barrick flyover results were more reliable, the altitude at which turbulence was experienced by the helicopter pilot at 250 to 300 feet AGL is only about 50 feet lower than the modeled results shown in Applicant's Katestone analysis.

a. Summary of Plume Height and Hazard to Aviation Safety

Since turbulence-causing thermal plumes from EEC are likely to rise to an altitude in the range of 300 to 400 feet AGL or higher under worst-case conditions, and since aircraft are likely to fly over the site at an altitude of 300 to 400 feet, we find that the EEC plumes are likely to cause a hazard to aviation safety.[132] This is consistent with the FAA's views: plumes are hazardous to

[131] After the PMPD was issued, Applicant filed a Motion to Reopen the Record to allow another flyover test during summer months to cure the deficiencies of the Barrick flyover. The Committee denied the Motion since Applicant failed to show (1) that it was denied due process, (2) that it had good cause for not pursuing a more accurate flyover prior to close of the evidentiary record, and (3) that a new flyover would be more persuasive than the modeling results already contained in the record.. (7/16/08 Motion to Reopen; 8/08/08 Order Denying Motion to Reopen.)

[132] We note that Applicant's testimony on the meaning of "hazard" was based on the Applicant's characterization of theoretical pilot response that doesn't account for the potential of sudden, unexpected turbulence in takeoff or landing mode (even considering the "stall margin" built into aircraft design) or student pilot inexperience or many other variables that could occur over a highly-populated urban area. (Ex. 20, Testimony of Marshall Graves at 4-7.) Thus, we do not rely on this testimony. The more relevant inquiry is whether aircraft would fly over the project during worst-case conditions when all 14 engines and 42 radiators would be operating in calm wind conditions. The potential for this event is the basis of our public safety concern. We believe Staff's and the aviation agencies' characterization is more compelling than Applicant's witness who testified that "there is a 15 in one billion chance of occurrence." (*Id.* at 7.)

navigation when aircraft fly less than 1,000 feet above the plume source; therefore, "flight over or around plume generating facilities should be avoided as there is the *potential* (however low) for aircraft upset at close proximity to high velocity plumes." (Ex. 39, pp. 16-17 [italics in original]; see also Ex. 416.) This is particularly important since the project's plume emissions will be "invisible" to pilots flying over the site. Indeed, the FAA witness indicated that consideration of "invisible" plumes is a new concern for pilots and requires additional FAA study. (12/18/07 RT 114-115.)

b. Unmitigability of the Hazard

As we note above, in order to reduce or avoid the risk of over-flight of thermal plumes, the FAA has recommended that pilots avoid flying over plumes with less than 1,000 feet of vertical clearance. Staff and Applicant seem to agree that there would be no aviation hazard from EEC if aircraft were able to maintain that vertical distance. However, in this case, it is not feasible for aircraft to fly above 1,000 feet because the pattern altitude for Runway 10R/28L is limited to 600 feet due to over-flight of aircraft on approach to Oakland International Airport. (Ex. 200, p. 4.10-21; Ex. 37, p. 2; Ex. 204.) The FAA cannot raise the altitude at which Hayward Airport related aircraft fly over the EEC site without eliminating the separation from airspace assigned to Oakland arrival and departure flights. To do so would prevent the two airports from operating independently and reduce air traffic efficiency. (12/18/07 RT 176-178, 251; Ex. 204.) As a result, the "FAA has no intention or interest of changing any air traffic operation at Hayward Executive Airport." (12/18/07 RT 178.)

Moreover, regardless of the pattern altitude restriction, the Applicant's proposed mitigation – to avoid the plumes when operating below 1,000 feet – is, as the FAA explained, "not reasonable for aircraft operating in a traffic pattern" (Ex. 43, p. 2), because "it is not reasonable to expect pilots to look for the exhaust stacks . . . on the ground, then see and avoid any visible plumes while attending to their

primary responsibility of safely operating the aircraft, looking for other aircraft in the pattern, and responding to Air Traffic Control instructions." (Ex. 37, p. 2.) "[P]ilots would be required to divert their attention from the sighting of both facilities on the ground, then maneuver the aircraft around both plumes." (Ex. 204 at 2; see also Ex. 727.) This is particularly problematic for aircraft taking off from the Hayward Airport: pilots departing the traffic pattern after takeoff from Runway 28L have their aircraft in a "nose up" configuration that limits visibility of structures on the ground. (Ex. 43, p. 2.)

EEC thus stands in contrast to the RCEC, which we approved because "see and avoid" mitigation was feasible. (RCEC Decision, Docket No. 01-AFC-7C, CEC 800-2007-003-CMF, Condition **TRANS-10**, pp. 190-191.) RCEC is located approximately 1.5 miles to the southwest of the Hayward Airport, and aircraft do not need to fly over the RCEC site; indeed, we determined that no flight paths would be affected by restricting the airspace above the RCEC. (*Id.* at pp. 184, 186-187.) The EEC is adjacent to the existing air traffic pattern at the Hayward Airport and more aircraft fly over the area, requiring pilots to be concerned about other air traffic as well as potential turbulence from stack exhaust. (12/18/07 RT 134, 136-137, 141-142; Exs. 208, 417, 418.)

Weighing the substantial but competing evidence submitted by Staff and Applicant, and considering the aviation agencies' recommendations, we are persuaded that public health and safety is the compelling factor. We therefore find that the thermal plumes from EEC constitute a significant, adverse, unmitigable impact on public health and safety in violation of CEQA requirements and the Hayward Airport Approach Zoning Regulations, as discussed below regarding the City's position and in the **Land Use** section of this Decision. (See Cal. Code Regs, tit. 14, § 15000, App. G, Part XV, Transportation/Traffic, Part (c); HMC, § 10-6.35.)

c. Effect of the EEC on Airspace Congestion.

Even if EEC's thermal plumes were unlikely to pose a hazard to aircraft, the mere presence of the power plant creates a safety hazard. The project's proximity to the traffic pattern for the Hayward Executive Airport and the downwind departure route for Runway 28L would unreasonably complicate aircraft maneuverability.[133] The site location would also limit the airspace available for aircraft transit, maintenance flights, training procedures, and normal departures and arrivals that currently occur within this portion of the Hayward airport airspace. (Ex. 200, p. 4.10-21; see also Ex. 203.) This constitutes an additional, adverse, unmitigable impact on public health and safety and violates applicable zoning LORS.

4. Intervenors

City of Hayward. The City owns and operates the Hayward Executive Airport as a proprietary enterprise subject to FAA standards and procedures. FAA Order 5190.6A requires the City to restrict land use in the airport vicinity to prevent aviation hazards. (Ex. 402 at 3, citing Ex. 411 at 19-20.) The Hayward Airport Master Plan incorporates the City's airport zoning policy and provides for review of airport operation and development. (Ex. 410 at 1-3.) The Master Plan forecasts that airport operations will increase in upcoming years, including 3,350 additional flights per year between 2010 and 2020. (Ex. 402 at 4; Ex. 513.)

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[133] Caltrans witness Cathey testified "[w]e feel that pilots would have to -- would be distracted from their primary duties of flying the aircraft while operating at an exceptionally low traffic pattern altitude. In fact I think it is probably the lowest traffic pattern altitude in the state, for good reason, to deconflict with instrument approach aircraft flying into Oakland and also to stay below the Class B airspace at San Francisco International. It is a very unusual situation and we feel it warrants unique scrutiny by all concerned parties." (12/18/07 RT 116:21-25, 117:1-7.) See also, Exhibit 204 in which the FAA states that "[d]ue to the low visual effects of the RCEC and Eastshore plumes, pilots would be required to divert their attention from the traffic pattern and safe operation of the aircraft to acquire visual sighting of other facilities on the ground, then maneuver the aircraft around both plumes. The mitigation would be unreasonable and in some cases unattainable."

The State Aeronautics Act (Pub. Resources Code, § 21670 et seq.) sets forth the requirements and duties of statewide Airport Land Use Commissions (ALUCs). To implement the State Aeronautics Act, Caltrans developed the "Airport Land Use Planning Handbook" (Handbook), which provides direction to the ALUCs on the operational, safety, and traffic zones that must be established around airports. (Ex. 414.) The Handbook describes the types of obstructions that may jeopardize flight operations, including visual and electronic hazards for which there are no specific FAA standards: "[p]otential hazards are evaluated on a case-by-case basis. This often occurs after a problem has arisen. However, ALUCs can request an FAA evaluation of proposed development when certain features appear to be potentially hazardous." (*Id*. at 9-58.)

Consistent with the Handbook, the City and local ALUC established the Airport Land Use Policy Plan and the Airport Land Use Safety Zone for the Hayward Airport to ensure that development in the area is compatible with airport safety zones. (Ex. 410 at 5-17.) In addition, the City's Airport Approach Zoning Regulations (Airport Ordinance) limit the height of development and provide that no use is allowed within any "airport approach zone, airport turning zone, or airport transition zone in such a manner as to …impair visibility in the vicinity of the airport or otherwise endanger the landing, take off or maneuvering of aircraft." (Ex. 409: Airport Ordinance, HMC, § 10-6.35; See Appendix F in this Decision.) The Airport Ordinance defines "airport hazard" as "any… use of land which obstructs the airspace…." (*Id*. at § 10.6.12.) Since the EEC will create an aviation hazard, we have concluded that the project is inconsistent with the Airport Ordinance. See discussion in the **Land Use** section.

Hayward's Director of Public Works testified that due to the EEC's potential for glare, visual obstruction, and/or stack plume turbulence in close proximity to the Airport Traffic Pattern Zone, the EEC would not be approved under Section 10-

6.35 of the Airport Ordinance.[134] (Ex. 402, p. 6.) The witness also asserted that the EEC would not be eligible for a variance, which is allowed only "where a literal application or enforcement of the regulations would result in practical difficulty or unnecessary hardship and the relief granted would not be contrary to the public interest but do substantial justice and be in accordance with the spirit of the regulations and this Article." (*Id*. at 6-7, citing Ex. 409, Airport Ordinance, § 10-6.45.) According to the witness, even if direct airport safety impacts were mitigated by creating a no-fly zone, as planned for the RCEC, imposing additional airspace limitations and increasing pilot workload also creates significant hazards and restricts further growth of the airport. Moreover, the witness believes the project constitutes a public health and safety hazard that represents a nuisance within the meaning of Section 10-6.65 of the Airport Ordinance. (*Id*.)

The City's witness testified that there is a significant difference between the location of the RCEC, approved with mitigation [temporary Notice to Airmen (NOTAM) with "see and avoid" instructions], and the EEC site.[135]

The FAA indicated in a letter to Staff dated October 9, 2007, that the cumulative impacts of both RCEC and EEC on the airport "would make the mitigation (avoiding both facilities) impractical… unreasonable and in some cases unattainable."[136] (Ex. 204.) In addition, the FAA stated in a letter dated

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[134] The EEC is located within 400 to 500 feet of the boundary of the airport traffic pattern zone. (12/18/07 RT 132:17-21, 133:7-15, 140:13-21.)

[135] RCEC Decision, Docket No. 01-AFC-7C, CEC 800-2007-003-CMF: RCEC Condition **TRANS-10**, pp. 190-191. As noted, *supra*, RCEC is located approximately 1.5 miles to the southwest of the Hayward Executive Airport, to the west of the airport's two parallel runways. Aircraft do not need to fly over the RCEC for airport landing or departure. Indeed, the Commission's RCEC Decision determined that no flight paths would be affected by restricting the airspace above the RCEC. (RCEC Decision, Docket No. 01-AFC-7C, pp. 184, 186-187.) The EEC is much closer to the existing air traffic pattern and more aircraft fly over the area, requiring pilots to be concerned about other traffic as well as potential turbulence from stack exhaust. (12/18/07 RT 134, 136-137, 141-142; Exs. 208, 417, 418.)

[136] FAA witness Butterfield testified that the October 9, 2007, letter represents the FAA's official position. (12/18/07 RT 251:1-25.)

December 17, 2007, to the Hayward Executive Airport that "[i]t is likely that the energy center will pose a threat to aircraft in the navigable airspace around the airport…. Although the height of the stacks and structures may not represent a hazard to aircraft, the hot air plumes could endanger aircraft in the traffic pattern…." (Ex. 416.)[137] Based on these FAA views, the City of Hayward concluded that (1) the EEC cannot be mitigated; (2) it is inconsistent with the Zoning Code, the Airport Ordinance, and airport operations; and (3) the EEC should not be sited at the proposed location. (Ex. 402 at 6.)

Alameda County. The local ALUC oversees both the Oakland International and the Hayward Executive Airports in Alameda County. Members of the Commission include experienced pilots, the current manager of the Oakland Airport, and people knowledgeable about land use and airport operations. (12/18/07 RT 147 et seq.) After reviewing the EEC proposal, the ALUC adopted a resolution dated October 17, 2007, recommending an alternative site for the EEC outside the Airport Influence Area for the Hayward Airport. (Ex. 513; 12/18/07 RT 149-151.) The ALUC's rationale included: the increase in Hayward Airport operations expected over the next 10 to 20 years; restricted airspace due to noise abatement flight procedures; the NOTAM warning pilots to avoid overflights of the RCEC further restricting available airspace; and the potential for thermal plumes to create a safety hazard to aircraft flying over the EEC. (*Ibid*.)

In January 2006, the FAA published a Safety Risk Analysis on aircraft over-flight of industrial exhaust plumes. Using a variety of data sources from the past thirty years, the analysis concluded that, although the potential for risk is "acceptably small" (1×10^{-9} or less), "flight over or around plume generating facilities should be avoided as there is the *potential* (however low) for aircraft upset at close proximity to high velocity plumes." (Ex. 39, p. 16.) The analysis made several recommendations to reduce the risk associated with over-flight of thermal

[137] The City's Public Works Director expressed concern that FAA funding could be jeopardized if City actions related to the Hayward Airport were inconsistent with its federal grant assurances to protect airport safety. (12/18/07 RT 137-138, 144.)

plumes, such as (1) amending the Aeronautical Information Manual to state that that over-flight at less than 1,000 feet vertically of plume generating industrial sites should be avoided; (2) amending FAA Order 7400.2 to consider a plume generating facility a hazard to navigation when expected flights pass less than 1,000 feet above the object; and (3) changing instructions for the FAA Part 77 Form 7460-1 notice of proposed construction to add an explanation about exhaust plume discharge for power plants or other industrial facilities. (*Id*. at 16-17.)

According to FAA witness Butterfield, the Safety Risk Analysis is based upon 30 years of incident data where pilots used common sense to see and avoid visible plumes and tall stacks. FAA witness Butterfield testified that the Safety Analysis cannot serve as the basis for determining that thermal plumes pose an *acceptable* risk since the data did not include the kind of "invisible" plumes emitted from relatively short stacks at facilities like the EEC. (12/18/07 RT 114-115.) The County's witness ALUC member Needles noted that pilots do not report discrete incidents of turbulence and would not necessarily know turbulence was the result of an invisible thermal plume. (*Id*. at 150:9-16.) In this case, aircraft will be taking off and/or landing and flying below 1,000 feet where EEC plumes may be present but cannot be seen or avoided.[138] (County's Opening Brief at 4.)

Group Petitioners. According to pilot Jay White, pilots rely on an instrument approach when landing in poor weather conditions by circling maneuvers at low altitude and low airspeed. (Ex. 711.) The placement of a power plant with

[138] Caltrans witness Cathey testified that although the Hayward traffic pattern altitude is 600-800 feet MSL (approximately 550-750 feet AGL), pilots are given tolerance up to 100 feet deviation from the assigned altitude and in some cases a pilot could fly as low as 393 feet AGL in landing mode (FAA-approved circling altitude is 493 feet) and still be within legal operating regulations. If a pilot is also looking at the ground to observe a power plant, the aircraft could dip lower in altitude and fly into the invisible thermal plume. (12/18/07 RT 120-122); See also FAA witness Butterfield's testimony on "missed approach procedure" at Hayward Airport requiring overflight of the EEC site. (*Id.* at 194-195); See also Exs. 711-712: Declarations of Jay White.

thermal plumes near the designated traffic pattern reduces the safety margin for aircraft circling at the FAA-approved circling altitude of 493 feet AGL. (12/18/07 RT 202.) Pilot Carol Ford testified that the airport provides economic and transportation benefits to the area that would be adversely affected by the EEC's impact on available airspace. (12/18/07 RT 208-212.) Group Petitioners rely on testimony of FAA, Caltrans, and the City's witnesses arguing that the EEC would impair the Hayward Airport's utility, create a public nuisance, and threaten public health and safety within the meaning of Government Code Section 50485 and Public Utilities Code Section 21670.[139] (Group Petitioners' Rebuttal Brief at 10-13.)

5. Cumulative Impacts

Certification of both the RCEC and EEC would result in the construction and operation of two power plants within the southwest quadrant of the Hayward Airport's airspace. The FAA's October 9, 2007, letter stated that:

> The cumulative affect (sic) of both facilities within the confines of the Category B VFR [Visual Flight Rules] airport traffic pattern and the VRF arrival and departure area would make the mitigation [to see and avoid the plumes] impractical. Due to the low visual affects (sic) of the RCEC and Eastshore plumes, pilots would be required to divert their attention from the traffic pattern and safe operation of the aircraft to acquire visual sighting of both facilities on the ground, then maneuver the aircraft around both plumes. The mitigation would be unreasonable and in some cases unattainable. (Ex. 204.)

Caltrans' November 1, 2007, letter addressed the potential hazards to navigable airspace as a result of the EEC's proximity to Runway 10R/28L. Caltrans noted that:

[139] Government Code Section 50485 establishes the Airport Approaches Zoning Law and defines "airport hazard" as any structure or tree or use of land which obstructs the airspace required for the flight of aircraft in landing or taking off at an airport or is otherwise hazardous to such landing or taking off of aircraft. (Gov. Code, § 50485.1.) Hayward Municipal Code Section 10-6 (Airport Zoning Regulation) incorporates this definition. Public Utilities Code Section 21670 establishes ALUCs to protect public health, safety, and welfare by ensuring the orderly expansion of airports and the adoption of land use measures that minimize the public's exposure to excessive noise and safety hazards within areas around public airports. (Pub. Resources Code, § 21670 (a)(2).)

> The proposed creation of another power plant, and the associated high velocity thermal plumes within the traffic pattern zone buffer area of the Hayward Executive Airport (HWD), would compound and magnify the problems created by the approval of the Russell City Energy Center (RCEC). [Caltrans does] not believe that the combined effects of thermal plumes created by two proposed power plants can be mitigated to the degree that flight safety would not be compromised. We do not agree that the recommended mitigation measures for [RCEC] are satisfactory for [Eastshore], as this would only further restrict a pilot's ability to maneuver an aircraft while flying to or from the airport. Aircraft pilots should not be subjected to avoid flying in areas while configuring an aircraft for landing at or departing the airport. We support the relocation of the plant at a sufficient distance that would not negatively impair a pilot's ability to control or maneuver his/her aircraft. (Ex. 203.)

The evidentiary record indicates that the cumulative effect of both projects on Hayward airport airspace will increase the potential for serious impairment to the utility of the airport by increasing the complexity of the airspace. Both the FAA and Caltrans concluded that it would be impractical and in some cases unattainable for pilots to see and avoid both power plants while attending to their primary responsibility of safely operating their aircraft. According to Staff, this would be a significant cumulative impact under CEQA that cannot be avoided if the project were developed at the proposed site. (Ex. 200, p. 4.10-29.) We agree.

6. Commission Discussion

Certification decisions are determined on a case-by-case basis after consideration of all the documentary evidence and testimony submitted by the parties. In this regard, we again clarify that our Decision in the RCEC proceeding is not precedential and neither the RCEC Decision nor this Decision establishes Commission policy on the practicalities of locating power plants near operating airports.

We believe the opinions of the expert aviation agencies, the City of Hayward, and the ALUC regarding the potential cumulative effects on available airspace represent the more persuasive elements. The FAA and Caltrans do not recommend the "see and avoid" mitigation adopted for the RCEC nor do they propose to restrict aircraft in the Hayward airspace from flying at low altitudes. Moreover, the FAA has determined that a NOTAM cannot be issued to warn pilots of two power plant plumes because the Airmen's Information Manual restricts NOTAMs to temporary, not permanent, hazards.[140] (12/18/07 RT 168:25-169:4.) As indicated in the record, the aviation agencies, the City, the ALUC, the Port of Oakland, and the California Pilots Association believe the EEC should be located outside the Hayward Airport airspace. Since the EEC cannot be mitigated, we agree that the project creates a significant adverse impact under CEQA that would be cumulatively considerable. (See, Cal. Code Regs, tit. 14, § 15000, Appendix G, Part XV, Transportation/Traffic, Part (c): [Would the project] "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.")

FINDINGS AND CONCLUSIONS

Based on the weight of the evidence, the Commission makes the following findings and conclusions:

1. The addition of traffic associated with construction and operation of the EEC could result in significant adverse effects on area freeways or existing LOS at local roadway intersections.

[140] FAA witness Butterfield testified that the FAA is required by Code of Federal Regulations Part 77 to do a hazard determination on any proposed structure. That determination is limited to the brick and mortar aspects of the structure. The brick and mortar aspects of the EEC do not pose a hazard to navigation. (See Ex. 40.) The FAA does not currently have statutory authority to rule on the effects of thermal plumes. However, the witness referred to the FAA Safety Risk Analysis, which reports incidents of flights over visible plumes from older power plant facilities that were not permitted near airport airspace. According to the witness, the new technology represented by both the RCEC and the EEC, which emit invisible plumes, raises a new concern for the FAA as indicated in the recommendations contained in the Safety Risk Analysis. (12/18/07 RT 113:17-25-115.) See also, Exhibit 416.

2. The project owner will implement a Traffic Management Plan approved by the City of Hayward and Caltrans to mitigate construction-related congestion and potential traffic hazards.

3. The EEC's construction period may overlap with major reconstruction of the I-880/SR-92 interchange; however, the Caltrans Transportation Management Plan will prevent significant traffic impacts at the freeway exits used by EEC-related traffic.

4. Construction of the project's linear alignments will not result in a significant effect on roadway traffic due to the temporary nature of the construction period and the changing locations for construction activities.

5. Potential adverse impacts associated with the transportation of hazardous materials during project construction and operation will be mitigated to insignificance by compliance with applicable federal, state, and local laws.

6. The project owner will ensure that vendors delivering hazardous materials to the site follow the preferred truck route for transport of hazardous materials.

7. Commuter traffic and truck deliveries related to project operations will not result in any significant impact on local roads or freeways.

8. The mitigation measures described in the evidentiary record and contained in the Conditions of Certification ensure that the project will not result in any direct, indirect, or cumulative adverse ***roadway*** traffic impacts in the project area.

9. The project site is located approximately one mile south of the Hayward Executive Airport, adjacent to the downwind departure route for Runway 10R/28L.

10. Aircraft operating in the area currently fly over the EEC site.

11. Hayward Executive Airport operations are expected to increase over the next 10 to 20 years.

12. The airspace surrounding Hayward Executive Airport is subject to several operational and noise abatement restrictions to accommodate the high level of aircraft activity in the Bay Area.

13. The flight pattern altitude for Runway 10R/28L cannot exceed 750 feet above ground level (AGL) due to over-flight of jetliners or other aircraft on approach to Oakland International Airport and cannot be raised.

14. Pilots fly below 500 feet when they use instrument control for a missed approach or circle the runway due to poor weather conditions and may fly as low as 393 feet AGL in landing mode (FAA-approved circling altitude is 493 feet) and still be within legal operating regulations.

15. The EEC will emit high velocity invisible thermal plumes from its fourteen 70-foot high stacks and 504 radiator fans that can cause unexpected turbulence to aircraft flying over the site.

16. Staff calculated the worst-case peak vertical plume (all engines and radiators operating under calm/low-wind conditions) using a 4.3 meters per second (m/s) vertical velocity significance threshold and found that the power plant plumes could significantly disturb atmospheric stability to 480 AGL or higher.

17. Applicant conducted a worst-case plume analysis (using dead calm wind meteorological data) and found the average vertical velocity within the plume drops below the significance threshold of 4.3 m/s at about 330 feet AGL with all units operating.

18. Applicant conducted an empirical, helicopter flyover test at the Barrick power plant, a facility similar to the EEC in Reno, Nevada to identify the altitude at which vertical plume turbulence would occur. The results showed that measurable turbulence at the Barrick plant did not exceed a range of 255 to 300 feet AGL.

19. The empirical results of the Barrick plant flyover test did not prove that the potential risk posed by the EEC to aircraft flying over the project site would be insignificant.

20. Staff and Applicant's worst-case plume analyses indicate that the project's invisible thermal plumes exceeding the 4.3 m/s significance threshold could occur within a range of 300 (average) to 480 feet (peak) AGL or higher and create an aviation safety hazard to aircraft flying over or near the site.

21. The aviation hazard caused by the project's thermal plumes cannot be mitigated by "see and avoid" measures adopted in the Russell City Energy Center (RCEC) Decision because it would cumulatively exceed a safe cockpit workload level.

22. The project's proximity to the traffic pattern for the Hayward Executive Airport and the downwind departure route for Runway 28L would unreasonably complicate aircraft maneuverability.

23. The site location would limit the airspace available for aircraft transit, maintenance flights, training procedures, and normal departures and arrivals that currently occur within this portion of the Hayward airport airspace.

24. The “no fly zone” mitigation planned for RCEC cannot be implemented at the EEC site since the air space cannot be reduced further without significantly impacting the Hayward Executive Airport.

25. The cumulative effect of the EEC and RCEC on Hayward Airport airspace increases the potential for serious impairment to the utility of the airport by increasing the complexity of the airspace.

26. The project creates an unmitigable significant adverse impact that would be cumulatively considerable to Hayward airport airspace in violation of CEQA requirements.

27. The EEC does not conform with the purpose of the City of Hayward Airport Approach Zoning Regulations because project-generated thermal plumes create a hazard to aircraft flying at airport landing pattern altitude.

28. The Alameda County Airport Land Use Commission (ALUC) adopted a resolution recommending that the EEC be located outside the Airport Influence Area for the Hayward Airport.

29. The FAA, Caltrans, the Port of Oakland, and the California Pilots Association recommended that the EEC be located outside the Hayward Airport flight pattern area.

30. The project does not comply with LORS regarding ***aviation*** traffic since it will result in a significant aviation hazard that cannot be mitigated at the proposed site.

31. Implementation of the Conditions of Certification, below, ensure that project construction and operation will comply with all applicable laws, ordinances, regulations, and standards (LORS) related to ***roadway*** traffic and transportation as identified in the pertinent portions of Appendix A.

We conclude that construction and operation of the project, as mitigated in the Conditions of Certification will not result in any significant, direct, indirect, or cumulative adverse impacts to local or regional ***roadway*** traffic. However, the project will result in ***aviation*** impacts that cannot be mitigated and we therefore decline to certify the project.

CONDITIONS OF CERTIFICATION

(APPLICABLE ONLY IF PROJECT IS CERTIFIED)

TRANS-1 The project owner shall prepare a traffic control and implementation plan for the project and its associated facilities containing the following mitigation:

- A Traffic Management Plan (TMP) addressing the movement of vehicles and materials, including arrival and departure schedules; designated workforce and delivery routes; hazardous materials delivery routes for all vendors, hazmat delivery schedules, and compliance with hazmat transport LORS; coordination with Caltrans and the city of Hayward; and other traffic-related activities that may result in impacts during both construction and operation of the facility.
- A Heavy Haul Plan (HHP) addressing the transport and delivery of heavy and oversized loads requiring permits from Caltrans or other state and federal agencies.

The project owner shall consult with the City of Hayward Public Works Department and Caltrans (if applicable) in the preparation of the traffic control and implementation plan, and shall submit the traffic control plan to the city of Hayward Public Works Department and Caltrans (if applicable) in sufficient time for review and comment, and to the Energy Commission's Compliance Project Manager (CPM) for review and approval, prior to the start of construction. The traffic control plan shall include all elements normally required for review and permitting of a similar industrial project. The project owner shall provide a copy of any written comments from the city of Hayward or Caltrans and any changes to the traffic control plan to the CPM prior to the start of construction.

Verification: At least 90 calendar days prior to the start of construction, including any grading or site remediation on the project site or its associated easements, the project owner shall submit the traffic control and implementation plan to the City of Hayward Public Works Department and Caltrans for review and comment and to the CPM for review and approval. The project owner shall also provide the CPM with a copy of the transmittal letter to the City of Hayward and Caltrans requesting review and comment.

At least 30 calendar days prior to the start of construction, the project owner shall provide copies of any comment letters received from either the city of Hayward or

Caltrans, along with any changes to the TMP and HHP plans, to the CPM for review and approval.

TRANS-2 The project owner shall consult with the City of Hayward in the preparation of a parking and staging plan for the pre-construction, construction, and operation phases of the project and shall submit the parking plan to the City of Hayward Planning Department in sufficient time for review and comment, and to the Energy Commission's Compliance Project Manager (CPM) for review and approval, prior to the proposed start of construction. The project owner shall provide a copy of any written comments from the city of Hayward or Caltrans and any changes to the traffic control plan to the CPM prior to the proposed start of construction.

The parking plan shall include all elements normally required for review and permitting of a similar industrial project, including compliance with the city of Hayward's emergency access requirements. The parking plan shall also include a policy, to be enforced by the project owner, requiring all project-related parking to occur on-site or in designated off-site parking areas as shown in the plan.

The parking plan shall provide a plot plan showing the location of: the proposed parking area(s); parking spaces, including ADA-compliant, van-accessible spaces; travel aisles and circulation patterns; car/van pool loading and unloading area(s); signage; height restrictions; and any other City of Hayward standards. Dimensions shall be shown for all parking spaces, travel lanes, encroachments, loading/unloading ramps, and turning radii in accordance to the requirements stipulated in the applicable city of Hayward parking standards

Verification: At least 90 calendar days prior to the start of construction, including any grading or site remediation on the power plant project site or its associated easements, the project owner shall submit the parking and staging plan to the City of Hayward Public Works for review and comment and to the CPM for review and approval. The project owner shall also provide the CPM with a copy of the transmittal letter to the city of Hayward requesting review and comment.

At least 30 calendar days prior to the start of construction, the project owner shall provide copies of any comment letters received from the city of Hayward, along with any changes to the parking development plan, to the CPM for review and approval.

TRANS-3 Prior to any ground disturbance or obstruction of traffic (e.g., detours, temporary delays) within any public road, easement, or right-of-way, the project owner or its contractor(s) shall coordinate with the City of Hayward or Alameda County Public Works Department and Caltrans (if applicable) and obtain all required permits (e.g., encroachment). All

activities by the project owner or its contractor(s) shall comply with the applicable requirements of any affected local jurisdiction and Caltrans.

Verification: Prior to ground disturbance or interruption of traffic in or along any public road, easement, or right-of-way, the project owner shall provide copies of all permit(s) received from Caltrans or other affected jurisdiction to the CPM. 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-4 The project owner shall restore all public roads, easements, and rights-of-way that have been damaged due to project-related construction activities to original or near original condition in a timely manner.

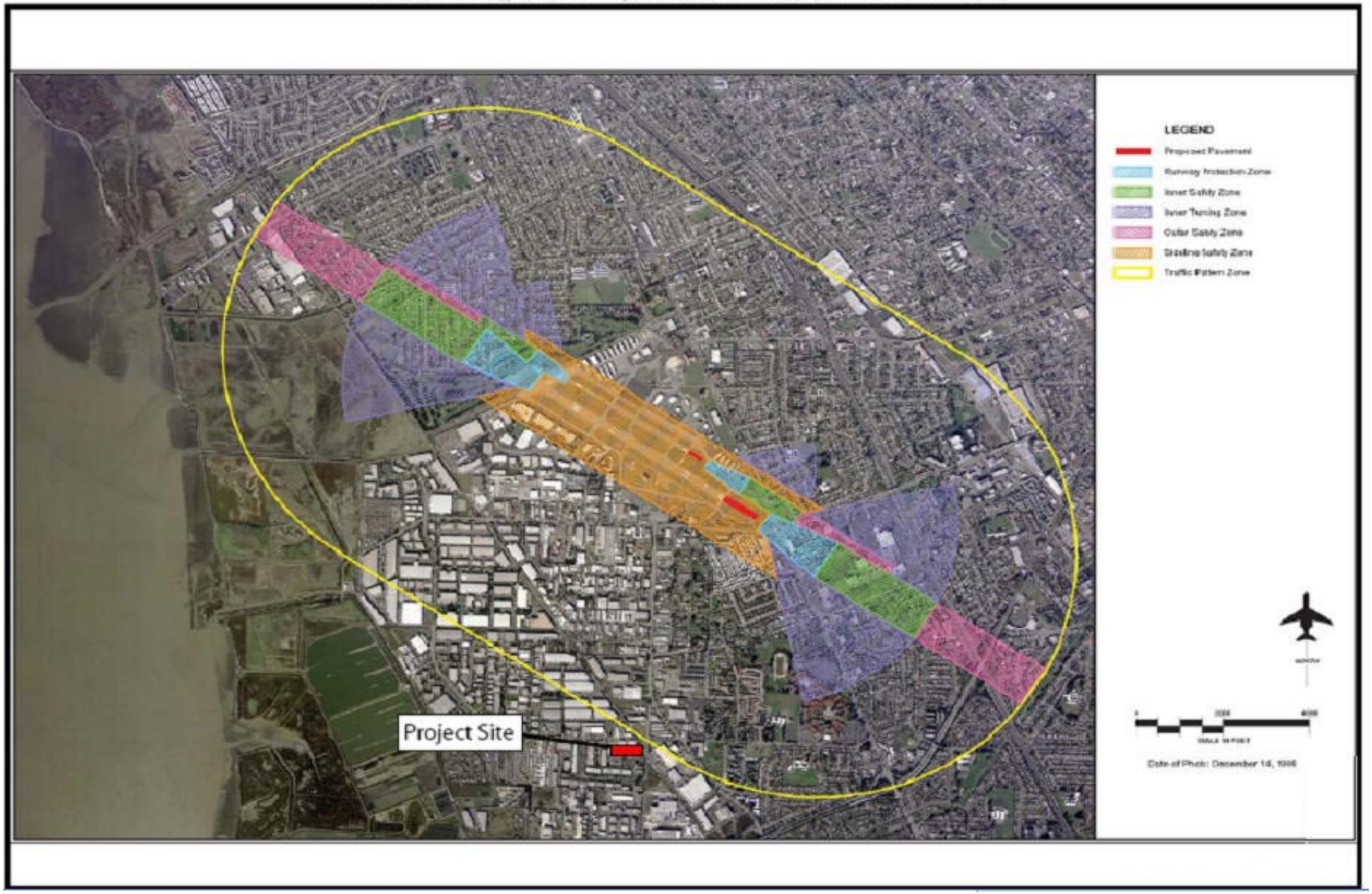
Prior to the start of site mobilization, the project owner shall consult with Alameda County, the city of Hayward, and Caltrans (if applicable) and notify them of the schedule for project construction. The purpose of this notification is to request the local jurisdiction(s) and Caltrans consider postponement of public right-of-way repair or improvement activities in areas affected by project construction until construction is completed and to coordinate any concurrent construction-related activities that are planned or in progress and cannot be postponed.

Prior to the start of site mobilization, the project owner shall photograph or videotape all affected public roads, easements, and right-of-way segment(s) and/or intersections and shall provide the CPM, the affected local jurisdiction(s), and Caltrans (if applicable) with a copy of these images.

Verification: Within 60 calendar days after completion of construction, the project owner shall meet with the CPM, the affected local jurisdiction(s), and Caltrans (if applicable) to identify sections of public right-of-way to be repaired. At that time, the project owner shall 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 a letter signed by the affected local jurisdiction(s) and Caltrans stating their satisfaction with the repairs to the CPM.

TRAFFIC AND TRANSPORTATION - FIGURE 5

Eastshore Energy Center - Hayward Executive Airport Traffic Pattern Zone



Source: Ex. 200

C. SOCIOECONOMICS

This review of "socioeconomics" evaluates the effects of project-related population changes on local schools, medical and fire protection services, public utilities, and other public services, as well as the fiscal and physical capacities of local government to meet these needs. The public economic benefits of the project are also reviewed. In addition, an environmental justice screening analysis is conducted to determine whether project-related activities would result in disproportionate impacts on low income and/or minority populations.

SUMMARY AND DISCUSSION OF THE EVIDENCE

The analysis of project effects on public services is focused on the construction phase due to the potential influx of workers into the area. Socioeconomic impacts are considered significant if a large influx of non-resident workers and dependents move to the project area, increasing demand for community resources that are not readily available. (Ex. 200, p. 4.8-3.)

Applicant's study area includes communities in Alameda County that could potentially be affected by an influx of workers, specifically, the Oakland-Fremont-Hayward Metropolitan Division. (Ex. 1, § 8.8.3.3.) Since Alameda and Contra Costa Counties represent a large and diverse labor pool with skills available to fulfill the labor needs for project construction, it is unlikely that a large influx of workers will require housing accommodations within the study area due to relatively short commuting distances to the project site. [141] (*Id.* at § 8.8.4.3.1, Table 8.8-15; Ex. 200, p. 4.8-5.)

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[141] The construction labor pool for major construction projects is typically drawn from areas within a two-hour commute of a project site; in this case, Alameda, Contra Costa, and other Bay Area Counties. The Alameda County Building Trades Council coordinates the allocation of skilled workers for construction projects in the Oakland Metropolitan Statistical Area, which includes about 60,000 skilled workers. (Ex. 200, pp. 4.8-4 and 4.8-5; Ex. 1, §§ 8.8.4.3.1 and 8.8.4.3.2.)

1. Potential Impacts

The construction period will take about 18 months with a peak workforce of 235 workers in the 11th month of construction with an overall average workforce of about 125 workers per month, consisting of skilled workers and contractor staff. (Ex. 200, p. 4.8-6; Ex. 1, § 8.8.4.3.1.) Applicant expects to hire about 13 full-time employees for project operation and maintenance. The entire permanent workforce is expected to commute from within Alameda County. (Ex. 200, p. 4.8-8; Ex. 1, § 8.8.4.4.1.)

Since the majority of construction workers are expected to commute on a daily basis, very few will relocate to the site vicinity during the construction period. According to Applicant, there is adequate motel space available in the Hayward area to accommodate those workers who might choose to commute on a work-week basis. (Ex. 1, § 8.8.4.3.3; Ex. 200, p. 4.8-7.)

The evidentiary record demonstrates there is ample and varied housing in the local communities of Alameda County and the City of Hayward to accommodate the minimal number of temporary construction workers or permanent employees with specialized skills from outside the area who may need to relocate. Impacts on housing and related services will be negligible in relation to the supply of available housing and services available. No replacement or displacement of residential housing will be necessary as a result of the project. (Ex. 1, §§ 8.8.4.3.3 and 8.8.4.4.3; Ex. 200, p. 4.8-7.) Thus, project construction will not increase demand for housing.

Since project-induced potential population increases will be minimal or non-existent, construction and operation of the EEC will not result in significant adverse impacts on schools, parks and recreation, public utilities, law

enforcement, or emergency services in the local communities.[142] (Ex. 1, § 8.8.4.3.6 et seq., § 8.8.4.4.6 et seq.; Ex. 200, p. 4.8-8 et seq.)

Applicant anticipates an estimated construction payroll of $33.8 million (2006 dollars) over the 18-month construction period. An estimated $1.9 million will be spent on local purchases of materials and equipment during construction. According to Applicant's testimony, the project will generate property tax revenues of approximately $1.4 million per year. The local operations payroll of approximately $1.0 million and local purchases of supplies during operation will yield an estimated $116,480 per year in sales tax revenues. Total capital cost of the project including payroll is estimated at $140 million. (Ex. 1, §.8.8.4.3.4 et seq., § 8.8.4.4.4 et seq.; Ex. 200, p 4.8-7.)

Section 17620 of the California Education Code allows a school district to levy a school development fee against new commercial or industrial construction within its boundaries. A school district refers to any type of public school district except a community college district. (Ed. Code, § 80.)

The relevant school district in this case, the Hayward Unified School District, requires payment of the fee 30 days prior to construction of a new project. State and local agencies are precluded from imposing additional fees or other required payments on development projects for the purpose of mitigating possible enrollment impacts to schools. (Gov. Code, § 65996 et seq.) The school development fee is calculated according to the square footage of the covered and enclosed space of commercial or industrial projects. [Ed. Code, § 17620((a)(1)(A).] Based on the total area of the EEC's covered and enclosed structures, the project owner will pay a one-time fee estimated at $13,776. (Ex. 1

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[142] Intervenor Chabot-Las Positas College District asserts that the EEC would cause a reduction in Chabot College enrollment due to the perception of detrimental health effects caused by two power plants in the College vicinity. (Chabot's Post-Hearing Brief at 17.) Since the evidence in support of this allegation was based on assumptions and speculation (Ex. 602.), we do not find it persuasive.

§ 8.8.4.4.6.) Condition of Certification **SOCIO-1** ensures payment of this one-time school development fee to comply with applicable LORS. The evidentiary record does not indicate any significant project-related adverse socioeconomic impacts on educational resources. (Ex. 200, p. 4.8-8.)

Hayward residents expressed concern about potential decline in residential property values as a result of the EEC project. Staff's research on the nexus of power plants and property values indicates that: (1) energy facilities are often located in industrial areas with multiple factors that affect property values (such as degraded industrial views, waterfront views, nearby public recreation areas or freeways), making it difficult to isolate the potential impact, if any, of the energy facility; and (2) impacts potentially affecting residential property values include health hazards and obstruction of views but there is no clear association with diminished real estate value as a result of an energy facility. (Ex. 200, pp. 4.8-9 and 4.8-10.) Since the EEC site is located in an "Industrial" Zone/Corridor, it is unlikely the project will have negative impacts on property values in the area if all potential environmental impacts are mitigated to insignificant levels and if the project complies with all applicable LORS. Since factors such as supply, demand, interest rates, and personal income play important roles in determining property values, we conclude it is too speculative to predict the local real estate market forecast in the project vicinity. (*Ibid*.)

2. Section 25523(h) Public Benefit Findings

Public Resources Code section 25523(h) requires a discussion of the project's public benefits. To calculate indirect and induced economic benefits, Applicant used an IMPLAN input-output model of Alameda County to estimate the project's multiplier effect associated with project construction and operational activities. Project construction will provide local economic benefits by creating direct, indirect, and induced short-term employment. Property tax revenues from the project will be allocated to local schools and for city and county infrastructure,

and redevelopment. (Ex. 1, § 8.8.4.3.4 et seq., § 8.8.4.4.4 et seq.) A summary of the project's economic benefits is shown in Staff's Socioeconomics Table 4, below.

Staff's Socioeconomics Table 4
Data and Information

Estimated project capital costs	$140 million
Estimate of locally purchased materials	
Construction	$1.9 million
Operation (operation and maintenance)	$1.3 million per year
Estimated annual property taxes	$1.4 million per year
Estimated school impact fees	$13,776 to the Hayward Unified School District
Estimated direct employment	
Construction (average)	125 jobs (average per month)
Operation	13 jobs
Estimated secondary employment	
Construction	107 jobs (plus 125 average direct jobs, for a total of 232 average construction jobs)
Operation	11 jobs (plus 13 direct jobs for a total of 24 average operation jobs)
Estimated local direct expenditure (payroll, materials, and supplies)	
Construction	$14,786,700
Operation	$2,366,100
Estimated local secondary income	
Construction	$4,561,500 (plus $14,786,700 million local direct construction expenditures for a total of $19,348,000 local construction expenditures)
Operation	$531,200 (plus $2,366,100 local direct operation expenditures for a total of $2,897,300 local operation expenditures)
Estimated payroll	
Construction	Total-$33.8 million, local-$20.3 million (2006 dollars)
Operation	Average: $1,034,900 million per year
Estimated Sales Taxes	
Construction	$166,250 for the 18-month construction period, $47,500 to Alameda County
Operation	$116,480 annually, $33,280 to Alameda County
Existing unemployment rates	Existing – 4.7 percent for Alameda County and 4.9 percent for California in June 2006 (not seasonally adjusted)
Percent minority population (6- mile radius)	63.71 percent
Percent poverty population (6-mile radius)	8.33 percent
Percent minority population (1-mile radius)	69.97 percent
Percent Poverty Population (1-mile radius)	7.21 percent

3. Environmental Justice Screening Analysis

Applicant conducted a screening analysis to determine whether environmental justice (EJ) concerns are present in this case.[143] (Ex. 1, § 8.8.6, Appendix 8.8A; Ex. 200, p. 4.8-2.) The screening analysis assessed (1) whether potential project impacts are high and adverse; (2) whether the potentially affected community includes minority and/or low-income populations; and (3) whether the project's potential environmental impacts are likely to fall disproportionately on minority and/or low-income members of the community. According to Applicant, since the mitigated EEC will not result in high and adverse impacts to any population, there are no disproportionate impacts on the environmental justice population. Thus, no further environmental justice analysis is required. (*Ibid*.) Staff's EJ screening analysis reflects the same conclusion since the project's non-compliance with land use and transportation LORS and potential health or environmental impacts, if not appropriately mitigated, would affect all local residents equally regardless of ethnicity or income level. (Ex. 200, pp. 4.8-2 and 7-1, et seq.)

In power plant certification proceedings, we typically find that compliance with all Conditions of Certification ensures that no unmitigated significant adverse impacts on any population will result from project-related activities. However, Intervenors Chabot-Las Positas Community College District and Alameda County submitted extensive testimony on EJ concerns that raise questions about the "sensitive receptor" data used by Applicant and Staff in modeling air quality and public health effects. Intervenor Chabot also questioned whether Staff actually

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[143] Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations" requires the U.S. Environmental Protection Agency (USEPA) and all other federal agencies and state agencies receiving federal aid to identify and address disproportionately high and adverse human health or environmental effects of their programs on minority and low-income populations. Both Applicant and Staff relied on the USEPA's 1998 "Final Guidance for Incorporating Environmental Justice Concerns in NEPA Compliance Analyses." Section 65040.12(e) of the California Government Code defines environmental justice as "the fair treatment of people of all races, cultures, and incomes with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies." Public Resources Code sections 71110-71116 mandate the Cal-EPA

followed its own guidelines in notifying the College District about the EEC project, gathering information, and reviewing impacts on EJ populations in the Hayward area. Since the evidence on EJ requires more discussion, we have addressed these concerns in a separate section in this Decision.

4. Cumulative Impacts

Since the EEC will not result in any significant adverse socioeconomic impacts on housing, schools, or public services, it is not expected to contribute to significant cumulative socioeconomic impacts in the project vicinity. Construction of the Russell City Energy Center may coincide with EEC construction activities. (Ex. 200, p. 4.8-11.) Staff reviewed the potential construction workforce overlap for the period of April 2008 through August 2009. (*Id*. at p. 4.8-12, Socioeconomics Table 3.) Although neither project began construction in April 2008, Staff's analysis is applicable since the workforce in the Hayward area is large enough to accommodate both power plant projects as well as the two highway construction projects (I-238 and I-880/SR92) also scheduled to occur within the same timeframe. Thus, there is no evidence that the EEC will have a cumulatively considerable impact on the labor force causing an influx of non-local workers to migrate to the Hayward area. (*Id*. at p. 4-11.)

FINDINGS AND CONCLUSIONS

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

1. A large skilled labor pool in Alameda and Contra Costa Counties is available for construction and operation of the project.

2. The project will not cause an influx of a significant number of construction or operation workers to relocate in the local Hayward area.

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to develop a state mission to address environmental justice in its programs, policies, and standards. Cal-EPA's action plan on EJ was established in 2004.

3. The project will not result in significant adverse effects on local employment, housing, schools, public utilities, parks and recreation, law enforcement, or emergency services.

4. The EEC will pay the one-time statutory school development fee estimated at $13,776.

5. The EEC will provide a construction payroll of about $33.8 million (2006 dollars).

6. The EEC will spend an estimated $1.9 million (2006 dollars) on local purchases of materials and equipment during construction.

7. The EEC will generate property tax revenues of approximately $1.4 million (2006 dollars) per year.

8. The local operations payroll of approximately $1.0 million (2006 dollars) and local purchases of supplies during operation will yield an estimated $116,480 (2006 dollars) per year in sales tax revenues.

9. Total capital cost of the project including payroll is estimated at $140 million (2006 dollars).

10. The screening level environmental justice analysis indicates that there are no disproportionate impacts on low-income and/or minority populations since any non-compliance with LORS or CEQA by the EEC affects all local residents equally regardless of ethnicity or income level.

11. The project will provide direct, indirect and induced economic benefits to the County of Alameda.

12. Construction and operation of the project will not result in any direct, indirect, or cumulative adverse socioeconomic impacts.

13. Implementation of the Condition of Certification, below, and the mitigation measures described in the evidentiary record, ensures that the project will not result in adverse socioeconomic impacts.

We therefore conclude that implementation of all Conditions of Certification in this Decision, including the Condition of Certification below, ensures the project will comply with all applicable laws, ordinances, regulations, and standards relating to socioeconomic factors as identified in the pertinent portions of **Appendix A**.

CONDITION OF CERTIFICATION

SOCIO-1 The project owner shall pay the one-time statutory school development fee to the Hayward Unified School District, as required by Education Code Section 17620.

Verification: At least 30 days prior to start of project construction, the project owner shall provide the Compliance Project Manager proof of payment of the statutory development fee.

D. NOISE AND VIBRATION

The construction and operation of any power plant will create noise. The character and loudness of this noise, the times of day or night during which it is produced, and the proximity to sensitive receptors are factors that determine whether project noise will result in significant adverse impacts to the environment. In addition, vibration from project activities may potentially cause structural damage and annoyance. This review evaluates whether noise and vibration produced during project construction or operation will be sufficiently mitigated to comply with applicable law.

SUMMARY AND DISCUSSION OF THE EVIDENCE

Laws that regulate noise disturbances in the project vicinity are included in Appendix N of the City of Hayward General Plan. Under Appendix N (*Land Use Compatibility Guidelines)*, the maximum acceptable exterior noise level in single-family residential areas is a day-night level (L_{dn}) of 55 dBA while the maximum acceptable exterior noise level in the commercial land use category is a day-night level (L_{dn}) of 70 dBA. The city requires an evaluation of mitigation measures proposed for projects that would cause the L_{dn} level to increase by 3 dBA or more in an existing residential area. (Ex, 1 § 8.5.3.3.1, Table 8.5-4.) These noise limits do not apply to temporary daytime construction noise. However, nighttime construction noise is limited to 6 dBA above existing levels between 7 p.m. and 7 a.m., except on Sundays and holidays when it is limited from 6 p.m. to 10 a.m. (*Ibid.*; Ex. 200, p. 4.6-3.)

CEQA Guidelines set forth characteristics of noise impacts that may indicate potentially significant effects from project-related noise, such as “a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.” (Cal. Code Regs., tit. 14, § 15000 et seq., Appendix G, Section XI.) In accordance with this standard, Staff uses the significance

threshold of 5 dBA when project-related noise emissions exceed existing ambient noise levels at the nearest sensitive receptor. Staff believes that an increase in background noise levels up to 5 dBA in a residential setting is insignificant; an increase of more than 10 dBA, however, is clearly significant. An increase of between 5 and 10 dBA may be considered adverse, but could be either significant or insignificant, depending upon the particular circumstances of a given case. (Ex. 200, p. 4.6-4.)

Factors to be considered in determining the significance of an adverse impact as defined above include: (1) the resulting noise level; (2) the duration and frequency of the noise; (3) the number of people affected; and (4) the land use designation of the affected receptor sites. Noise due to construction activities is usually considered insignificant in terms of CEQA compliance if the construction activity is temporary and the use of heavy equipment and noisy[144] activities are limited to daytime hours. (Ex. 200, p. 4.6-4.)

1. The Setting

The project site is zoned Industrial. The immediate project area consists of industrial and commercial uses, with residential uses farther away. Primary sources of noise come from heavy truck traffic on local roads and aircraft traffic from both Hayward Municipal Airport and Oakland International Airport. (Ex. 1, § 8.5.4.)

Sensitive noise receptors[145] in the project vicinity include residential communities located east/northeast of the site and the commercial building (Fremont Bank) south of the site. The nearest residence is located approximately 1,100 feet from the project. (Ex. 1, § 8.5.4.)

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[144] Noise that draws legitimate complaint.

[145] A sensitive noise receptor is a location where a reasonable degree of sensitivity to noise can be expected (such as residences, schools, hospitals, elder care facilities, libraries, cemeteries, and places of worship).

2. Potential Impacts

To determine potential project-related noise impacts in the site vicinity, Applicant conducted a noise survey at nearby noise-sensitive locations to identify existing background noise levels. (Ex. 1, § 8.5.4.1.) On July 31-August 1, 2006, Applicant's consultants took 24-hour ambient noise measurements at the locations identified below:

- Location R1: The front yard of the closest residence to the site, located at 2765 Depot Road, approximately 1,100 feet from the project site fenceline.[146]

- Location R2: Located at the southern property boundary of the project site adjacent to the commercial building, Fremont Bank's Operational Center (a data processing center), directly south of the site. The distance from the center of the project site to the Bank is approximately 330 feet. (Ex. 200, p. 4.6-5.)

Staff's Noise Table 2, replicated below, summarizes the ambient noise measurements. (Ex. 1 § 8.5.4.1; Tables 8.5-5, 8.5-6; Ex. 200, p. 4.6-6.)

Noise Table 2
Summary of Measured Noise Levels

Measurement Sites	Measured Noise Levels, dBA			
	Day-Night L_{dn}	Average During Nighttime Hours[1] L_{90}	Average During Daytime Hours[2] L_{90}	Average During Daytime Hours[2] L_{eq}
R1, Residence at 2765 Depot Road	63	44		60
R2, Project Site at Fremont Bank	67		50	62

Source: Ex. 1, § 8.5.4.1; Tables 8.5-5, 8.5-6
1. Staff calculations of average of four quietest consecutive hours of the nighttime (see NOISE APPENDIX A)
2. Staff calculation of average of the daytime hours (see NOISE APPENDIX A)

[146] Applicant's center-to-center distances, which were stipulated by the city, show R1 at 1,592 feet and R2 at 433 feet. (CH2MHILL's letter dated February 1, 2008, docketed February 4, 2008.)

3. Mitigation Measures

Construction. The expected construction noise levels are summarized below in Staff's **Noise Table 3**. Applicant provided estimates at a distance of 375 feet, but Staff translated these figures into predicted noise levels at 1,100 feet (R1), the closest sensitive residential receptor location, and at 330 feet (R2), Fremont Bank, the closest office building. (Ex. 200, p. 4.6-6.)

Noise Table 3: Predicted Construction Noise Levels

Receptor/Distance	Highest Construction Noise Level (dBA) [1]	Measured Existing Ambient, Average Daytime L_{eq} (dBA) [2]	Cumulative	Change
R1/1,100 feet	62	60	64	+4
R2/330 feet	71	62	72	+10

Sources: [1] Ex. 1, Table 8.5-8; and Staff calculations (see Noise Appendix A)
[2] Noise Table 2, above

The project will limit noisy construction work to daytime hours consistent with city's Appendix N of the General Plan. (Ex. 1, §§ 8.5.3.3.1, 8.5.7.3.) Condition of Certification **NOISE-6** requires the project owner to comply with these time restrictions and to use appropriate mufflers on noisy equipment.[147]

As shown in **Noise Table 3**, construction noise at the residential units near monitoring location R1 may reach 62 dBA. The average ambient daytime L_{eq} level at this location is 60 dBA. The introduction of the loudest construction noise at R1 would result in 64 dBA, an increase of 4 dBA over the ambient level. Since an increase in background noise levels up to 5 dBA is not considered significant, construction-related noise will be temporary, and construction activities will occur

[147] Construction of linear facilities moves at a rapid pace, not subjecting any one receptor to noise impacts for more than two or three days. (Ex. 200, p. 4.6-8.) Condition **NOISE-6** ensures that the gas and water connections and the transmission line will be constructed during daytime hours.

during daytime hours, the project's construction noise effects are not significant at R1. (Ex. 200, p. 4.6-7.)

Noise Table 3 indicates that construction noise may reach 71 dBA at R2, the adjacent Fremont Bank. The average ambient daytime L_{eq} level at this location is 62 dBA. The loudest construction noise, however, is estimated at 72 dBA, an increase of 10 dBA over the ambient level. Although construction noise is temporary in nature, some of the noisiest construction activities generating 72 dBA may continue for 15 days or longer, which is considered intrusive. Uncontroverted evidence shows that the typical interior noise level at a data processing center is 60 dBA.[148] Since the Fremont Bank building is relatively new, Staff believes the project's construction noise level will likely be attenuated by 30 dBA to 40 dBA inside the building so the contribution of construction noise to the interior noise level is not likely to exceed 42 dBA (assuming the lowest attenuation value in the above range). This level of noise should not be audible where the typical interior noise level is 60 dBA and therefore, it is not considered significant. (Ex. 200, p. 4.6-7.)

To ensure that project construction will not create significant adverse impacts at the most noise-sensitive receptors, Conditions **NOISE-1** and **NOISE-2** require the project owner to establish a community notification and noise complaint process to resolve any complaints regarding construction noise.

To protect construction workers from injury due to excessive noise during construction-related activities, Condition **NOISE-3** requires the project owner to implement a noise control program for construction workers in accordance with Cal/OSHA standards.[149] (Ex. 1, §§ 8.5.3.1.2, 8.5.5.2.1, Table 8.5-3.)

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[148] Staff's Noise Table A2, included in Noise Appendix A at the end of this section, shows the typical interior noise level at a data processing center is 60 dBA. (Ex. 200, p. 4.6-27.)

[149] Regulations adopted by the federal Occupational Safety and Health Administration (OSHA) and the state Cal/OSHA protect workers from noise-related health and safety hazards. (29

Operation. During operation, the project's primary noise sources include engine generators and their exhaust stacks, combustion air inlets, cooling radiator fans, electrical transformers, and various pumps and fans. To reduce the effects of project noise, several noise mitigation measures will be included in project design, specifically: (1) an acoustically engineered main building that encloses all 14 engines; (2) stack silencing; (3) low-noise radiator sets; and (4) balancing the noise emissions of various plant features to avoid the creation of annoying tonal (pure-tone) noises. (Ex. 1 §§ 8.5.1, 8.5.5.3.3.)

The Applicant performed noise modeling to determine the project's noise impacts R1 and R2. (Ex. 1, § 8.5.5.3.2, Table 8.5-10.) Project operating noise is predicted not to exceed 49 dBA at R1 during full load operation (*Ibid.*) Operating noise is predicted not to exceed 70 dBA at the northern wall of the north building of the Fremont Bank (closest to the project site) during full load operation. (12/18/07 RT 333:11-17; Ex. 18, p. 1.)

a. Residential Receptor (R1)

Since the ambient noise level of 63 dBA L_{dn} at R1 (see **Noise Table 2** above) already exceeds the established *Land Use Compatibility Guidelines* limit of 55 dBA $L_{dn,}$ the new allowable noise level is presumed to be 63 dBA L_{dn}. For a constant noise source such as the power plant, 63 dBA L_{dn} is equivalent to 57 dBA L_{eq}. Staff used this value to review project noise impacts at R1. The predicted project noise level at R1, or 49 dBA, combined with the ambient level of 57 dBA L_{eq}, results in 58 dBA L_{eq}. This represents an increase of only 1 dBA in the ambient noise level, which is not noticeable, and falls below the 3 dBA threshold that would trigger an evaluation of mitigation measures as required by Appendix N of the General Plan. Therefore, operational noise will comply with applicable LORS at R1. (Ex. 200, p. 4-6.9.)

C.F.R., §1910 et seq.; Cal. Code Regs., tit. 8, § 5095 et seq.) Condition **NOISE-5** requires a noise survey and necessary mitigation for on-site permanent workers after operation begins.

Under Staff's CEQA analysis, impacts on residential receptors are determined by comparing project noise emissions with nighttime ambient background levels. Since nighttime noise levels, when people are trying to sleep, are typically lower than daytime noise levels, Staff averaged the four lowest nighttime hourly background noise levels to arrive at a reasonable baseline for comparison with the project's predicted noise level. (Ex. 200, p. 4.6-10.)

Combining the ambient noise level of 44 dBA L_{90} (**NOISE Table 2**, above) with the project noise level of 49 dBA at R1 results in 50 dBA L_{90}, an increase of 6 dBA above the ambient, which falls within the 5 to 10 dBA range of noise level increase that is considered adverse. (12/18/07 RT 337.) As noted above, this increase may be either significant or insignificant under CEQA depending upon the circumstances.

Members of the public expressed strong concerns about the adverse impact of a 6 dBA increase in nighttime ambient noise levels at residential receptors.[150] Since Staff could not confirm that the project's actual noise levels will be lower than predicted,[151] Staff agreed with the residents that an increase of 6 dBA could potentially create a significant adverse noise impact at R1. Staff recommended Condition **NOISE-4** to require the project owner to implement mitigation measures and to limit noise due to project operation alone to an average of 46 dBA at R1. Project noise registering at 46 dBA combined with the ambient level of 44 dBA L_{90} would result in a noise level of 48 dBA L_{90} at R1, only 4 dBA above the existing ambient level. This is considered barely noticeable and will not cause a significant adverse noise impact. (Ex. 200, p. 4.6-11.)

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[150] Staff's witness believes the impact "will potentially be felt by many homes, and because this location is densely populated residential area, the six decibels would be considered significant." (12/18/07 RT 337:22-25.)

[151] Although the radiator (cooling) fans for the project's Wärsilä engines are designed to reduce air flow-induced and vibration-induced noise, the actual noise levels will not be known until noise surveys are completed after project operation begins. (Ex. 200, p. 4.6-14.)

Applicant contends that the project will not cause significant adverse impacts at the predicted noise level of 49 dBA at R1 but will commit to a lower level of 48 dBA. (Applicant's Opening Brief at 32-33.) Applicant argues that although the project is permitted to operate up to 4,000 hours per year, the expected annual average operation will be 1,739 hours per year (less than 20% of the year.) Given the limited hours and intermediate/peaking nature of the facility, Applicant anticipates that full-load nighttime operation will be quite limited. (Ex. 18, pp. 2-3; Ex. 1, § 2.2.16, 2.4.1; Ex. 200, pp. 4.6-16 and 4.6-17.)

According to Applicant, its proposed noise limit of 48 dBA combined with Staff's four quietest night-time hourly L_{90} metric of 44 dBA would result in 50 dBA or a 4 dBA increase over the ambient noise level of 46 dBA used in the Russell City case. (*Id*., at 35.) Applicant asserts that Staff was inconsistent in using an 8-hour nighttime noise level for Russell City but only four hours for this project since an 8-hour average results in an ambient L_{90} noise level of 45.7 dBA at R1 compared to the 44 dBA used here. (Applicant's Reply Brief at 24; 12/18/07 RT 331:19-24.)

We are not convinced that requiring a noise limit of 46 dBA at R1 is either unfair or infeasible. Staff's noise impact analysis for Russell City was based on facts specific to that project, including its distance and location relative to R1. Applicant's argument that the EEC will operate infrequently at night raises the potential issue of sporadic unexpected and disturbing noise at residential receptors, requiring adequate mitigation to prevent adverse noise impacts. Therefore, we adopt Condition **NOISE-4** as recommended by Staff to limit operating noise levels to 46 dBA at R1.

b. Commercial Receptor (R2)

The *Land Use Compatibility Guidelines* indicate that the maximum acceptable exterior noise level in the commercial building land use category is an L_{dn} of 70

dBA. According to Staff, this is equivalent to 64 dBA L_{eq} for a constant noise source such as the power plant. The predicted project noise level at the Fremont Bank of 70 dBA, combined with the ambient level of 62 dBA L_{eq}, results in 71 dBA L_{eq}, which exceeds the LORS limitation by 7 dBA. To comply with the 64 dBA L_{eq} limit, the project's operational noise level alone cannot exceed 60 dBA at R2. (Ex. 200, p. 4-6.9.)

Staff believes Condition **NOISE-4** should require mitigation to bring noise levels into compliance with LORS if the project's noise levels alone exceed 46 dBA at R1 or 60 dBA at R2. Examples of typical mitigation measures include sound walls around the noisiest equipment, operating fewer engines simultaneously, and increasing exhaust stack and inlet air silencing. Staff asserts that these measures and other standard noise mitigation measures used throughout the industry can mitigate the project's noise impacts to a level of compliance. (Ex. 200, p. 4-6-10.)

Applicant argues that the *Land Use Compatibility Guidelines* allow exterior noise levels up to 77 dBA L_{eq} as "conditionally acceptable."[152] The guidelines for "conditionally acceptable" indicate that sufficient noise insulating features include conventional construction with closed windows, and fresh air supply or air conditioning. Applicant therefore requested modification of **NOISE-4** to allow a project only contribution of 69 dBA at the northern wall of the north bank building.[153] Using Staff's daytime average of 62 dBA, this would result in a combined level of 70 dBA, which conforms to the "normally acceptable" limit of 70 dBA for commercial properties and is 5 dBA less than the "normally acceptable" limit for industrial properties. (Ex. 18, pp. 1-2.) Applicant also argues that the Fremont Bank is a commercial use in an industrial zone and

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[152] Applicant contends that an L_{dn} of 77 dBA is the equivalent to L_{eq} of 71 dBA. (Ex. 1, § 8.5.3.3.1.)

[153] In its briefs, Applicant concedes that noise levels can be maintained at 69 dBA rather than 70 dBA presented in its testimony. (Applicant's Opening Brief at 35-36; Rely Brief at 21.)

should have no expectation of a quiet environment. (Ex. 18, p. 2; Applicant's Reply Brief at 20.)

Staff notes that the city's noise standards are presented in a range with 70 dBA L_{dn} as the highest normally acceptable level for commercial land uses. Since the Bank's employees use an exterior patio for breaks and lunch during daytime and nighttime hours, the interior insulating features are not relevant under the circumstances to support a "conditionally acceptable" high range exterior noise level. (Ex. 302; Ex. 311; 12/18/07 RT 321-323.)

Staff compared the project's noise impact with the daytime ambient noise level at R2 since the EEC will operate more frequently during the daytime. The noise that stands out during this time is represented by the average noise level, or L_{eq}. Combining the average daytime ambient noise level of 62 dBA L_{eq} (**Noise Table 2**, above) with the projected noise level of 70 dBA at the Bank results in 71 dBA L_{eq}, 9 dBA above the *ambient.*[154] Staff believes this increase creates a potentially significant adverse noise impact that can be resolved by limiting the noise level due to the project operation alone to 60 dBA at R2. At this level, the increase in ambient noise will be no greater than 2 dBA, which is barely noticeable and represents an insignificant impact. (Ex. 200, p. 4.6-11.)

Although Applicant's project manager testified that it would be technologically infeasible to reduce project only noise to 2 dBA above the ambient, there is no evidence in the record to support that assertion; indeed, the witness stated he did not have any proof. (12/18/07 RT 351-352.)

Applicant argues that Staff erred in treating the commercial building as a "sensitive receptor" under CEQA. (12/18/07 RT 332-334; Applicant's Opening

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[154] Staff did not analyze Applicant's proposal to reduce the EEC's noise only contribution from 70 dBA to 69 dBA. However, such analysis would be unnecessary since Staff believes 60 dBA is the appropriate level to prevent adverse noise impacts at R2.

Brief at 36-37.) Staff maintains that its review is based on LORS compliance, which requires consideration of the specific circumstances to determine whether the proposed noise level is "conditionally acceptable." (12/18/07 RT 338-340; Staff's Opening Brief at 22-23.)

We are persuaded that Staff's recommendation is consistent with LORS requirements, particularly since Fremont Bank's employees regularly use the Bank's outside facilities. In the absence of evidence that it would be technologically infeasible to reduce project only noise to 2 dBA above the ambient, we adopt Condition **NOISE-4** as recommended by Staff to limit operating noise levels to 60 dBA at R2. Condition **NOISE-4** also requires project design to eliminate tonal noises (pure tones) that are distinctive in sound quality.

Vibration. Pile driving is the most likely source of construction-related vibration. Since construction of the EEC will not require pile driving, no construction-related vibration impacts are expected. (Ex. 1, § 8.5.5.2.3.)

An operating power plant can transmit both ground-borne vibration and airborne vibration. The EEC's operating components are designed to prevent equipment damage from vibration and are also balanced to eliminate perceptible ground-borne vibration at nearby off-site receptors. (Ex. 200, p. 4.6-12.)

Airborne vibration (low frequency noise) can rattle windows, objects on shelves, and the walls of lightweight structures. The project's main source of airborne vibration could potentially result from engine exhaust; however, the exhaust will pass through selective catalytic reduction (SCR) units, carbon monoxide catalysts, and stack silencers before reaching the atmosphere. In addition, the equipment will be enclosed in an acoustically engineered building. The SCR units, carbon monoxide catalysts, stack silencers, and the building itself all combine to muffle exhaust sound, thus reducing any perceptible airborne vibration to insignificant levels. (Ex. 200, p. 4.6-12.)

4. Cumulative Impacts

Russell City Energy Center (RCEC) is located 0.82 miles from the EEC's closest residence at R1 (labeled R2 by RCEC). RCEC's operational noise level at R1 is estimated at 44 dBA. When combined with the EEC's predicted level of 49 dBA at R1, the result is 50 dBA. Combining this result with the existing nighttime ambient level of 44 dBA L_{90} indicates a cumulative impact level of 51 dBA L_{90}. This is 7 dBA above the ambient level at R1 and represents a significant cumulative impact.[155] Condition **NOISE-4** limits the noise level from the project alone to 46 dBA at R1 during nighttime hours. Combined with the noise level from RCEC and the ambient noise level at R1, the result is 49 dBA L_{90}, 5 dBA above the ambient. An increase of up to 5 dBA is considered less than significant. (Ex. 200, p. 4.6-13.) We therefore conclude that the modifications to Condition **NOISE-4** as requested by Applicant would contribute to the project's cumulative noise impacts and be inconsistent with applicable law.

FINDINGS AND CONCLUSIONS

Based on the weight of the evidence, the Commission makes the following findings and conclusions:

1. Construction and operation of EEC will increase noise levels above existing ambient levels in the surrounding community.

2. Construction noise levels are temporary and transitory in nature and will be mitigated to the extent feasible by sound reduction devices, limiting construction to daytime hours in accordance with local noise control laws ordinances, regulations, and standards (LORS) and providing notice and a complaint process to nearby residences and businesses.

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[155] Applicant contends that Staff should have included the EEC in the Russell City cumulative noise effects analysis since Russell City was included in the EEC's cumulative analysis. (Applicant's Opening Brief at 40-41.) We are satisfied that the evidence of potential cumulative impacts in this case is sufficient to support the mitigation measures identified in the Conditions and with the combination of both projects in the vicinity, to require stringent noise limits for EEC to prevent adverse noise impacts at R1 and R2.

3. The nearest sensitive residential noise receptor (R1) is located at 2765 Depot Road, approximately 1,100 feet from the project site.

4. The nearest commercial noise receptor (R2) is the Fremont Bank Operational Center, located at the southern property boundary of the project site.

5. Noise reduction measures shall be incorporated into project design to ensure that project only operational noise shall not exceed 46 dBA at R1 and 60 dbA at R2, which effectively limits any noise increase to 4 dBA above nighttime ambient levels and 2 dBA above daytime ambient levels, respectively, to ensure compliance with CEQA and local LORS.

6. Typical noise mitigation measures include sound walls around the noisiest equipment, operating fewer engines simultaneously, increasing exhaust stack and inlet air silencing and other standard measures used throughout the industry to mitigate the project's noise impacts to a level of compliance.

7. There is no evidence that it is technologically infeasible to reduce project only noise to 2 dBA above the daytime ambient level at R2.

8. The EEC's contribution to potential cumulative noise impacts resulting from the combination of the Russell City Energy Center and the EEC in the Hayward area can be mitigated by limiting EEC noise levels to 46 dBA at R1.

9. The Applicant's proposal to reduce the project only nighttime noise level to 48 dBA at R1 would not comply with CEQA requirements that the project's contribution to cumulative impacts at R1 be mitigated.

10. The Applicant's proposal to reduce the project only noise level to 69 dBA at R2 would not meet "normally acceptable" levels in accordance with local LORS.

11. There is no evidence of potential airborne or ground-borne vibration due to project construction or operation.

12. The project owner will implement measures to protect workers from injury due to excessive noise levels by complying with pertinent Cal/OSHA regulations.

13. The project owner will conduct an operational noise survey to determine compliance with the required noise limitations and, if necessary, implement additional mitigation measures to achieve compliance.

14. The project owner will implement the mitigation measures identified in the evidentiary record and the Conditions of Certification to ensure that project-related noise emissions do not cause significant adverse impacts to sensitive noise receptors.

The Commission concludes that implementation of the following Conditions of Certification ensure that EEC will comply with the applicable laws, ordinances, regulations, and standards on noise and vibration as set forth in the evidentiary record and in pertinent portions of **Appendix A** of this Decision.

CONDITIONS OF CERTIFICATION

NOISE-1 At least 15 days prior to the start of ground disturbance, the project owner shall notify all residents within one-half mile of the site and the linear facilities, and Fremont Bank's Operations Center at 25151 Clawiter Road in Hayward, by mail or by 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 a 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 where it is visible to passersby. This telephone number shall be maintained until the project has been operational for at least one year.

Verification: Prior to ground disturbance, the project owner shall transmit to the compliance project manager (CPM) a statement, signed by the project owner's project manager, stating that the above notification has been performed and describing the method of that notification. This communication shall also verify that the telephone number has been established and posted at the site, and shall provide that telephone number.

NOISE COMPLAINT PROCESS

NOISE-2 Throughout the construction and operation of the project, the project owner shall document, investigate, evaluate, and attempt to resolve all project-related noise complaints. The project owner or authorized agent shall:

- use the Noise Complaint Resolution Form (following), 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 in the complaint;
- if the noise is project related, take all feasible measures to reduce the source of the noise; and
- submit a report documenting the complaint and actions taken. The report shall include: a complaint summary, including the final results of noise reduction efforts and, if obtainable, a signed statement by the complainant stating that the noise problem has been resolved to the complainant's satisfaction.

Verification: Within 5 days of receiving a noise complaint, the project owner shall file a Noise Complaint Resolution Form with both the local jurisdiction and the CPM, to document the resolution of the complaint. If mitigation is required to resolve the 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 performed and complete.

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 (above permissible) noise levels during construction in accordance to the applicable OSHA and Cal-OSHA standards.

Verification: At least 30 days prior to the start of ground disturbance, the project owner shall submit the noise control program to the CPM. 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 the operation of the project will not cause the noise levels due to plant operation alone, during the four quietest consecutive hours of the nighttime, to exceed an average of 46 dBA measured at or near monitoring location R1 (2765 Depot Road). The project design and implementation shall include appropriate noise mitigation measures adequate to ensure that the operation of the project will not cause the exterior noise levels due to plant operation alone to exceed an hourly average of 60 dBA measured at the northern wall of the

north building of the Fremont Bank's Operational Center (25151 Clawiter Road).

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

A. When the project first attains a sustained output of 95 percent or higher of its rated capacity, the project owner shall conduct a 25-hour community noise survey at monitoring location R1, or at a closer location acceptable to the CPM. This survey during the power plant's full-load operation shall also include the measurement of one-third octave band sound-pressure levels to ensure that no new pure-tone noise components have been caused by the project.

   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, that is closer to the plant (for example, 400 feet from the plant boundary). This measured level will then be mathematically extrapolated to determine the plant noise contribution at the affected residence. The character of the plant noise shall be evaluated at the affected receptor locations to determine the presence of pure tones or other dominant sources of plant noise.

B. During the period of this survey, the project owner shall conduct a short-term noise survey during the daytime hours, from 7 a.m. to 10 p.m., at or near the northern wall of the north building of the Fremont Bank's Operational Center, or at another location acceptable to the CPM, in order to measure the power plant's contribution to the exterior noise level at the Bank. This survey during the power plant's full-load operation shall also include the measurement of one-third octave band sound-pressure levels to ensure that no new pure-tone noise components have been caused by the project.

C. If the results from the noise survey indicate that the power plant average noise levels at the affected receptor sites exceed the above values during the above specified time periods, mitigation measures shall be implemented to reduce noise to a level of compliance with these limits.

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

Verification: The survey shall take place within 30 days (or when otherwise approved by the CPM) when the project first attains a sustained output of 95 percent or higher of its 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 those measures. When these measures are in place, the project owner shall repeat the noise survey.

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

NOISE-5 Following the project's attainment of a sustained output of 95 percent or greater of its rated capacity, the project owner shall conduct an occupational noise survey to identify any hazardous noise 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 to be employed in order to comply with the applicable California and federal regulations.

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

CONSTRUCTION RESTRICTIONS

NOISE-6 Heavy equipment operation and noisy construction work relating to any project features shall be restricted to the times delineated below, unless a special permit has been issued by the city of Hayward:

Any day except Sundays and holidays:	7 a.m. to 7 p.m.
Sundays and holidays:	10 a.m. to 6 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

Eastshore Energy Center
Docket No. 06-AFC-6 (C)

NOISE COMPLAINT LOG NUMBER _____

Complainant's name and address:

Phone number: _____

Date complaint received: _____
Time complaint received: _____

Nature of noise complaint:

Definition of problem after investigation by plant personnel:

Date complainant first contacted: _____

Initial noise levels at 3 feet from noise source _____ dBA Date: _____
Initial noise levels at complainant's property: _____ dBA Date: _____

Final noise levels at 3 feet from noise source: _____ dBA Date: _____
Final noise levels at complainant's property: _____ dBA Date: _____

Description of corrective measures taken:

Complainant's signature: _____ Date: _____

Approximate installed cost of corrective measures: $ _____
Date installation completed: _____
Date first letter sent to complainant: _____ (copy attached)
Date final letter sent to complainant: _____(copy attached)

This information is certified to be correct:

Plant Manager's Signature: _____

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

NOISE APPENDIX A
FUNDAMENTAL CONCEPTS OF COMMUNITY NOISE

To describe noise environments and to assess impacts on noise sensitive area, 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 Appendix 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: California Department of Health Services 1976, 1977.

Noise Table Appendix 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: Peterson and Gross 1974

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.

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 Appendix 3
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: Thumann, Table 2.3

Sound and Distance

1. Doubling the distance from a noise source reduces the sound pressure level by six dB.

2. Increasing the distance from a noise source ten 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 Appendix 4
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 CFR § 1910.95

E. VISUAL RESOURCES

Visual resources are the natural and cultural features of the landscape that contribute to the visual character or quality of the environment. CEQA requires an examination of a project's visual impacts focusing on the project's potential to cause substantial degradation to the existing visual character of the site and its surroundings. (Cal. Code of Regs., tit. 14, § 15382, Appendix G.)

SUMMARY AND DISCUSSION OF THE EVIDENCE

The EEC will be located on a 6-acre parcel in an area designated by the City of Hayward as the "Industrial Corridor" and zoned "Industrial." The Industrial Corridor includes a 3,500-acre area in western and southern Hayward. For over 40 years, the Industrial Corridor has featured warehouse and distribution facilities. More recently, the Industrial Corridor has attracted high-tech and research and development facilities. Approximately 2,500 acres are currently devoted to industrial uses. Another 600 acres are devoted to commercial, residential, or public and quasi-public uses. The project site is surrounded by various commercial/industrial operations. (Ex. 200, p. 4.12-2; Ex. 1, § 8.11.3.)

The project's most publicly visible structures include: fourteen 70-foot tall, 4-foot diameter exhaust stacks, and the 36-foot tall by 417-foot long by 71-foot wide Power House "A" building. The project will connect to the Eastshore Substation by a new 1.2-mile long transmission line supported on 10 to 12 new 115-kV transmission wood or steel poles in PG&E's existing corridor of 12-kV distribution lines. The Applicant has proposed to use four different pole types with specific heights. The 80-foot pole structures will support the 115-kV transmission lines, the 85-foot pole structures will support the 115-kV transmission lines with underbuilt 12-kV distribution lines to accommodate PG&E's existing transmission lines along Clawiter Road, and a 90-foot pole structure will be placed on the

south side and 60-foot pole structure on the north side of Highway 92. (Ex. 1, § 8.11.2, Table 8.11-1; Ex. 200, p. 4.12-2.)

The project's construction laydown and parking area is located on a 4.65-acre portion of the Berkeley Farms dairy processing facility property across Clawiter Road from the project site. The laydown area currently features piles of concrete and wood debris and mounds of gravel and soil on the north end. Tractor trailers associated with the Berkeley Farms operation are parked on the south end. (Ex. 200, p. 4.12-3.)

1. Methodology

Applicant and Staff provided an assessment of potential viewshed impacts for five defined Key Observation Points (KOPs) at various locations near the project site:[156]

KOP #	***KOP Location and Description***
1	Junction of Gettysburg Avenue and Bradford Avenue.
2	West Entrance of Life Chiropractic College West Entrance (Applicant's Viewpoint A).
3	Clawiter Road north of railroad track crossing (Applicant's Viewpoint B).
4	Depot Road east of the intersection with Industrial Boulevard (Applicant's Viewpoint C).
5	Depot Road at Monte Vista Drive (Applicant's Viewpoint D).

[156] Photographs and simulations from the Hayward Shoreline Interpretive Center identified as KOP 6 (Viewpoint E), and State Route 92 at Hayward-San Mateo Bridge Toll Plaza identified as KOP 7 (Viewpoint F) were not included in the KOP analysis since publicly visible structures on the project site will not be noticed from these locations. (Ex. 1, § 8.11.3.2; Ex. 200, p. 4.12-4.)

The visual impact evaluation system includes a scale of High, Moderately High, Moderate, Moderately Low, and Low to evaluate elements including contrast with natural and manmade features, visual dominance, and view blockage to reach an overall finding regarding visual impact severity. This assessment relies on computer-based visual simulations using facility renderings superimposed on photographs of existing conditions. Applicant and Staff used these simulations to determine whether project impacts will be noticeable to sensitive public views. (Ex. 1, § 8.11.3.2; Ex. 12, p. 35 et seq.; Ex. 200, p. 4.12-5 et seq., **Visual Resources** Figures 5 through 26.)

2. Potential Impacts

The evidentiary record examines whether the project will have (1) a substantial adverse effect on a *scenic vista*; (2) substantially damage *scenic resources*; (3) degrade existing visual character or quality of the site vicinity; or (4) create a new source of substantial *glare or nighttime lighting* that could affect daytime or nighttime views in the area.[157] (Ex. 200, p. 4.12-3.)

Since there are no scenic vistas or scenic resources within the viewsheds of KOPs 1 through 5, the project will not cause significant visual impacts to scenic vistas or scenic resources in the area. (Ex. 200, pp. 4.12-4 and 4.12-5.) The project's potential impacts on the visual character or quality of the viewsheds at KOPs 1 through 5 are described below.

Construction of the power plant and linear facilities will cause temporary adverse visual impacts due to the presence of heavy construction equipment, materials, storage, and temporary laydown/staging areas. (Ex. 200, pp. 4.12-6 and 4.12-7.) During construction, the boundaries of the project site and laydown areas on public streets will be screened using chain-link fencing covered with a screening

[157] See, CEQA Guidelines, Title 14 Cal. Code of Regulations, § 15382, Appendix G on "Aesthetics.

fabric so views of these areas will be obstructed at all five KOPs. To minimize any adverse visual impact from these views, Condition of Certification **VIS-1** requires the restoration of the construction areas and pipeline rights-of-way after completion of project construction.[158] Due to the relatively short-term nature of project construction, visual impacts during construction will not be significant. (*Ibid*.)

The KOPs represent simulated views of the project site after construction. KOP 1 represents the view from the junction of Gettysburg and Bradford Avenues, approximately 3,000 feet east of the site. This is a residential area comprised mainly of one-story single family residences with ornamental landscaping and overhead transmission and utility lines. A portion of the roof of two-story apartment building in the Waterford Apartment complex can be viewed within the line of trees behind the single family residences. (Ex. 200, p. 4.12-7.)

The KOP 1 location is on the east side of the Waterford Apartments. The ground level view towards the project site is obstructed by Heald College, Life Chiropractic College, and Mt. Eden Nursery Company. From a second floor apartment, only a small portion of an exhaust stack on the project site may potentially be seen over the roof top of Life Chiropractic College. Thus, the evidence indicates that the introduction of the project's structures into the existing viewshed at this location will not substantially degrade a ground level or second story view and will not cause an adverse visual effect at KOP 1. (Ex. 200, p. 4.12-7.)

KOP 2 represents the view from the west entrance of the Life Chiropractic College to the project site, which is approximately 375 feet away. The view from

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[158] While most construction activities will occur during daylight hours, some construction will take place at night. (Ex. 200, p. 4.12-6.) Construction lighting shall be consistent with Condition **VIS-3,** which requires all lighting to be shielded, hooded, and directed downward to minimize potential impacts on sensitive receptors. A lighting complaint resolution form shall document lighting complaints and resolutions. We have modified Condition **VIS-3** to include reference to nighttime construction lighting and to require notification to the public on how to file a lighting complaint.

KOP 2 towards the site includes an asphalt parking lot with trees planted in tree wells and landscape medians interspersed with several vertical pole structures, which serve as light standards and utility poles. A row of bushes from the former Trend Metal Finishing Facility on the site is also in the view. The visual impression (quality) of this viewshed is considered to be moderately low. (Ex. 200, p. 4.12-8.)

Viewers at the KOP 2 location include students and employees at the Chiropractic College, who will be exposed to a short duration view of the site while walking between the parking lot and the college building. There is no focal point in the viewshed that draws the viewer's eye to a unique feature such as an historic building or landscaping. Thus, the level of viewer concern towards preserving the KOP 2 viewshed is low. (Ex. 200, p. 4.12-8.)

Views of the site are fairly unobstructed so the degree of visibility is considered moderately high. However, the project's publicly visible structures will not create a significant visual effect at KOP 2 given the low overall visual sensitivity of the viewing group, the short duration of exposure, the moderately low visual quality, and the moderate overall visual change. (Ex. 200, p. 4.12-8.)

The contrast (form, line, color, and texture) introduced by the project's publicly visible structures will be seen from KOP 2. The potential contrast of the structures is considered high. According to the Applicant, all structures will be painted in shades of off-white, beige, tan, and gray to optimize the project facility's visual integration into the surrounding environment. The site will be surrounded by an 8-foot-high, chain-link fence. All outdoor storage will be located away or screened from public view. Landscape vegetation along the site perimeter will be developed in consultation with the City of Hayward to meet the city's landscaping requirements and signage will be consistent with the city's regulations. (Ex. 1, §§ 8.11.4.3, 8.11.6.). Conditions **VIS-2**, **VIS-3**, **VIS-4**, **VIS-5**, and **VIS-6** require the project owner to implement these measures to ensure that

the introduction of project structures will not substantially degrade the existing viewshed at KOP 2.

KOP 3, located at Clawiter Road near the railroad track crossing west, represents the existing view of the project site from Clawiter Road, approximately 375 feet south of the intersection with Depot Road. The KOP 3 viewshed includes a portion of Clawiter Road, railroad track, and the former Trend Metal Finishing Facility. The estimated public appeal of the visual quality of the KOP 3 viewshed is considered to be moderately low. (Ex. 200, p. 4.12-9.)

Viewers at this KOP location are primarily drivers, including workers and patrons to commercial/industrial operations in the Industrial Corridor, and students and employees attending Life Chiropractic College. The estimated level of viewer concern towards preserving the existing KOP 3 viewshed is considered to be low. The view towards the site is unobstructed, and visibility is considered high. Staff estimated the duration of exposure to the site on Clawiter Road through the KOP 3 viewshed is about 10 to 20 seconds. This duration of exposure is considered moderately low, but viewer exposure is considered moderately high. Thus, the overall visual sensitivity for drivers would be considered moderate from the KOP 3 location based on moderately low visual quality, low viewer concern, and a moderately high overall viewer exposure. (Ex. 200, p. 4.12-10.)

The contrast introduced by project structures will be noticeable from this KOP and is considered high. However, as the project's landscaping matures, the visual impact at both KOPs 2 and 3 will be less noticeable. (Ex. 200, p. 4.12-10.)

The overall visual change caused by the project's structures is considered moderately high as a result of a high visual contrast, high visual scale, and moderately low view disruption. However, the introduction of the project's publicly visible structures will not substantially degrade the existing viewshed at KOP 3. When considering the overall visual sensitivity of the viewing group, the

introduction of the project structures will not create a significant visual effect at this KOP. (Ex. 200, p. 4.12-11.)

The view from KOP 4 at Depot Road east of the intersection with Industrial Boulevard, is obstructed towards the site by trees along Depot Road and Industrial Boulevard, and the Life Chiropractic College building. KOP 5 represents the existing view from Depot Road at Monte Vista Drive towards the site along the street frontage of a single family residence on the north side of Depot Road. This KOP view is also obstructed towards the site by a commercial building, transmission/utility poles, and trees. Thus, the project's structures will not create a significant visual effect to either the KOP 4 or KOP 5 viewsheds. (Ex. 200, p. 4.12-11.)

The visual effects of the project's new transmission poles in the Industrial Corridor will primarily impact patrons and workers driving to a commercial or industrial operation. According to Staff, the estimated level of a motorist's concern for preserving the existing street view of Clawiter Road is considered low. Given the low to moderate visual sensitivity of the viewshed, the construction of the overhead transmission line will not create a significant visual disturbance along the transmission line alignment. Natural gas, potable water, and sanitary sewer service will be supplied by underground pipelines, which will not introduce a visual impact. (Ex. 200, p. 4.12-11.) After construction, all ground surfaces will be restored as required by Condition **VIS-1**.

The project requires nighttime lighting for operational safety and security, which could introduce light to surrounding properties and the nighttime sky. High illumination areas not occupied on a regular basis will be lighted only when occupied. Potential off-site visibility and glare from lighting will be restricted by directing lights to only those areas where it is needed. (Ex. 1, §§ 8.11.4.3.6, 8.11.4.4.5.) Condition **VIS-3** requires the project owner to develop a lighting control plan to incorporate specific light control measures. With the effective

implementation of the light mitigation measures, the EEC will not create a substantial new source of light that could adversely affect existing nighttime views.

Since the site is near Hayward Executive Airport, the project owner will install one non-blinking red aviation obstruction light on each of the project's fourteen 70-foot tall exhaust stacks to identify the power plant's thermal plume emissions to aircraft pilots.[159] In the KOP 1-5 viewsheds, ground level views of the project's publicly visible structures, including the 70-foot tall exhaust stacks, will be obstructed by buildings and natural elements. The evidence indicates that direct ground level views of the aviation obstruction lights will be limited to the KOP 2 and KOP 3 viewsheds, and to distant viewers in the hills in the eastern part of the city (about three miles from the site). Thus, the introduction of the project's aviation lights will not substantially degrade the quality of the nighttime view due to existing visual obstructions, the use of a low intensity of lighting, and the blending of the light with other nighttime lighting occurring within the Industrial Corridor.[160] (Ex. 200, p. 4.12-13.)

3. Cumulative Impacts

Cumulative impacts to visual resources can occur where project facilities or construction activities occupy the same field of view as other structures or impacted landscapes. Since views in the site vicinity are already degraded by existing transmission lines, tall structures, and other industrial facilities, the introduction of the project's publicly visible elements, glare, and nighttime lighting will not substantially alter the viewshed, or degrade the visual quality of the "Industrial Corridor." (Ex. 200, p. 4.12-15.)

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[159] See discussion on aviation hazards lighting in the **Traffic and Transportation** section of this Decision.

[160] Four existing 228-foot-tall radio towers, approximately 3,000 feet southwest of the site on Enterprise Avenue, are equipped with required aviation obstruction lighting consisting of three red flashing lights on each tower. (Ex. 200, p. 4.12-13.)

The combination of publicly visible structures introduced by the EEC and the Russell City Energy Center will add to the existing congregation of industrial structures in the Industrial Corridor. However, both power plant projects are visually compatible with existing heavier industrial uses within the Industrial Corridor. (Ex. 200, p. 4.12-15.)

While project-related daytime glare and nighttime light impacts will be mitigated to insignificant levels, existing light in the project vicinity will increase cumulatively as a result of the project and existing and planned land uses. However, light and glare impacts will be mitigated with the effective implementation of Conditions **VIS-2** and **VIS-3**. Thus, introduction of the new projects will not result in a significant cumulative visual effect specific to aesthetics, or preservation and protection of sensitive visual resources. (Ex. 200, p. 4.12-15.)

Census 2000 information shows a minority population greater than fifty percent within a six-mile radius of the project site. See the **Socioeconomics** section of this Decision. Since all significant direct or cumulative impacts specific to aesthetics, or the preservation and protection of sensitive visual resources resulting from the construction or operation of the project will be mitigated, the project will not introduce a visual resources related environmental justice issue. Implementation of the landscape plan and other mitigation measures described in the Conditions will reduce EEC's contribution to cumulative visual impacts to insignificant levels. (Ex. 200, p. 4.12-15.)

4. Compliance with Applicable LORS

The following Table (Staff's Visual Resources Table 2) lists the applicable LORS for the City of Hayward that pertain to the enhancement and/or maintenance of visual quality and the protection of views. Staff's uncontroverted analysis indicates that the EEC is consistent with these LORS.

VISUAL RESOURCES Table 2
Eastshore Project's Consistency with
Local LORS Applicable to Visual Resources

LORS		Consistency Determination	Basis for Consistency
Source	**Policy and Strategy Descriptions**		
Local			
City of Hayward General Plan Land Use Policies			
Infill Development	Policies promote infill development that is compatible with the overall character of the surrounding neighborhood (see below).		
	• Encourage visual integration of projects of differing types or densities through the use of building setbacks, landscaped buffers, or other designed features.	YES AS PROPOSED	The Eastshore project is to be constructed in the "Industrial Zone" district within the 3,500 acre "Industrial Corridor" of the city of Hayward. Approximately 2,500 acres are currently devoted to various industrial uses. The Eastshore project involves the use of a 6-acre site. Properties surrounding the site have existing industrial and commercial operations. The power plant project would be visually integrated with existing taller heavier industrial uses within the industrial corridor; such as Berkeley Farms which operates a 228,000 square foot facility on a 20 acre site, where dairy products are processed, packaged and distributed; the Gillig Corporation plant where heavy duty transit buses are assembled; and the Rohm & Hass Chemical Company, an acrylic chemistry processing facility with a 180-foot tall exhaust stack. The project's Power Block A is shown on the site plan to have a 300-325-foot setback from Clawiter Road. The applicant has provided a conceptual landscape plan which shows trees, shrubs, and ground cover in the front, side, and rear yard areas on the site.

LORS		Consistency Determination	Basis for Consistency
Source	**Policy and Strategy Descriptions**		
City of Hayward Zoning Ordinances			
• Section 10-1.1630 Yard Requirements	Minimum Front Yard (Standard Street): 10 feet Minimum Side Yard: None Minimum Side Street Yard: 10 feet Minimum Rear Yard: None	YES AS PROPOSED	As depicted on the site plan, the project would comply with the yard requirements.
• Section 10-1.1635 Height Limit	Maximum building height: • Industrial building: No Limit • Office building: 40 feet	YES AS PROPOSED	The project would comply with the building height provisions. There are no height limitations for industrial buildings. As shown on the project's elevation plan, the height to the top of the vent hood on the top of Power House A is 35-feet 11-inches.
	Maximum height for fences, hedges, walls: (1) Front and street yard: 4 feet (2) Side and Rear Yard: No Limit	YES AS PROPOSED	As depicted on the conceptual landscaping plan and shown on the photo simulations, a 6-foot tall slat inserted fence is to be installed. It would be located outside of the required 10-foot front yard area.
• Section 10-1.1640 Site Plan Review	Site Plan Review approval is required before issuance of any building, grading, or construction permit within this district only if the Planning Director determines that a project is incompatible with City policies, standards and guidelines. Site Plan Review approval may also be required for fences (i.e., such as anodized gray chain link fences along corridor streets) in certain circumstances.	YES AS CONDITIONED	Staff's has recommended aesthetic related conditions of certification **VIS 1-6** which pertain to surface treatment of buildings and structures, lighting, landscaping, outdoor storage and signs, and include a provision that allows for review and comment by the city of Hayward.
•Section 10-1.1645 Minimum Design and Performance Standards - Industrial Buildings and Uses	This section establishes design and performance standards that shall apply to the construction of industrial and commercial buildings and uses in the (I) Industrial District. The applicable standards pertinent to visual resources are summarized below		

LORS		Consistency Determination	Basis for Consistency
Source	**Policy and Strategy Descriptions**		
	a. Accessory Buildings, Detached. Shall not exceed one story (1).	YES AS PROPOSED	The accessory buildings shown on the project's elevation drawings do not exceed one story.
	b. Additions and Accessory Structures Attached to Primary Building. Additions and accessory structures attached to the primary building shall meet all the development standards required of the primary building.	YES AS PROPOSED	There is no maximum building height for an industrial building within the Industrial Zone. The Eastshore project is a simple cycle power peaking plant involving 14 Wartsila natural gas-fired reciprocating engine generators that use fourteen 70-foot tall exhaust stacks. The exhausts stacks are attached to the Power House A, the primary building (see VISUAL RESOURCES Figure 4).
	f. Architectural Design Principles. • Incorporate design elements that are harmonious and in proportion to one another (1). • Incorporate an attractive mixture of color and materials. Select building materials and colors that are harmonious with the site and surrounding uses, buildings and area. Base colors shall be low reflective, subtle, neutral. Building trim may feature brighter accent colors (2). • Create shadow relief with recesses, columns, score lines, trellises, windows, or other features on blank wall when they are visible from adjacent streets (4). • Building facades in excess of 100 feet long and/or greater than 20 feet in height shall be setback a minimum of 20 feet from the front property line and must incorporate recesses and projections which may include windows and trellises (5). • New buildings shall use roof parapet walls to screen rooftop mechanical equipment (6). • Any metal clad building which is visible from a street shall adhere to these design criteria. Unpainted (gray galvanized) metal surfaces shall not be used on primary structures (7).	YES AS CONDITIONED	• The project design elements as shown in the photo simulations and elevation drawings are harmonious with one another. (1) • The photo simulations for the project show use of neutral colors that are harmonious with the site and surrounding buildings. Condition of certification **VIS-2** would ensure that building materials and colors would be harmonious with the site and surrounding area. (1, 2) • The front side of Power Block A is shown to not be a blank wall facing Clawiter Road. In addition, the view from Clawiter Road to the front wall of the Power Block A would be disrupted by landscaping along the site's road frontage as shown on the conceptual landscape plan and in the photo simulations. (4), (6) • The Power Block A is shown to have a greater than 20-foot setback (approximately 300-foot setback) from the front property line, and incorporates recesses that consist of a door entry and window and a second door entry as shown on VISUAL RESOURCES Figure 4. (5) • The project's elevation drawings do not show the installation of roof top mechanical equipment. (6) • No metal clad buildings visible from Clawiter Road are proposed by the

LORS		Consistency Determination	Basis for Consistency
Source	Policy and Strategy Descriptions		
	• Truck loading areas shall not face the street, unless no practical alternative exists (8). • Industrial facilities, whose building design is utilitarian by necessity, shall be screened with landscaping (9)		applicant. In addition, proposed project landscaping along the street frontage is to be 85 feet thick and includes a slat inserted fence for visual screening. (7) • Truck loading areas are not shown on the project's site plan to face Clawiter Road. (8) • The applicant has provided a conceptual landscaping plan for the project site. Publicly visible power plant structures would be partially screened by the landscaping as it grows towards maturity. Ground level views of the plant would be screen by landscaping, and by use of slat inserted fencing. (9)
	i. Fences, Hedges, Walls. • Fences, hedges and walls shall not exceed a height of 4 feet in a required front yard, or side street yard (1). • For fences limited to a maximum of 4 feet in height, the height limit shall not be exceeded at grade measured on either side of the fence (3).	YES AS PROPOSED	As depicted on the project's conceptual landscaping plan, site plan and shown on photo simulations, an approximate 6-foot tall slat inserted fence would be located outside of the required 10-foot front yard.
	l. Landscaping. • Landscape Areas. Required front, side, side street, and rear yard areas shall be landscaped except for permitted driveways, and walkways. All other areas not utilized for structures or paving shall be landscaped unless otherwise authorized by the Planning Director or other approving authority because of site constraints, existing or adjacent site conditions, or phased development (a). Required landscape areas shall be planted with water conserving trees, shrubs, turf grass, ground cover, or a combination thereof (c). • Buffer Trees/Landscaping. Masonry walls, solid building walls, trash enclosures, and/or fences facing a street or driveway	YES AS CONDITIONED	•The project's conceptual landscape plan shows landscaping in the required yard areas (a). •The city has recommended landscape screening, which could include landscaping with a berm and/or wall. The use of a perimeter wall to screen lower level plant facilities would also be appropriate •The project's conceptual landscape plan and plant palette shows a combination and variety of trees and ground cover. (a) (b), (c), (e) •Proposed project landscaping along the street frontage is to be 85 feet thick and includes a slat inserted fence for visual screening. Landscaping includes evergreen shrubs (Escallonia) and evergreen ground cover (Ceanothus "Yankee

LORS		Consistency Determination	Basis for Consistency
Source	**Policy and Strategy Descriptions**		
	shall be buffered with continuous shrubs or vines (b). • Parking Lot Trees/Planters. Parking areas shall include a minimum of one 15-gallon parking lot tree for every 6 parking stalls, unless an alternative tree planting is approved by the City Landscape Architect (a). Parking and loading areas shall be buffered from the street with shrubs, walls, or earth berms. Where shrubs are used for buffering, the type and spacing of shrubs shall create a continuous 30-inch high screen within 2 years (e). • Street Trees. Street trees shall be planted along all street frontages at a minimum of one 24-inch box tree per 20 to 40 lineal feet of frontage or fraction thereof, except where space is restricted due to existing structures or site conditions. • Irrigation. Within all required landscaped areas, an automatic water efficient irrigation system shall be installed upon initial construction of any building or substantial alteration to any building or site. • Maintenance. After initial installation, all plantings shall be maintained in a reasonably weed-free and litter-free condition, including replacement where necessary (a). Required street, parking lot, and buffer trees shall not be severely pruned, topped, or pollarded (cut back to the trunk) (b).		Point") among the proposed plants. (b), (e) • The conceptual landscape plan shows the planting of a 15-gallon redwood tree on the south side of the proposed six permanent parking spaces behind the switchyard. (a) • Applicant has stated that proposed street trees along Clawiter Road shall be consistent with the city's landscape requirements. The applicant's conceptual landscaping plan shows 15-gallon container sized trees along the street (street trees) rather than the city's street tree requirement of a 24-inch box tree. The 24-inch box tree is more mature than a 15-gallon tree. Condition of certification **VIS-4** would ensure compliance with the city's landscaping requirements, and that landscaping is installed and maintained in a manner acceptable to the city.

LORS		Consistency Determination	Basis for Consistency
Source	**Policy and Strategy Descriptions**		
	m. Lighting, Exterior. Exterior lighting and parking lot lighting shall be provided in accordance with the Security Standards Ordinance and be designed by a qualified lighting designer and erected and maintained so that light is confined to the property and would not cast direct light or glare upon adjacent properties or public rights-of-way. Such lighting shall also be designed such that it is in keeping with the design of the development.	YES AS CONDITIONED	The project owner has proposed measures to control light trespass beyond the boundaries of the project. Highly directional light fixtures and shielding of lighting to reduce light scatter and glare are to be used. Condition of certification **VIS-3** would ensure compliance with this standard.
	n. Outdoor Storage. All uses shall be conducted wholly within enclosed buildings. Minor open storage is a secondary use and is permitted, provided the materials, products, or equipment stored are necessary to the operation of the use being conducted on the site. Storage shall not be placed within required yard or parking areas, and the storage shall be compatible with adjoining uses (for example, adequately screened, set back or not too high, and not visually unpleasant).	YES AS CONDITIONED	An outdoor storage area is not shown on the project's site plan or landscape plan. Staff has recommended a condition of certification **VIS-5** to ensure compliance with this provision.
	q. Roof-Mounted Equipment. Roof-mounted equipment, antennas, satellite dishes, support structures and similar devices shall be screened from public view, preferably by the roof form.	YES AS PROPOSED	The elevation drawings of the project provided in the AFC do not show equipment mounted on the roof.
	r. Signs. Signs shall be of a design in harmony with the environment and shall not constitute excessive visual impact.	YES AS CONDITIONED	The applicant has proposed minimal signage and project construction signs. The signs installed would be made of non-glare materials and unobtrusive colors. Condition of certification **VIS-6** would ensure compliance with this provision.
	t. Trash and Recycling Facilities. Trash and recycling facilities shall be adequately screened from view, utilizing a decorative wood or masonry wall or combination thereof.	YES AS PROPOSED	No trash facilities are depicted on the site plan. The landscaping proposed along the perimeter of the site would sufficiently screen any proposed trash and recycle facilities from public view.
	u. Truck Loading Facilities. Loading areas should not dominate the street frontage, and	YES AS PROPOSED	A truck loading area does not directly face or dominate the street frontage as shown on the photo simulations or

LORS		Consistency Determination	Basis for Consistency
Source	Policy and Strategy Descriptions		
	should not directly face a major street unless no practical alternative exists.		site plan.

FINDINGS AND CONCLUSIONS

Based on the uncontroverted evidence of record, the Commission makes the following findings and conclusions:

1. The EEC site is situated in an area designated by the City of Hayward as the "Industrial Corridor," characterized by existing industrial and commercial facilities, tall tower structures, and utility lines.

2. Construction of the project's water and natural gas supply pipelines will cause temporary visual impacts but no permanent visual impacts will result.

3. Project components that could affect Visual Resources include the 14 exhaust stacks, the Power House "A" building, and the new 1.2-mile long transmission line supported on 10 to 12 new 115-kV transmission poles in PG&E's existing utility corridor.

4. The project's potential impacts on the relevant viewshed were analyzed at five defined Key Observation Points (KOPs) at different locations surrounding the project site.

5. Since there are no scenic vistas or scenic resources within the viewsheds of KOPs 1 through 5, the project will not cause significant visual impacts to scenic vistas or scenic resources in the area.

6. Potential visual impacts at KOPs 2 & 3 will be mitigated to insignificant levels; there are no expected adverse visual impacts at KOPs 1, 4, & 5.

7. The project's publicly visible structures and red aviation lights on the 14 exhaust stacks will blend into the general industrial background surrounding the site.

8. The project owner will provide landscaping to screen the project from public views.

9. The project owner will treat project surfaces with colors that minimize visual intrusion and contrast.

10. The project owner will implement appropriate mitigation measures to reduce or eliminate visual impacts from nighttime lighting and daytime glare.

11. The EEC will comply with all applicable laws, ordinances, regulations, and standards regarding project design, architecture, landscaping, signage, and other zoning requirements related to visual resources.

12. Potential cumulative visual impacts will be mitigated to insignificant levels.

13. Implementation of the Conditions of Certification, below, will insure that EEC complies with all applicable laws, ordinances, regulations, and standards relating to visual resources as identified in Visual Resources Table 2 in this section and in the pertinent portions of **Appendix A** of this Decision.

The Commission concludes that the implementation of the mitigation measures identified in the Conditions of Certification and otherwise described in the evidentiary record ensures that the EEC will not result in significant adverse impacts to Visual Resources.

CONDITIONS OF CERTIFICATION

Surface Restoration

VIS-1 The project owner shall remove all evidence of construction activities and shall restore the ground surface to the original condition or better condition, including the replacement of any vegetation or paving removed during construction where project development does not preclude this. The project owner shall submit to the Compliance Project Manager (CPM) for review and approval a surface restoration plan, the proper implementation of which will satisfy these requirements. The project owner shall complete surface restoration within 60 days after the start of commercial operation.

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 any revisions of the surface restoration plan are needed, within 30 days of receiving that notification the project owner shall submit to the CPM a plan with the specified revisions.

The project owner shall complete surface restoration within 60 days after the start of commercial operation. The project owner shall notify the CPM within 7 days after completion of surface restoration that the restoration is ready for inspection.

Surface Treatment of Project Structures and Buildings

VIS-2 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 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 at the least from the selected KOP 3 (**Visual Resources Figure 18**, Exhibit 200, Final Staff Assessment);

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 45 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 Hayward Community and Economic Development, Planning Division 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 90 days after the start of commercial operation, the project owner shall: 1) notify the CPM that surface treatment of all listed structures and buildings has been completed and is ready for inspection; and 2) shall submit one set of electronic color photographs from selected KOP 3 at the least.

The project owner shall provide a status report regarding surface treatment maintenance in the Annual Compliance Report. The report shall specify a): the condition of the surfaces of all structures and buildings at the end of the reporting year; b) maintenance activities that occurred during the reporting year; and c) the schedule of maintenance activities for the next year.

Construction and 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 construction and permanent exterior lighting such that: a) light fixtures do not cause obtrusive spill light beyond the project site; b) lighting does not cause excessive reflected glare; c) direct lighting does not illuminate the nighttime sky; d) illumination of the project and its immediate vicinity is minimized; and e) lighting complies with local policies and ordinances. The project owner shall submit to the CPM for review and approval and simultaneously to the City of Hayward Community and Economic Development, Planning Division for review and comment, a lighting mitigation plan that includes the following:

A. Process to notify the public how to file a complaint, including mailings and media notices, as well as a process for addressing and mitigating complaints received about potential lighting impacts;

B. Lighting shall incorporate commercially available fixture hoods/shielding, with light directed downward or toward the area to be illuminated;

C. Light fixtures shall not cause obtrusive spill light beyond the project boundary;

D. All lighting shall be of minimum necessary brightness consistent with operational safety and security; and

E. Lights in high illumination areas not occupied on a continuous basis (such as maintenance platforms) shall have (in addition to hoods) switches, timer switches, or motion detectors so that the lights operate only when the area is occupied.

Verification: At least 45 days prior to beginning any nighttime construction activities at the site and/or along the linear corridors, the project owner shall notify the City of Hayward Community and Economic Development, Planning Division and the CPM of the nature of and type of lighting needed and the length of time it will be used.

At least 45 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 Hayward Community and Economic Development, Planning Division for review and comment, a lighting mitigation plan. The project owner shall provide the city's comments to the CPM at least 10 days prior to the date lighting materials are ordered.

If the CPM determines that the plan requires revision, the project owner shall provide to the CPM a revised plan for review and approval.

The project owner shall not order any exterior lighting until receiving CPM approval of the lighting mitigation plan.

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

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

Landscaping

VIS-4 The project owner shall provide landscaping consistent with the conceptual landscape plan, dated May 4, 2007, shown on **Visual Resources Figure 16** in Exhibit 200, Final Staff Assessment. The landscaping shall comply with the City of Hayward Municipal Code requirements stipulated in section 10-1.1645 l. Landscaping.

The project owner shall submit to the CPM for review and approval, and simultaneously to City of Hayward Community and Economic Development, Planning Division for review and comment, a landscaping plan whose proper implementation will satisfy these requirements.

The project owner shall not implement the plan until the project owner receives approval of the plan from the CPM. The planting must be completed by the start of commercial operation, and the planting must occur during the optimal planting season.

Verification: Prior to commercial operation and at least 45 days prior to installing the landscaping, the project owner shall submit the landscaping plan to the CPM for review and approval and simultaneously to City of Hayward Community and Economic Development, Planning Division for review and comment. The project owner shall provide the city's comments 30 days prior to the installation of the landscaping.

If the CPM determines that the plan requires revision, the project owner shall provide to the CPM and City of Hayward Community and Economic Development, Planning Division a plan with the specified revision(s) for review and approval by the CPM before the plan is implemented.

The project owner shall simultaneously notify the CPM and City of Hayward Community and Economic Development, Planning Division, within 7 days after completing installation of the landscaping, that the landscaping is ready for inspection.

Outdoor Storage

VIS-5 Minor open storage shall be a secondary use permitted on the project site provided the materials, products, or equipment stored are necessary to the operations of the use being conducted on the site. Open storage shall not be placed within the yard or parking areas stipulated by the city's Industrial Zone. Open storage shall be visually compatible with adjoining land uses (for example, adequately screened, set back or not too high, and not visually unpleasant. Open storage conducted on the project site shall be subject to the review and approval of the CPM.

Verification: Prior to start of commercial operation, the project owner shall inform the City of Hayward Community and Economic Development, Planning Division and the CPM of the location of proposed open storage area(s), if any, on the project site.

The project owner shall provide any letters pertaining to open storage received from the City of Hayward Community and Economic Development, Planning Division (comments or complaints) to the CPM.

If the CPM notifies the project owner that modifications to the proposed open storage 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.

Signage

VIS-6 The project owner shall install minimal signage visible to the public, which shall: a) have unobtrusive colors and finishes that prevent excessive glare; and b) be consistent with the policies and ordinances of City of Hayward Community and Economic Development, Planning Division. The design of any signs required by safety regulations shall conform to the criteria established by those regulations. The project owner shall submit a signage plan for the project to the CPM for review and approval and simultaneously to City of Hayward Community and Economic Development, Planning Division for review and comment. The project owner shall not implement the plan until the project owner receives approval of the submittal from the CPM.

Verification: Prior to the start of commercial operation and at least 60 days prior to installing signage, the project owner shall submit the signage plan to the CPM for review and approval and simultaneously to City of Hayward Community and Economic Development, Planning Division for review and comment.

VIII. OVERRIDE

In the **Land Use** and the **Traffic and Transportation** sections of this Decision, we determined (1) that operation of EEC will cause significant, adverse, unmitigable effects on the environment in violation of the California Environmental Quality Act (CEQA), and (2) that construction and operation of EEC will not comply with applicable laws, ordinances, regulations, or standards (LORS). Under California law, either of those findings prevents us from certifying the facility unless we make other determinations that "override" the LORS inconsistencies and significant environmental impacts.

We have reviewed this matter in light of written and oral comments submitted on the PMPD. While we have not been persuaded to alter our initial conclusions, we do believe this Revised PMPD will benefit from certain changes in response to comments from various parties. This section contains those clarifications which we deem appropriate, as well as a summary of the parties' positions on override and the applicable law; it then explains why we decline to make the "override" determinations. As in the PMPD, because we are not making the requisite override determinations, we do not certify the project.

1. Positions of Parties

In the following discussion, we summarize the position of each party regarding our override authority.

Applicant's Position. According to Applicant, the evidentiary record weighs in favor of certifying the EEC. Applicant asserts that the project complies with all applicable LORS and that any potential environmental impacts will be mitigated to insignificant levels in accord with CEQA. In the alternative, Applicant requests that if the Commission finds the project is inconsistent with any LORS, then the

Commission must override those inconsistencies as provided in Public Resources Code section 25525. Applicant asserts that override is warranted because the project is required for public convenience and necessity. (Applicant's Override Brief.)

First, Applicant argues that the aviation safety concerns expressed by the local agencies represent a "miniscule risk" as demonstrated by its plume velocity modeling analysis and its empirical Barrick flyover test. (Applicant's Override Brief at 1, and Comments on the PMPD, July 15, 2008, at 16-17.) Applicant reiterates its dispute with Staff's plume modeling methodology and believes that any potential impact due to thermal plumes was exaggerated due to Staff's "flawed" approach. Moreover, Applicant notes, the witnesses opposing the project relied on Staff's analysis, thus compounding the error.

Next, Applicant claims that certain project-related benefits outweigh LORS non-compliance; specifically, the consumer economic benefits derived from system loss reductions described in the **Local System Effects** section and the collateral decreases in fuel use, water use, and air emissions as the EEC replaces older, less efficient power generation. Applicant also cites the project's potential quick-start and reliability features that could potentially benefit consumers by providing peaking capacity to the Hayward area in the event of certain outage conditions.

Applicant characterizes the EEC as a response to the statewide need for electric system reliability recognized by the CPUC in PG&E's Long-Term Procurement Plan (LTPP), the Energy Commission's *Energy Action Plan* (*EAP*) and *Integrated Energy Policy Reports* (*IEPRs*). (Applicant's Override Brief at 21, citing CPUC's D.06-07-029, July 2006.) According to Applicant, the EEC fits the *IEPR*'s efficiency and flexibility requirements for new peak generation since it can ramp up and down quickly to provide electricity on demand. Further, the 2007 *IEPR* acknowledges that new natural gas facilities can replace older, baseload plants that are used for peaking service. (*Id*., pp. 24-25.) Applicant maintains that

conventional power plants are still needed to add capacity that is controllable and reliable since the availability of intermittent *renewable* sources does not necessarily track peak demand. (*Id*.)

Applicant notes that PG&E's 2004 Request for Offer (RFO) process described the types of projects sought, identifying efficient peaking, load-following and intermediate generation that would be geographically diverse with some plants located in local area load pockets in the Bay Area to reduce local area resource adequacy costs in constrained regions. (Applicant's Override Brief at 27-28.) Applicant asserts that since the EEC will supply power to PG&E and to the Hayward area, the project will implement statewide energy policy by providing local generation that is reliable and flexible. (*Id.)*

Applicant also explains its interpretation of the reasoning of three previous Energy Commission override decisions: the *Metcalf Energy Center* ("*Metcalf*"); *Los Esteros Critical Energy Facility Phase 2* ("*Los Esteros*"); and the *El Segundo Power Redevelopment Project* ("*El Segundo*"). (Applicant's Override Brief at 10-17.) In its Comments on the PMPD (at 4, 39), Applicant discusses at length its view of the standards behind these previous override decisions, including heavy local reliance on imported electrical energy, the need to generate locally consumed electrical energy, the Warren-Alquist Act's emphasis on electricity's essential nature to the welfare of the state as a whole, and the overarching question of whether the project can supply a need that is recognized under state energy policy. Applicant concludes its discussion by asserting that applying the reasoning and standards behind these decisions to the EEC should compel us to find in favor of an override of LORS violations, if necessary.

Finally, Applicant argues that even though it has terminated Power Purchase Agreement with PG&E (7/21/08 RT 92:17-22), no prudent and feasible alternatives to the EEC site exist which would meet the continuing project objective of interconnecting at PG&E's Eastshore Substation.

Staff's Position. In its opposition to override in this case, Staff focused on the Energy Commission's authority as Lead Agency under CEQA to make certain findings before approving a project that will cause significant adverse impacts. Specifically, the Lead Agency must find that the project's benefits outweigh unavoidable adverse impacts when economic, legal, social, or other considerations make mitigation measures infeasible. (Staff's Reply Brief at 16, citing Cal. Code Regs, tit. 14, §§ 15091-15093, tit. 20 § 1755.)

Staff's analysis of project benefits described in the **Local System Effects** section concludes that the loss savings are relatively modest and, on a percentage basis, the savings are similar to those of other recently approved power plant projects in the Bay Area. (1/14/08 RT 30:15-31:4.) According to Staff, these loss savings are not significant and, combined with the reliability benefits identified in the record, still do not outweigh the adverse aviation safety impact caused by locating the EEC at the proposed site. Staff notes that Applicant did not identify any other benefits or trade-offs that could be considered in weighing the public safety risk against the modest local system benefits. (Staff Reply Brief at 16.)

City of Hayward's Position. The City of Hayward contends that Applicant did not meet its burden to demonstrate why the Energy Commission should override LORS inconsistencies. Public Resources Code section 25525 begins with the general admonition that the Commission "may not certify a project" that does not conform with applicable LORS. To establish the basis for override, the City argues that Applicant must provide substantial evidence to overcome the presumption against certification. (City's Reply Brief at 6, citing Cal. Code Regs., tit. 20, § 1748(d).)

The City argues that the Commission must make following findings to override LORS inconsistencies: 1) the EEC is required for public convenience and necessity; 2) all other alternatives are infeasible; and 3) the benefits of the EEC outweigh the unavoidable adverse environmental effects. (City's Reply Brief at 7,

citing Pub. Res. Code, § 25519; Cal. Code Regs., tit. 14, § 15093(a), tit. 20, § 1741, 1752, 1755.)

The City believes that Applicant's evidence in support of override is simply that statewide demand for electricity exceeds supply and the EEC provides a viable response to the need for peaking power as described in the IEPR. The City suggests that if this assertion were sufficient to allow an override, the certification process would have minimal utility. Moreover, the City submits that Applicant has not provided substantial evidence to clarify why the EEC is required specifically at the proposed location to serve the electricity needs of the Bay Area. (City's Reply Brief at 12.)

Additionally, the City argues that Applicant must also show that the benefits of the project outweigh the unavoidable significant adverse environmental effects. (City's Brief at 14, citing Cal. Code Regs., tit. 20, § 1755(c).) The City contends that the Applicant's request for override is based on the assumption that the 115 megawatts intermittently supplied by the EEC are of such paramount importance to California's energy needs that the risk posed by the EEC to the safe operation of the Hayward Airport should be disregarded. According to the City, the Applicant seems to argue that "ideal" safety conditions are unimportant compared with the need for the EEC to implement sound statewide energy policy. (City's Reply Brief at 15.) The City believes this is an untenable position.

Finally, the City maintains that implementation of Caltrans and FAA requirements for airport safety is also sound policy with statewide and national import. While there is no direct federal statute or regulation that applies to the Hayward Executive Airport, the FAA requires the airport owner (the City of Hayward) to

ensure safe, unrestricted airspace to continue its contractual assurances with the FAA to operate the airport.[161] (Ex. 411; 12/18/07 RT 283:11-23.)

Alameda County's Position. Alameda County believes AB 32, the Global Warming Solutions Act of 2006 (Health and Safety Code, § 38500 et seq.), contains additional factors that weigh against override. This legislation imposes a cap on greenhouse gas (GHG) emissions to address the adverse effects of global warming in California. The legislative findings in support of AB 32 suggest a competing set of policy priorities that must be considered in weighing the criticality of new fossil fuel power plant development to meet statewide energy demand.

Although the 2007 *IEPR* acknowledges that new natural gas facilities will continue to be the technology of choice to replace older, baseload plants (as noted by Applicant), the *IEPR* also addresses the statewide goal of increasing renewable energy to 33 percent of electricity sales by 2020 based on the Renewables Portfolio Standard (RPS) and the general mandate to diversify energy production sources. (2007 *IEPR* at 1-2, 101, 109 et seq.) According to Alameda County, the Energy Commission can no longer define "public convenience and necessity" exclusively by the narrow terms of the Warren-Alquist Act but must consider a "new paradigm" to balance the need for fossil-fueled peaking energy against its impact on global warming. The County argues that previous Energy Commission cases on override are no longer applicable but rather the Commission should establish a new standard of review that reflects the significant change in state law to focus statewide efforts on reducing green house gases. (Alameda County Reply Brief at 20-22.)

[161] We are cognizant that a potential breach of the federal contractual relationship between the FAA and the City to operate the Hayward Airport could create significant economic and aviation safety concerns affecting local, regional, and national airspace.

The County also contends that the Energy Commission cannot evaluate whether more prudent and feasible alternatives exist since there is no evidence on the costs or downstream impacts of the EEC interconnecting at other substations. The County believes this essentially blocks the Commission from assessing whether more prudent and feasible means of producing electricity exist since it cannot evaluate the merits of other locations based on cost. (County's Reply Brief at 26.)

Finally, the County also questions the Applicant's argument that the Hayward area needs the EEC peaking facility due to high demand and to avoid blackouts. The County asserts that the "California Energy Demand 2008-2018 Staff Revised Forecast" effectively rebuts Applicant's claim that EEC is required to meet peak demand and therefore should be certified in the interest of public convenience and necessity. The County notes this document states that electricity peak demand in the San Francisco Bay Area, which includes Hayward, fell in 2005-2008; the report also indicates that the SF Bay Region is expected to use less peak electricity and less electricity overall than the nearby East Bay or Valley Regions. (County Reply Brief at 27, citing CEC-200-2007-015-SF2, November 2007.)

2. LORS Override

The statutory basis for the Commission's discretionary override authority is found in Public Resources Code section 25525, which states:

> The commission shall not certify any facility when it finds . . . that the facility does not conform with any applicable state, local, or regional standards, ordinances, or laws, unless the commission determines that such facility is required for public convenience and necessity and that there are not more prudent and feasible means of achieving such public convenience and necessity. In making the determination, the commission shall consider the entire record of the proceeding, including, but not limited to, the impacts of the

facility on the environment, consumer benefits, and electric system reliability.[162]

In the **Land Use** and the **Traffic & Transportation** sections of this Decision we found that construction and operation of EEC would not comply with the following LORS:

- City of Hayward's Airport Approach Zoning Regulations (Hayward Municipal Code (HMC), §§ 10-6.00, 10-6.12);
- City of Hayward's General Plan Policy 7;
- Conditional Use Permit requirements of the City of Hayward's Zoning Ordinance (HMC, §§ 10-1.1605, 10-1.1620, 10-1.3225, 10-1.140); and
- County of Alameda's Airport Land Use Policy Plan.

As discussed elsewhere in this Decision, these nonconformances stem from the meaning of local LORS as interpreted by local government. Applicant challenges the fact that we afford these interpretations deference, and contends that local government has treated the EEC project disparately and unfairly. (See *e.g.,* 7/21/08 RT 139-141; Applicant's Comments on the PMPD at 2-3.) Furthermore, Applicant believes that the EEC complies with all applicable LORS. (*Id.*)

By deferring to local government's interpretations of its own LORS, we obviously accept that the City and the County have applied their LORS appropriately. To conclude otherwise would require us to completely disregard substantial evidence provided by local officials concerning matters within their unique purview. Indeed, Applicant's argument seems a tenuous path, which would lead us to dismiss the local agencies' findings of noncompliance, then lead us to conclude that noncompliances do not exist, and then lead us to conclude that this override discussion is unnecessary. We are not taking that path.

[162] Section 1752(k) of our regulations [20 Cal. Code Regs., § 1752(k)] requires that we first arrive at a determination as to whether noncompliance with LORS can be "corrected or eliminated." If a noncompliance cannot be corrected or eliminated, we must then make the determinations specified in Pub. Res. Code § 25525.

Rather, as discussed in the **Land Use** and the **Traffic and Transportation** sections, we believe that the substantial evidence establishes the validity of the LORS nonconformances; there is also no indication in the record that these nonconformances can be corrected or eliminated. Therefore, consistent with the provisions of section 25525, the pertinent inquiries are: 1) whether EEC is "required for public convenience and necessity"; and 2) whether there are "more prudent and feasible means of achieving such public convenience and necessity." These determinations must be made based on the totality of the evidence of record, including environmental impacts, consumer benefits, electric system reliability, and the policies of the Warren-Alquist Act intended to ensure that the State has an adequate and reliable supply of electricity. Only if we answer "yes" to the first inquiry (is the EEC required for public convenience and necessity) AND "no" to the second (are there no means of achieving such public convenience and necessity that are more prudent and feasible than EEC) may we certify the facility. Moreover, even if we make both requisite determinations, the law does not necessarily compel us to certify the project. The language of section 25525 – "[t]he Commission shall not certify . . . unless the commission determines" – indicates that the decision to certify the projects remains within the Commission's **sound discretion**: i.e., certification is permissible, but not mandatory.

a. Is the EEC "Required for Public Convenience and Necessity"?

We find the answer is No.

While there is no judicial decision interpreting section 25525, numerous decisions address the phrase "public convenience and necessity" as it appears in Public Utilities Code section 1001. This phrase is used in a similar context in both statutes and, absent evidence of legislative intent to the contrary, it is presumed to have a similar meaning. *(Building Material & Construction Teamsters' Union v. Farrell* (1986) 41 Cal.3d 651, 665.) It is well-settled by judicial decisions on

section 1001 that "public convenience and necessity" has a broad and flexible meaning, and that the phrase "cannot be defined so as to fit all cases." (*San Diego & Coronado Ferry Company v. Railroad Commission* (1930) 210 Cal. 504, 511.) "[A]ny improvement which is *highly important* to the public convenience and desirable for the public welfare *may* be regarded as necessary. . . The word connotes different degrees of necessity. It sometimes means indispensable; at others, needful, requisite, or conducive. It is relative rather than absolute." (*Id.* at pp. 511 - 512 [emphasis added] [internal quotation marks and citations omitted].) These principles demonstrate that the Commission has considerable flexibility and discretion in determining whether a facility is "required for public convenience and necessity."

In applying our discretion, we note first that the Commission has consistently regarded a LORS override "an extraordinary measure which . . . must be done in as limited a manner as possible." (Commission Decision, *Metcalf Energy Center*, Publication No. P800-01-023, Docket No. 99-AFC-3 (Sept. 2001), p. 469.)

In the context of certain statutory factors that section 25525 requires us to examine –consumer benefits and electric system reliability – we find the benefits of EEC are modest at best. The EEC would provide 115 MW of peaking capacity, approximately one-fifth of one percent of current statewide demand. This peaking generation would primarily go to the local Hayward area. Thus, as we acknowledged in the **Reliability**, **Local System Effects**, and **Transmission System Engineering** sections of this Decision, the project's electrical system reliability benefits (flexibility in responding to demand) would represent a positive attribute. Evidence also suggests that the EEC could somewhat reduce natural gas usage and accompanying emissions by reducing the need to run older, less efficient facilities.

The **Local System Effects** section shows savings in a range of $11.4 million to $16.3 million over 20 years, or an average of approximately $675,000 per year

spread among all PG&E ratepayers. Also, from a fiscal perspective and as discussed in the **Socioeconomics** section, the EEC would employ 13 full-time workers, and result in $1.9 million in local purchases, $116,480 per year in sales taxes, and $1.4 million in yearly property taxes. In addition, construction period employment would average 232 workers and have an associated local payroll of about $20.3 million. There are no other major benefits of the project that would serve the public convenience and necessity. There is also no credible suggestion in the record that the level of benefits associated with the EEC is greater than could normally be expected with another project of a similar nature, nor does the record establish that the EEC will provide benefits to the system which are unique or of a highly compelling nature.

In the PMPD, we compared and contrasted benefits provided by the *Metcalf* project with those provided by the EEC. We intended this for illustrative purposes only. In its Comments on the PMPD (at 42-43), Applicant criticizes this approach and suggests that we look instead to portions of our *Los Esteros* and *El Segundo* decisions which, it believes, support the proposition that the EEC is needed for "public convenience and necessity." Applicant further suggests that our PMPD discussion fails to recognize the essential nature of electricity, ignores the Warren-Alquist Act's goal of ensuring an adequate supply thereof, and is at odds with various policy statements in our own IEPR. (*Id.*)

Upon further reflection, we realize that our PMPD discussion may have inadvertently suggested that we have essentially established precedential and non-regulatory standards specifying elements necessary to justify an override or constitute a showing of "public convenience and necessity." This is not the case. Consistent with our fact-finding role, the *Metcalf*, *Los Esteros*, and *El Segundo* rationales were driven by the specific facts, issues, and evidence unique to each project. Such is also true here.

The very nature of a LORS override reflects a tension between beneficial, but competing, public purposes. The Warren-Alquist Act permits us to exercise this authority, in part, because an adequate, reliable, and environmentally non-intrusive supply of electricity is in the best interests of the citizens of California. Thus, all the positive attributes of a project are factored when assessing the extent of its contribution to achieving the "public convenience and necessity." This is, however, an exercise in comparisons.

Obviously, there is a wide range of purposes for which LORS may be enacted. However, each applicable law, ordinance, regulation, or standard has presumably been put in place in order to effectuate some form or degree of public benefit. Therefore, the purposes of any LORS, which we may be asked to override, must be weighed or balanced against the stated goals and policies of the Warren-Alquist Act and the consequences of the override assessed. In other words, we must make a judgment, based upon the unique fact situation before us, which of the competing public purposes is paramount. Is it more important and/or beneficial to the public to positively affect the supply of electricity or is the public interest best served by declining to override and thus avoid hindering the purposes of the LORS in question?

As we have previously found in the **Land Use** section, the chief purposes of the LORS at issue here are salutary: 1) to assist the planned transition of an Industrial Corridor from manufacturing-based to information-based (Land Use Policy 7; see Finding 8); 2) to prevent the creation of airport hazards; and 3) to prevent the impairment of the utility of the Hayward Executive Airport (City Airport Approach Zoning Regulations and County Airport Land Use Policy Plan; see Findings 17, 21, 23, 24.) Thus, were we to override, we would essentially be deciding that the public interest is better served by allowing construction and operation of the EEC than it is by fostering the salutary purposes of the subject LORS.

The evidence before us, as discussed throughout this Decision, neither persuades nor compels us to conclude that the EEC is needed for public convenience and necessity. We acknowledge that the EEC possesses identifiable electrical system and socioeconomic benefits which, in other circumstances, could prove sufficient to warrant an override. In the present instance, however, as discussed in the **Traffic and Transportation** section, we have been persuaded that operation at the proposed site would jeopardize public health and safety by creating hazards to aircraft pilots and other users of the Hayward Executive Airport. This impact cannot be mitigated. Avoiding this hazard in a heavily populated area, in our judgment, is more beneficial to the public than are the levels of electrical system and socioeconomic benefits which the EEC would provide. The consequences of a LORS override in this instance, i.e., increased peril to pilots and others, is a risk we are here unwilling to condone. Having reached this conclusion, we do not need to perform a similar assessment of public convenience and necessity concerning nonconformance with the General Plan 2002 Update Land Use Policy 7.

b. Are There "More Prudent and Feasible Means of Achieving Such Public Convenience and Necessity"?

Having found that EEC is not "required for public convenience and necessity," which prevents us from overriding the project's LORS inconsistencies; we need not address this issue.

3. CEQA Override

In the **Traffic & Transportation** section of this Decision we determined that operation of EEC would cause a significant adverse environmental impact, because: 1) the project's thermal plumes constitute a safety hazard to aviation; and 2) pilots would need to do substantial additional work in the cockpit to avoid the plume areas, which would also constitute an aviation hazard. We also determined, in that section, that the EEC's impacts on navigable airspace in the

Hayward Airport vicinity would be cumulatively considerable in conjunction with the RCEC. (14 Cal. Code Regs., § 15130.) In the **Alternatives** section, we found that there are no mitigation measures or feasible alternatives to the project which could reduce or avoid the adverse impacts.

When a Lead Agency considers approving a project with significant environmental effects that cannot be avoided or substantially lessened by feasible mitigation measures or feasible project alternatives, the agency must adopt a statement of overriding considerations finding that the project's benefits outweigh its environmental harm:

> CEQA requires the decision-making agency to balance, as applicable, the economic, legal, social, technological, or other benefits of a proposed project against its unavoidable environmental risks when determining whether to approve the project. If the specific economic, legal, social, technological, or other benefits of a proposed project outweigh the unavoidable adverse environmental effects, the adverse environmental effects may be considered "acceptable." (CEQA Guidelines, Cal. Code Regs., tit. 14, § 15093, subd. (a); see also *Id.* §§ 15043, 15092, subd. (b); Pub. Res. Code, § 21081, subd. (b).)

Similar to the analysis for LORS override, if the Lead Agency makes the requisite determination (i.e., that benefits outweigh impacts) under CEQA, it may – but it is not required to – approve the project despite the significant, adverse, unmitigable effects. (See Cal. Code Regs., tit. 14, §§ 15043 ["public agency may approve a project"], 15092, subd. (a) ["lead agency may decide whether or how to approve or carry out the project"].) See also, section 1755 (c) and (d) of the Energy Commission's regulations. (Cal. Code Regs., tit. 20, § 1755 (c) and (d).)

a. Benefits and the Adverse Impacts of the EEC Project

As required by section 15093 of the CEQA Guidelines (quoted in the preceding paragraph), we discussed EEC's "specific economic, legal, social, technological,

[and] other benefits" and its "unavoidable adverse environmental effects" in the **Local System Effects, Transmission System Engineering**, **Socioeconomics**, and **Traffic and Transportation** sections, respectively.

In our judgment, the identified benefits in this case, considered individually or in combination, are not sufficient to outweigh the project's adverse impacts. Every entity with responsibility concerning the Hayward Executive Airport – from local (the Hayward City Council and the Alameda County Airport Land Use Commission), to state (Caltrans), to federal (the FAA) – as well as several individual pilots and pilots' associations, has stated that operation of EEC *will* create a significant risk to aviation safety. In contrast, the evidentiary record indicates that EEC will provide only modest economic benefits, and improve system reliability in only a minor way. There is no evidence in the record that PG&E requires a peaker plant to interconnect at the Eastshore Substation to support system reliability. At the evidentiary hearings, PG&E's representative provided public comment about the RFO process but did not indicate whether PG&E supported the EEC project.

If the project were necessary for reliable electric service – that is, if without the project there would be increased power outages or electricity prices to consumers would significantly increase – then we would be compelled to balance those considerations against the potentially catastrophic risks of an aviation accident resulting from EEC. Since the electrical system, both statewide and in the Bay Area can be sustained without the EEC's 115 peaking megawatts, the project's minor contribution to the system does not outweigh the project's potentially hazardous impacts on aviation safety. Therefore, we cannot endorse the public safety risk and we elect not to make the requisite overriding considerations under CEQA.

FINDINGS

After a thorough evaluation of the evidence, our independent judgment leads us to make the following findings:

1. Public Resources Code section 25525 states that the Energy Commission "may not certify a project" that does not conform with applicable state and local laws, ordinances, regulations, and standards (LORS).

2. The Energy Commission has statutory authority to certify a project despite its noncompliance with LORS if the project provides overriding statewide energy benefits.

3. Substantial evidence establishes that the project creates an aviation safety hazard inconsistent with local land use and traffic/transportation LORS including the City of Hayward's Airport Approach Zoning Regulations and the Alameda County's Airport Land Use Policy Plan (ALUPP).

4. Substantial evidence establishes that the addition of the EEC will increase the potential for serious impairment to the utility of the Hayward Executive Airport by increasing the complexity of the airspace, resulting in a cumulatively considerable environmental impact that cannot be mitigated.

5. The project's LORS inconsistencies also create CEQA violations because the public health and safety impacts cannot be avoided or mitigated at the proposed site.

6. Applicant requests the Energy Commission to override the project's inconsistencies with land use and traffic/transportation LORS in the interest of public convenience and necessity.

7. To exercise its authority to override LORS inconsistencies, the Energy Commission must find: 1) the EEC is required for public convenience and necessity; and 2) that there are not *more* prudent and feasible means of achieving the public convenience and necessity.

8. To exercise its authority to override CEQA violations, the Energy Commission must find that: 1) all other alternatives are infeasible; and 2) the benefits of the EEC outweigh the unavoidable adverse environmental effects.

9. In assessing "public convenience and necessity" in the context of determining whether a LORS override is warranted, we have considered the EEC's electrical system and socioeconomic benefits.

10. There is no evidence in the record that PG&E requires a peaker plant to interconnect at the Eastshore Substation to support system reliability.

11. The project objective of interconnecting at the Eastshore Substation was a term of the Applicant's defunct Request for Offer (RFO) Power Purchase Agreement with PG&E, which Applicant terminated on May 18, 2008.

12. Power Purchase Agreements do not supersede LORS or vitiate the Energy Commission's authority to weigh the project's benefits against the LORS inconsistencies.

13. The project's adverse impacts on aviation safety and airport utility cannot be mitigated or avoided if the EEC is located at the proposed site on Clawiter Road in Hayward.

14. Applicant has not met its burden of establishing the project's benefits represent a level of statewide electricity benefits that would compel override of the LORS inconsistencies and CEQA noncompliance.

THEREFORE, we ***decline*** to override the EEC's inconsistencies with land use and traffic/transportation LORS and noncompliance with CEQA requirements.

IX. ENVIRONMENTAL JUSTICE

California law defines environmental justice (EJ) as "the fair treatment of people of all races, cultures, and incomes with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies." (Govt. Code § 65040.12(e); Pub. Res. Code, § 71116(j).)

The Office of Planning and Research (OPR) coordinates California's environmental justice program and consults with the Resources Agency, which directs entities under its jurisdiction including the Energy Commission to consider environmental justice in their decision-making processes if their actions have an impact on the environment. (Govt. Code, § 65040.12(b)(1).) The Resource Agency's guidance includes demographic screening, public outreach, and impact analysis as important factors in implementing its environmental justice policy. In conjunction with the Resources Agency's mandate, the California Environmental Protection Agency (Cal-EPA) established an action plan to address environmental justice in its programs, policies, and standards.[163] (Pub. Res. Code, §§ 71110-71116.)

Two federal directives also provide guidance on incorporating environmental justice concerns in the environmental analyses conducted by state agencies. Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations" requires the U.S. Environmental Protection Agency (U.S. EPA) and all other federal and state agencies receiving federal aid to identify and address disproportionately high and adverse human health or environmental effects of their programs on minority and low-income populations. To implement this policy, the U.S. EPA's 1998 "Final Guidance for Incorporating Environmental Justice Concerns in NEPA Compliance Analyses" calls for a two-step analysis: (1) does the potentially

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[163] October 2004, Cal-EPA Action Plan: http://www.calepa.ca.gov/EnvJustice/ActionPlan/ and Phase 2 updates: http://www.calepa.ca.gov/EnvJustice/ActionPlan/Phase2/default.htm

affected community include minority and/or low-income populations and, (2) if it does, are the environmental impacts likely to fall disproportionately on minority and/or low-income members of the community.[164]

According to the U.S. EPA's guidance, an environmental justice population exists if the low-income and/or minority populations of the affected area constitute 50 percent or more of the general population or if the minority population percentage in the area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis. U.S. EPA's definition of environmental justice is:

> …the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment means no group of people, including racial, ethnic, or economic group should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local, and tribal programs and policies. (U.S. EPA's 1998 Final Guidance for Incorporating EJ Concerns, et al.)

The Energy Commission staff's environmental justice approach is consistent with guidance from both the Resources Agency and the federal government. The Staff's approach consists of (1) specific public outreach to notify, inform, and involve community members, including non-English speaking individuals; (2) analysis of the applicable demographics to determine the percentage of minority

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[164] A positive response should trigger both an enhanced outreach effort to assure that low income and minority populations are engaged in public participation and an analysis designed to identify impacts on both the larger population and on minority and/or low income members of the population. A positive response could result from any of several factors, including uneven distribution of EJ populations, which are thus subject to different levels or intensity of impacts than the larger population. This pattern should also cause concern for cumulative impacts. (Chabot-Las Positas College District Intervenors' Comments in Support of PMPD Recommending Denial of Certification, pp. 2-3, citing Section 3.2.1. of the U.S. EPA's Final Guidance.) Both Intervenor Chabot and Alameda County argue that Staff *skipped this step* of the analysis by concluding that no populations would experience air quality or public health impacts. (County of Alameda's Comments in Support of the PMPD, pp. 6-7.) We do not adopt the Intervenors' views in this case since we rely on the scientific evaluations of air quality and public health impacts based on the approved modeling protocols of the expert agencies.

and low-income population living in the potentially affected area; and (3) assessing the potential environmental and health impacts of the proposed project. (Ex. 710; Ex. 1, Appendix 8.8A; 12/17/07 RT 444-448.)

1. Public Outreach

Intervenor Chabot-Las Positas College District (Chabot) argues that it did not receive actual notice of the EEC project notwithstanding the Informational Hearing held at the Chabot College campus on January 29, 2007.[165] According to the Intervenor, failure to notify the College District about the project early in the process constitutes prejudicial error since failure of notice deprived the District, its faculty and staff, and its students of the opportunity to engage in meaningful participation. (Chabot's Opening Brief at 13; 12/17/08 RT 299:2-17.)

Intervenor Chabot cites the Warren-Alquist Act, which requires the Energy Commission to provide a copy of the Application for Certification (AFC) to any governmental agency that has information or interest in the power plant proposal. (Pub. Res. Code, § 25519(k), cited in Chabot's Opening Brief at 13-14.) In addition, Chabot asserts that Commission staff failed to follow its own regulations to provide a copy of the AFC to any state, regional, or local agency with an interest in the proposal. (Cal. Code Regs., tit. 20, § 1714 (c).) Since the College District is a local governmental agency and since Chabot College is located within one mile of the project site, Chabot believes that Staff should have notified the College District when the AFC was initially filed. Chabot further claims that Staff should have solicited comments and input from the College District as required by the statute and regulations referenced above. As a result of this failure to timely notify the District, the Intervenor contends that Staff did not

[165] Staff's project manager testified that Chabot College was on the public notice list developed by the Public Adviser but the College District was not initially asked to provide comments on the AFC. (12/18/07 RT 482.) The Committee takes administrative notice that the Informational Hearing on January 29, 2007, was held on the Chabot College campus.

comply with the public outreach element of its environmental justice analysis. (Intervenor Chabot's Post-Hearing Brief at 13-15; Response Brief at 8-9.)

The Energy Commission's public outreach efforts are facilitated by Staff and the Public Adviser. (Ex. 710.) The evidentiary record indicates that Staff conducted extensive public outreach in notifying the community about the EEC proceeding, holding all public workshops in the Hayward community, and providing ample opportunity for public comment and participation. Notices were sent to adjacent landowners, local and state participating agencies, local newspapers, interested organizations, and local libraries. The Public Adviser also sent notices in English and Spanish and contacted community leaders, individuals, groups, schools, and activist organizations to inform them about the project, the licensing process, and workshops and hearings. Public workshops and all the evidentiary hearings were conducted at the Hayward City Council Chambers, broadcast over local access TV, and publicized in the local media. According to Staff's witness, public outreach is an ongoing process to encourage individuals and community groups to participate. More than 1,500 letters and e-mail comments from members of the community regarding the EEC project were submitted to the Energy Commission and scores of individuals appeared at workshops and evidentiary hearings to comment on the project. (Ex. 200, pp. 1-3 to 1-4; 12/17/07 RT 286 et seq., 449:22-25 to 450:1-5; 1/14/08 RT 273 to 338.)

Intervenor Chabot asserts that the failure of Staff to provide official notice of the AFC to a public agency such as the College District requires the Commission to deny certification of the project. This argument is specious at best. Notwithstanding the Intervenor's claim that it did not have sufficient notice to prepare for evidentiary hearings, the Intervenor participated at the Prehearing Conference in November 2007 and at all the evidentiary hearings. The Intervenor also provided testimony on EJ and public health and cross-examined witnesses on those topics. (Exs. 600 to 602.) Additionally, several representatives from Chabot College presented public comment at the

evidentiary hearings. (12/17/07 RT 289-323.) We are not convinced that Intervenor Chabot was precluded from participating as a result of not being solicited for comments when the AFC was initially filed, nor do we find that the Intervenor's participation was hindered in any respect since its testimony, public comments, and briefs are incorporated into the record.[166] Moreover, during the formal proceedings, the Intervenor had the opportunity to offer additional evidence and to cross-examine witnesses on other topics but declined. We therefore reject Intervenor Chabot's claim that it did not have adequate notice to participate in this proceeding.

2. Demographic Analysis

Staff reviewed relevant 2000 Census data within a six-mile radius and one-mile radius of the site to determine whether low income/minority populations constitute more than 50 percent of the general population.[167] The data indicate that the minority population by census block (the smallest geographic unit for which the Census Bureau collects and tabulates data) is 63.71 percent and 69.97 percent within a six-mile and one-mile radius of the project. Census 2000 by census block group (a combination of census blocks and a subdivision of a census tract) shows that the below-poverty population is 8.33 percent within the six-mile radius and 7.21 percent within the one-mile radius. (Ex. 200, pp. 4.8-2, 4.8-18 et seq., Socioeconomic Figures 1 and 2.) Based on this data, Staff

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[166] In its comments on the PMPD, Intervenor Chabot requests that in future siting cases Staff should notify the appropriate representatives of the community college district and community college campuses in the vicinity of a project proposal and solicit comments as Staff routinely does for other interested agencies when an AFC is filed. The Intervenor conceded that it had the opportunity to participate in this case and since the Decision denies certification, the failure to notify Intervenor Chabot and solicit comments at the beginning of the proceeding is harmless error. (Chabot-Las Positas College District Intervenors' Comments in Support of PMPD Recommending Denial of Certification, pp. 4-5.)

[167] Staff used a six-mile radius and one-mile radius for this analysis because the same were used for Staff's cumulative air quality and public health analyses and capture the areas most likely to be impacted by the project. (Ex. 200, pp. 4.8-2 and after p. 4.8-18, Socioeconomic Figures 1 & 2.) These distances are consistent with the "Staff Approach to Environmental Justice." (Ex. 710.)

determined that an environmental justice population exists in the site vicinity and therefore, considered whether any project-related significant impact would disproportionately affect the EJ demographic. (*Id*. at pp. 1-5, 7-1 et seq.)

3. Impacts Assessment

Staff relies on its CEQA and LORS compliance analyses to determine whether a project would have significant adverse impacts on public health and the environment. According to Staff, these analyses also serve to identify the "high and adverse" impacts described in the U.S. EPA guidance and to consider whether the potential impacts fall "disproportionately" on minority or low-income populations. (Ex. 200, pp. 1-4 to 1-5; Ex. 710: "Staff Approach to Environmental Justice.")

Staff's EJ analysis includes a five-step process:

a) Describe the existing setting.
b) Analyze unique circumstances if any of the affected population.
c) Analyze the project's direct, indirect, and cumulative impacts.
d) Assess and recommend appropriate mitigation.
e) Determine whether the project creates an unavoidable significant adverse impact on the affected population and if so, considers whether the impact is disproportionate. (Ex. 710: "Staff's Approach to EJ.")

Staff reviewed the following technical areas for potential environmental justice impacts: air quality, public health, hazardous materials, noise, water, waste, traffic and transportation, visual resources, land use, and transmission safety and nuisance. (Ex. 200, p. 7-1 et seq.) Each technical topic reflects Staff's approach to EJ by discussing the environmental setting, potential impacts on public health and safety, environmental impacts, environmental justice populations, compliance with applicable LORS, and mitigation measures. (*Id*. at p. 1-5; 12/17/07 RT 469:1-14.) Regarding traffic and land use, Staff identified unmitigable and unavoidable public safety hazards associated with the EEC's

proximity to the Hayward Executive Airport. Staff maintains, however, that these significant impacts do not disproportionately affect an environmental justice population since any person in the project vicinity could be affected by project-related aviation hazards regardless of ethnicity or income level. (*Id*., at pp. 7-1 and 7-2.)

Based on its independent analysis, Staff believes that project mitigation for all other technical topics will reduce impacts to levels below significance for any potentially affected population and thus, there would be no disproportionate impacts on environmental justice populations. (Ex. 200, p. 7-1 et seq.) In their briefs, Intervenors Chabot and Alameda County contest Staff's position, arguing that both Staff and Applicant failed to account for the "unique circumstances" of the environmental justice demographics in the project area, including the students and staff at Chabot College.

The Intervenors focused on Staff's public health analysis to illustrate the inadequacy of the EJ analysis. According to Alameda County, Staff incorrectly imported the results of its public health risk analysis into its environmental justice screening. By contrast, the U.S. EPA guidance includes the step of identifying the "appropriate unit of geographic analysis." Alameda County argues that the OEHHA Hotspots Analysis and Reporting Program (HARP) model used in the public health analysis, which relies on static geographic boundaries for the population based on a 1-mile radius and the point of maximum impact, does not necessarily correspond to the actual contours of the geographic distribution of the population. According to the County's expert witness, the "actual receptors" are not distributed through the population randomly but instead are concentrated disproportionately in proximity to the EEC site, and thus, the project will disproportionately impact a geographic area already burdened by existing poor health outcomes. (Ex. 532, p. 4.) By relying on HARP modeling, Alameda County asserts that Staff did not discuss the potential uneven distribution of exposure to various sources of toxicity in the population such as the potential for

multiple and varied air pollutants to act synergistically, rather than additively. (Alameda County Reply Brief at 17.)

According to Staff, the County's contention that use of a 1-mile radius fails to correlate with the affected EJ population misinterprets the nature of a health risk assessment. The HARP model identifies the point of maximum impact to determine whether there are significant effects that require mitigation. Where no impacts are found, there is nothing further to evaluate. In this case, the potential health risk declines rapidly at distances beyond the point of maximum impact adjacent to the site. Even if EJ communities exist beyond the point of maximum impact, Staff's analysis of the project's potential public health impacts is not changed by this information. (Staff Reply Brief at 6.)

Staff relies on the U.S. EPA guidance, which does not require further analysis if there are no impacts to the general population:

> The initial step in the analysis of potential effects is to assess whether there will indeed be potential physical or natural environmental impacts. If it is determined by the analytical team that there will be no environmental effects, and thus no disproportionately high and adverse effects, then this finding should be documented and no further analysis of effects is necessary. (U.S. EPA's 1998 Final Guidance for Incorporating EJ Concerns, et al. cited in Staff's Reply Brief at 7.)

The County's witness asserted that Staff's public health assessment failed to include a synergistic evaluation of the project's emissions on EJ populations since these populations have been historically exposed to a higher burden of environmental toxicity. (Ex. 532, p. 5.) Staff claims that the County misconstrued its testimony since the risk assessment incorporated the potential for synergistic effects in the conservative nature of the modeling assumptions. (Ex. 200, p. 4.7-6; Staff's Reply Brief at 7.) Staff further noted that the County's witness was not aware of any approved regulatory models for evaluating synergistic effects. (12/17/07 RT 371:1-11.)

Intervenor Chabot argued that Staff improperly conducted its analysis on the general population, focusing on sensitive receptors, instead of first examining the "unique characteristics" of the low-income/minority populations in the project vicinity. (Ex. 601.) Chabot's witness testified that the sensitive receptor categories (infants, elderly, pre-existing illness) did not include the multiple stressors affecting EJ populations, such as limited access to health care, poor schools, non-English speaking immigrant status, poor housing, and greater susceptibility to illness. (*Ibid*.; 12/17/07 RT 329-333.)

Intervenor Chabot asserts that the methodology for analyzing impacts on EJ populations requires a review of potential impacts using a synergistic and cumulative approach based on recommendations of the National Environmental Justice Advisory Council (NEJAC) report. (Ex. 604.) Under this approach, a review of the unique characteristics of the affected populations would reveal their susceptibility to harmful physical, economic, psychological and social effects from residing and/or going to school in an industrial area with two power plants nearby. (Intervenor Chabot's Opening Brief at 9-11.)

Staff notes that the NEJAC report has not been approved by any regulatory agency. (Staff's Reply Brief at 7.) However, Staff's public health witness agreed with conclusions of the NEJAC report that low-income/minority populations typically have limited health care access and multiple stressors making them more susceptible to environmental impacts. (12/17/07 RT 245-246.) Staff's witness also stated that the pre-existing health conditions incorporated into the HARP model could be caused by stressors mentioned in the NEJAC report. (*Id*. at 245:6-9.)

While both Intervenors Chabot and Alameda County argue for expanding the environmental justice analysis beyond any published and accepted guidelines or regulations, it is undisputed that Staff's methodology reflects the approach recommended by the expert agencies including U.S. EPA, the California

Resources Agency, and Cal-EPA. Further, we are satisfied that the public health analyses conducted by both Applicant and Staff conform with the scientifically approved methodology required by California Air Resources Board (CARB), Cal-EPA's Office of Environmental Health Hazard Assessment (OEHHA), and BAAQMD. Applicant and Staff are required to rely on existing California standards in conducting a health risk assessment. (Ex. 200, pp. 4.7-5, 4.7-21.)

As indicated in the studies referenced in Staff's Public Health analysis as well as in the reports submitted by the Intervenors, there is a well-established correlation between poor health in low-income/minority populations and the land use environments in which these populations reside and work. The siting of power plants in urban, industrial areas typically conflicts with adjacent residential and commercial land use due to the perceived health risks and environmental impacts related to combustion generators. We recognize that in this case, the presence of two power plants (Russell City and the EEC) in close proximity to Chabot College and residential neighborhoods is a matter of grave concern to the community notwithstanding the scientific evidence that indicates there are no significant public health effects as a result of the power plants.

We are also aware of the California Air Resources Board's (CARB) March 19, 2008, preliminary summary of results of the *Diesel Particulate Matter Health Risk Assessment for the West Oakland Community*, which addresses the disproportionate burden of respiratory disease and cancer in the Oakland area.[168] At the July 21, 2008 Supplemental Evidentiary Hearing, Staff and Applicant's expert witnesses testified that the data discussed in the above-referenced March 2008 Health Risk Assessment did not affect the air quality or public health analyses in this case. (Exs. 58 and 211.) In its Comments in Support of the PMPD, Alameda County included copies of CARB's May 22, 2008, *Methodology for Estimating Premature Deaths Associated with Long-Term Exposures to Fine Airborne Particulate Matter in California*, which discusses the

[168] http://www.arb.ca.gov/ch/communities/ra/westoakland/documents/draftsummary031908.pdf

effects of PM2.5 emissions and Alameda County's April 2008, *Life and Death from Unnatural Causes: Health and Social Inequity in Alameda County.* The record in this case does not establish that potential EEC effects are linked to data contained in these studies. However, the Energy Commission will continue to update our modeling protocol to analyze PM emissions consistent with the scientific methodology adopted by CARB and other expert air quality and public health agencies.

Appendix A: *Laws, Ordinances, Regulations, and Standards*

Appendix B: *Exhibit List*

Appendix C: *Proof of Service List*

Appendix D: *Letter from PG&E Re: 2004 Long Term RFO Projects*

Appendix E: *The Relative Distances Between the Project Site and Key Locations, Stipulated by the Applicant and the City of Hayward*

Appendix F: *Exhibit 409 – City of Hayward Municipal Code - Article 6, Airport Approach Zoning Regulations*

APPENDICES

AIR QUALITY

Applicable Law	*Description*
FEDERAL	**U.S. Environmental Protection Agency**
CAAA of 1990, 40 CFR 50	National Ambient Air Quality Standards (NAAQS).
CAA Sec. 171-193, 42 USC 7501	New Source Review (NSR) – Requires NSR permit for new stationary sources. This requirement is addressed through BAAQMD Regulation 2.
40 CFR 52.21	Prevention of Significant Deterioration (PSD) – Requires modeling to demonstrate no violation of NAAQS and PSD increments, if applicable [also BAAQMD Reg. 2, Rule 2]. PSD review would not apply to Eastshore because PSD trigger levels would not be exceeded.
40 CFR 60, Subpart IIII	Standards of Performance for Stationary Compression Ignition Internal Combustion Engines [also BAAQMD Reg. 10]. Requires the emergency standby generator engine to meet United States Environmental Protection Agency (U.S. EPA) Tier 3 requirements.
40 CFR 60 (Proposed Subpart JJJJ)	Standards of Performance for Stationary Spark Ignition Internal Combustion Engines. Proposed standard would require that natural gas-fired engines achieve: 2.0 grams per horsepower-hour (g/bhp-hr) of NOx; 4.0 g/bhp-hr of CO; and 1.0 g/bhp-hr of non-methane hydrocarbons or POC.
40 CFR 70, CAA Sec 401, 42 USC 7651	Federal Title V Operating Permit Program, application required within one year following start of operation [also BAAQMD Reg. 2, Rule 6]. Eastshore is not subject to the Title V operating permit program.
40 CFR 72, CAA Sec 401 42 USC 7651	Title IV Acid Rain – Requires Title IV permit and compliance with acid rain provisions. Applicable only to electrical generating units greater than 25 MW; not applicable to Eastshore.
STATE	**California Air Resources Board and Energy Commission**
Health and Safety Code (HSC) Section 40910-40930	Permitting of source needs to be consistent with approved clean air plan. The BAAQMD New Source Review (NSR) program is consistent with regional air quality management plans.
California Health & Safety Code Section 41700	Public Nuisance Provisions – Outlaws the discharge of air contaminants that cause nuisance, injury, detriment, or annoyance.
LOCAL	**Bay Area Air Quality Management District**
BAAQMD Regulation 1, Rule 1	Section 301: Prohibits public nuisances from any facility or source.
BAAQMD Regulation 2, Rule 1	General requirements for air quality permits. Includes criteria for the issuance or denial of permits, exemptions, and appeals against BAAQMD decisions. An Authority to Construct (ATC)is required for any non-exempt source. Natural gas-fired heaters with a heat input rate of less than 10 million Btu per hour are exempt.
BAAQMD Regulation 2, Rule 2	New Source Review – Requires preconstruction review including BACT. Applicable to sources with the potential to emit more than 10 pounds per day (NOx, POC, PM10, CO, or SO_2) and offsets, applicable to facilities with the potential to emit more than 35 tons per year of NOx or POC, or 100 tons per year of PM10 or SOx.

LOCAL	Bay Area Air Quality Management District
BAAQMD Regulation 2, Rule 3	Permits – Power Plants – Requires Preliminary Determination of Compliance (PDOC) and Final Determination of Compliance (FDOC) by the BAAQMD Air Pollution Control Officer with public notice and public comment prior to ATC. The BAAQMD would issue the ATC after the Energy Commission certifies the Eastshore project.
BAAQMD Regulation 2, Rule 5	NSR of Toxic Air Contaminants – Requires preconstruction review for new and modified sources of toxic air contaminants. Contains project health risk limits and requirements for Toxics BACT. See **Public Health**.
BAAQMD Regulation 6	Limits particulate matter and visible emissions to less than 20 percent opacity.
BAAQMD Regulation 7	Odorous substance discharges. Ammonia emissions limited to less than 5,000 parts per 1,000,000 (ppmvd).
BAAQMD Regulation 8, Rule 3	Architectural coating POC limits and requires use of compliant coatings.
BAAQMD Regulation 8, Rule 4	POC emission limits from surface coating and general solvent use. Emissions from use of solvents limited to less than 5 tons per year.
BAAQMD Regulation 8, Rule 16	Cold solvent cleaner requirements. Requires the use of compliant cold solvent cleaners.
BAAQMD Regulation 9, Rule 1	SO_2 ground level concentration limits of 0.5 ppmvd continuously for 3 minutes or 0.25 ppmvd over 1 hour, consistent with California Ambient Air Quality Standards.
BAAQMD Regulation 9, Rule 8	Internal combustion (IC) engine NOx limit of 140 ppmvd and CO limit of 2,000 ppmvd. Diesel emergency standby generator engine is exempt.

Federal

National Ambient Air Quality Standards (NAAQS). The Eastshore project is not subject to the PSD program requirements of an air quality impact analysis or analyses of impacts to soil and vegetation or visibility impairment, but this staff assessment concludes that Eastshore would contribute to existing violations of the ozone and PM2.5 NAAQS. Staff identifies the Conditions of Certification needed to reduce these impacts to a less than significant level.

Standards of Performance for Stationary Compression Ignition Internal Combustion Engines (40 CFR 60, Subpart IIII). The proposed diesel fuel oil-fired emergency engine generator set (i.e., “black start” engine) would conform with this requirement because it would be U.S. EPA Tier 3-certified.

Standards of Performance for Stationary Spark Ignition Internal Combustion Engines (40 CFR 60, Proposed Subpart JJJJ). The 14 Wärtsilä 20V34SG natural gas-fired reciprocating internal combustion engine generator sets (11,660 bhp) would conform with this requirement since they would be required to emit no more than approximately: 0.37 g/bhp-hr NOx; 0.56 g/bhp-hr CO; and 0.30 g/bhp-hr POC.

State

Public Nuisance Provisions (HSC §41700). Compliance is expected because Eastshore would not be likely to emit visible or odorous air contaminants, and Eastshore is not expected to create a public nuisance, based upon experience with natural gas-fired power plants. The FDOC summarizes how the facility would comply with similar requirements in BAAQMD Reg. 1 (BAAQMD 2007a).

Local

The Final Determination of Compliance (BAAQMD 2007a) summarizes how the proposed Eastshore project would comply with BAAQMD requirements.

New Source Review, Best Available Control Technology. Energy Commission staff provided a comment letter, dated May 25, 2007, to the BAAQMD concerning compliance with BAAQMD Rule 2-2-301. Staff requested a more stringent limit than the 2.2 lb/hr PM10/PM2.5 emission limit in the PDOC in order to conform with ARB's *Guidance for the Permitting of Electrical Generation Technologies*. The October 2007 FDOC established a 1.3 lb/hr limit on a 24-hour and annual basis but allowed up to 1.9 lb/hr per engine, subject to approval by the BAAQMD Air Pollution Control Officer that the specific engine has been installed, operated, and maintained properly (**AQ-16**, BAAQMD 2007a). Staff believes that Eastshore would be likely to comply with the new limit, and the FDOC includes a rigorous and frequent program of stack testing to demonstrate that Eastshore would comply.

ALTERNATIVES

California Environmental Quality Act Criteria

The “Guidelines for Implementation of the California Environmental Quality Act,” Title 14, California Code of Regulation, Section 15126.6(a), provides direction by requiring 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 range of alternatives is governed by the “rule of reason” which requires consideration only of those alternatives necessary to permit informed decision-making and public participation. CEQA states that an environmental document does not have to consider an alternative where the effect cannot be reasonably ascertained and whose implementation is remote and speculative. [Cal. Code Regs., tit. 14, §15126.6(f)(3).]

BIOLOGICAL RESOURCES

Applicable Law	*Description*
FEDERAL	
Clean Water Act (CWA) of 1977	Title 33, United States Code, Sections 1251-1376, and Code of Federal Regulations, Part 30, Section 330.5(a)(26), prohibit the discharge of dredged or fill material into the waters of the United States without a permit. The administering agency is the U.S. Army Corps of Engineers (USACE).
Endangered Species Act (ESA) of 1973	Title 16, United States Code, Section 1531 et seq., and Title 50, Code of Federal Regulations, Part 17.1 et seq., designate and provide for the protection of threatened and endangered plant and animal species and their critical habitat. The administering agency is the U.S. Fish and Wildlife Service (USFWS).
Migratory Bird Treaty Act	Title 16, United States Code, Sections 703 through 712, prohibit the taking of migratory birds, including nests with viable eggs. The administering agency is the USFWS.
Bald and Golden Eagle Protection Act	Title 16, United States Code, Section 668, prohibits the taking or possession of and commerce in bald and golden eagles, with limited exceptions.
STATE	
	The administering agency for the following state LORS is the California Department of Fish and Game (CDFG), except for the CWA Section 401 certification, which is administered by the Regional Water Quality Control Board.
California Endangered Species Act (CESA) of 1984	Fish and Game Code Sections 2050 through 2098 protect California's rare, threatened, and endangered species.
California Code of Regulations	California Code of Regulations Title 14, Division 1, Subdivision 3, Chapter 3, Sections 670.2 and 670.5, list plants and animals of California that are designated as rare, threatened, or endangered.
Fully Protected Species	Fish and Game Code Sections 3511, 4700, 5050, and 5515 prohibit the taking of animals that are classified as fully protected in California.
Nest or Eggs – Take, Possess, or Destroy	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.
Birds of Prey – Take, Possess, or Destroy	Fish and Game Code Section 3503.5 specifically protects California's birds of prey in the orders Falconiformes and Strigiformes by making it unlawful to take, possess, or destroy any such birds of prey or to take, possess, or destroy the nest or eggs of any such bird.
Migratory Birds – Take or Possession	Fish and Game Code Section 3513 protects California's migratory non-game birds by making it unlawful to take or possess any migratory non-game bird as designated in the Migratory Bird Treaty Act, or any part of such migratory non-game bird.
Significant Natural Areas	Fish and Game Code Sections 1930 et seq. designate certain areas in California such as refuges, natural sloughs, riparian areas, and vernal pools as significant wildlife habitat.
Native Plant Protection Act of 1977	Fish and Game Code Sections 1900 et seq. designate rare, threatened, and endangered plants in the State of California.

Regional Water Quality Control Board	By federal law, every applicant for a federal permit or license for an activity that may result in a discharge into a California water body, including wetlands, must request state certification that the proposed activity will not violate state and federal water quality standards.
LOCAL	
City of Hayward General Plan, Vegetation and Wildlife Habitats, General	The planting of native vegetation should be encouraged, and, whenever possible, vegetation removed during construction should be replaced. The City's remaining riparian plant communities should be protected and development should not encroach into important wildlife habitats. Documented habitats of unique, rare, and/or endangered species of plants and wildlife should be protected, and the application of toxic chemicals should be minimized.
City of Hayward General Plan, Vegetation and Wildlife Habitats, Shoreline	Existing salt marshes should be preserved and new marshes established. Tidal flats and salt ponds of low salinity should be preserved for migratory waterfowl. Saltwater evaporation ponds should be preserved or enhanced in a manner commensurate with continued salt production. Activities that could have adverse effects on marine fisheries should be avoided.

CULTURAL RESOURCES

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 (or authorized representative) 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).
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 Historical Resources (CRHR) is established and includes properties determined eligible for the National Register of Historic Places (NRHP)(criteria: A. events, B. important persons, C. distinctive construction, and D. data); State Historic Landmark No. 770 and subsequent numbered landmarks; points of historical interest recommended for listing by the State Historical Resources Commission; and historical resources, historic districts, and landmarks designated or listed by a city or county under a local ordinance. CRHR criteria are 1) events, 2) important persons, 3) distinctive construction, and 4) data.
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 also requires a project owner to halt construction if human remains are discovered and to contact the county coroner.

LOCAL	
East Alameda County Area Plan (May 5, 1994) Policy 127	This policy states that Alameda County shall identify and preserve significant archaeological and historical resources, including structures and sites which contribute to the heritage of East County.
East Alameda County Area Plan (May 5, 1994) Policy 128	This policy states that Alameda County shall require development to be designed to avoid cultural resources, or, if avoidance is determined by the County to be infeasible, to include [and] implement appropriate mitigation measures that offset the impacts.
East Alameda County Area Plan (May 5, 1994) Program 57	This County program requires a background and records check of a project area if a project is located within an extreme or high archaeological sensitivity zone as determined by the County. If there is evidence of an archaeological site within a proposed project area, an archaeological survey by qualified professionals shall be required as a part of the environmental assessment process. If any archaeological sites are found during construction, all work in the immediate vicinity shall be suspended pending site investigation by a qualified archaeology professional. Proposed structures or roads on property that contains archaeological sites should be sited in consultation with a professional archaeologist to avoid damaging the archaeological sites. The County shall follow Appendix K of the California Environmental Quality Act.
City of Hayward, Municipal Code, Chapter 10, Article 11, Sections 10-11.00 to 10-11.08	This ordinance specifies the procedures and criteria for the designation of historic structures, sites, and districts; the procedures or alteration or demolition of historic structures and sites; and the requirement and enforcement of the maintenance of historic structures by owners.

FACILITY DESIGN

Lists of LORS applicable to each engineering discipline (civil, structural, mechanical and electrical) are described in the AFC. (Exhibit 1, § 10.5; Appendices 1C, 10-A through 10-G.)

Some of these LORS include the California Building Standards Code (CBSC) also known as Title 24, California Code of Regulations, American National Standards Institute (ANSI), American Society of Mechanical Engineers (ASME), American Society for Testing and Materials (ASTM) and American Welding Society (AWS).

GEOLOGY AND PALEONTOLOGY

Applicable Law	*Description*
FEDERAL	
	The proposed Eastshore project is not located on federal land. There are no Federal LORS for geologic hazards and resources for this site.
STATE	
California Building Standards Code (CBSC), 2001 [particularly Part 2, California Building Code (CBC)]	The CBC along with amendments by the City of Hayward includes a series of standards that are used in project investigation, design and construction (including design criteria for structures with respect to seismic design and load bearing capacity).
Alquist-Priolo Earthquake Fault Zoning Act and Seismic Hazards Mapping Act, California Code of Regulations Title 14, Division 2, Chapter 8	The Alquist-Priolo Earthquake Fault Zoning Act identifies areas subject to surface rupture from active earthquake faults. The Seismic Hazards Mapping Act identifies non-surface fault rupture earthquake hazards, including liquefaction and seismically induced landslides.
LOCAL	
City of Hayward General Plan	The City of Hayward General Plan includes standards which ensure compliance with the conservation and environmental protection elements of the plan.
Standard of Practice - Society for Vertebrate Paleontology (SVP), 1995	The “Measures for Assessment and Mitigation of Adverse Impacts to Non-renewable Paleontologic Resources: Standard Procedures” is a set of procedures and standards for assessing and mitigating impacts to vertebrate paleontological resources. The measures were adopted in October 1995 by the SVP, a national organization of professional scientists.

HAZARDOUS MATERIALS MANAGEMENT

Applicable Law	***Description***
FEDERAL	
The Superfund Amendments and Reauthorization Act of 1986 (42 USC §9601 et seq.)	Contains the Emergency Planning and Community Right To Know Act (also known as SARA Title III).
The Clean Air Act (CAA) of 1990 (42 USC 7401 et seq. as amended)	Established a nationwide emergency planning and response program and imposed reporting requirements for businesses that store, handle, or produce significant quantities of extremely hazardous materials.
The CAA section on risk management plans (42 USC §112(r)	Requires states to implement a comprehensive system informing local agencies and the public when a significant quantity of such materials is stored or handled at a facility. The requirements of both SARA Title III and the CAA are reflected in the California Health and Safety Code, section 25531, et seq.
49 CFR 172.800	The U.S. Department of Transportation (DOT) requirement that suppliers of hazardous materials prepare and implement security plans.
49 CFR Part 1572, Subparts A and B	Requires suppliers of hazardous materials to ensure that all their hazardous materials drivers are in compliance with personnel background security checks.
The Clean Water Act (CWA) (40 CFR 112)	Aims to prevent the discharge or threat of discharge of oil into navigable waters or adjoining shorelines. Requires a written spill prevention, control, and countermeasures (SPCC) plan to be prepared for facilities that store oil that could leak into navigable waters.
Title 49, Code of Federal Regulations, Part 190	Outlines gas pipeline safety program procedures.
Title 49, Code of Federal Regulations, Part 191	Addresses 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 DOT of any reportable incident by telephone and then submit a written report within 30 days.
Title 49, Code of Federal Regulations, Part 192	Addresses transportation of natural and other gas by pipeline and minimum federal safety standards, specifies minimum safety requirements for pipelines including material selection, design requirements, and corrosion protection. The safety requirements for pipeline construction vary according to the population density and land use that characterize the surrounding land. This part also contains regulations governing pipeline construction (which must be followed for Class 2 and Class 3 pipelines) and the requirements for preparing a pipeline integrity management program.
Federal Register (6 CFR Part 27) interim final rule	A regulation of the U.S. Department of Homeland Security (DHS) that requires facilities that use or store certain hazardous materials to submit information to the DHS so that a vulnerability assessment can be conducted to determine what certain specified security measures shall be implemented.

STATE	
Title 8, California Code of Regulations, section 5189	Requires facility owners to develop and implement effective safety management plans that ensure 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 Risk Management Plan (RMP) process.
Title 8, California Code of Regulations, section 458 and sections 500 to 515	Sets forth requirements for the 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 and Safety Code, section 25531 to 25543.4	The California Accidental Release Program (Cal-ARP) requires the preparation of a Risk Management Plan (RMP) and Off-site Consequence Analysis (OCA) and submittal to the local Certified Unified Program Authority (CUPA) for approval.
California Health and Safety Code, section 41700	Requires that "No person shall discharge from any source whatsoever such quantities of air contaminants or other material which causes injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause injury or damage to business or property."
California Safe Drinking Water and Toxic Enforcement Act (Proposition 65)	Prevents certain chemicals that cause cancer and reproductive toxicity to be discharged into sources of drinking water.
LOCAL	
City of Hayward, municipal code, Chapter 3, Article 8	Requires entities that store or handle hazardous materials or wastes to apply for a hazardous materials storage permit through submittal of a HMBP that includes an inventory of hazardous materials, a contingency plan, and a training plan.

The certified unified program authority (CUPA) with the responsibility to review RMPs and hazardous materials business plans is the City of Hayward Fire Department (HFD) Hazardous Materials office. With regard 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 CCR Title 24 and 2001 California Building Code. (Ex. 1, § 2.3.1).

LAND USE

Applicable Law	*Description*
FEDERAL	
	None
STATE	
State Aeronautics Act (Public Utilities Code, Section 21001 et seq.)	This Act provides gives the California Department of Transportation (Caltrans) and local governments the authority to protect the airspace in California; establishes Airport Land Use Commission (ALUC) authority; and identifies the California Airport Land Use Planning Handbook as the primary reference for guidance in the development of ALUC policies and the Airport Land Use Policy/Compatibility Plan development.
LOCAL	
Alameda County Alameda County Airport Land Use Policy Plan (ALUPP)	An Airport Land Use Compatibility/Policy Plan (ALUCP/ALUPP) provides for the orderly growth of an airport and the area surrounding it, excluding existing land uses. Its primary function is to protect the public's health, safety, and welfare by promoting orderly expansion of airports and adoption of land use measures by local public agencies that minimize exposure to excessive noise and safety hazards near airports. The Alameda County ALUPP works in concert with the Hayward General Plan and Zoning Codes, and the Hayward Executive Airport 2002 Master Plan.
City of Hayward General Plan (revised 2002)	The Hayward General Plan contains seven elements and is the basis for determining acceptable land uses and related park, road, and other infrastructure needs within city of Hayward jurisdiction. The Land Use Element of the Hayward General Plan identifies the goals and policies necessary to maintain and enhance neighborhoods, commercial and industrial areas, and surrounding open space. The Economic Development Element identifies the current economic conditions, constraints, and opportunities in the city of Hayward and, in conjunction with Land Use, Circulation, and Housing Elements, provides guidance when considering specific projects and analysis of long-term impacts. Hayward Executive Airport development and operations are discussed in the Airport Master Plan (see below).
Hayward Executive Airport Master Plan (revised 2002)	This plan identifies the current operational status for the Hayward Executive Airport, including descriptions of airport airspace, flight procedures, and current aviation uses. It also includes projections of future use and proposes development plans to accommodate that increased use through the 20-year planning period for this Master Plan.
Municipal Code §§10-1 *et seq*	The city of Hayward Municipal Code, Chapter 10 contains ordinances that deal with planning, zoning, and subdivision standards, requirements, and restrictions. Article 1 of this chapter, also known as the Hayward Zoning Ordinance, specifically provides regulations that implement the goals, objectives, and policies of the Hayward General Plan, pursuant to the mandated provisions of State Planning and Zoning Law, California Environmental Quality Act (CEQA), and other applicable state and local requirements [HMC(a)]. The following sections are specifically applicable to the proposed project: • §10-1.135 Exceptions (*to General Provisions of the Zoning Code*) • §10-1.140 Exclusionary Zoning Ordinance • §§10-1.1600 *et seq* - Industrial District (I); identifies permitted uses,

	standards, and restrictions applicable to development in those areas zoned Industrial. • §10-1.3200 Conditional Use Permits, identifies the procedures for reviewing and conditioning projects requiring a conditional use permit before they can be approved and occupied, or before business can be conducted.
Municipal Code §10-6 - Airport Approach Zoning Regulations	This code section (per Hayward City Council Resolution #64-038; 9/15/64) is intended to prevent the creation or establishment of airport hazards, thereby protecting the lives and property of the users of the Hayward Executive Airport and of the occupants of the land in its vicinity, and prevent destruction or impairment of the utility of the airport and the public investment therein. The Hayward Municipal Code §10-6.12 defines an "airport hazard" as any structure or tree or use of land which obstructs the airspace required for the flight of aircraft in landing or taking off at the airport or is otherwise hazardous to such landing or taking off of aircraft.

NOISE AND VIBRATION

Applicable Law	*Description*
FEDERAL	
Occupational Safety & Health Act (OSHA): 29 U.S.C. § 651 et seq.; U.S. Environmental Protection Agency (USEPA)	Protects workers from the effects of occupational noise exposure. Assists state and local government entities in development of state and local LORS for noise. 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) 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. Guidelines are available from the U.S. Environmental Protection Agency (USEPA) to assist state and local government entities in developing state and local LORS for noise. Because there are existing local LORS that apply to this project, the USEPA guidelines are not applicable. 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 vibrational decibel (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 Occupational Safety & Health Act (Cal-OSHA): 29 U.S.C. §651 et seq., Cal. Code Regs., tit. 8, §§5095-5099; Government Code Section 65302(f)	Protects workers from the effects of occupational noise exposure. California Government Code Section 65302(f) encourages each local governmental entity to perform noise studies and implement a noise element as part of its general plan. In addition, the California Office of Planning and Research has published guidelines for preparing noise 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 the Model Community Noise Control Ordinance, which provides guidance for acceptable noise levels in the absence of local noise standards. This model also defines a simple tone, or "pure tone," as 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 A-weighted decibels (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 federal OSHA standards (see **Noise Appendix A, Table A4**).
LOCAL	
City of Hayward General Plan, Appendix N	Establishes acceptable noise levels for various land-use categories. The project is located within the City of Hayward. The City of Hayward General Plan (COH 2002) applies to this project. Appendix N of this plan, *Noise Guidelines for Review of New Development*, contains land use compatibility guidelines. It states that the maximum acceptable exterior noise level in single-family residential areas is a day-night level (L_{dn}) of 55 dBA and the maximum acceptable exterior noise level in the commercial building land use category is a day-night level (L_{dn}) of 70 dBA. These guidelines also require the evaluation of mitigation measures for projects that would cause the L_{dn} level to increase by 3 dBA or more in an existing residential area (COH 2002; EEC 2006a, AFC § 8.5.3.3.1, Table 8.5-4). These requirements apply to operational noise and not to construction noise.

POWER PLANT EFFICIENCY

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

POWER PLANT RELIABILITY

No federal, state, local, or county laws, ordinances, regulations and standards (LORS) pertain to the reliability of this project.

PUBLIC HEALTH

Applicable 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 section 41700	This section states that "no person shall discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause injury or damage to business or property."
California Code of Regulations, Title 22, Section 60306	Requires that whenever a cooling system uses recycled water in conjunction with an air conditioning facility and a cooling tower that creates a mist that could come into contact with employees or members of the public, a drift eliminator shall be used and chlorine, or other, biocides shall be used to treat the cooling system recirculating water to minimize the growth of Legionella and other micro-organisms.
LOCAL	
Bay Area Air Quality Management District Regulation 2, Rule 2	This rule requires that Best Available Control Technology for air toxics be applied to the facility for major sources of hazardous air pollutants.
Bay Area Air Quality Management District Regulation 2, Rule 5	This rule requires a risk assessment or risk screening analysis to be performed for new or modified facilities that emit one or more toxic air contaminants.

SOCIOECONOMICS

Applicable Law	***Description***
STATE	
California Education Code, Section 17620	The governing board of any school district is authorized to levy a fee, charge, dedication, or other requirement for the purpose of funding the construction or reconstruction of school facilities.
California Government Code, Sections 65996-65997	These sections include provisions for school district levies against development projects. As Amended by Senate Bill (SB) 50 (Stats. 1998, ch. 407, sec. 23), these sections state that except for those fees established under Education Code 17620, public agencies at the state and local level may not impose fees, charges, or other financial requirements to offset the cost for school facilities.

SOIL AND WATER RESOURCES

Applicable Law	*Description*
FEDERAL	
Clean Water Act (33 USC, §§ 1251 et seq.).	The Clean Water Act requires states to set standards to protect water quality, including regulation of storm-water discharges during construction and operation of power plant facilities.
Resource Conservation and Recovery Act (40 CFR Part 260 et seq.)	The Resource Conservation and Recovery Act of 1976 seeks to prevent surface and groundwater contamination, sets guidelines for determining hazardous wastes, and identifies proper methods for handling and disposing of those wastes.
STATE	
California Water Code Section 13260	Requires filing with the appropriate Regional Water Quality Control; Board (RWQCB) a report of waste discharge for the protection to waters of the state, unless the requirement is waived pursuant to Water Code section 13269.
California Water Code Section 13551	Requires that the water resources of the state be put to beneficial use to the fullest extent to prevent waste, unreasonable use, or unreasonable method of use.
Safe Drinking Water and Toxic Enforcement Act	This act (California Health and Safety Code, section 25249.5 et seq.) prohibits actions that contaminate drinking water with chemicals known to cause cancer or possessing reproductive toxicity.
California Water Code Section 13550 California Constitution, Article X, Section 2	Requires the use of recycled water for industrial purposes subject to recycled water availability and upon a number of criteria including provisions that the quality and quantity of recycled water be suitable for the use, the cost is reasonable, the use is not detrimental to public health, and the use will not impact down stream users or biological resources. This section requires 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.
The Porter-Cologne Water Quality Control Act of 1967, WC Section 13000 et seq.	Requires the State Water Resources Control Board (SWRCB) and the nine RWQCBs to adopt water quality criteria to protect state waters. Those regulations require the RWQCBs to issue waste discharge requirements specifying conditions for protection of water quality standards.
State Water Resources Control Board (SWRCB) Resolution 77-1	Encourages and promotes recycled water use for non-potable purposes.
California Water Code Section 100	Requires the water resources of the state be put to beneficial use to the fullest extent to which they are capable, and that the waste or unreasonable use or unreasonable method of use of water be prevented. 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 the public welfare.
California Water Code Section 1254	Specifies the SWRCB, in acting on applications to appropriate water, shall be guided by the overarching policy that domestic use is the highest use and irrigation is the next highest use of water in the state.
Recycling Act of 1991, Water Code 13575 et seq.	States that retail water suppliers, recycled water producers, and wholesalers should promote the substitution of recycled water for potable and imported water in order to maximize the appropriate cost-effective use of recycled water in California.

LOCAL	
Hayward Municipal Code, Chapter 11, Article 2	A Hayward municipal water system ordinance that establishes requirements for permit application and approval for obtaining potable water from the city.
Hayward Municipal Code, Chapter 11, Article 3	A Hayward sanitary sewer system ordinance that establishes requirements for permit application and approval for obtaining sanitary sewer service from the city.
Hayward Municipal Code, Chapter 11, Article 5	A Hayward stormwater management and urban runoff control ordinance that establishes consistency with the requirements of the Federal Clean Water Act and National Pollutant Discharge Elimination System (NPDES) Permit No. CA0029831.
SWRCB Water Quality Order No. 92-08	Requires the SWRCB to regulate industrial stormwater discharge from construction projects affecting areas greater than one acre to protect state waters. Under Order 92-08, the San Francisco Regional Water Quality Control Board (SFRWQCB) will issue NPDES permits for construction activities, based upon an acceptable stormwater pollution prevention plan (SWPPP) submitted by the applicant.

TRAFFIC AND TRANSPORTATION

Applicable Law	***Description***
FEDERAL	
Code of Federal Regulations, Title14 Aeronautics and Space, Part 77 Objects Affecting Navigable Airspace (14 CFR 77)	This regulation establishes standards for determining physical obstructions to navigable airspace; sets noticing and hearing requirements; provides for aeronautical studies to determine the effect of physical obstructions on the safe and efficient use of airspace; and oversees the development of antenna farm areas.
Code of Federal Regulations, Title 49, Subtitle B	49 CFR Subtitle B includes procedures and regulations pertaining to interstate and intrastate transport (includes hazardous materials program procedures) and specifies safety measures for motor carriers and motor vehicles who operate on public highways.
STATE	
California Vehicle Code (CVC), Div. 2, Chap. 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 of vehicles operated on highways; safe operation of vehicles; and the transportation of hazardous materials.
California Streets and Highway Code, Divs. 1 & 2, Chaps. 3 & 5.5	Includes regulations for the care and protection of State and county highways, and provisions for the issuance of written permits.
LOCAL	
Alameda County Alameda County Airport Land Use Policy Plan (ALUPP)	(California Public Utilities Code §§21001 et seq, relating to the State Aeronautics Act.) An Airport Land Use Compatibility/Policy Plan (ALUCP/ALUPP) provides for the orderly growth of an airport and the area surrounding it, excluding existing land uses. Its primary function is to protect the public's health, safety, and welfare by promoting orderly expansion of airports and adoption of land use measures by local public agencies that minimize exposure to excessive noise and safety hazards near airports. The Alameda County ALUPP works in concert with the Hayward General Plan and Zoning Codes, and the Hayward Executive Airport 2002 Master Plan.
City of Hayward General Plan (revised 2002) – Circulation Element	The Hayward General Plan contains seven elements and is the basis for determining acceptable land uses and related park, road, and other infrastructure needs within City of Hayward jurisdiction. The Circulation Element of the Hayward General Plan discusses and analyzes the movement of people and goods through and around the city. The focus is on the system of freeways, local roads, bus and rail transit, and bicycle and pedestrian routes to determine the most effective design possible while enhancing the community and protecting the environment. Bicycle facilities are addressed in the Bicycle Master Plan (1997) and Hayward Executive Airport Master Plan (2002). Consistent with state law, the Circulation and Land Use Elements complement and support one another to provide a balance between land uses and the transportation facilities that serve them.
Municipal Code Chapter 7, Article 1 – Property Developers,	Defines the requirements, policies, and procedures to acquire pubic rights-of-way and construct public improvements in connection with the

Obligations as to Streets	development of property.
Chapter 7, Article 2 – Disturbance of Streets	Regulates the disturbance of existing streets and utility corridors during construction activities.
Chapter 10, Article 2 – Off-Street Parking Regulations	The section of the zoning code strives to relieve congestion; provide for adequate parking, loading and maneuvering areas; protect the appearance and land uses of the area; provide alternative parking options to encourage the development of business and industry; and encourage alternative forms of transportation.
Chapter 10, Article 1, Section 10-1.1600 – Industrial District (I)	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.
Chapter 10, Article 6 - Airport Approach Zoning Regulations	This code section (Hayward City Council Resolution #64-038; 9/15/64) was designed to prevent the creation or establishment of airport hazards, thereby protecting the lives and property of the users of Hayward Executive Airport and the occupants of the land in its vicinity, and preventing destruction or impairment of the utility of the airport and the public investment therein.

TRANSMISSION LINE SAFETY AND NUISANCE

Applicable Law	*Description*
AVIATION SAFETY	
FEDERAL	
Title 14, Part 77 of the Code of Federal Regulations, 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 a notice of proposed construction or alteration" (Form 7640) with the FAA in cases where the potential for an obstruction hazard exists.
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, using 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 in order to prevent or mitigate interference.
Audible Noise	Not to exceed applicable local noise ordinances – there are no design-specific federal or state regulations for noise from transmission lines.
HAZARDOUS AND NUISANCE SHOCKS	
STATE	
CPUC General Order 95 (GO-95), Rules for Overhead Electric Line Construction	Governs clearance requirements to prevent hazardous shocks and grounding techniques to minimize nuisance shocks, as well as requirements for maintenance and inspection.
Title 8, California Code of Regulations (CCR) Section 2700 et seq. High Voltage Safety Orders	Specifies requirements and minimum standards for safely installing, operating, working around, and maintaining electrical installations and equipment.
National Electrical Safety Code	Specifies grounding procedures to limit nuisance shocks. Also specifies minimum conductor ground clearances.

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 rights-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 the application and noticing requirements for new line construction, including EMF reduction.
CPUC Decision 93-11-013	Specifies CPUC requirements for reducing power frequency EMF.
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 EMF 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 fire breaks and conductor clearance standards and specifies when and where standards apply.

TRANSMISSION SYSTEM ENGINEERING

1. The North American Electric Reliability Council's (NERC) Reliability Standards for the bulk electric transmission 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 for both 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's planning standards apply not only to interconnected system operation but to individual service areas as well (NERC 2006).

2. NERC/WECC Planning Standards: The Western Electricity Coordinating Council (WECC) Planning Standards are merged with the NERC's Reliability Standards to provide the system performance standards used to assess the reliability of the interconnected system. These standards require the uninterrupted continuity of service as their first priority, and the preservation of interconnected operation as their secondary priority. Some aspects of NERC/WECC standards are more stringent or specific than 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 upon 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 allowable variations in thermal loading, voltage and frequency, and the loss of load that could 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 the loss of either multiple 500 kV lines along a common right of way, and/or the loss of multiple generators). While controlled loss of generation or load or system separation is permitted under certain circumstances, uncontrolled loss is not permitted (WECC 2002).

3. California Public Utilities Commission (CPUC) General Order 95 (GO-95*), Rules for Overhead Electric Line Construction,* specifies uniform requirements for the construction of overhead electric lines. Compliance

with this order ensures both reliable service and a safe working environment for those working in the construction, maintenance, operation, or use of overhead electric lines, and for the safety of the general public.

4. CPUC General Order 128 (GO-128), *Rules for Underground Electric Line Construction,* establishes uniform requirements for construction of underground electric lines. Compliance with this order also ensures both reliable service and a safe working environment for those working in the construction, maintenance, operation, or use of underground electric lines, and for the safety of the general public.

5. National Electric Safety Code 1999 provides electrical, mechanical, civil, and structural requirements for overhead electric line construction and operation.

6. California ISO Planning Standards also provide standards and guidelines that assure the adequacy, security and reliability during the planning process of the California ISO's electric transmission facilities. The California ISO Planning Standards incorporate both NERC and WECC Planning Standards. With regard to power flow and stability simulations, the California ISO's Planning Standards are similar to those of the NERC and WECC and to the NERC's Planning Standards for transmission system contingency performance. However, the California ISO's standards also provide additional requirements that are not found in the NERC, WECC, or NERC planning standards. The California ISO standards apply to all participating transmission owners that interconnect to both the California ISO-controlled transmission grid and to neighboring grids not operated by the California ISO (California ISO 2002a).

7. California ISO and Federal Energy Regulatory Commission (FERC) electric tariffs provide guidelines for the construction of all transmission additions and upgrades (projects) within the California ISO-controlled grid. The California ISO also determines the "need" for the proposed project where it will promote economic efficiency and maintain system reliability. The California ISO also determines the cost responsibility of the proposed project and provides operational review for all facilities that are to be connected to the California ISO grid (California ISO 2003a).

VISUAL RESOURCES

Applicable Law	*Description*
FEDERAL	The project site does not involve federal managed lands, a recognized National Scenic Byway or All-American Road, or a designated State Scenic Highway.
STATE	
LOCAL	
City of Hayward General Plan, Land Use Policies And Strategies – Infill Development	Promotes infill development that is compatible with the overall character of the surrounding neighborhood. Encourages visual integration of projects of differing types or densities through the use of building setbacks, landscaped buffers, or other design features. Ensures that design reflects concerns about the preservation of viewsheds.
City of Hayward Municipal Code Section 10-1.600 et seq.	Provides site plan review requirements, and establishes performance standards for development projects; including architectural design, landscaping, exterior lighting and outdoor storage. Ensures that the architectural design of structures and their materials and colors are visually harmonious with surrounding development and natural land forms.

WASTE MANAGEMENT

Applicable Law	*Description*
FEDERAL	
40 Code of Federal Regulations (C.F.R.) § 68.110 et seq. Superfund Amendments and Reauthorization Act of 1986 (SARA)	SARA Title III and the Clean Air Act of 1990 established a nationwide emergency planning and response program and imposed reporting requirements for businesses which store, handle, or produce significant quantities of extremely hazardous materials. This law requires states to implement a comprehensive system to inform local agencies and the public when a significant quantity of such materials is stored or handled at a facility through preparation of Risk Management Plans. The requirements of this law are reflected in the California Health and Safety Code, Section 25531 et seq.
42 U.S.C. § 6922 Resource Conservation and Recovery Act (RCRA)	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 (US EPA) or authorized state agency.
Title 40, C. F. R., 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 law 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 (CalEPA), 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 create a manifest system to be used when transporting such wastes.
Title 27, California Code of Regulations, §15100 et seq. (Unified	CalEPA has established a unified hazardous waste and hazardous materials management regulatory program (Unified Program) as required by statute (Health and Safety

Hazardous Waste and Hazardous Materials Management Regulatory Program)	Code Chapter 6.11). The Unified Program consolidates, coordinates, and makes consistent portions of the following six existing programs: • Hazardous Waste Generators and Hazardous Waste On site Treatment; • Underground Storage Tanks; • Hazardous Material Release Response Plans and Inventories; • California Accidental Release Prevention Program; • Aboveground Storage Tanks (spill control and countermeasure plan only); • Uniform Fire Code Hazardous Material Management Plans and Inventories; The statute requires all counties to apply to the CalEPA Secretary for the certification of a local unified program agency.
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 and the California Integrated Waste Management Board, as well as enforcement and administration provisions.
Title 22, California Code of Regulations, §66262.10 et seq. (Generator Standards)	These sections establish requirements for generators of hazardous waste. Under these sections, waste generators must determine if their wastes are hazardous, according to either specified characteristics or lists of wastes. As in the federal program, hazardous waste generators must obtain US EPA identification numbers, prepare manifests before transporting the waste off site, and use only permitted treatment, storage, and disposal facilities. Additionally, hazardous waste must only be handled by registered hazardous waste transporters. Generator requirements for record keeping, reporting, packaging, and labeling are also established and are enforced by the Department of Toxic Substances Control (DTSC).
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 a generator's waste management plans and performance over the reporting period.
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	
City of Hayward General Plan	Section 8 of the General Plan identifies the Department of Public Works as the responsible entity for administering solid waste management rules.

City of Hayward, Municipal Code, Chapter 3, Article 8	Requires entities that store or handle hazardous materials or wastes to apply for a hazardous materials storage permit through submittal of a Hazardous Materials Business Plan.
City of Hayward Fire Department, Hazardous Materials Office	Certified by the state to implement the unified hazardous materials and hazardous waste management program in its jurisdiction.
County of Alameda, General Ordinance Code, Title 6, Chapter 6.76	Addresses enforcement of the California Integrated Waste Management Act of 1989, at the county level.
Bay Area Air Quality Management District (BAAQMD), Regulation 11-2-401.3	Requires that for every renovation involving the removal of 100 square ft/linear ft. or greater of Regulated Asbestos Containing Material, and for every demolition (even when no asbestos is present), a notification must be made to the BAAQMD at least 10 working days (except in special circumstances) prior to commencement of demolition or renovation. Outlines regulations for removing any Regulated Asbestos Containing Material.

WORKER SAFETY AND FIRE PROTECTION

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 CFR sections 1910.1 to 1910.1500 (Occupational Safety and Health Administration Safety and Health Regulations)	These sections define the procedures for promulgating regulations and conducting inspections to implement and enforce safety and health procedures to protect workers, particularly in the industrial sector.
29 CFR sections 1952.170 to 1952.175	These sections provide Federal approval of California's plan for enforcement of its own Safety and Health requirements, in lieu of most of the Federal requirements found in 29 CFR §1910.1 to 1910.1500.
STATE	
8 CCR all applicable sections (Cal/OSHA regulations)	Requires that all employers follow these regulations as they pertain to the work involved. This includes regulations pertaining to safety matters during 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 addition 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	
Specific hazardous material handling requirements	Provides response agencies with necessary information to address emergencies.
Emergency Response Plan	Allows response agency to integrate Eastshore emergency response activities into any response actions.
Business Plan	Provides response agency with overview of Eastshore purpose and operations.
Risk Management Plan	Provides response agency with detailed review of risks and hazards located at Eastshore and mitigation implemented to control risks or hazards.

2001 Edition of California Fire Code and all applicable NFPA standards (24 CCR Part 9)	National Fire Protection Association (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) 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 UFC standards. The City of Hayward adopted the 2001 California Fire Code (CFC) into its municipal code and is the administering agency for the CFC 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. The Uniform Building Code, the 2001 California Building Standards Code, and the City of Hayward Building Code are enforced by the City Community and Economic Development Department.
Uniform Fire Code, 1997	Contains standards of the American Society for Testing and Materials and the NFPA. It is the United State's premier model fire code. It is updated annually as a supplement and published every third year by the International Fire Code Institute to include all approved code changes in a new edition.

BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION OF THE STATE OF CALIFORNIA
1516 NINTH STREET, SACRAMENTO, CA 95814
1-800-822-6228 – WWW.ENERGY.CA.GOV

APPLICATION FOR CERTIFICATION FOR THE *EASTSHORE ENERGY CENTER* IN HAYWARD BY TIERRA ENERGY

DOCKET NO. 06-AFC-6
(AFC ACCEPTED 11/8/06)

EXHIBIT LIST

APPLICANT'S EXHIBITS

EXHIBIT 1 Application for Certification for the Eastshore Energy Center, dated September 22, 2006, and docketed September 22, 2006. Sponsored by Applicant, and received into evidence on December 17, 2007.

EXHIBIT 2 Supplement in Response to Data Adequacy Comments on the Application for Certification for the Eastshore Energy Center, dated October 31, 2006, and docketed October 31, 2006. Sponsored by Applicant, and received into evidence on December 17, 2007.

EXHIBIT 3 City of Hayward Application for Development Permit for the Eastshore Energy Center, dated November 2, 2006, and docketed November 2, 2006. Sponsored by Applicant, and received into evidence on January 14, 2008.

EXHIBIT 4 Reserved

EXHIBIT 5 Eastshore's System Impact Study Report – Revision 2 and Facility Study Report, dated January 11, 2007, and docketed January 25, 2007. Sponsored by Applicant, and received into evidence on December 17, 2007.

EXHIBIT 6 Eastshore Data Responses Set #1, dated January 15, 2007, and docketed January 15, 2007. Sponsored by Applicant, and received into evidence on December 17, 2007.

EXHIBIT 7 Eastshore's Letter to City of Hayward Planning Commission re: Eastshore Project's conformance with General Plan and Industrial Zoning District, dated February 15, 2007, and docketed February 15, 2007. Sponsored by Applicant, and received into evidence on January 14, 2008.

EXHIBIT 8 Eastshore Data Responses Set # 2, dated March 5, 2007, and docketed March 5, 2007. Sponsored by Applicant, and received into evidence on December 17, 2007.

EXHIBIT 9 Eastshore Data Responses Set #3, dated April 3, 2007 and docketed April 3, 2007. Sponsored by Applicant, and received into evidence on December 17, 2007.

EXHIBIT 10 Response to Committee Questions in Revised Scheduling Order on Alternatives, dated May 4, 2007, and docketed May 4, 2007. Sponsored by Applicant, and received into evidence on January 14, 2008.

EXHIBIT 11 Cumulative Air Quality Impact Analysis Modeling Files, dated May 4, 2007, and docketed May 4, 2007. Sponsored by Applicant, and received into evidence on December 17, 2007.

EXHIBIT 12 Supplemental Data Response (March 19, 2007 Workshop Questions 1-17, including PG&E's 2004 Long Term Request for Offers, March 15, 2005), dated May 4, 2007, and docketed May 4, 2007. Sponsored by Applicant, and received into evidence on December 17, 2007.

EXHIBIT 13 Comments on the Preliminary Staff Assessment, dated September 19, 2007, and docketed September 19, 2007. Sponsored by Applicant, and received into evidence on December 17, 2007.

EXHIBIT 14 Project Owner's Supplemental Testimony in Transmission System Engineering and Local System Effects, dated November 26, 2007, and docketed December 7, 2007. Sponsored by Applicant, and received into evidence on January 14, 2008.

EXHIBIT 15 Project Owner's Supplemental Testimony in Air Quality, dated November 21, 2007, and docketed December 7, 2007. Sponsored by Applicant, and received into evidence on December 17, 2007.

EXHIBIT 16 Project Owner's Supplemental Testimony in Alternatives, dated November 23, 2007, and docketed December 7, 2007. Sponsored by Applicant, and received into evidence on January 14, 2008.

EXHIBIT 17 Project Owner's Supplemental Testimony in Land Use, dated November 26, 2007, and docketed December 7, 2007. Sponsored by Applicant, and received into evidence on January 14, 2008.

EXHIBIT 18 Project Owner's Supplemental Testimony in Noise, dated November 22, 2007, and docketed December 7, 2007. Sponsored by Applicant, and received into evidence on December 18, 2007.

EXHIBIT 19 Project Owner's Supplemental Testimony in Public Health, dated November 21, 2007 and docketed December 7, 2007. Sponsored by Applicant, and received into evidence on December 17, 2007.

EXHIBIT 20 Project Owner's Supplemental Testimony in Traffic and Transportation, dated November 23, 2007, and docketed December 7, 2007. Sponsored by Applicant, and received into evidence on December 18, 2007.

EXHIBIT 21 Declarations of Project Owner's Witnesses, dated November 21, 2007 and docketed December 7, 2007. Sponsored by Applicant, and received into evidence on December 17, 2007.

EXHIBIT 22 Letter from the City of Hayward Regarding the Airport Approach Zoning Regulations, dated June 27, 2007 and docketed June 27, 2007. Sponsored by Applicant, and received into evidence on December 18, 2007.

EXHIBIT 23 Reserved

EXHIBIT 24 Reserved

EXHIBIT 25 Reserved

EXHIBIT 26 Advisory Circular 139-05(0) "CASA" Guidelines for Conducting Plume Rise Assessments, dated June 2004 and docketed December 7, 2007. Sponsored by Applicant, and received into evidence on December 18, 2007.

EXHIBIT 27 Reserved

EXHIBIT 28 CEC's Preliminary Staff Assessment for the Russell City Energy Center, dated April 3, 2007 and docketed December 7, 2007. Sponsored by Applicant, and received into evidence on December 18, 2007.

EXHIBIT 29 CEC's Final Staff Assessment for the Russell City Energy Center, dated July 2, 2007 and docketed December 7, 2007. Sponsored by Applicant, and received into evidence on December 18, 2007.

EXHIBIT 30 Katestone Environmental Final Plume Vertical Velocity Assessment for the Russell City Energy Center, dated July 11, 2007 and docketed December 7, 2007. Sponsored by Applicant, and received into evidence on December 18, 2007.

EXHIBIT 31 Katestone Environmental Addendum to the Final Plume Vertical Velocity Assessment for the Russell City Energy Center, dated July 11, 2007 and docketed December 7, 2007. Sponsored by Applicant, and received into evidence on December 18, 2007.

EXHIBIT 32 CEC's Errata to the Final Staff Assessment for the Russell City Energy Center, dated July 19, 2007 and docketed December 7, 2007. Sponsored by Applicant, and received into evidence on December 18, 2007.

EXHIBIT 33 Russell City Energy Center July 19, 2007 Evidentiary Hearing Transcript, dated July 19, 2007 and docketed December 7, 2007. Sponsored by Applicant, and received into evidence on December 18, 2007.

EXHIBIT 34 Reserved

EXHIBIT 35 September 5, 2007 electronic mail from Will Walters to Gregory Darvin and Eric Knight re: Eastshore Plume Analysis, dated September 5, 2007 and docketed December 7, 2007. Sponsored by Applicant, and received into evidence on December 18, 2007.

EXHIBIT 36 CEC Business Meeting Transcript, September 12, 2007, dated September 12, 2007 and docketed December 7, 2007. Sponsored by Applicant, and received into evidence on December 18, 2007.

EXHIBIT 37 Letter and two e-mails from Federal Aviation Administration dated September 18 and 19, 2007, re FAA Written Response Regarding Hayward Powerplant Issue, dated September 18, 2007 and docketed September 18, 2007. Sponsored by Applicant, and received into evidence on December 18, 2007.

EXHIBIT 38 CEC Business Meeting Transcript, September 26, 2007, dated September 26, 2007 and docketed December 7, 2007. Sponsored by Applicant, and received into evidence on December 18, 2007.

EXHIBIT 39 FAA's Safety Risk Analysis of Aircraft Overflight of Industrial Exhaust Plumes, Safety Study Report DOT-FAA-AFS-420-06-1, dated January 2006 and docketed December 7, 2007. Sponsored by Applicant, and received into evidence on December 18, 2007.

EXHIBIT 40 FAA's Determination of No Hazard to Air Navigation, dated May 17, 2007 and docketed May 17, 2007. Sponsored by Applicant, and received into evidence on December 18, 2007.

EXHIBIT 41 FAA's Comments and Position Regarding TFR & NOTAM Flight Issues, dated October 16, 2007 and docketed October 16, 2007. Sponsored by Applicant, and received into evidence on December 18, 2007.

EXHIBIT 42 Letter from Federal Aviation Administration Regarding the Exhaust Stacks, dated July 18, 2007 and docketed December 7, 2007. Sponsored by Applicant, and received into evidence on December 18, 2007.

EXHIBIT 43 Letter from Federal Aviation Administration regarding Russell City Energy Center Impact on Hayward Executive Airport, dated September 25, 2007 and docketed December 7, 2007. Sponsored by Applicant, and received into evidence on December 18, 2007.

EXHIBIT 44 Federal Aviation Administration's Comments on the Eastshore Energy Center, dated October 16, 2007 and docketed October 17, 2007. Sponsored by Applicant, and received into evidence on December 18, 2007.

EXHIBIT 45 Letter from Federal Aviation Administration regarding Response to 8-23-07 Request for Comments on the Eastshore Energy Center, dated October 9, 2007 and docketed October 9, 2007. Sponsored by Applicant, and received into evidence on December 18, 2007.

EXHIBIT 46 City of Hayward Conditions for the Russell City Energy Center, dated May 25, 2007 and docketed December 7, 2007. Sponsored by Applicant, and received into evidence on December 18, 2007.

EXHIBIT 47 City of Hayward's Response to Eastshore Energy Center and Russell City Energy Center Projects on One Site, dated June 1, 2007 and docketed June 1, 2007. Sponsored by Applicant, and received into evidence on January 14, 2008.

EXHIBIT 48 Letter from City of Hayward to CEC re: Application of Airport Approach Zoning Regulations to the Russell City Energy Center, dated June 27, 2007 and docketed June 29, 2007. Sponsored by Applicant, and received into evidence on December 18, 2007.

► ***Same as Exhibit 405.***

EXHIBIT 49 City of Hayward City Council, Resolution No. 05-125, Resolution Authorizing the Execution A Cooperation and Option Agreement with the Russell City Energy Center, dated October 11, 2005 and docketed December 7, 2007. Sponsored by Applicant, and received into evidence on January 14, 2008.

EXHIBIT 50 City of Hayward City Council, Resolution #01-104, Resolution Finding the Russell City Energy Center Power Plant Use is Consistent with the General Plan and Zoning Ordinance, dated July 10, 2001, and docketed December 7, 2007. Sponsored by Applicant, and received into evidence on January 14, 2008.

EXHIBIT 51 City of Hayward Mayor and City Council Members' Closing Comments on the Eastshore Energy Center; 3/6/2007 and 3/13/2007 City of Hayward City Council Meetings; UNOFFICIAL TRANSCRIPT, dated March 13, 2007, and docketed December 7, 2007. Sponsored by Applicant, and received into evidence on January 14, 2008.

EXHIBIT 52 Letter Report from Trinity Consultants re: stack modeling, dated March 8, 2006 and docketed December 7, 2007. Sponsored by Applicant, and received into evidence on December 18, 2007.

EXHIBIT 53 Applicant's Proposed Revisions to Staff's Recommended Conditions of Certification, dated November 19, 2007, and docketed November 19, 2007. Sponsored by Applicant and received into evidence on December 18, 2007.

EXHIBIT 54 Errata to Eastshore Energy Center's Pre-Hearing Conference Statement, dated November 20, 2007, and docketed November 19, 2007. Sponsored by Applicant and received into evidence on December 17, 2007.

EXHIBIT 55 BAAQMD's Spare the Air Tonight study regarding "Santa Clara County's Woodsmoke Rebate Program," 2006-2007 Winter Wood Smoke Season, dated March 2007, and docketed December 20, 2007. Sponsored by Applicant and received into evidence on December 18, 2007.

Exhibit 56 Preliminary Draft Hayward Executive Airport Land Use Compatibility Plan, prepared for Alameda County by ESA, dated July 2007, and docketed January 18, 2008. Sponsored by Applicant and received into evidence on January 14, 2008.

Exhibit 57 Eastshore Energy Center's Pre-Hearing Conference Statement, Attachment 1, dated November 20, 2007, and docketed November 20, 2007. Sponsored by Applicant and received into evidence on January 14, 2008.

Exhibit 58 Eastshore Energy Center's Supplemental Testimony on Air Quality NO_2 Impacts and Public Health (CARB's draft HRA on diesel PM emissions in West Oakland community), dated July 15, 2008, and docketed July 15, 2008. Sponsored by Applicant and received into evidence on July 21, 2008

EXHIBITS 58-199 Reserved for Applicant's additional exhibits.

ENERGY COMMISSION STAFF'S EXHIBITS

EXHIBIT 200 Final Staff Assessment for the Eastshore Energy Center, dated October 9, 2007, docketed October 9, 2007. Sponsored by Staff; received into evidence on December 17, 2007.

EXHIBIT 201 Final Determination of Compliance. Bay Area Air Quality Management District, dated October 17, 2007, docketed October 23, 2007. Sponsored by Staff; received into evidence on December 17, 2007.

EXHIBIT 202 Preliminary Staff Assessment for the Eastshore Energy Center, dated August 17, 2007, docketed on August 17, 2007. Sponsored by Staff; received into evidence on December 17, 2007.

► ***Staff's initial Exhibit 202 is now City of Hayward Exhibit 513; Staff's current Exhibit 202 was Applicant's former Exhibit 34.***

EXHIBIT 203 Letter from Gary Cathey, Chief, Office of Airports, California Department of Transportation, Division of Aeronautics, regarding the Eastshore Energy Center project. Dated November 1, 2007, docketed November 5, 2007. Sponsored by Staff; received into evidence on December 18, 2007.

EXHIBIT 204 Letter from Joseph Rodriguez, Supervisor, Environmental Planning and Compliance Section, Western-Pacific Region, Airports Division, regarding the Eastshore Energy Center, dated October 9, 2007, docketed October 12, 2007. Sponsored by Staff; received into evidence on December 18, 2007.

EXHIBIT 205 Port of Oakland Letter comments on the Preliminary Staff Assessment for the Eastshore Energy Center, dated September 14, 2007, docketed September 17, 2007. Sponsored by Staff; received into evidence on December 18, 2007.

EXHIBIT 206 E-mail from David Butterfield, Flight Standards, Western Region, to Eric Knight, California Energy Commission, dated October 16, 2007, docketed October 17, 2007. Sponsored by Staff; received into evidence on December 18, 2007.

EXHIBIT 207 Letter from Gregory T. Jones, City of Hayward City Manager, Comments on the Eastshore Preliminary Staff Assessment. Dated October 9, 2007, docketed October 10, 2007. Sponsored by Staff; received into evidence on December 18, 2007.

EXHIBIT 208 Hayward Executive Airport Penetration Gate Plot for Gate East Shore, dated April 02-April 29, 2007, representing Shaelyn Strattan's testimony. Docketed December 20, 2007. Sponsored by Staff and received into evidence on December 18, 2007.

EXHIBIT 209 Plume Velocity Curves for 7 Engines, representing Will Walters' testimony. Docketed December 20, 2007. Sponsored by Staff and received into evidence on December 18, 2007

EXHIBIT 210 E-mail from Brewster Birdsall to Bill Pfanner, CEC Project Manager, regarding appropriate trading ratio for SOx to PM10, dated December 21, 2007. Docketed December 24, 2007. Sponsored by Staff and received into evidence on January 14, 2008.

EXHIBIT 211 Staff's Supplemental Testimony on Air Quality (new state NO_2 standard), Public Health (CARB's draft HRA on diesel PM emissions in West Oakland community), and Worker Safety/Fire Protection (upgrading Hayward Fire Department (HFD) Opticom system to mitigate cumulative impacts on HFD services), dated July 15, 2008. Docketed July 15, 2008. Sponsored by Staff and received into evidence on July 21, 2008.

INTERVENOR PAUL HAAVIK'S EXHIBITS

EXHIBIT 300 Energy Commission Memorandum to Bill Pfanner, from Shahab Khoshmashrab regarding Response to Applicant's Comments on Noise and Vibration, Preliminary Staff Assessment, dated and docketed November 6, 2007. Sponsored by Intervenor Haavik; received into evidence on December 18, 2007.

EXHIBIT 301 Letter from the City of Hayward to Bill Pfanner, dated October 9, 2007, comments on the Energy Commission Preliminary Staff Assessment. Docketed October 10, 2007, and sponsored by Intervenor Haavik; received into evidence on December 18, 2007.

EXHIBIT 302 Letter from the Bank of Fremont from Terrence Stinnett, dated September 24, 2007. Docketed September 24, 2007, and sponsored by Intervenor Haavik; received into evidence on December 18, 2007.

EXHIBIT 303 Letter from the City of Hayward, Jesus Armas, City Manager to Bill Pfanner, dated May 31, 2007 regarding location feasibility. Docketed June 1, 2007, and sponsored by Intervenor Haavik; received into evidence on January 14, 2008.

EXHIBIT 304 Letter from the City of Hayward, David Rizk, Planning Manager to Lorne Prescott, dated April 4, 2007 regarding land use issues. Docketed April 10, 2007, and sponsored by Intervenor Haavik; received into evidence on January 14, 2008.

EXHIBIT 305 Letter from the City of Hayward, Jesus Armas, City Manager to Paul Richins, dated April 19, 2007 regarding inconsistencies with Zoning and the General Plan. Docketed April 23, 2007, and sponsored by Intervenor Haavik; received into evidence on January 14, 2008.

EXHIBIT 306 Letter from the California Energy Commission, William Pfanner, Project Manager, to Jesus Armas, City Manager, City of Hayward, dated May 14, 2007 regarding feasibility of common sites. Docketed May 14, 2007, and sponsored by Intervenor Haavik; received into evidence on January 14, 2008.

EXHIBIT 307 Hayward City Council Agenda for the March 6, 2007, City Council Meeting. Determination of whether the EASTSHORE project is consistent with the General Plan and Industrial Zoning District. Docketed March 5, 2007, and sponsored by Intervenor Haavik; received into evidence on January 14, 2008.

EXHIBIT 308 Letter from the City of Hayward, Jesus Armas, City Manager to Lorne Prescott, dated January 12, 2007 regarding items for discussion. Docketed January 16, 2007, and sponsored by Intervenor Haavik; received into evidence on January 14, 2008.

EXHIBIT 309 Report of Conversation with Lorne Prescott and Jesus Armas, Docketed October 26, 2006, and sponsored by Intervenor Haavik; received into evidence on January 14, 2008.

EXHIBIT 310 Testimony of Jesus Armas, City Manager, City of Hayward. Docketed November 30, 2007, and sponsored by Intervenor Haavik; received into evidence on January 14, 2008.

EXHIBIT 311 Testimony of Beth Fancher, dated November 19, 2007. Docketed November 30, 2007, and sponsored by Intervenor Haavik; received into evidence on December 18, 2007.

INTERVENOR CITY OF HAYWARD EXHIBITS

EXHIBIT 401 Land Use Testimony and Resume of David Rizk, Planning Manager, dated December 6, 2007. Docketed December 6, 2007. Sponsored by Intervenor City of Hayward; received into evidence on January 14, 2008.

EXHIBIT 402 Land Use and Traffic and Transportation Testimony and Resume of Robert Bauman, Director of Public Works, dated December 6, 2007. Docketed December 6, 2007. Sponsored by Intervenor City of Hayward; received into evidence on December 18, 2007.

EXHIBIT 403 Letter from Larry Arfsten, Hayward Fire Chief to Roger Johnson, CEC, dated October 20, 2006. Docketed October 20, 2006. Sponsored by Intervenor City of Hayward; received into evidence on January 14, 2008.

EXHIBIT 404 Resolution 07-028 of the Hayward City Council, dated March 13, 2007. Docketed April 4, 2007. Sponsored by Intervenor City of Hayward; received into evidence on January 14, 2008.

EXHIBIT 405 Letter from Jesus Armas, Hayward City Manager to Shaelyn Stratten, CEC, dated June 27, 2007. Docketed June 27, 2007. Sponsored by Intervenor City of Hayward; received into evidence on January 14, 2008.

EXHIBIT 406 Hayward General Plan Land Use Element, dated March 2002. Docketed December 6, 2007. Sponsored by Intervenor City of Hayward; received into evidence on January 14, 2008.

► ***Same as Exhibit 48.***

EXHIBIT 407 Hayward General Plan Economic Development Element, dated March 2, 2007. Docketed December 6, 2007. Sponsored by Intervenor City of Hayward; received into evidence on January 14, 2008.

EXHIBIT 408 Hayward Municipal Code Zoning Ordinance, current. Docketed December 6, 2007. Sponsored by Intervenor City of Hayward; received into evidence on January 14, 2008.

EXHIBIT 409 Hayward Municipal Code Airport Approach Zoning Ordinance, current. Docketed December 6, 2007. Sponsored by Intervenor City of Hayward; received into evidence on December 18, 2007.

EXHIBIT 410 Hayward Executive Airport, Airport Master Plan, dated April 2002. Docketed December 6, 2007. Sponsored by Intervenor City of Hayward; received into evidence on December 18, 2007.

EXHIBIT 411 Department of Transportation, Federal Aviation Administration, Order 5190.6A – Airport Compliance Requirements, dated October 2, 1989. Docketed December 6, 2007. Sponsored by Intervenor City of Hayward; received into evidence on December 18, 2007.

EXHIBIT 412 Reserved (***See Exhibit 513.***)

EXHIBIT 413 City of Hayward, City Services, Pilot Guide, current. Docketed December 6, 2007. Sponsored by Intervenor City of Hayward; received into evidence on December 18, 2007.

EXHIBIT 414 California Department of Transportation, Airport Land Use Planning Handbook, dated January 2002. Docketed December 6, 2007. Sponsored by Intervenor City of Hayward; received into evidence on December 18, 2007.

EXHIBIT 415 Reserved (***See Exhibit 204.***)

EXHIBIT 416 Letter from George Aiken, Manager, Safety and Standards, FAA, to Ross Dubarry, Airport Manager, Hayward Executive Airport, dated December 17, 2007. Docketed December 17, 2007. Sponsored by Intervenor City of Hayward and received into evidence on December 18, 2007.

EXHIBIT 417 Hayward Executive Airport, Penetration Gate Plot for Eastshore, dated May 01–May 31, 2007. Docketed January 9, 2008. Sponsored by Intervenor City of Hayward; received into evidence on December 18, 2007

EXHIBIT 418 Hayward Executive Airport, Penetration Gate Plot for Eastshore, dated May 31-June 30, 2007. Docketed January 9, 2008. Sponsored by Intervenor City of Hayward; received into evidence on December 18, 2007.

EXHIBIT 419 Declaration of Steve Jolly, dated July 10, 2008, on costs of upgrading Hayward Fire Department Opticom system. Docketed July 11, 2008. Sponsored by Intervenor City of Hayward; received into evidence on July 21, 2008.

INTERVENOR ALAMEDA COUNTY EXHIBITS

EXHIBIT 500 Testimony of Dr. Paolo Zannetti, docketed December 7, 2007. Sponsored by Intervenor Alameda County; received into evidence on December 18, 2007.

EXHIBIT 501 Declaration and Resume of Dr. Paolo Zannetti, docketed December 7, 2007. Sponsored by Intervenor Alameda County; received into evidence on December 18, 2007.

EXHIBIT 502 Reserved

EXHIBIT 503 Reserved

EXHIBIT 504 Testimony of Eileen Dalton, docketed December 7, 2007. Sponsored by Intervenor Alameda County; received into evidence on January 14, 2008.

EXHIBIT 505 Declaration and Resume of Eileen Dalton, docketed December 7, 2007. Sponsored by Intervenor Alameda County; received into evidence on January 14, 2008.

EXHIBIT 506 Final Eden Area Redevelopment Plan, dated July 2000, docketed December 7, 2007. Sponsored by Intervenor Alameda County; received into evidence on January 14, 2008.

EXHIBIT 507 Map of all Redevelopment Subareas, docketed December 7, 2007. Sponsored by Intervenor Alameda County; received into evidence on January 14, 2008.

EXHIBIT 508 Eden Area Redevelopment Project Five-Year Implementation Plan, FY 2004/05 – 2008/09, May 2005, docketed December 7, 2007. Sponsored by Intervenor Alameda County; received into evidence on January 14, 2008.

EXHIBIT 509 Joint Redevelopment project Five Year Implementation Plan, FY 2004/05 – 2008/09, May 2005, docketed December 7, 2007. Sponsored by Intervenor Alameda County; received into evidence on January 14, 2008.

EXHIBIT 510 Redevelopment Plan for the Alameda County – City of San Leandro Redevelopment Project, dated June 1993, docketed December 7, 2007. Sponsored by Intervenor Alameda County; received into evidence on January 14, 2008.

EXHIBIT 511 Declaration of Dave Needle, dated December 4, 2007, docketed December 7, 2007. Sponsored by Intervenor Alameda County; received into evidence on December 18, 2007.

EXHIBIT 512 Resolution of the Airport Land Use Commission of Alameda County, dated August 15, 2007, docketed in the Russell City Amendment Proceedings (01-AFC-7C) August 16, 2007. Sponsored by Intervenor Alameda County; received into evidence on December 18, 2007.

EXHIBIT 513 Resolution of the Airport Land Use Commission of Alameda County, dated October 17, 2007, docketed October 26, 2007. Sponsored by Intervenor Alameda County; received into evidence on December 18, 2007.

EXHIBIT 514 Staff Report of the Airport Land Use Commission on the Proposed Russell City Energy Center Project, dated July 18, 2007, docketed December 7, 2007. Sponsored by Intervenor Alameda County; received into evidence on December 18, 2007.

EXHIBIT 515 Staff Report of the Airport Land Use Commission on the Proposed Russell City Energy Center Project, dated August 15, 2007, docketed December 7, 2007. Sponsored by Intervenor Alameda County; received into evidence on December 18, 2007.

EXHIBIT 516 Staff Report of the Airport Land Use Commission on the Proposed Eastshore Energy Center Project, dated September 19, 2007, docketed December 7, 2007. Sponsored by Intervenor Alameda County; received into evidence on December 18, 2007.

EXHIBIT 517 Staff Report of the Airport Land Use Commission on the Proposed Eastshore Energy Center Project, dated October 17, 2007, docketed December 7, 2007. Sponsored by Intervenor Alameda County; received into evidence on December 18, 2007.

EXHIBIT 518 Reserved

EXHIBIT 519 Testimony of Larry Berlin, dated December 4, 2007, docketed December 7, 2007. Sponsored by Intervenor Alameda County; received into evidence on December 18, 2007.

EXHIBIT 520 Declaration and Resume of Mr. Larry Berlin, docketed December 7, 2007. Sponsored by Intervenor Alameda County; received into evidence on December 18, 2007.

EXHIBIT 521 Declaration and Resume of Dave Needle, docketed December 7, 2007. Sponsored by Intervenor Alameda County; received into evidence on December 18, 2007.

EXHIBIT 522 Reserved

EXHIBIT 523 Reserved

EXHIBIT 524 Reserved

EXHIBIT 525 Reserved

EXHIBIT 526 Reserved

EXHIBIT 527 Reserved

EXHIBIT 528 Reserved

EXHIBIT 529 Reserved

EXHIBIT 530 Reserved

EXHIBIT 531 Reserved

EXHIBIT 532 Testimony of Dr. Sandra Witt, dated December 5, 2007, docketed December 7, 2007. Sponsored by Intervenor Alameda County; received into evidence on December 17, 2007.

EXHIBIT 533 Declaration and Resume of Dr. Sandra Witt, docketed December 7, 2007. Sponsored by Intervenor Alameda County; received into evidence on December 17, 2007.

EXHIBIT 534 Declaration of Cindy Horvath, the Draft Hayward Executive Airport Land Use Compatibility Plan, dated December 2007, and Alameda County ALUC Agenda for January 16, 2008. Docketed January 18, 2008. Sponsored by Alameda County, and received into evidence on January 14, 2008.

EXHIBIT 535 Alameda County Airport Land Use Policy Plan, adopted July 16, 1986. Docketed January 18, 2008. Sponsored by Alameda County, and received into evidence on January 14, 2008.

INTERVENOR CHABOT-LOS POSITAS COMMUNITY COLLEGE DISTRICT EXHIBITS

EXHIBIT 600 Testimony of Carolyn Arnold, the Student Characteristics Report, Fall 2007, and the Biennial Student Survey, Fall 2007. Docketed December 6, 2007. Sponsored by Intervenor Chabot-Los Positas Community College District; and received into evidence on December 17, 2007.

EXHIBIT 601 Testimony of Susan Sperling. Sponsored by Intervenor Chabot-Los Positas Community College District. Docketed December 6, 2007 and received into evidence on December 17, 2007.

EXHIBIT 602 Testimony of Rachel Ugale. Sponsored by Intervenor Chabot-Los Positas Community College District. Docketed December 6, 2007 and received into evidence on December 17, 2007.

EXHIBIT 603 A report referenced and cited in the written testimony of Dr. Sperling, entitled Opportunities for Environmental Justice in California – Agency by Agency. Sponsored by Intervenor Chabot-Los Positas Community College District. Docketed December 6, 2007 and received into evidence on December 17, 2007.

EXHIBIT 604 Ensuring Risk Reduction in Communities with Multiple Stressors: Environmental Justice and Cumulative Risks/Impacts, National Environmental Justice Advisory Council. Sponsored by Intervenor Chabot-Los Positas Community College District. Docketed December 6, 2007, and received into evidence on December 17, 2007.

EXHIBIT 605 Resume of Dr. Susan Sperling. Sponsored by Intervenor Chabot-Los Positas Community College District; Docketed November 19, 2007, and received into evidence on December 17, 2007.

INTERVENOR GROUP PETITIONERS' EXHIBITS

EXHIBIT 700 Toxicological Profile for Acrolein, U. S. Department of Health and Human Services, Public Health Service Agency for Toxic Substances and Disease Registry, dated August 2007. Sponsored by Intervenor Group Petitioners; docketed December 7, 2007; received into evidence on December 17, 2007.

EXHIBIT 701 Prioritization of Toxic Air Contaminants, Children's Environmental Health Protection Act, dated October 2001. Sponsored by Intervenor Group Petitioners; docketed December 7, 2007; received into evidence on December 17, 2007.

EXHIBIT 702 AB 2588 Appendix F – Criteria for Inputs for Risk Assessment Using Screening Air Dispersion Modeling. Sponsored by Intervenor Group Petitioners; docketed December 7, 2007; received into evidence on December 17, 2007.

EXHIBIT 703 National Emission Standards for Hazardous Air Pollutants for Stationary Combustion Turbines. U. S. Environmental Protection Agency, Federal Register, dated March 5, 2004. Sponsored by Intervenor Group Petitioners; docketed December 7, 2007; received into evidence on December 17, 2007.

EXHIBIT 704 South Coast Air Quality Management District Board Meeting, date March 2, 2007, Agenda Item 3, Execute Contract to Demonstrate Feasibility of Refinery Fenceline Monitoring. Sponsored by Intervenor Group Petitioners; docketed December 7, 2007; received into evidence on December 17, 2007.

EXHIBIT 705 Emission Factor Documentation for AP-42 section 3.2, Natural Gas Fired Reciprocating Engines, prepared for the U. S. EPA, dated July 2000. Sponsored by Intervenor Group Petitioners; docketed December 7, 2007; received into evidence on December 17, 2007.

► ***Same as Exhibit 802.***

EXHIBIT 706 California Air Toxics Emission Factor Database, front page, last updated October 12, 2007. Sponsored by Intervenor Group Petitioners; docketed December 7, 2007; received into evidence on December 17, 2007.

EXHIBIT 707 California Air Toxics Emission Factors, Detail Report, available on line December 6, 2007. Sponsored by Intervenor Group Petitioners; docketed December 7, 2007; docketed December 7, 2007; received into evidence on December 17, 2007.

EXHIBIT 708 A Survey of Monitoring Instruments for Measurement of Airborne Pollutants, prepared for the Energy Commission by New York State Energy Research and Development Authority, dated October 2002. Sponsored by Intervenor Group Petitioners; received into evidence on December 17, 2007.

EXHIBIT 709 June 2005 Bay Area Air Quality Management District Air Toxics NSR program Health Risk Screening Analysis; docketed December 12, 2007 [listed December 6, 2007 by Group Petitioners]; received into evidence on December 17, 2007.

EXHIBIT 710 Environmental Justice, Frequently Asked Questions, California Energy Commission, CEC Public Adviser's Office. Sponsored by Intervenor Group Petitioners; docketed December 12, 2007; received into evidence on December 17, 2007.

EXHIBIT 711 Declaration of Jay White, dated December 4, 2007. Sponsored by Intervenor Group Petitioners; docketed December 7, 2007; received into evidence on December 18, 2007.

EXHIBIT 712 Declaration of Jay White, dated October 24, 2007, filed in the Russell City Energy Center proceeding, Docket No. 01-AFC-7C. Sponsored by Intervenor Group Petitioners; docketed December 7, 2007; received into evidence on December 18, 2007.

EXHIBIT 713 Declaration of Carol Ford, dated December 6, 2007. Sponsored by Intervenor Group Petitioners; docketed December 7, 2007; received into evidence on December 18, 2007.

EXHIBIT 714 Declaration of Carol Ford, dated November 6, 2007, filed in the Russell City Energy Center proceeding, Docket No. 01-AFC-7C. Sponsored by Intervenor Group Petitioners; docketed December 7, 2007; received into evidence on December 18, 2007.

EXHIBIT 715 Federal Aviation Administration Grant Agreement, Part 1 – Offer, Project No. 3-06-0103-13, dated September 16, 2002. Sponsored by Intervenor Group Petitioners; docketed December 7, 2007; received into evidence on December 18, 2007.

EXHIBIT 716 Declaration of Sherman Lewis, dated October 24, 2007, filed in the Russell City Energy Center proceeding, Docket No. 01-AFC-7C. Sponsored by Intervenor Group Petitioners; docketed December 7, 2007; received into evidence on January 14, 2008.

EXHIBIT 717 Declaration of Michael Toth, dated October 23, 2007, filed in the Russell City Energy Center proceeding, Docket No. 01-AFC-7C. Sponsored by Intervenor Group Petitioners; docketed December 7, 2007. Not moved and not received into the record.

EXHIBIT 718 Declaration of Michael Toth, dated November 6, 2007, filed in the Russell City Energy Center proceeding, Docket No. 01-AFC-7C. Sponsored by Intervenor Group Petitioners; docketed December 7, 2007. Not moved and not received into the record.

EXHIBIT 719 Letter dated November 2, 2007, to James Adams, California Energy Commission, from Carol Ford, California Pilots Association, with attachments: Assurances, Airport Sponsors, dated 9/99, and the Hayward Executive Airport Economic Benefit Study Executive Summary. Sponsored by Intervenor Group Petitioners; docketed December 7, 2007; received into evidence on December 18, 2007.

EXHIBIT 719-A Scientific Journal Article: "Acrolein is a major cigarette-related lung cancer agent: Preferential binding at p53 mutational hotspots and inhibition of DNA repair", Feng et al., PNAS 103 (42): 15404. (2006). Sponsored by Intervenor Group Petitioners; docketed December 12, 2007; received into evidence on December 18, 2007. (Exhibit number inadvertently repeated)

EXHIBIT 720 Scientific Journal Article: "Lung cancer, cardiopulmonary mortality, and long-term exposure to fine particulate air pollution." Pope, et al., JAMA. 2002 Mar 6; 287(9):1132-41. PMID: 11879110 [PubMed - indexed for MEDLINE]. Sponsored by Intervenor Group Petitioners; docketed December 12, 2007; received into evidence on December 18, 2007.

EXHIBIT 721 Scientific Journal Article: "Reduction in fine particulate air pollution and mortality: Extended follow-up of the Harvard Six Cities study.", Laden, et al., Am J Respir Crit Care Med Vol 173. pp 667–672, 2006. Sponsored by Intervenor Group Petitioners; docketed December 12, 2007; received into evidence on December 18, 2007.

EXHIBIT 722 Commissioned study: "IN-SITU ENGINE EMISSIONS TESTING AND COMPARISON FOR A HIGH SPEED FERRY AND COMPETING LAND TRANSIT VEHICLE, PHASE I: TASK 7.0: Final Report", Seaworthy Systems Inc., P.O. Box 965, Essex, CT 06426, prepared for Center for Commercial Deployment of Transportation Technologies (CCDoTT) California State University, Long Beach 6300 State University Drive, Long Beach, CA 90815. Sponsored by Intervenor Group Petitioners; docketed December 12, 2007; received into evidence on December 18, 2007.

EXHIBIT 723 Product literature: "Gasmet In Situ Continuous Gas Monitoring analyzer", Avensys Inc. 400 Montpellier, Montreal, Quebec H4N 2G7, Tel: (514) 428-6766, Fax: (514) 428-8999. Sponsored by Intervenor Group Petitioners; docketed December 12, 2007; received into evidence on December 18, 2007.

EXHIBIT 724 Product literature: "Extractive FTIR Air Emissions Testing", GE Energy, 4200 Wildwood Parkway, Atlanta, GA 30339. Sponsored by Intervenor Group Petitioners; docketed December 12, 2007; received into evidence on December 18, 2007.

EXHIBIT 725 Scientific Journal Article: "Origin, Occurrence, and Source Emission Rate of Acrolein in Residential Indoor Air", Seaman, et al., Environ. Sci. Technol. 2007, 41, 6940-6946. Sponsored by Intervenor Group Petitioners; docketed December 12, 2007; received into evidence on December 18, 2007.

EXHIBIT 726 "Source contributions to the mutagenicity of urban particulate air pollution.", Hannigan, et al., J Air Waste Management Assoc. 2005 Apr;55(4):399-410. Sponsored by Intervenor Group Petitioners; docketed December 12, 2007; received into evidence on December 18, 2007.

EXHIBIT 727 Letter from Andy Richards, District Manager, San Francisco Air Traffic Control District, FAA, to California Energy Commission, dated December 18, 2007. Docketed January 8, 2008. Sponsored by Intervenor Group Petitioners, received into evidence on December 18, 2007.

EXHIBIT 728 Field Notes for “Sutter Powerplant Overflight” from Gary Cathey, Chief, Office of Airports, Caltrans, Division of Aeronautics, dated February 18, 2003. Docketed January 8, 2008. Sponsored by Intervenor Group Petitioners and received into evidence on December 18, 2007.

Exhibit 729 Declaration of Gary Cathey in support of Group Petitioners' petition to intervene, reopen the administrative record and for reconsideration executed on October 22, 2007, in Russell City Energy Center CEC Docket 01-AFC-7C. Docketed December 7, 2007. Sponsored by Intervenor Group Petitioners. Not moved and not received into the record.

Exhibit 730 Letter submitted on December 17, 2007, under Public Comment by San Francisco Bay Chapter of the Sierra Club executed by Terry Preston, Executive Committee Member of Southern Alameda County Chapter. Docketed January 8, 2007. Sponsored by Group Petitioners and received into the record as Public Comment on January 14, 2008.

Exhibit 731 December 15, 2007 letter from Aircraft Owners and Pilots Association executed by Bill Dunn, Airports Division submitted under Public Comment on December 17, 2007. Docketed January 8, 2008. Sponsored by Group Petitioners and received into the record as Public Comment on January 14, 2008.

INTERVENOR ROBERT SARVEY'S EXHIBITS

EXHIBIT 800 Testimony, Declaration, and Resume of Robert Sarvey. Docketed on December 7, 2007. Sponsored by Intervenor Sarvey; received into evidence on December 17, 2007.

EXHIBIT 801 ARB New Release "Air Board Approves Stronger Nitrogen Dioxide Standards" docketed on December 7, 2007. Sponsored by Intervenor Sarvey; received into evidence on December 17, 2007.

EXHIBIT 802 EPA AP-42 Emission Factors for Reciprocating Engines, docketed on December 7, 2007. Sponsored by Intervenor Sarvey; received into evidence on December 17, 2007.

EXHIBIT 803 BAAQMD Reply Comments to ARB on PDOC Comments, docketed on December 7, 2007. Sponsored by Intervenor Sarvey; received into evidence on December 17, 2007.

EXHIBIT 804 BAAQMD Reply comments to PDOC Comments, docketed on December 7, 2007. Sponsored by Intervenor Sarvey; received into evidence on December 17, 2007.

EXHIBIT 805 ARB Fremont Chapel Way Maximum 1 hour average Data, docketed on December 7, 2007. Sponsored by Intervenor Sarvey; received into evidence on December 17, 2007.

EXHIBIT 806 Intervenor Sarvey's Proposed Revisions to Air Quality Condition AQ-SC8, dated December 17, 2007, and docketed January 16, 2008. Sponsored by Intervenor Sarvey; received into evidence on December 17, 2007.

BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION OF THE STATE OF CALIFORNIA
1516 NINTH STREET, SACRAMENTO, CA 95814
1-800-822-6228 – WWW.ENERGY.CA.GOV

APPLICATION FOR CERTIFICATION FOR THE EASTSHORE ENERGY CENTER IN CITY OF HAYWARD BY TIERRA ENERGY	**Docket No. 06-AFC-6** **PROOF OF SERVICE** **(Revised 7/31/2008)**

INSTRUCTIONS: All parties shall either (1) send an original signed document plus 12 copies or (2) mail one original signed copy AND e-mail the document to the address for the Docket as shown below, AND (3) all parties shall also send a printed or electronic copy of the document, which includes a proof of service declaration to each of the individuals on the proof of service list shown below:

CALIFORNIA ENERGY COMMISSION
Attn: Docket No. 06-AFC-6
1516 Ninth Street, MS-15
Sacramento, CA 95814-5512
docket@energy.state.ca.us

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Public Adviser
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DECLARATION OF SERVICE

I, _____, declare that on _____, I deposited copies of the attached _____, in the United States mail at _____, with first-class postage thereon fully prepaid and addressed to those identified on the Proof of Service list above.

OR

Transmission via electronic mail was consistent with the requirements of the California Code of Regulations, title 20, sections 1209, 1209.5, and 1210. All electronic copies were sent to all those identified on the Proof of Service list above.

I declare under penalty of perjury that the foregoing is true and correct.

_____

Appendix D:

Letter from PG&E Re: 2004 Long Term RFO Projects

GALATI | BLEK LLP

Plaza Towers
555 Capitol Avenue Suite 600
Sacramento CA 95814
Tel• 916.441.6575
Fax• 916.441.6553

DOCKET
DATE MAY 0 9 2007
RECD. MAY 0 9 2007

May 9, 2007

Ms. Raquel Rodriguez
California Energy Commission
Docket Unit, MS-4
1516 Ninth Street
Sacramento, CA 95814-5512

***SUBJECT*: PG&E'S 2004 LONG TERM RFO PROJECTS**
EASTSHORE ENERGY CENTER (06-AFC-6)

Dear Ms. Rodriguez:

Enclosed for filing with the California Energy Commission are one original and 12 (Twelve) copies of a letter dated May 9, 2007 from Pacific, Gas, and Electric Company entitled **PG&E'S LONG TERM RFO PROJECTS**. Please docket in the **EASTHORE ENERGY CENTER (06-AFC-6)** proceeding.

Sincerely,

Marguerite Cosens

Marguerite Cosens
Administrative Assistant
GalatiBlek

Pacific Gas and Electric Company.

Les Guliasi
Director
State Agency Relations

Mail Code B29L
P.O. Box 77000
San Francisco, CA 94177-0001

415.973.6463
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Lgg2@pge.com

May 9, 2007

California Energy Commission
Docket Unit
1516 Ninth Street
Sacramento, California 95814

SUBJECT: PG&E'S 2004 LONG TERM RFO PROJECTS

Docket Unit

Pacific Gas and Electric Company (PG&E) provides the following information to the California Energy Commission (CEC) to clarify its role in several generating projects being considered for certification by the CEC. The California Public Utilities Commission (CPUC) approved PG&E's execution of power purchase agreements pursuant to its 2004 Long Term Request For Offers (RFO) for the following generation projects.

- Bullard Energy Center, City of Fresno – Applicant and Developer is Bullard Energy Center, LLC
- Eastshore Energy Center, City of Hayward – Applicant and Developer is Eastshore Energy, LLC a wholly-owned subsidiary of Tierra Energy
- Panoche Energy Center, County of Fresno – Applicant and Developer is Panoche Energy Center, LLC
- Russell City Energy Center Amendment, City of Hayward – Applicant and Developer is Russell City Energy Company, LLC
- Starwood-Midway Project, County of Fresno – Applicant and Developer is Starwood Power-Midway, LLC

For each of these projects, PG&E is neither the Applicant nor the Developer. Additionally, PG&E will be neither the future owner nor operator. Therefore, PG&E is not a party to these Application For Certification (AFC) proceedings.

Pursuant to the 2004 Long Term RFO process, the CPUC authorized PG&E to enter into an agreement to purchase the Colusa Generating Station after it is constructed. E&L Westcoast LLC is the Applicant and Developer of the Colusa Generating Station, but PG&E will be the owner and operator and, therefore, had petitioned to intervene as a formal party to the Colusa AFC proceedings.

Similarly, pursuant to the 2004 Long Term RFO process, the CPUC approved PG&E's replacement of certain generating units at the Humboldt Bay Power Plant located in Eureka, California. The replacement project is entitled the Humboldt Bay Repowering Project (HBRP). PG&E is the Developer and will be the owner and operator of this facility. Therefore, PG&E is the Applicant in the HBRP AFC proceeding before the CEC.

Whether PG&E is an Applicant, Developer, owner or operator, because it is an owner of electric transmission assets, PG&E is subject to FERC's Order No. 2004 Standards of Conduct for Transmission Providers. The core principle behind the Order 2004 Standards of Conduct is that transmission providers must treat all transmission customers, affiliated and non-affiliated, on a non-discriminatory basis and cannot operate its transmission system to give a preference to any affiliates. In particular, affiliated transmission customers (such as a utility's marketing and sales unit) may not be given preferential access to information about the transmission provider's transmission system or information gathered by the transmission provider about a third party's transmission (including interconnection) system. Therefore PG&E's Transmission Planning Group may not provide preferential access to transmission information to any PG&E-affiliated developer. All developers, affiliated or non-affiliated, should obtain transmission information through the interconnection process available to third-party bidders. PG&E has not worked privately with any developer to direct the developer where to propose interconnection to the PG&E transmission grid or where to site new generation. For more information concerning FERC's Order No 2004 Standards of Conduct for Transmission Providers, see http://www.ferc.gov/legal/maj-ord-reg/land-docs/order2004.asp.

As described above, in 2004, PG&E published a Long Term Request For Offers, in which it solicited offers to procure needed energy from new generation resources. Ultimately through the use of an Independent Auditor and in consultation with PG&E's Procurement Review Group (PRG)[1] it was determined that the agreements related to the new generation described above were in the best interests of PG&E's customers. The CPUC approved all of the agreements on November 30, 2006. The CPUC approval process, including testimony from PG&E, the Independent Auditor, and other interested parties and agencies, is described in detail and available for review at the website: http://apps.pge.com/regulation/search.aspx; Search for Testimony under the case Long Term RFO Solicitation.

As described in PG&E's testimony the 2004 Long Term RFO did not specify the location of any project. However, the RFO did request offers to replace PG&E's existing facility at Humboldt Bay, which is located in the transmission constrained

[1] The PRG consists of non-market participants that represent the public interest and at the time of the 2204 Long Term RFO included Staff members of the California Energy Commission.

Humboldt load pocket. The San Francisco Bay Area (Bay Area) also experiences transmission constraints and electricity delivered into the Bay Area region was also advantageous. The Russell City Energy Center and the Eastshore Energy Center deliver power into the Bay Area region.

PG&E will docket this letter in the AFC proceedings for all of the 2004 Long Term RFO projects currently being considered by the CEC in order to provide clarification of PG&E's role in each of these projects.

Sincerely,

Les Guliasi / JJFS

Les Guliasi
Director
State Agency Relations

Appendix E:

The Relative Distances Between the Project Site and Key Locations Stipulated by the Applicant and the City of Hayward

CALIF ENERGY COMMISSION
06-AFC-6
FEB 04 2008
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February 1, 2008

Susan Gefter
Hearing Officer
Eastshore AFC Committee
California Energy Commission
1516 Ninth Street
Sacramento, CA 95814

RE: Eastshore Energy Center (06-AFC-06)
Confirmation of Distances as Requested by Hearing Officer Gefter

As you directed at the closing of the January 14, 2008 Evidentiary Hearings for the Eastshore Energy Center, we are providing the attached table and figure intended to establish consistent values. Unfortunately, Applicant's effort to coordinate with the parties to create a list of stipulated distances has not been possible. We appreciate and want to acknowledge the efforts of the other parties on resolving this issue. We are willing to continue working with all parties to create this list, but I expect that in the areas of aviation, reaching consensus will not be possible. As aviation issues are the subject of known disagreement among the parties, this should be expected. For all other distances, I believe that we will be able to reach consensus and I believe that the present disagreement among the parties is related to the method of measurement. To provide a history of this exercise, please accept the following explanation:

As you directed, Applicant coordinated with the City of Hayward, Bob Bauman, regarding the compilation of this data. Mr. Bauman requested that all measurements be calculated from the center-to-center of each location and we agreed to calculate the measurements in this manner. As a result, all distances on the attached table and map are measured from center-to-center. These measurements have been meticulously checked by my technical and GIS staff to ensure accuracy. We would not object to using distances measured boundary-to-boundary, except for the adjacent industrial and commercial uses which should be calculated from intensive use area-to-intensive use area.

We have reviewed all of the distance-related materials e-mailed to date from all parties. In general we have been able to re-create all of the measurements made by the various parties and as noted above, with minor exception, we would not object to using the distances provided by other parties, as long as they are correct. Also, please note that there are some typographical errors on the CEC staff's tables and figures which we would be happy to work with staff to correct and then accept.

At this time, we do not believe that we can reach consensus for the aviation-related measurements, with the exception of the horizontal distances from Eastshore and RCEC to the Hayward Executive Airport and the Oakland International Airport, as these items involve the interpretation of plans and policies.

Please feel free to contact me at (805) 568-0650 should you have any questions.

Sincerely,

Jennifer L. Scholl

Jennifer Scholl
Senior Project Manager/Regulatory Specialist

EASTSHORE ENERGY CENTER – DISTANCES IN QUESTION

Prepared on behalf of Eastshore Energy, LLC

Dated: February 1, 2008

#	Distances (as requested by Hearing Officer Gefter)	Direction/ Response (from initial measurement point)	Feet (rounded to the nearest foot)	Statute Miles (rounded to the nearest 10th mile)	Method of Measurement Details/Response (all distances measured from the center of the Eastshore site to the center of listed locations)
	Hayward Executive Airport (HEA)				
1	Distance from Eastshore to the HEA Airport Reference Point (ARP)	North	7788	1.5	
2	Distance from RCEC to HEA ARP	Northeast	9202	1.7	
3	Distance from Eastshore to HEA end of Runway 28L	North	6590	1.3	
4	Distance from Eastshore to HEA airspace	N/A	N/A	N/A	The Eastshore site lies completely within (underneath) the HEA Class D airspace.
5	Distance from Eastshore to HEA Departure and Arrival (takeoff and landing) flight patterns	N/A	N/A	N/A	Traffic patterns are not rigidly defined. They can vary in lateral distance from runways, but typically a light aircraft would remain within ½ to ¾ miles for takeoffs and landings. Aircraft arriving into the traffic patterns would not typically descend to traffic pattern altitudes until within approximately 1 mile from the intended point of landing.
6	California Airport Land Use Planning Safety Compatibility Zones for HEA as depicted on FSA, Figure 5	North	N/A	N/A	Closest point would be Sector 3 which is equivalent to the Inner Turning Zone, as depicted on FSA, Figure 5. The Eastshore site is located approximately 590 feet south of the Traffic Pattern Zone boundary (6590 feet from the end of Runway 28L), as depicted on FSA, Figure 5. However the area outside the six safety zone sectors is not considered to be a safety compatibility area pursuant to the California Airport Land Use Zones.
7	Heights of existing industrial stacks in the vicinity of the HEA	N/A	N/A	N/A	Rohm & Haas stack: 180 feet KFAX radio broadcast antennae: 228 feet above ground level (agl)
8	Current zoning height limitations within the Industrial Corridor/Industrial zone in the vicinity of the HEA	None	N/A	N/A	There are no height restrictions within the Industrial Zone District.

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9	Number of Conditional Use Permits (CUPs) granted to allow the height variances within the Industrial Corridor/Industrial zone in the vicinity of the HEA	None	N/A	N/A	There are no height restrictions within the Industrial Zone District, therefore no CUPs or variances required for tall structures.
10	Height, number, and distance of RCEC exhaust stacks from HEA	Northeast	9569	1.8	There are two 145-foot tall exhaust stacks associated with the RCEC project.
Oakland International Airport (OAK)					
11	Distance from Eastshore to OAK Airport Reference point (ARP)	Northwest	41920	7.9	
12	Distance from Eastshore to OAK airspace	Northwest	9639	1.8	As shown on FSA Figure 4A, the OAK Class C airspace boundary limit is shown where the OAK Runway 29 arrival path (shown in yellow) intersects with the OAK Class C inner surface (shown in black and white). In this table, this distance is measured along a constant flight path altitude.
13	Distance of Eastshore to OAK Departure and Arrival flight patterns	Northwest	N/A	N/A	Aircraft arrivals to OAK Runway 29 transit at approximately 1900 feet above the Eastshore site (within OAK Class C airspace). There are no altitude requirements for departures. Aircraft departing from Runway 11 (on a southeasterly heading) climb rapidly after take-off.
Chabot College					
15	Distance from Eastshore to center courtyard/quad of Chabot College	Northeast	4761	0.9	Chabot College is 94-acres as noted in the Chabot College Educational Master Plan, 2005-2015, dated January 2005. Chabot College is bordered by Hesperian Boulevard and Depot Road.
16	Distance from RCEC to center courtyard/quad of Chabot College	Northeast	8577	1.6	
Alameda County Redevelopment Agency Planning Areas					
17	Distance from Eastshore to Alameda County's Redevelopment Agency's planning area	West	1468	0.3	There are no current redevelopment projects in this area; however, the nearest redevelopment area is the Mt. Eden Redevelopment Sub Area.
Nearest Residences – based upon FSA, Exhibit 200, Land Use section, p. 4.5-25 re "Sensitive Receptors"					
18	2765 Depot Road	Northeast	1592	0.3	
19	Waterford Apartments	Southeast	2738	0.5	

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Schools – based upon FSA, Exhibit 200, Land Use section, p. 4.5-25 re "Sensitive Receptors"					
20	Life Chiropractic College West	East	919	0.2	
21	ITT Technical Institute	Southwest	4769	0.9	
22	Eden Gardens Elementary School	East	4015	0.8	
23	Anthony W. Ochoa Middle School	Northeast	3537	0.7	
24	Lea's Montessori	East	5624	1.1	
Hospitals – based upon FSA, Exhibit 200, Land Use section, p. 4.5-25 re "Sensitive Receptors"					
25	Kaiser Hospital	Southeast	7977	1.5	
26	Kaiser Medical Center	Southeast	7559	1.4	
27	St. Rose Hospital	Southeast	9636	1.8	
28	Eden West Convalescent Hospital	Northeast	3218	0.6	
Commercial Entities					
29	Fremont Bank (processing center)	South	433	0.1	
30	Thermionics Metal Processing Incorporated (chemical and mechanical cleaning)	North, Northwest	292 313	0.1 0.1	Building north of Eastshore site Building northwest of Eastshore site
31	Car Parts Stripping Operation	North	340	0.1	
32	US Rental	South	507	0.1	
33	Olympian Commercial Refueling Station	Northwest	468	0.1	
34	METALS USA (conduit pipe fitter)	West	553	0.01	
35	Public Storage Units	Northeast	916	0.2	
36	State Pipe & Supply Incorporated	North	640	0.1	
Industrial Entities					
37	Rohm & Haas	Southwest	3345	0.6	
38	Berkeley Farms	Southeast	1475	0.3	
39	KFAX Tower	Northwest	7909	1.5	
40	City of Hayward Wastewater Treatment Facility	Northwest	7909	1.5	
41	Contractors Chemical Incorporated (chemical, adhesive, and sealant manufacturing)	North	295	0.1	
42	Inland Metals (sheet metal	Northwest	947	0.2	

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	fabrication)				
43	RCEC	Northeast	3829	0.7	

Appendix F

ARTICLE 6

AIRPORT APPROACH ZONING REGULATIONS

Section	Subject Matter
10-6.00	PURPOSE
10-6.01	SHORT TITLE
10-6.10	DEFINITIONS
10-6.11	AIRPORT
10-6.12	AIRPORT HAZARD
10-6.13	NON-CONFORMING USE
10-6.14	STRUCTURE
10-6.15	LANDING AREA
10-6.16	TREE
10-6.17	POINT ZERO
10-6.20	AIRPORT ZONES
10-6.30	HEIGHT LIMITS
10-6.35	USE RESTRICTIONS
10-6.40	NON-CONFORMING USES
10-6.45	VARIANCES
10-6.50	SPECIFIC POWERS
10-6.55	HAZARD MARKING AND LIGHTING
10-6.60	ADMINISTRATIVE AGENCY
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10-6.70	LIMITATION OF JURISDICTION
10-6.75	CONFLICTING REGULATIONS

ARTICLE 6

AIRPORT APPROACH ZONING REGULATIONS

SEC. 10-6.00 PURPOSE. Pursuant to the authority conferred by the Conservation and Planning Act of the State of California and in conformity with the regulations and standards of the Federal Aviation Agency of the United States Department of Commerce, the City Council of the City of Hayward deems it necessary to create an "Airport Approach Zoning Ordinance" for the purpose of promoting the health, safety and general welfare of the inhabitants of the City of Hayward by preventing the creation or establishment of airport hazards, thereby protecting the lives and property of the users of the Hayward Air Terminal and of the occupants of the land in its vicinity, and preventing destruction or impairment of the utility of the airport and the public investment therein.

SEC. 10-6.01 SHORT TITLE. This Article shall be known and may be cited as "The Airport Approach Zoning Ordinance of the City of Hayward".

SEC. 10-6.10 DEFINITIONS. As used in this Article, certain words and phrases are defined and certain provisions shall be construed as herein set out, unless it shall be apparent from the context that a different meaning is intended.

SEC. 10-6.11 AIRPORT. "Airport" means the Hayward Air Terminal.

SEC. 10-6.12 AIRPORT HAZARD. "Airport Hazard" means any structure or tree or use of land which obstructs the airspace required for the flight of aircraft in landing or taking off at the airport or is otherwise hazardous to such landing or taking off of aircraft.

SEC. 10-6.13 NON-CONFORMING USE. "Non-Conforming Use" means any structure, tree or use of land which does not conform to a regulation prescribed in this Article or an amendment thereto, as of the effective date of such regulation.

SEC. 10-6.14 STRUCTURE. "Structure" means any object constructed or installed by man, including (but without limitation) buildings, towers, smokestacks and overhead transmission lines.

SEC. 10-6.15 LANDING AREA. "Landing Area" means the area of the airport used for the landing, take off or taxiing of aircraft.

SEC. 10-6.16 TREE. "Tree" means any object of natural growth.

SEC. 10-6.17 POINT ZERO. "Point Zero" means a point two hundred feet (200') beyond and at the same elevation as the designated threshold of Runway 1OR-8L and the threshold of Runway 10L-8R.

SEC. 10-6.20 AIRPORT ZONES. In order to carry out the purposes of this Article, all of the land outside the boundaries of the Hayward Air Terminal and within approximately two (2) miles of the landing area of the airport is hereby divided into airport approach zones, airport turning zones, airport transition zones and airport clear zones, the boundaries of which are shown on a map designated as "The Airport Approach Zoning Plan for Hayward Air Terminal, Hayward, Alameda

County, California", on file in the office of the City Clerk and hereby referred to, incorporated herein and made a part of this Article as though set forth in full herein.

SEC. 10-6.30 HEIGHT LIMITS. Except as otherwise provided in this Article, no structure or tree shall be erected, altered, allowed to grow or maintained in any airport approach zone, airport turning zone or airport transition zone to a height in excess of the height limit herein established for such zone. For the purpose of this regulation, the following height limits are hereby established for each of the zones in question:

(1) Approach Zones Nos. One (1) and Two (2) shall have a maximum height limit of twenty-five feet (25') at a distance of one thousand feet (1000') from Point Zero. The maximum allowable height shall be increased in step-ups of five feet (5') each for every two hundred foot (200') segment added to the one thousand foot (1000') distance from Point Zero to a maximum height of one hundred fifty feet (150').

(2) Approach Zones Nos. Three (3) and Four (4) shall have a maximum height limit of twenty-five feet (25') at a distance of five hundred feet (500') from Point Zero. The maximum allowable height shall be increased in step-ups of five feet (5') each for every one hundred foot (100') segment added to the five hundred foot (500') distance from Point Zero to a maximum height of one hundred fifty feet (150').

(3) All turning zones shall have a maximum height limit of one hundred fifty feet (150').

(4) All transition zone areas shall have a maximum height limit as indicated on "The Airport Approach Zoning Plan for Hayward Air Terminal, Hayward, Alameda County, California".

SEC. 10-6.35 USE RESTRICTIONS. Notwithstanding any other provisions of this Article, no use may be made of land within any airport approach zone, airport turning zone or airport transition zone in such a manner as to create harmful electrical interference with radio communication between the airport and aircraft, make it difficult for flyers to distinguish between airport lights and other lights, result in harmful glare in the eyes of the flyers using the airport, impair visibility in the vicinity of the airport or otherwise endanger the landing, take off or maneuvering of aircraft.

SEC. 10-6.40 NON-CONFORMING USES. The regulations prescribed in Sections 10-6.30 and 10-6.35 of this Article shall not be construed to require the removal, lowering or other change or alteration of any structure or tree not conforming to the regulations as of the effective date hereof or otherwise interfere with the continuance of any non-conforming use. Nothing herein contained shall require any change in the construction, alteration or intended use of any structure, the construction or alteration of which was begun prior to the effective date of this Article and is diligently prosecuted and completed within two (2) years thereof.

Before any non-conforming structure or tree may be replaced, substantially altered or repaired, rebuilt, allowed to grow higher or replanted, a permit must be secured from the Planning Commission authorizing such replacement, change or repair. No permit shall be granted that would allow the establishment or creation of an airport hazard or permit a non-conforming structure or tree or non-conforming use to be made or become higher or become a greater hazard to air navigation than it was on the effective date of this Article, or than it was when the application for permit is

made. Except as provided herein, all applications for permits shall be granted. No such permit shall be required to make maintenance repairs to or to replace parts of existing structures or electrical distribution or telephone poles or lines which do not enlarge or increase the height of existing structures, poles or lines.

In case of an emergency, any non-conforming structure may be replaced or rebuilt without first obtaining a permit, provided that application for a permit shall be filed with the Planning Commission within twenty-four (24) hours after such office is first opened subsequent to the emergency.

SEC. 10-6.45 VARIANCES. Any person desiring to erect any structure or increase the height of any structure or permit the growth of any tree or otherwise use his property than is required in this Article, may apply to the Planning Commission for a variance from the regulation in question. Such variance shall be allowed where a literal application or enforcement of the regulations would result in practical difficulty or unnecessary hardship and the relief granted would not be contrary to the public interest but do substantial justice and be in accordance with the spirit of the regulations and this Article; provided that any variance may be allowed, subject to any reasonable condition that the administrative agency may deem necessary to effectuate the purpose of this Article.

SEC. 10-6.50 SPECIFIC POWERS. In addition to the powers delegated in Section 10-6.45 hereof, the Planning Commission shall have the following powers.

(1) To make changes in the restrictions and boundaries of such zones as are herein established, in accordance with the procedure prescribed for amendments and reclassification of the Zoning Ordinance of the City.

SEC. 10-6.55 HAZARD MARKING AND LIGHTING. Any variance granted under Sections 10-6.40 or 10-6.45 of this Article may, if such action is deemed advisable to effectuate the purpose of this Article and reasonable in the circumstances, be so conditioned as to require the owner of the structure or tree in question to permit City of Hayward at its own expense, to install, operate and maintain thereon such markers and lights as may be necessary to indicate to flyers the presence of an airport hazard.

SEC. 10-6.60 ADMINISTRATIVE AGENCY. The Building Official of the City of Hayward is hereby designated the administrator charged with the duty of administering and enforcing the regulations herein described. The duties of the Building Official shall include that of reviewing all applications for building permits within the approach zones, turning zones and transition zones of the Hayward Air Terminal, but the Building Official shall not have or exercise any of the powers or duties delegated to the Planning Commission.

SEC. 10-6.65 VIOLATION. A PUBLIC NUISANCE. In the event that any person should erect, construct, move, alter or attempt to erect, construct, move or alter any structure or allow any tree to grow to a height in violation of the provisions of this Article, the same is hereby declared a public nuisance. It shall be the duty of the City Attorney, when ordered by the City Council, to bring and prosecute an action in any court of competent jurisdiction to enjoin such person from continuing such erection, construction, moving, alteration or growth or if such erection, construction, moving, alteration or growth is being or has been accomplished, the City Attorney, when ordered by the City Council, shall enjoin such person from maintaining the same.

SEC. 10-6.70 LIMITATION OF JURISDICTION. The provisions of this Article shall only apply and be in force on areas within the airport approach zones, the turning zones and the

transition zones within the limits of the City of Hayward.

SEC. 10-6.75 CONFLICTING REGULATIONS. In the event of conflict between this Article and any other regulations applicable to the same area or parcel of land, whether the conflict be with respect to the height of structures or trees, the use of land or any other matter and whether such other regulations were adopted by the City of Hayward or by some other public agency, the more stringent limitations or requirements shall govern and prevail.