CARLSBAD ENERGY CENTER PROJECT

Revised Presiding Member's Proposed Decision

MARCH 2012
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CALIFORNIA
ENERGY COMMISSION
Edmund G. Brown, Jr., Governor

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DISCLAIMER

This report was prepared by the California Energy Commission Carlsbad Project AFC Committee as part of Carlsbad Project, Docket No. 07-AFC-6. The views and recommendations contained in this document are not official policy of the Energy Commission until the report is adopted at an Energy Commission Business Meeting.

BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION OF THE STATE OF CALIFORNIA
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This is the Revised Presiding Member's Proposed Decision for the ***Carlsbad Energy Center Project*** (Docket Number 07-AFC-06). I have prepared this document pursuant to the requirements set forth in the Commission's regulations. (20 Cal. Code Regs., §§ 1749-1752.5.)

I recommend that the Application for Certification be approved, subject to the Conditions of Certification set forth herein, and that the Energy Commission grant the Project Owner a license to construct and operate the Project.

Dated: March 28, 2012, at Sacramento, California.

Original Signed By:

KAREN DOUGLAS
Commissioner
Carlsbad AFC Committee

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I. INTRODUCTION

A. SUMMARY OF THE DECISION

This Decision contains the Commission's rationale in determining that the proposed Carlsbad Energy Center Project (CECP) will, as mitigated, and except as described in the following paragraph, have no significant impacts on the environment and comply with all applicable laws, ordinances, regulations, and standards (LORS). This Decision is based exclusively upon the record established during this certification proceeding and summarized in this document. We have independently evaluated the evidence, provided references to the record[1] supporting our findings and conclusions, and specified the measures required to ensure that the CECP is designed, constructed, and operated in the manner necessary to protect public health and safety, promote the general welfare, and preserve environmental quality.

We find significant unmitigated land use impacts and that the CECP does not comply with certain City of Carlsbad development laws and standards. Nonetheless, we find that the benefits of the project outweigh those impacts and approve the project.

On September 14, 2007, Carlsbad Energy Center, LLC, (the Applicant) submitted an Application for Certification (AFC) seeking approval from the California Energy Commission (Energy Commission) to develop the Carlsbad Energy Center Project (CECP), a combined cycle electrical power plant facility proposed in the City of Carlsbad, San Diego County. On October 31, 2007, the Energy Commission accepted the AFC as complete, thus starting the Energy Commission's formal review of the proposed project.

The 23-acre CECP would be constructed and operated in the northeast section of the larger, 95-acre Encina Power Station (EPS) power plant complex. The proposed CECP site is currently occupied by the EPS east tank farm, including above-ground fuel oil storage Tanks 5, 6, and 7. These dormant fuel oil storage tanks would be demolished and removed, and the soil upon which the tanks currently stand would be remediated, as appropriate and necessary. The EPS facility has been in operation since 1954. EPS Units 1, 2, and 3 (circa 1950 steam boilers that provided the initial electrical generation) would be permanently

[1] The Reporter's Transcripts of the evidentiary hearings are cited as "date of hearing RT page __." For example: 10/1/10 RT 77. 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.

retired once the CECP is approved and operational. EPS Units 4 and 5, part of a subsequent EPS expansion that occurred in the late 1970s, would continue generating electricity regardless of this proceeding or its outcome. However the Applicant has committed to planning for the removal and redevelopment of the portion of the EPS complex containing Units 1 through 5 once all of the units are no longer needed for the reliable operation of the electricity system. See conditions of certification **Land-2** and **Land-3** and the related discussion in the Land Use section of this Decision.

The CECP would connect its nominal 540 MWs of electricity to the existing, slightly modified, Encina 138 kilo-volt (kV) switchyard, and to a proposed new Encina 230-kV switchyard (which would be built and located at San Diego Gas & Electric's Cannon Substation, located immediately south of the proposed CECP site). Transmission interconnections to these two switchyards would be comprised of an overhead line from CECP Unit 6 to the existing 138-kV switchyard, and a combined, above and below ground cable from CECP Unit 7 to the proposed new 230-kV substation.

Natural gas would be provided through a new 1,100-foot interconnection to an existing Southern California Gas Company high pressure natural gas line located adjacent to the CECP site. The new CECP units would be natural gas-fired only, with no fuel oil emergency backup capability whatsoever.

The new CECP facility would use evaporative air cooling, eliminating the existing EPS generators' daily need for large quantities of seawater for purposes of once-through cooling. The minimal industrial, wash-down and associated water necessary for CECP's industrial steam and landscape irrigation would be approximately 700,000 gallons per day. This decision permits the use of alternate water supplies for the purpose—recycled water supplied by the City of Carlsbad or another supplier or desalinated water created by an on-site desalination unit drawing ocean water from the adjoining lagoon.

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

If approved by the Energy Commission, CECP construction is proposed to take 25 months to complete. Major milestones for the planned CECP construction schedule include:

- Begin construction: _____
- Startup and testing: _____
- Commercial operations: 90 days after testing begins (_____)

The capital cost for the project is estimated to exceed $500 million.

The number of workers required for the 25-month, single-phased construction, including connecting to the 230-kV switchyard, would peak in the nineteenth month with 357 workers. The fewest number of workers on the project would occur during the ninth month of construction at 76 workers. (Ex. 200, pp. 3.1, 3.5.)

B. SITE CERTIFICATION PROCESS

The CECP 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, are functionally equivalent to the preparation of an Environmental Impact Report. (Pub. Res. Code, § 21080.5.) The process is designed to complete the review within a specified time period when the required information is submitted in a timely manner. A license issued by the Commission is in lieu of other state and local permits.

The Commission's certification process provides a thorough review and analysis of all aspects of a proposed power plant project. During this process, the Energy Commission conducts a comprehensive examination of a project's potential economic, public health and safety, reliability, engineering, and environmental 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 AFC. Commission staff reviews the data submitted as part of the AFC and makes a recommendation to the Commission on whether the AFC contains adequate information to begin the

certification process. After the Commission determines an AFC contains sufficient analytic information, it appoints a Committee of two Commissioners to conduct the formal licensing process. This process includes public conferences and Evidentiary Hearings, where the evidentiary record is developed and becomes the basis for the Presiding Member's Proposed Decision (PMPD). The PMPD determines a project's environmental impact and conformity with applicable laws, ordinances, regulations, and standards and provides recommendations to the full Commission.

The initial portion of the certification process is weighted heavily toward assuring public awareness of the proposed project and obtaining necessary technical information. During this time, the Commission staff sponsors public workshops at which intervenors, agency representatives, and members of the public meet with Staff and the Applicant to discuss, clarify, and negotiate pertinent issues. In this proceeding, Staff published its initial technical evaluation of the CECP in its Staff Assessment (SA) and made it available for a 30-day comment period.

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

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

Throughout the licensing process, members of the Committee, and ultimately the Commission, serve as fact-finders and decision-makers. Other parties, including the Applicant, Commission staff, and formal intervenors, function independently with equal legal status. An "ex parte" rule prohibits parties in the case, or other persons with an interest in the case, from communicating on substantive matters

with the decision-makers, their staffs, or assigned hearing officer unless these communications are made on the public record. The Office of the Public Adviser is available to assist the public in participating in all aspects of the certification proceeding.

C. PROCEDURAL HISTORY

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

On September 14, 2007, Carlsbad Energy Center, LLC, (the Applicant) submitted an AFC seeking approval from the California Energy Commission to develop the CECP. On October 31, 2007, the Energy Commission accepted the AFC as complete, assigned a Committee of two Commissioners to conduct proceedings, thus starting the Energy Commission's formal review of the proposed project.

The formal parties included the Applicant, Energy Commission staff (Staff), and Intervenors Terramar Association; City of Carlsbad, South Carlsbad Coastal Redevelopment Agency, Center for Biological Diversity, Power of Vision, California Unions for Reliable Energy and Rob Simpson.

On November 16, 2007, the Committee issued its "Notice of Public Site Visit and Informational Hearing." 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 CECP. The Public Adviser's Office also advertised the public hearing and site visit and distributed information to local officials and sensitive receptors surrounding the project site.[2]

On Monday, December 17, 2007, the Committee conducted a site visit to tour the proposed CECP site and then convened a public Informational Hearing at the Faraday Center in Carlsbad, California. At that event, the Committee, the parties, interested governmental agencies, and other public participants discussed issues related to development of the project, described the

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

Commission's review process, and explained opportunities for public participation.

On January 2, 2008, the Committee issued its initial Scheduling Order. The Committee Schedule was based on both the Applicant's and Staff's proposed schedules and related discussion at the Informational Hearing. The schedule contained a list of events that must occur in order to complete the certification process within twelve months. The Committee issued several revised schedules during the course of discovery.

In the course of the review process, Staff conducted a publicly noticed Data Response and Issues Resolution workshop at the City of Carlsbad's Dove Library complex on January 24, 2008. Topics discussed included air quality, cultural resources, land use, noise, transmission systems engineering, soil and water resources, visual resources, and waste management. Participating agencies in the workshop included several City of Carlsbad agencies and the San Diego Air Pollution Control District. Representatives from Intervenor California Unions for Reliable Energy (CURE) also participated in the day-long workshop, as did dozens of Carlsbad residents and interested citizens.

On March 26, 2008, Staff conducted a second publicly noticed Data Response and Issue Resolution workshop at the Hilton Gardens in the City of Carlsbad. Topics discussed included air quality, cultural resources, hazardous materials management, land use, traffic and transportation, public health, soil and water resources, visual resources, and waste management. Participating agencies in the workshop included several City of Carlsbad public agencies and the San Diego Air Pollution Control District, as well as members of the public.

On September 7, 2008, Staff distributed the revised CECP description and components as described in the Applicant's July 25, 2008 Supplement to the AFC, called the Project Enhancements and Refinements (PEAR) package. The PEAR supplement was distributed to a comprehensive list of libraries, agencies, and organizations, and a notice of this supplement was mailed to agencies, libraries and property owners within 1,000 feet of the proposed project and 500 feet of the linear facilities. The supplement was also made available to hundreds of individuals through the Energy Commission's *listserve* e-mail alert system.

In addition to the Staff workshops and meetings, the Energy Commission received an unprecedented volume of correspondence from local, state, and federal agencies that have an interest in the project, including the City of

Carlsbad (and several of its departments, including the Carlsbad Fire Department), San Diego County Department of Environmental Health, San Diego Air Pollution Control District, San Diego Regional Water Quality Control Board, North (San Diego) County Transit District, California Department of Transportation, California Coastal Commission, California State Lands Commission, California Department of Fish & Game, United States Fish & Wildlife Service, National Marine Fisheries Service, and the Federal Aviation Administration.

The Energy Commission Preliminary Staff Assessment was published on December 11, 2008. The public was provided with an opportunity to comment on the document on January 7 and 8, 2009, in Carlsbad, California. The Final Staff Assessment (FSA) was published on November 12, 2009.

Energy Commission staff also held a workshop on December 2, 2009, in Carlsbad to receive comments on the FSA as it relates to air quality and public health. The San Diego Air Pollution Control District (SDAPCD) was also in attendance, and commented on their Final Determination of Compliance.

The Committee conducted the Prehearing Conference on Thursday, January 21, 2010, in Sacramento at the Energy Commission headquarters. Evidentiary Hearings were then conducted on February 1, 2, 3, and 4, 2010, in Carlsbad, California.

The Committee published the PMPD on May 9, 2011, and held a Committee Conference in Carlsbad on May 19 and 20, 2011. In addition to taking Public and Party comments, the Committee reopened the Evidentiary Record and conducted additional Evidentiary Hearings on specified subtopics in the areas of Air Quality, Land Use, Worker Safety and Fire Protection, seismic safety, and Soil and Water. An Errata containing recommended changes to the PMPD was issued on June 14, 2011.

The Full Commission considered the PMPD and Errata at its June 30, 2011, business meeting. The Commission remanded the matter back to the Committee to conduct further hearings on the effect, if any, on our cumulative impacts and alternatives analysis of three new power plants proposed for power purchase agreements by SDG&E, on Conditions of Certification **LAND-2** and **LAND-3**, on grid reliability issues raised by California Independent System Operator comments on the PMPD, and any other issues the Committee, in its discretion, decided to consider.

Following the preparation of additional testimony by the parties, an additional Evidentiary Hearing was held on December 12, 2012, in Carlsbad, California. The topics considered, as described in the Committee's notice of that hearing, were:

1. The impact of the three new San Diego Gas & Electric Power Purchase Agreement projects on our cumulative impacts and alternatives analysis;
2. Conditions **LAND-2** and **LAND-3**, their environmental impacts and appropriate modifications to address the financial concerns raised by the Applicant;
3. Grid reliability issues raised by the comments from CAISO during the June 30, 2011, Energy Commission Business Meeting;
4. The federal PSD permit that the project will require in order to operate;
5. Recent City land use LORS amendments contained in Resolution 2011-230 and Ordinance CS-158; and
6. Additional evidence, not previously presented, regarding whether it is appropriate to override either unmitigated environmental impacts or noncompliance with state or local LORS.

A Revised PMPD (RPMPD) was issued on March 28, 2012. A Committee Conference to receive comments on the RPMPD was held on April 19, 2012 in Carlsbad. The deadline for filing written comments was April 27, 2012. Following the issuance of an errata on _____, 2012 the full Energy Commission considered the RPMPD and errata on _____, 2012 and adopted the RPMPD as modified by the errata.

D. COMMISSION OUTREACH

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

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

E. PUBLIC COMMENT

The record contains public comments from concerned individuals and organizations. Throughout these proceedings, as reflected in the transcribed record, the Committee provided an opportunity for public comment at each Committee-sponsored conference and hearing. Numerous oral and written public comments were received during the Evidentiary Hearing and to a lesser extent during the PMPD comment hearing and comment period. The significant comments are addressed throughout the remainder of this Decision, either directly or in the narratives.

II. PROJECT DESCRIPTION

Carlsbad Energy Center LLC (the Applicant) filed an Application for Certification (AFC) for the Carlsbad Energy Center Project (CECP) on September 14, 2007. The project is a 558-megawatt (MW) natural gas fueled electric generating facility to be located on 25 acres in the City of Carlsbad in San Diego County. The Applicant will own and operate the project.

SUMMARY AND DISCUSSION OF THE EVIDENCE

The proposed CECP site is a portion of the existing Encina Power Station (EPS) site, adjacent to the southern edge of the Agua Hedionda Lagoon, in the City of Carlsbad in San Diego County. The EPS facility has been in operation since 1954. EPS Units 1, 2, and 3 (steam boilers that provided the initial electrical generation) would be permanently retired once the CECP is approved and operational. EPS Units 4 and 5, part of an EPS expansion that occurred in the late 1970s, would continue generating electricity regardless of the outcome of this proceeding. Individual exhaust stacks were eventually replaced by a single, 400-foot exhaust stack in order to better disperse plant emissions.

The total land acreage of the existing EPS is approximately 95 acres. The EPS is bounded by San Diego Gas and Electric (SDG&E) property and Cannon Road to the south, Interstate 5 (I-5) to the east, Carlsbad Boulevard to the west, and the Agua Hedionda Lagoon to the north. The north/south AT&SF/North County Transit District (NCTD) Rail Corridor bisects the EPS. Approximately 65 acres lie to the west of the railroad and contain the existing generating equipment (Assessor Parcel Number [APN] 210-01-43). Approximately 30-acres east of the railroad tracks (APN 210-01-41) contain large above ground fuel oil storage tanks formerly used to supply backup fuel for the EPS. The CECP would be constructed on 23 acres of the eastern parcel following removal of three of the storage tanks. Each of the tanks currently sits in its own containment basin approximately 25 feet below the surrounding grade. A larger site for CECP will be created from the three containment basins by excavating the two berms that separate them, leaving the construction site below grade and providing partial shielding of the CECP from view. See **Project Description Figures 1** and **2** depict the location of CECP within the EPS and its surroundings and a plot plan depicting the layout of the major equipment for the project.

During construction, up to three acres of the existing EPS site west of the railroad tracks will be used for construction worker parking, and up to seven acres on the EPS would be used for onsite construction equipment/material laydown. No offsite construction worker parking or construction equipment/material laydown are anticipated to be required for the construction of the CECP.

The primary operations access to the site would be from Carlsbad Boulevard, through the existing EPS, and using the existing railroad crossing between APN 210-01-43 and APN 210-01-41.

The CECP facility will consist of two power blocks, sometimes referred to as units 6 and 7, each having one combustion turbine generator (CTG) equipped with ultra low nitrogen oxide (ULN) combustors; one heat recovery steam generator (HRSG); one condensing steam turbine generator (STG); an air-cooled fin-fan cooler; and associated support equipment providing a total nominal generating capacity of 540.4 MW net. The combustion turbines will be Siemens Rapid Response Combined-Cycle (R2C2) units. Black start capability is provided by the existing Encina Power Station via electrical connections to each new power generation train.

Each Siemens RC2C unit combines the fast starting capability of a simple-cycle gas turbine and the efficiency of a combined-cycle plant in a cost-effective design. The CECP generating system is designed to start and ramp up to 150 MW in 10 minutes and still be capable of operating with combined-cycle efficiency in 45 minutes for a hot start and approximately 125 minutes for a cold start. The fast-start capability is a requirement for peaking applications and has the additional benefit of reducing start-up emissions compared to a conventional combined-cycle plant.

The Heat Recovery Steam Generator is designed for fast start and incorporates a conventional, proven selective catalytic reduction (SCR) system to achieve the guaranteed emissions at load. The CTG exhaust gases will be used to generate steam in the HRSG. The HRSG will be a single pressure, non-reheat design. Steam from the HRSG will be admitted to a condensing STG for power production.

Associated equipment will include emission control systems necessary to meet the proposed emission limits. One-hour nitrogen oxide (NO_X) emissions will be controlled at the stack to two parts per million by volume (ppmv), dry basis, corrected to 15 percent oxygen by a combination of ULN combustors in the CTG

and SCR systems in the HRSGs. An oxidation catalyst will be installed in the HRSGs to limit three-hour stack carbon monoxide (CO) emissions to 2 ppmv. Volatile organic compound (VOC) emissions will also be limited to 2 ppmv for the gas turbines from 60 to 100 percent load.

The CECP would connect its nominal 540 MWs of electricity to the existing, slightly modified, Encina 138 kilo-volt (kV) switchyard, and to a proposed new Encina 230-kV switchyard (which would be built and located at San Diego Gas & Electric's Cannon Substation, located immediately south of the project site). Transmission interconnections to these two switchyards would be an overhead line from CECP Unit 6 to the existing 138-kV switchyard, and a combined, above and below ground cable from CECP Unit 7 to the proposed new 230-kV substation.

Natural gas would be provided through a new 1,100-foot interconnection to an existing Southern California Gas Company high pressure natural gas line located adjacent to the CECP site. The new CECP units would be natural gas-fired only, with no fuel oil emergency backup capability whatsoever.

CECP would use evaporative air cooling, eliminating the daily need for large quantities of seawater for purposes of once-through cooling. The minimal industrial, wash-down and associated water necessary for CECP's industrial steam and landscape irrigation would be approximately 700,000 gallons per day. It could be provided through one of two identified and analyzed water sources – desalinated seawater provided by the EPS ocean intake/discharge system, or reclaimed water provided by the Carlsbad Municipal Water District. In either case, a water purification system will produce purified industrial water suitable for injection into CECP Units 6 and 7 for steam creation and heat recovery.

Wastewater discharge from the CECP would likewise have dual potential. It would either flow through the existing path of the EPS ocean water discharge (if the desalinated water option is pursued), or through the City's existing sanitary/industrial sewer system. Potable water (drinking and showering) for the proposed project would be obtained through the Carlsbad Municipal Water District. Storm water would be collected onsite and directed to a detention basin on the northern most section of the proposed site for appropriate treatment before flowing into the adjacent Agua Hedionda Lagoon. The **SOIL and WATER** section of this Decision provides more detail on these options.

The CECP is expected to have an overall annual availability of 92 to 98 percent.

Construction of the CECP facility, from site preparation and grading to commercial operation, is expected to take place over a 25-month period. Once operational, the plant will employ approximately 14 full-time workers. The peak number of construction workers needed for the project is 357. Capital costs for the project are estimated to exceed $500 million. (Ex. 200, pp. 3-5, 4.8-7.)

1. Project Objectives

In general, the Applicant‘s objectives are to design, build, own, and operate the CECP to meet the need for additional electric generation capacity and ancillary services in the Southern California region. Specifically, the CECP is designed to provide flexible, quick-start peaking capacity in the northern San Diego County service territory of San Diego Gas and Electric (SDG&E).

The AFC identified the basic objectives for the development of the proposed power project as follows:

- Meets the commercial qualifications for long-term power contract opportunities in southern California.
- Meets the expanding need for new, highly efficient, reliable electrical generating resources located in the load center of the San Diego region.
- Improves San Diego electrical system reliability through fast starting generating technology, creating a rapid responding resource for peak demand situations and providing a dependable resource to backup less reliable renewal resources like wind generation.
- Modernizes existing aging electrical generation infrastructure in north, coastal San Diego County. Modernization of aging electrical generation infrastructure is a primary objective shared by the energy and environmental agencies in California, including the California Public Utilities Commission (CPUC), California Energy Commission (CEC), California Independent System Operator (CAISO), and publicly owned utilities.
- Accomplish “brownfield” redevelopment of an existing power plant for a net increase in electrical generation capacity to support electrical system and local resource supply requirements in the San Diego area. The CPUC has a state preference for “brownfield” power projects pursuant to Decision No. 04-12-048.
- Facilitates the retirement of existing Units 1, 2 and 3 at Encina Power Station consistent with the following City of Carlsbad’s land use programs (see Section 5.6, Land Use, for a completed discussion of the various land

use programs) and to set in motion actions that are likely to facilitate the eventual retirement of Units 4 and 5 at the Encina Power Station.

- City of Carlsbad General Plan
- City of Carlsbad Zoning ordinance
- Specific Plan 144
- Encina Power Station Precise Development Plan
- Agua Hedionda Land Use Plan
- South Carlsbad Coastal Redevelopment Plan, including moving forward with the primary Plan objective to "Facilitate the redevelopment of the Encina Power Generating Facility to a physically smaller, more efficient power generating plant."

- Utilizes existing Encina Power Station infrastructure to reduce environmental impacts and costs. The infrastructure at the Encina Power Station will support the CECP with only minor new connections including to the existing: high pressure natural gas, industrial/sanitary sewer, potable water, and the existing SDG&E 138-kV and 230-kV switchyards at the Encina Power Station.
- The only new infrastructure requirement for CECP is the use of California Code of Regulations (CCR) Title 22 reclaimed water as the CECP's raw water source. The use of reclaimed water by CECP represents a significant project benefit as use of potable water will be limited to sanitary uses and fire protection.
- Significantly reduces the volume of seawater used for once-through-cooling at the existing Encina Power Station by facilitating the retirement of existing Units 1, 2, and 3.
- Meets applicable laws, ordinances, regulations, and standards (LORS) of the California Energy Commission, City of Carlsbad, and other agencies.

FINDINGS OF FACT

Based on the evidence, we find as follows:

1. Carlsbad Energy Center LLC will own and operate the CECP on private land in the City of Carlsbad, San Diego County.

2. The project will have a combined nominal electrical output of 540 megawatts (MW) from twin, independently-operable combined cycle power blocks.

3. The project includes associated transmission lines to adjacent substations and connection to an existing gas supply line.

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

CONCLUSION OF LAW

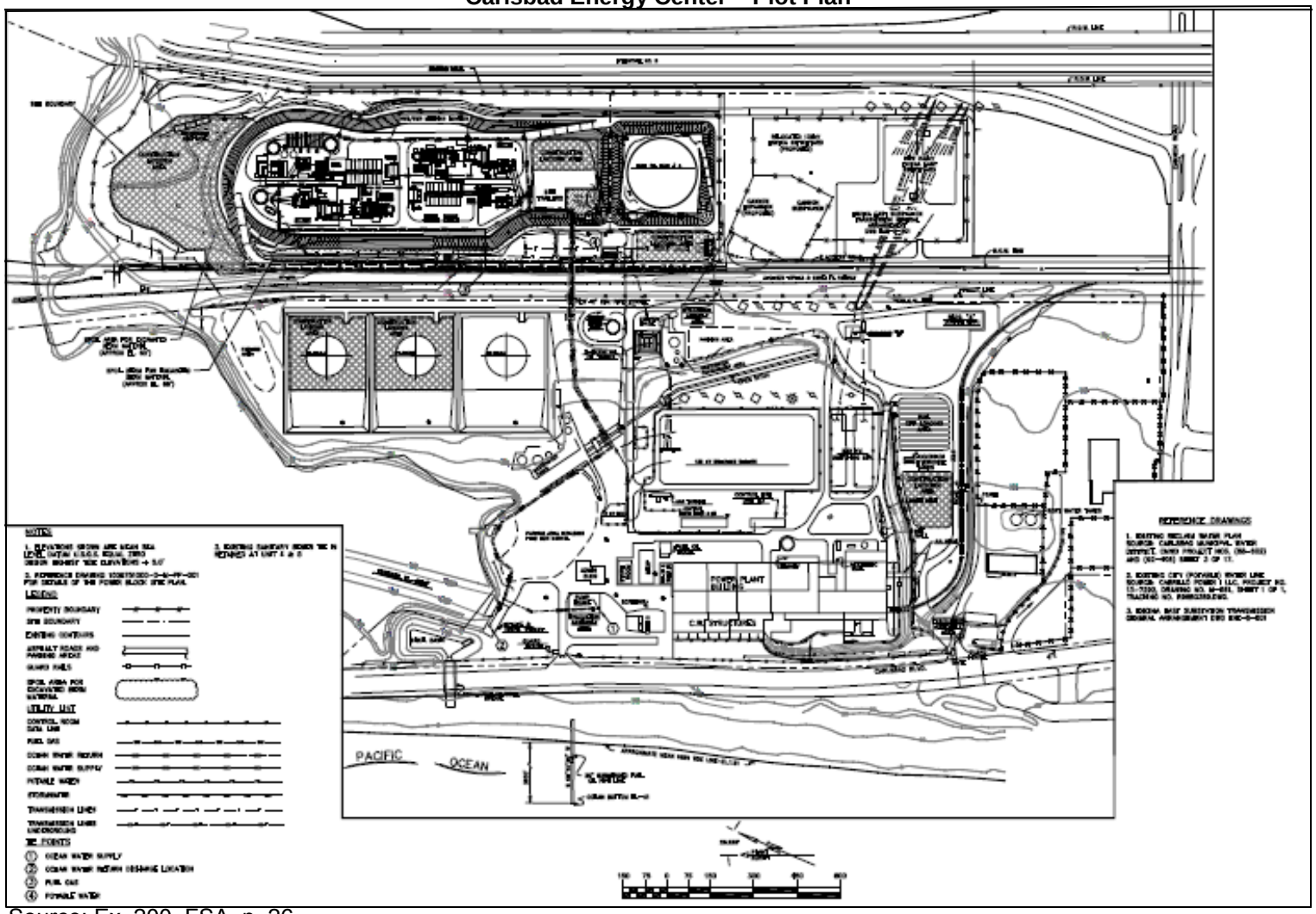
The CECP is described at a level of detail sufficient to allow review in compliance with the provisions of both the Warren-Alquist Act and the California Environmental Quality Act.

Project Description – Figure 1
Carlsbad Energy Center – Project Site and Vicinity Map

Source: Ex. 200, FSA, p. 25.

Project Description – Figure 2

Carlsbad Energy Center – Plot Plan



Source: Ex. 200, FSA, p. 26

III. PROJECT ALTERNATIVES

The California Environmental Quality Act (CEQA) Guidelines and the Energy Commission's regulations require an evaluation of the comparative merits of a range of feasible site and facility alternatives that achieve the basic objectives of the proposed project but would avoid or substantially lessen potentially significant environmental impacts.[1] (Cal. Code Regs., tit. 14, §§ 15126.6(c) and (e); *see also*, tit. 20, § 1765.)

The range of alternatives, including the "No Project" alternative, is governed by the "rule of reason" and need not include those alternatives whose effects cannot be reasonably ascertained and whose implementation is remote and speculative. (Cal. Code Regs., tit. 14, § 15126.6(f).) Rather, the analysis is necessarily limited to alternatives that the "lead agency determines could feasibly attain most of the basic objectives of the project." (*Id*.)

SUMMARY AND DISCUSSION OF THE EVIDENCE

1. Project Description and Setting

The CECP is being developed to meet regional electrical resource needs anticipated by the California Energy Commission for the San Diego region (CEC 2007). The CECP will contribute significant electricity energy and capacity to an identified "load pocket", as well as local and regional electrical transmission grid support in San Diego County and the greater Southern California region. The proposed project would connect its nominal 540 MWs of electricity to the existing Encina 138-kilovolt (kV) switchyard and to a proposed new 230-kV switchyard to be built on SDG&E's Canon substation property, located immediately south and adjacent to the EPS. Transmission interconnection would be comprised of an overhead line from CECP Unit 6 to the 138-kV switchyard and an underground/overhead cable from CECP Unit 7 to the proposed new 230-kV switchyard. Natural gas would be provided through a new 1,100-foot interconnection to an existing Southern California Gas Company high pressure natural gas line located adjacent to the CECP site. The existing natural gas

[1] Public Resources Code section 25540.6(b) requires an Applicant for a power plant such as the CECP, which is otherwise exempt from the notice of intention process, to include information on the site selection criteria, alternative sites, and the reasons for choosing the proposed site. Section 1765 of the Commission's regulations further requires the parties to present evidence on alternative sites and facilities. (Cal. Code Regs., tit. 14, § 15126.6 and tit. 20, § 1765.)

pipeline currently fuels all EPS units. (Ex. 200, p. 6-2.) Additional features of the proposed project are contained in the Project Description section of this Decision.

2. Project Objectives

As part of preparing its analysis, Staff evaluated and reformulated the Applicant's project objectives, found in the Project Description section of this Decision, into the following project objectives.

- Meets the expanding need for new, highly efficient, reliable electrical generating resources that are dispatchable by the CAISO, and are located in the "load pocket" of the San Diego region;
- Improves San Diego regional electrical system reliability through fast starting generating technology, creating a rapid responding resource for peak demand situations, and providing a dependable resource to backup intermittent renewable resources like wind generation and solar;
- Allows the retirement of existing EPS Units 1, 2, and 3, and assists in the eventual retirement of existing EPS Units 4 and 5;
- Modernize existing aging electrical generation infrastructure in north coastal San Diego County, which includes the retirement of aging once-through cooling (OTC) facilities. Retiring the use of OTC is an objective shared by the energy and environmental agencies in California, including the California Public Utilities Commission (CPUC), State Water Resources Control Board, California Energy Commission (CEC), CAISO, and publicly owned utilities;
- Utilize existing infrastructure to accommodate replacement generation and reduce environmental impacts and costs; and
- Meet the commercial qualifications for long-term power contract opportunities in southern California. (Ex. 200, pp. 6-3 – 6-4.)

3. Alternative Site Evaluation

This project is unique by virtue of the extensive participation by the City of Carlsbad in the identification of potential alternative sites, motivated by the City's desire to see no further power plant development on the Encina site and to reclaim the site for development it believes is more appropriate for that coastal location. Five candidate alternative sites were identified for analysis. Two of the

sites were rejected early in the review as not meeting screening criteria[2]; the remaining three were given a full alternative site review.

The two sites rejected for failing to meet the screening criteria were:

The Carlsbad Safety Center Alternative, a 25-acre site located at 2560 Orion Way in Carlsbad. The site is owned by the City of Carlsbad and is located adjacent to a natural gas line. The site is currently zoned for Open Space (non-habitat designation) and the City would have to rezone this site in order to meet the needs of CECP. Access to reclaimed water is adjacent to the property, and the street/right-of-way to the property is owned by the City. Residential homes are 2,000-feet from this site. At this alternative site, interconnection distances to SDG&E transmission lines would be significant: 9,000-feet to the 138-kV transmission line and 8,500-feet to the 230-kV transmission line, and potentially farther.

Development of this site would require the relocation of both existing recreational and public service (police and fire) facilities. Access and circulation to the safety center facility would be significantly affected by this alternative, resulting in potentially significant impacts to police and fire response times.

Federal Aviation Administration (FAA) air traffic counts and overflight pattern data for the McClellan-Palomar Airport Flight Activity Zone suggest a potential hazard

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[2] Avoid or substantially lessen one or more of the potential significant effects of the proposed project;

Satisfy the following criteria:

- Site suitability, including size (at least 23 acres are required for the power plant equipment, plus laydown and construction set-aside space);
- Availability of infrastructure—the site should be within a reasonable distance of transmission, natural gas and water supply networks, as well as immediately accessible by roads capable of transporting large equipment and supplies;
- Location that precludes significant noise, public health, and/or visual impacts to adjacent residential areas or sensitive receptors (such as day care centers, nursing homes, schools, and public recreation areas);
- Compliance with local land use and zoning designations;
- Site control—the site should be void of any site encumbrances (physical or administrative obstructions to long-term use of property) and should be available for sale or long-term lease; and
- Attainment of basic project objectives.

(Ex. 200, p. 6-4.)

to low flying aircraft in the airport's flight pattern from thermal plumes from a project similar to CECP.

Based on potential for significant unmitigable aviation impacts coupled with potentially significant land use compatibility impacts and the lack of nearby associated electric infrastructure (transmission lines) development concerns, this alternative failed to meet the screening criteria, and was eliminated from further consideration. We concur in that decision. (Ex. 200, p. 6-5.)

Encina Wastewater Authority Site. The AFC identified only one site that might meet the criteria of possessing a Public Utility (PU) designation in the General Plan: 28 acres owned by the Encina Wastewater Authority (EWA) two miles south of the EPS. (Ex. 4, § 6.4.2). Although the Applicant withdrew it from consideration, Staff reviewed the site. It consists of three lots owned by EWA that total 25.23 acres (APNs 211-030-6 and 8 and 214-010-95). Although the site is zoned PU, all 25.23 acres are fully developed with the existing Encina Wastewater Treatment Plant and the Carlsbad Water Reclamation Plant. Therefore, because the EWA site lacks sufficient acreage, this alternative does not meet the screening criteria. We concur with its elimination from further consideration. (Ex. 200, pp. 6-5 – 6.6.)

The three sites satisfying the screening criteria are discussed below. There locations are plotted on **Alternatives Figure 1**.

Maerkle Alternative

The Maerkle site is a 55-acre greenfield site (not developed with existing industrial uses) located at the northern border of the City of Carlsbad approximately 500-feet south of residential neighborhoods that are located within the bordering city of Oceanside. The City of Carlsbad Municipal Water District owns the site, which is zoned Open Space (non-habitat designation). The City owns the street/right-of-way to the property; however no roadways currently exist within the site.

Short-Term and Temporary Construction-Related Impacts

Construction of the Maerkle alternative would result in greater temporary construction-related air quality emissions compared to that generated by CECP construction due to the significant grading increase, the overall amount of construction activities required, and associated longer schedule required to build the longer transmission line and recycled water connections (as discussed

below). Furthermore, due to the site's proximate location to residential development, there would be a significant increase in temporary noise and traffic impacts during construction when compared to construction of the CECP. The site is currently vacant open space that would require biological screening to determine if any sensitive species are present. As the routes of the required transmission line right-of-way (ROW) are unknown, an increase in potentially significant temporary impacts (noise, land use compatibility, and biological resources) could occur when compared to construction of the CECP, as required ROW routes could be located in close proximity to residential neighborhoods and biological resources.

Long-Term and Operational-Related Impacts

Due to the immediate proximate location of neighboring residential receptors to the site, Staff observed that visual and noise impacts to these receptors would be significant and unavoidable. The site is currently greenfield undeveloped open space that generates no ambient man-made noise. Therefore, operation of a power plant at this site would result in a significant permanent noise increase to nearby residential receptors over existing conditions. Furthermore, required stacks and large-scale development required of a power plant would significantly impact southern views from existing city of Oceanside residential receptors that currently have unobstructed views of open space land. As the CECP site contains the existing EPS and the associated stack, the development of the Maerkle site would have significantly increased visual impacts to viewers as compared to the CECP. Therefore, both operational noise and visual impacts would be greater for this alternative when compared to development of the CECP.

Because the site is not zoned for utilities or industrial development such as a power plant, the City would need to rezone this property to meet the needs of the project. Therefore, this site would generate an increase in land use compatibility impacts when compared to the CECP, which is currently zoned for and contains a power plant. Furthermore, the site would result in the permanent conversion of open space land to a heavy industrial development, resulting in an additional land use impact not associated with the CECP.

Access to the site would be through residential neighborhoods within the city of Oceanside, thus resulting in a potential increase in traffic and safety impacts along residential streets as compared to the CECP. A significant number of

Oceanside residents commented during the public comment process that they did not want to see the power plant moved to this site.

Were this site given consideration as a power plant site, additional data addressed allowable stack height requirements regarding compatibility with the nearby McClellan-Palomar Airport. Overflight pattern data provided by the FAA indicate a similar volume of air traffic over the Maerkle site as compared to the CECP site, though often at lower elevations. The potential increase in aviation safety impacts due to thermal plumes would warrant further investigation.

Distance from the site to reclaimed water is 5,700 feet, and distance to a 138-kV transmission line connection is over 2,000 feet, and it is at least 16,000 feet to a 230-kV transmission line (this distance is potentially 4.5 miles if the line is required to go to the Canon Substation, as may be required by the CAISO). The site is approximately 2,800 feet from a natural gas line. **Alternatives Table 1** provides a comparative analysis of the Maerkle site and its linear distance to utilities as compared to the proposed CECP. The necessary construction of a transmission interconnection would result in a significant increase in potential environmental impacts (i.e., visual, noise, biological resources, land use) over the CECP depending on the route chosen. It is likely that the project Applicant would need to obtain easement rights (or franchise rights) within this area to accommodate transmission line rights-of-way (of which the availability is unknown) to connect to the SDG&E electric system.

Summary

Due to the site's immediate location to residential development, the required increase in construction of the site and linear infrastructure, the visual impacts associated with the elevated topography of the site and required project stacks, the required conversion of a greenfield site to brownfield development, the necessary change in zoning designations, the uncertainty on aviation safety, and the need for significant construction and routing of required utility connections, this alternative would result in an increase in potential environmental impacts when compared to the CECP. Furthermore, development of this site could potentially involve considerable time for securing required utility ROWs. The Maerkle site fails to substantially lessen environment impacts when compared to the proposed CECP, and may actually have impacts that are worse that could make the site infeasible. (Ex. 200, pp. 6-6 – 6-8.)

Alternatives Table 1
Comparison of Approximate Interconnection
Distances to Linear Facilities (and Residences), in feet

	CECP Site[1]	Maerkle Alternative[2]	Carlsbad Oaks North Alternative[2]	CATO Alternative[2]
Distance to 138-kV Power Line	On-Site	2,000+	6,000+	5,300+
Distance to 230-kV Power Line	150	16,000+	14,000+	12,000+
Natural Gas Line	1,100	2,800	4,800	500
Distance to Reclaimed Water	N/A (desal)	5,700	150	3,500
Nearest Residential Units	1,700	1,500	2,500	2,000

Note: [1] Linear distances provided by AFC PEAR (SR 2008h) supplement and independent research;
[2] linear distances provided by the City of Carlsbad via communications in 2008 and 2009.

Carlsbad Oaks North Alternative

The Carlsbad Oaks North site is a 414-acre (divisible) site on Whiptail Loop that is privately owned and currently for sale. The site is zoned Planned Industrial. The nearest residential homes are located 2,500 feet east of the site.

Short-Term and Temporary Construction-Related Impacts

Construction of the Oaks North alternative would result in an increase in temporary construction-related air quality emissions over that generated by CECP construction due to the overall amount of construction activities required and associated longer schedule required to build the longer transmission line connections. As the routes of the required transmission line ROW are unknown, an increase in potentially significant temporary impacts (noise, land use compatibility, and biological resources) could occur when compared to construction of the CECP, as ROWs required to interconnect to the SDG&E electric system could be located in close proximity to more dense commercial development in the City, sensitive receptors, and biological resources.

Long-Term and Operational-Related Impacts

The Carlsbad Oaks North site is a planned corporate business park allowing for office, corporate headquarters, light manufacturing, research/development, and open space uses. The majority of the site is still available for purchase. While Planned Industrial, those uses marketed for development within the Oaks North site (including 220-acres of planned open space) are more business oriented than heavy industrial uses such as a power plant. Therefore, development of the site with this alternative could result in a permanent conversion of a currently undeveloped site with heavy industrial uses that would contribute to a potential shift in the general land uses of the area. Furthermore, the Oaks North site zoning designation would have to be changed from Planned Industrial to Public Utility by the City of Carlsbad in order to accommodate a facility like the CECP. Therefore, developing a power plant within the Oaks North site could result in increased land incompatibility and conversion impacts as compared to the CECP, which would develop a power plant within an existing industrial site currently occupying a power plant.

Due to the elevated topography of both the Oaks North site and the presence of residential receptors located within hillside developments north and east of the site, receptors located within these areas currently have unobstructed views through the Oaks North viewshed. The construction of required stacks (of similar height to those proposed as part of the CECP) at this site would likely result in a significant visual impact to those nearby residential receptors. While zoning of the Oaks North site allows for industrial uses, and it is possible that future development could contain visually obstructing structures, that use of this site would result in increased impact to viewers, including residential viewers, compared to siting CECP at the EPS site. This is because the CECP site already contains the existing EPS and the associated stack, with no current plan for removal of such infrastructure, and only incremental additional visual features form the proposed project.

While the site is located outside the Palomar-McClellan Airport Flight Activity Zone, overflight pattern data provided by the FAA at the PSA workshop indicated a similar volume of air traffic over the Oaks North site as the CECP site. The Carlsbad Oaks North vicinity traffic was at elevations that may be at risk from thermal plumes of a power plant developed here would warrant further investigation.

The site is located 4,800 feet from a natural gas line and reclaimed water is adjacent to the property. However, the distance to power lines is considerable, at 6,000-feet to a 138-kV transmission line and 12,500 feet to a 230-kV transmission line, and potentially farther (absent a System Impact Study from CAISO, transmission could be required to the Canon Substation approximately four-miles away). The construction of transmission connections would result in a significant increase in potential environmental impacts (visual, noise, biological resources, land use) over the CECP depending on the available routing. It is likely that the project Applicant would need to obtain large easement rights (or franchise rights) within this area to accommodate a transmission line, of which the availability is unknown. By comparison, the CECP would be located on the existing EPS and all of its associated infrastructure would be on-site. Thus, the Carlsbad Oaks North alternative would result in a significant increase in potential environmental impacts from required utility connections when compared to development of the proposed CECP.

Summary

Due to the visual impacts associated with the elevated topography of the site and required project stacks, the possible intensification of the site with heavy industrial development, the necessary change in zoning designations, the uncertainty on aviation safety, and the need for significant construction and routing of required utility connections, this alternative would result in an increase in potential environmental impacts when compared to the CECP. Furthermore, development of this site could potentially involve considerable time in terms of securing the site and required utility ROWs. The Oaks North site fails to substantially lessen environment impacts when compared to the proposed CECP, and may have greater impacts. (Ex. 200, pp. 6-8 – 6-9.)

CATO Alternative

The CATO site is a 73-acre site (greenfield) property that is privately owned and currently for sale, and is zoned Open Space (non-habitat designation). Due to the rural location of the CATO site, vehicular access to the site is currently limited, with significant roadway improvements needed for access to allow for project construction and operation. The site is located approximately 300 feet from the nearest residential receptor, and is near a large amount of residential development located immediately north.

Short-Term and Temporary Construction-Related Impacts

Due to the existing topography of the site, substantial grading would be required to create a level surface area for the project. In addition, due to the site's limited access, substantial access road construction would be required. Therefore, construction of the CATO alternative would result in an increase in temporary construction-related air quality emissions over that generated by CECP construction due to the significant grading increase, the overall amount of construction activities required, and associated longer schedule required to build the longer transmission line and recycled water connections (as discussed below). Both the access roadways leading to the site and the site itself are located in close proximity to residential development, thus resulting in a significant increase in temporary noise and traffic impacts during construction as compared to the CECP project. The site is currently vacant open space that would require biological screening to determine if any sensitive species would be disturbed.

Long-Term and Operational-Related Impacts

Due to the immediate proximate location of neighboring residential receptors to both the site and access roads requiring major upgrades to accommodate the site, Staff observed that both visual and noise impacts to these receptors would be significant. The site is currently greenfield undeveloped open space that generates no ambient man-made noise. Therefore, operation of a power plant at this site would result in a significant permanent noise increase to nearby residential receptors over existing conditions, resulting from both on-site activities and vehicles accessing the site. Furthermore, required stacks and large-scale development required of a power plant would significantly impact southern views from northern receptors that currently have unobstructed views of open space land and viewsheds through the site. As the CECP site contains the existing EPS and associated stacks, the development of the CATO site would have significantly increased visual impacts to receptors as compared to the CECP.

June 2008 air traffic counts and overflight pattern data provided by the FAA indicate a similar volume of air traffic over the CATO site as compared to the CECP site, but at lower altitudes which may make the aircraft more susceptible to thermal plumes from a CATO power generator. This would warrant further investigation.

The CATO site zoning designation would have to be changed by the City of Carlsbad in order to accommodate the CECP. Present agricultural use of the site that would require further examination to determine any potential agricultural land conversion impacts. Furthermore, the site would result in the permanent conversion of open space land to brownfield development, thus increasing land use impacts over the CECP.

There would be long distances between the site and needed infrastructure (reclaimed water is 3,500 feet away; 138-kV and 230-kV transmission lines are 3,500 feet and 12,000-feet away, respectively; and depending on the result of a System Impact Study from CAISO, transmission could be nearly four-miles away to the SDG&E Canon substation). The site is however located in close proximity to a 30-inch natural gas line. **Alternatives Table 1** provides a comparative analysis of the CATO site and its linear distance to utilities as compared to the proposed CECP. It is likely that the project Applicant would need to obtain large easement rights (or franchise rights) within this area to accommodate the necessary transmission line interconnection. The CECP would be located on the same property as the existing EPS, and all of its associated infrastructure would be on-site at the existing EPS. This alternative would result in an increase in potential environmental impacts (visual, noise, biological resources, land use) from the necessary construction of transmission line interconnection when compared to development of the proposed CECP.

Summary

Due to the sites immediate adjacency to residential development, the required increase in construction of the access roads, the visual impacts associated with the elevated topography of the site and required project stacks, the required conversion of an open space site to brownfield development, the necessary change in zoning designations, the uncertainty regarding aviation safety, and the need for significant construction and routing of required utility connections, this alternative would result in an increase in environmental impacts when compared to the CECP. Furthermore, development of this site could potentially involve considerable time in terms of securing the site and required utility ROW resulting in time delays involved in project licensing. The CATO site fails to substantially lessen environmental impacts when compared to the proposed CECP, and may actually have greater impacts. (Ex. 200, pp. 6-9 – 6-11.)

Power Purchase Agreement Projects Alternative

SDG&E has entered into Power Purchase Agreements and requested CPUC approval of those agreements with the following three power plant projects in the San Diego region:

The Pio Pico Energy Center Project (Pio Pico) is comprised of three LMS100 simple cycle turbines and includes hybrid wet/dry cooling, generating about 305 MW. This project is proposed to be operated up to 4,335 hours per year. The proposed Pio Pico project site is located 46 miles south-southeast of the CECP.

The Quail Brush Generation Project (Quail Brush) is comprised of eleven natural gas fired internal combustion (IC) engines. Each engine is rated at 9.3 MW and the total project is rated at 102.3 MW. Quail Brush is seeking to be permitted to a maximum use of 4,032 hours per year per engine. The proposed Quail Brush project site is located 26 miles southeast of the proposed CECP.

The Escondido Energy Center (Escondido) project would replace an existing, older simple cycle gas turbine facility with a newer, more efficient LM6000 simple cycle gas turbine. This project upgrades and replaces the existing Wellhead Escondido power plant (formerly MMC Escondido) and as a replacement project would only marginally increase available generating capacity (less than 5 MW increase) up to about 47 MW. Operation would be limited to 4,400 hours per year time. The proposed Escondido project is located 13 miles east of the proposed CECP. The air quality emissions per MW of generation for the three PPA projects compared with CECP are provided in **Alternatives Table 2**. These emissions are based on the project's annual emission summary, or Staff estimate using projects with similar gas turbines/engines, for each project at its permitted maximum level of operation.

Alternatives Table 2
CECP and PPA Project Criteria Pollutant Emission Rates (lbs/MWh)

Project	NOx	CO	VOC	SOx	PM10
CECP	0.072	0.208	0.019	0.005	0.037
Pio Pico	0.108	0.148	0.032	0.006	0.057
Quail Brush	0.209	0.324	0.292	0.025	0.155
Escondido	0.110	0.147	0.029	0.021	0.062
Ex. 229, p. 7.					

The CECP has criteria pollutant emissions rates that are lower than the three PPA projects, with the exception that CECP's CO emissions are higher than Pio Pico and Escondido due to high start-up emissions. The higher CO values do not cause or contribute to violations of CO ambient air quality standards. The state and San Diego County are in attainment of all CO standards. The differences in CO emission factors are of no consequence.

A comparison of the direct operating greenhouse gas emissions for the three PPA project compared with the CECP is provided in **Alternatives Table 3**.

Alternatives Table 3
CECP and PPA Project Operating Annual Generation and GHG Emissions (CO_2, MT/MWh)

Project	Maximum Annual Generation GWh	CO_2 Emissions Rate ($MTCO_2$/MWh)
CECP[1]	2,089.7	0.404
Pio Pico[2]	1,301.1	0.477
Quail Brush[3]	412.5	0.433
Escondido[4]	204.6	0.526
Source: Ex. 229, p. 10.		

The CECP is preferable to the three PPA projects; however, there are other factors that come into play in determining overall project operation, and ultimately, the GHG emissions produced. Project size and flexibility of operation, as well as project location and usefulness to specific load pockets, are also considerations. It is Staff's determination that new, more efficient natural gas fired generation would reduce system-wide GHG emissions through the replacement of higher emitting resources (CEC 2009, FSA **Greenhouse Gas Table 6**) and any of the projects listed above would have this same finding. However, the CECP project has the lowest GHG emissions rate and -- strictly from a GHG emissions perspective -- would be preferable to the slightly higher emitting PPA projects.

None of the PPA projects lie within the Encina subregion for which the California ISO and Commission staff have identified a local generation need of at least 20 MW, and perhaps 50 MW. While they help replace the Encina units' capacity on a region-wide basis, they do not provide the subarea generation that is also required in order to shut down Encina's once through cooled generators. Until

sufficient capacity is provided in the region and subregion at least part of Encina must remain in operation.

The most recent projections provided by Commission staff, indicate that more capacity may be needed than would be provided by either the CECP or the PPA projects individually. (12/12/11 RT 14 – 15.) In this scenario, the PPAs are not alternatives to CECP but instead they supplement each other.

Summary

The PPA projects emit greater levels of criteria pollutants and green house gases than CECP. Due to their locations, they cannot provide system reliability support in the Encina subarea. While they do increase system capacity, they alone cannot facilitate the retirement of the Encina generators.

Reduced Capacity Alternative

With the late-stage introduction of the City of Carlsbad's amendments to its land use regulations and the consequent significant environmental land use impacts resulting from the CECP's inconsistency with those amended regulations, described in the Land Use section, it is appropriate to examine a reduced capacity (size) alternative constructed on the CECP site. While no testimony has specifically addressed such an alternative, it is possible for us to address it via deductions and inferences drawn from the evidence that is before us.

While a smaller power plant might eliminate the significant land use impacts resulting from the CECP's inconsistencies with the recently amended City land use plans and regulations[3], those inconsistencies are only "paper" inconsistencies which do not manifest as actual environmental incompatibilities. Likely less visually prominent than CECP, a smaller plant would reduce CECP's already insignificant visual impacts to even lower levels.

A plant in the range of 50 MW would provide the subarea capacity identified by staff and the California ISO, thereby allowing for the eventual shutdown of Encina units 1-5 and the redevelopment of the portion lying to the west of the railroad

[3] It is not certain that the Applicant could successfully satisfy the requirements of the City's zoning ordinance. In electricity generation is permitted only as an accessory use, limited to less than 50 Megawatts, and must be conducted by "a government entity or by a company and such use is authorized or approved by the California Public Utilities Commission." (City of Carlsbad Ordinance No. CS-158, adopted October 11, 2011.) CECP is proposed as a primary use, as would any other commercial power plant be, and the nature of an acceptable authorization from the CPUC is unclear.

tracks.[4] It would provide approximately 500 fewer megawatts of generating capacity for the larger San Diego area and for the integration of renewable resources into the electricity supply. It is likely that the generator would use the less efficient simple cycle, rather than CECP's combined cycle configuration.

A smaller project on the site proposed for the CECP would not make full use of the capacity of the existing infrastructure at that location and likely require the development of additional capacity at another, possibly undeveloped, location in the San Diego region, which will require additional infrastructure.

Because a smaller plant at the CECP site would be less efficient, not as fully leverage the existing infrastructure and potentially require additional development at other location(s) in order to provide the generating capacity needed in the region, the reduced capacity alternative is not preferred to the CECP.

4. Generation Technology Alternatives

a. Conservation and Demand-Side Management

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

In California there is a considerable array of demand-side programs. At the federal level, the Department of Energy adopted national standards for appliance efficiency for most appliances and building standards to reduce the use of energy in federal buildings and at military bases.

At the state level, the Energy Commission adopted comprehensive energy efficiency standards for most buildings, appliance standards for specific items not subject to federal appliance standards, and load management standards. These building and appliance standards are generally considered the most stringent in the nation. The Energy Commission also provides grants for energy efficiency development through the Public Interest Energy Research (PIER) program.

The CPUC, along with the Energy Commission, oversees investor-owned utility demand-side management programs financed by the utilities and their

[4] Though this would come about only with the introduction of additional capacity at some other unidentified location in the system, which may give rise to additional impacts.

ratepayers. At the local level, many municipal utilities administer demand-side management and energy conservation programs. These include subsidies for the replacement of older appliances through rebates, building weatherization programs, and peak load management programs. In addition, many local governments have adopted building standards that exceed the state standards for building efficiency or have, by ordinance, set retrofit energy efficiency requirements for older buildings. New buildings may combine the need for heat and power through a single fuel source, or a common source that may supply heating and/or heating and cooling to a number of adjacent buildings, thereby increasing overall efficiency.

Even with this great variety of federal, state, and local demand-side management programs, the state's electricity use is still increasing as a result of population growth and business expansion. Current demand-side programs alone are not sufficient to satisfy future electricity needs, nor is it likely that even much more aggressive demand-side programs could accomplish this at the economic and population growth rates that are projected for the state. Therefore, although it is likely that federal, state, and local demand-side programs will receive even greater emphasis in the future, both new generation and new transmission facilities will be needed in the immediate future and beyond in order to maintain adequate supplies.

In its decisions approving long-term procurement plans submitted biennially by the state's investor-owned utilities (e.g., D.07-12-052, December 20, 2007), the CPUC imposes the loading order established in the state's Energy Action Plan upon the utilities. This takes the form of requiring that the utilities meet energy efficiency and demand-side management targets established by the Commission prior to procuring fossil resources. In authorizing the utilities to procure sufficient new generation capacity on behalf of all service area customers to meet system and local reliability needs, the CPUC also assumes that these targets will be met. As such, the amount of new fossil capacity deemed necessary to retire the aging Encina power plant assumes that SDG&E will satisfy requirements for the procuring energy efficiency and establishing demand-side management programs that are derived from state policy goals. (Ex. 200, p. 6-15.)

b. Renewable Resources

SDG&E is planning to connect to the proposed Stirling Energy System Solar Two Project (08-AFC-5) and other renewable energy sources in the Imperial Valley through the Sunrise Powerlink Project, a transmission line project that was

approved by the CPUC and the United States Bureau of Land Management in January 2009.

Staff compared various alternative technologies with the proposed CECP. Technologies examined were those principal electricity generation technologies that do not burn fossil fuels such as natural gas: solar, wind, and biomass. There are no geothermal resources in the project vicinity, making that technology an infeasible alternative to the CECP. Both solar and wind generation reduce or eliminate air pollutant emissions and the need for related controls. In the case of biomass, however, emissions can be substantially greater.

Solar and wind resources require large land areas in order to generate electricity. Specifically, central receiver solar thermal projects require approximately five acres per MW, or roughly 200 times the amount of land area needed for the proposed CECP site and linear facilities. Parabolic trough solar thermal technology requires similar acreage per MW. Photovoltaic (PV) arrays mounted on buildings generally require about four acres per MW, and wind generation generally requires about 4.5 acres per MW. Accordingly, the need for extensive acreage would add to the complexities of local discretionary actions for land use modifications and likely result in significant land disruption and conversion impacts.

While there would not be visible plumes associated with solar and wind energy projects, other impacts of the large-scale solar arrays and windfarm generators must be considered, since many of these power generation sources currently under review within the San Diego and Imperial County regions are proposed to be sited on publicly-owned, open space, desert lands that have high scenic, recreational, and biologic values. SDG&E is currently pursuing biomass generation, particularly at landfills in the region. While these biomass facilities usually use wood chips or other sources from agricultural operations, several companies are developing technologies that would focus on “gasification combustion” to meet the low emission standards mandated by the state. However, traditional biomass plants are typically sized to generate less than 20 MW, which is considerably less than the capacity of the proposed CECP. A traditional biomass facility would require significantly more land than needed for the CECP and several hundred acres could be required for the feedstock.

Furthermore, alternative electricity generation that is intermittent by nature (dependent on the sun or the wind) requires natural gas generation that is dispatchable for periods when the intermittent resource is unavailable. In areas

where there is heavy “load” or demand for electricity, natural gas generation must be available for system reliability. Because alternative generation technologies may not be available on demand, and often may not be called on to support system reliability, they do not fulfill a critical objective of CECP: the ability to provide quick start capability to respond to unexpected changes in regional electricity demands.

While the technical potential for rooftop solar in the San Diego local reliability area is sufficient to meet all of the area’s peak energy needs – it is estimated to reach almost 4,700 MW by 2020 – the market potential, as evidenced by estimates of capacity resulting from currently funded programs, is substantially less. The $3.35B Go Solar California campaign’s major components, the California Solar Initiative (CSI) and the New Solar Homes Partnership (NHSP), were expected to yield 180 MW and 35 MW of nameplate capacity, respectively, in the SDG&E Service area by 2016. Since the programs were initiated in January 2007, and December, 2009, the CSI has resulted in 21 MW of installed residential capacity and another 16 MW of applications. The NHSP resulted in less than one MW of installed capacity. The proposed SDG&E Solar Project has similarly fallen short of expectations.

The cost of energy from rooftop PV is currently not on a par with that from the CECP. It has been argued that the price of solar PV can be expected to fall in the future, leading to increased installation of rooftop PV in the San Diego basin. The CSI, however, ratchets down the incentives provided to participants over the ten-year life of the program. For example, the $/watt incentive for residential and commercial participants declines from $2.50 in the second of the program’s ten steps to $0.20 in the final step. This will offset – to a greater or lesser extent – cost reductions arising from technological advances in the design and manufacture of solar PV, leaving the relevant cost – that faced by the consumer deciding whether or not to install a solar unit – perhaps unchanged.

While these alternative technologies should be pursued as a vital component of the electrical generation supply and implemented to the greatest extent feasible, they are not alternatives to having dispatchable gas-fired backup in the electrical load pocket to provide system reliability and integration of these renewable resources. We need both renewable and dispatchable generation to back them up.[5] In fact, the more renewables in the system, the greater the need for

[5] As I think Staff has testified, the construction and operation of the Carlsbad project wouldn't result in less renewable generation being developed, and as Mr. McClary just stated, “the project would actually enable more renewable generation to be developed.” (2/3/2010 RT 400:20-25.)

dispatchable backup. Geothermal, solar, wind or biomass technologies do not present feasible alternatives to the proposed project (580 MW) and do not meet the following two critical project objectives of the CECP:

- Meets the expanding need for new, highly efficient, reliable electrical generating resources that are dispatchable by the CAISO, and are located in the "load pocket" of the San Diego region; and
- Improves San Diego electrical system reliability through fast starting generating technology, creating a rapid responding resource for peak demand situations and providing a dependable resource to backup intermittent renewable resources like wind generation and solar.

(Exs. 200, pp. 6-15 – 6-18; 215.)

5. No Project Alternative

CEQA requires an evaluation of the "No Project" alternative "… to allow decision-makers to compare the impacts of approving the proposed project with the impacts of not approving the proposed project." (14 Cal. Code Regs., § 15126.6(e)(1).)

The "No Project" analysis assumes that baseline environmental conditions would not change because the project would not be installed, and that the events or actions reasonably expected to occur in the foreseeable future would occur if the project were not approved. (Ex. 300, pp. 7-24.)

If the proposed CECP were not built, certain environmental benefits from the new power plant would not be realized. For instance, all five EPS units would continue to operate "as is" into the foreseeable future and retirement of the EPS circa 1950's Units 1 through 3 would be indefinitely delayed. The result would be relatively inefficient electrical generation utilizing over 220 million gallons of ocean water per day for once-through cooling that would otherwise cease to occur. This once-through cooling feature of the old coastal facilities has been found to have high and adverse impacts on marine biota. The existing EPS Units 1 through 3, which are based on boilers that must be kept in heated standby status, would consume more fuel and emit more air pollutants per megawatt-hour generated than that of the cleaner and more efficient new turbine CECP units and EPS Units 4 and 5 operating together. Although the identification of a definite No Project Alternative development scenario is not possible, "No Project" would almost certainly result in efforts to find new sites for dispatchable gas-fired generation that would meet similar project objectives to those of the CECP – providing load pocket reliability and reducing OTC with ocean water. To meet

such objectives, the new generation sites would have to be in the San Diego urban area. Any such new generation facility would likely have higher environmental impacts than CECP, particularly if built at a greenfield site, which generally has greater environmental and community impacts than brownfield redevelopment projects like the CECP. Potential environmental impacts from the No Project alternative would result in greater fuel consumption and air pollution because the CECP would not be brought into operation in a timely manner to displace production from the older, less efficient EPS that has higher polluting air emissions. Furthermore, the existing facilities/features on-site at the EPS allow the CECP to utilize the plant's infrastructure, thereby avoiding offsite construction of linear facilities or other infrastructure.

Based on the above, the No Project alternative, while required for analysis by CEQA, does not meet the requirements of the CEQA Guidelines as being an alternative to the CECP "…which would feasibility attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives." (14 Cal. Code Regs., § 15126.6(a).) CECP will produce electricity for the SDG&E service area while consuming less fuel and discharging fewer air emissions for each energy unit generated when compared to other existing, older fossil fuel generation facilities. The No Project alternative would not the following two critical project objectives of the CECP:

- Meets the expanding need for new, highly efficient, reliable electrical generating resources that are dispatchable by the CAISO, and are located in the "load pocket" of the San Diego region; and
- Improves San Diego electrical system reliability through fast starting generating technology, creating a rapid responding resource for peak demand situations and providing a dependable resource to backup intermittent renewable resources like wind generation and solar.

(Ex. 200, pp. 6-18 – 6-19.)

6. Environmentally Superior Alternative

As we discuss above, adoption of the No Project Alternative—denial of this Application for Certification—would not likely maintain the status quo because market and regulatory forces are likely to cause other sites in the San Diego urban area to be considered for development with a modern, efficient, dispatchable, generator. Because those sites are likely to be less intensely developed than the EPS site, perhaps even undeveloped, they are likely to give rise to greater levels of environmental impact than the construction of CECP as

proposed on the EPS site. Thus the No Project Alternative is not environmentally superior to the CECP, nor are the alternative sites or technologies, reduced capacity, renewable resources, or conservation and demand-side management. The proposed project is the environmentally superior alternative.

7. Response to Party Arguments and Public Comments

The City of Carlsbad continues to maintain that, by focusing on alternative sites in Carlsbad, we failed to analyze a "reasonable range" of alternatives. Their comments were addressed by Staff in the Final Staff Assessment. (Ex. 200, p. 6-20.) We have nothing further to add to that discussion.

We also note the extensive public comment received from Oceanside residents who were concerned about the possible choice of one of the inland sites that would appear in their view shed. They favored approval of the CECP in its proposed location.

FINDINGS OF FACT

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

1. The evidence establishes an acceptable analysis of a reasonable range of alternatives to the CECP as proposed.
2. The evidentiary record contains an adequate review of alternative sites, technologies, conservation and demand-side management, and the "no project" alternative.
3. Alternative technologies are not capable of meeting the project objectives.
4. No site alternative is capable of meeting the stated project objectives.
5. A reduced capacity generator at the proposed CECP site might eliminate the identified Land Use impacts but would not make full use of the existing infrastructure at the site and would likely require that additional capacity be developed at an additional location.
5. With the exception of the reduced capacity alternative, no alternative, including the "no project" alternative would avoid or substantially lessen potentially significant environmental impacts.
6. The "no project" alternative would not provide electrical system benefits, including support for the integration of renewable energy.
7. Without the CECP, the region and State will not benefit from the clean, renewable source of new generation that the CECP facility will provide.

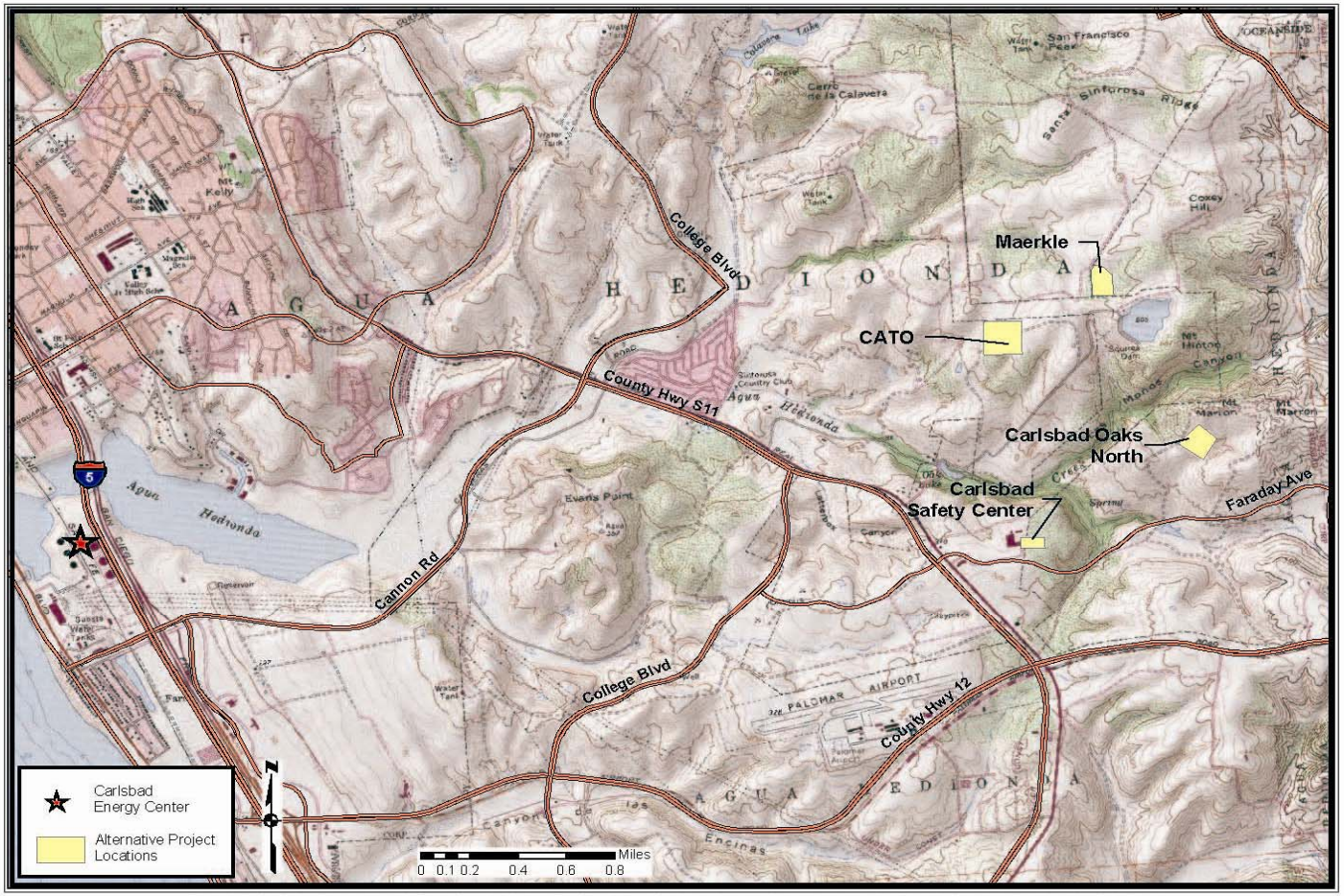
8. If all Conditions of Certification contained in this Decision are implemented, construction and operation of the CECP will not create any significant direct, indirect, or cumulative adverse environmental impacts except the land use impacts identified in the Land Use and Override Findings sections of this Decision.

CONCLUSION OF LAW

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

ALTERNATIVES - FIGURE 1

Carlsbad Energy Center Project - Alternative Project Locations



CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION, NOVEMBER 2009

SOURCE: California Energy Commission Statewide Power Plant Maps 2008, Tele Atlas 2008, National Geographic Topo Maps, City of Carlsbad

IV. COMPLIANCE AND CLOSURE

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

SUMMARY OF THE EVIDENCE

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

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

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

- set forth the duties and responsibilities of the Compliance Project Manager (CPM), the project owner, delegate agencies, and others;
- set forth the requirements for handling confidential records and maintaining the compliance record;
- set forth procedures for settling disputes and making post-certification changes;
- set forth the requirements for periodic compliance reports and other administrative procedures necessary to verify the compliance status of all Commission imposed Conditions; and
- set forth requirements for facility closure.

The second general element of the Plan contains the specific “Conditions of Certification.” These are found following the summary and discussion of each individual topic area in this Decision. The individual Conditions contain the measures required to

mitigate potentially adverse Project impacts associated with construction, operation, and closure to levels of insignificance. Each Condition also includes a verification provision describing the method of assuring that the Condition has been satisfied.

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

FINDINGS OF FACT

The record establishes:

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

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

CONCLUSIONS OF LAW

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

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

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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 fencing, construction trailers, construction trailer utilities, and construction trailer parking at the site. Limited ground disturbance, grading, and trenching associated with the above mentioned pre-construction activities is considered part of site mobilization. Walking, driving or parking a passenger vehicle, pickup truck and light vehicles is allowable during site mobilization.

CONSTRUCTION

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

Ground Disturbance

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

Grading, Boring, and Trenching

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

Notwithstanding the definitions of ground disturbance, grading, boring and trenching above, construction does **not** include the following:

1. the installation of environmental monitoring equipment;
2. a soil or geological investigation;
3. a topographical survey;
4. any other study or investigation to determine the environmental acceptability or feasibility of the use of the site for any particular facility; and
5. any work to provide access to the site for any of the purposes specified in “Construction” 1, 2, 3, or 4 above.

START OF COMMERCIAL OPERATION

For compliance monitoring purposes, “commercial operation” begins after the completion of start-up and commissioning, when the power plant has reached reliable steady-state production of electricity at the rated capacity. At the start of commercial

operation, plant control is usually transferred from the construction manager to the plant operations manager.

COMPLIANCE PROJECT MANAGER RESPONSIBILITIES

The Compliance Project Manager (CPM) shall oversee the compliance monitoring and is responsible for:

1. Ensuring that the design, construction, operation, and closure of the project facilities are in compliance with the terms and conditions of the Energy Commission Decision
2. Resolving complaints
3. Processing post-certification changes to the Conditions of Certification, project description (petition to amend), and ownership or operational control (petition for change of ownership) (See instructions for filing petitions)
4. Documenting and tracking compliance filings
5. Ensuring that compliance files are maintained and accessible

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

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

PRE-CONSTRUCTION AND PRE-OPERATION COMPLIANCE MEETING

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

ENERGY COMMISSION RECORD

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

- All documents demonstrating compliance with any legal requirements relating to the construction and operation of the facility;

- All monthly and annual compliance reports filed by the project owner;
- All complaints of noncompliance filed with the Energy Commission; and
- All petitions for project or Condition of Certification changes and the resulting staff or Energy Commission action.

PROJECT OWNER RESPONSIBILITIES

The project owner is responsible for ensuring that the compliance Conditions of Certification and all other Conditions of Certification that appear in the Commission Decision are satisfied. The compliance conditions regarding post-certification changes specify measures that the project owner must take when requesting changes in the project design, Conditions of Certification, or ownership. Failure to comply with any of the Conditions of Certification or the compliance conditions may result in reopening of the case and revocation of Energy Commission certification; an administrative fine; or other action as appropriate. A summary of the Compliance Conditions of Certification is included as **Compliance Table 1** at the conclusion of this section.

COMPLIANCE CONDITIONS OF CERTIFICATION

Unrestricted Access (COMPLIANCE-1)

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

Compliance Record (COMPLIANCE-2)

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

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

Compliance Verification Submittals (COMPLIANCE-3)

Each Condition of Certification is followed by a means of verification. The verification describes the Energy Commission’s procedure(s) to ensure post-certification compliance with adopted conditions. The verification procedures, unlike the conditions, may be modified as necessary by the CPM.

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

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

2. Appropriate letters from delegate agencies verifying compliance;

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

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

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

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

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

All hardcopy submittals shall be addressed as follows:

<u>Compliance Project Manager</u>
(07-AFC-6C)
California Energy Commission
1516 Ninth Street (MS-2000)
Sacramento, CA 95814

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

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

<u>Pre-Construction Matrix and Tasks Prior to Start of Construction (COMPLIANCE-4)</u>

Prior to commencing construction, a compliance matrix addressing <u>only</u> those conditions that must be fulfilled before the start of construction shall be submitted by the project owner to the CPM. This matrix will be included with the project owner's first

compliance submittal or prior to the first pre-construction meeting, whichever comes first. It will be submitted in the same format as the compliance matrix described below.

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

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

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

Compliance Reporting

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

Compliance Matrix (COMPLIANCE-5)

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

1. the technical area;
2. the Condition number;
3. a brief description of the verification action or submittal required by the condition;
4. the date the submittal is required (e.g., 60 days prior to construction, after final inspection, etc.);
5. the expected or actual submittal date;

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

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

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

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

Monthly Compliance Report (COMPLIANCE-6)

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

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

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

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

3. An initial, and thereafter updated, compliance matrix showing the status of all Conditions of Certification;

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

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

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

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

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

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

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

All sections, exhibits, or addendums shall be separated by tabbed dividers or as acceptable by the CPM.

Annual Compliance Report (COMPLIANCE-7)

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

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

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

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

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

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

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

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

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

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

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

Confidential Information (COMPLIANCE-8)

Any information that the project owner deems confidential shall be submitted to the Energy Commission's 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 compliance fee, which is adjusted annually. The amount of the fee for FY2007-2008 was $17,676. The initial payment is due on the date the Energy Commission adopts the final decision. You will be notified of the amount due. All subsequent payments are due by July 1 of each year in which the facility retains its certification. The payment instrument shall be made payable to the California Energy Commission and mailed to: Accounting Office MS-02, California Energy Commission, 1516 9th Street, Sacramento, CA 95814.

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

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

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

In addition to the monthly and annual compliance reporting requirements described above, the project owner shall report and provide copies to the CPM of all complaint forms, including noise and lighting complaints, notices of violation, notices of fines, official warnings, and citations, within 10 days of receipt. Complaints shall be logged and numbered. Noise complaints shall be recorded on the form provided in the **NOISE** Conditions of Certification, found in that section of this Decision. 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 than 60 days (or other time agreed to by the CPM) prior to commencement of commercial operation. The approved plan must be in place prior to commercial operation of the facility and shall be kept at the site at all times.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Amendment

The project owner shall petition the Energy Commission, pursuant to Title 20, California Code of Regulations, section 1769(a), when proposing modifications to the project (including linear facilities) design, operation, or performance requirements. If a proposed modification results in deletion or change of a Condition of Certification, or makes changes that would cause the project not to comply with any applicable laws, ordinances, regulations or standards, the petition will be processed as a formal amendment to the final decision, which requires public notice and review of the Energy Commission staff analysis, and approval by the full Commission. The petition shall be in the form of a legal brief and fulfill the requirements of Section 1769(a). Upon request, the CPM will provide you with a sample petition to use as a template.

Change of Ownership

Change of ownership or operational control also requires that the project owner file a petition pursuant to section 1769 (b). This process requires public notice and approval by the full Commission. The petition shall be in the form of a legal brief and fulfill the requirements of section 1769(b). Upon request, the CPM will provide you with a sample petition to use as a template.

Staff Approved Project Modification

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

Verification Change

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

CBO DELEGATION AND AGENCY COOPERATION

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

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

ENFORCEMENT

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

Noncompliance Complaint Procedures

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

Informal Dispute Resolution Process

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

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

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

Request for Informal Investigation

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

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

Request for Informal Meeting

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

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

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

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

4. After the conclusion of such a meeting, promptly prepare and distribute copies to all in attendance and to the project file, a summary memorandum that fairly and accurately identifies the positions of all parties and any understandings reached. If an agreement has not been reached, the CPM shall inform the complainant of the formal complaint process and requirements provided under Title 20, California Code of Regulations, section 1230 et seq.

Formal Dispute Resolution Procedure-Complaints and Investigations

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

KEY EVENTS LIST

PROJECT: _____

DOCKET #: _____

COMPLIANCE PROJECT MANAGER: _____

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

COMPLIANCE TABLE 1
SUMMARY of COMPLIANCE CONDITIONS OF CERTIFICATION

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

V. ENGINEERING ASSESSMENT

The broad engineering assessment of the Carlsbad Energy Center Project consists of separate analyses that examine the project's facility design and engineering elements, power plant efficiency, and power plant reliability. These analyses include the on-site generating equipment and the project-related linear facilities.

A. FACILITY DESIGN

This topic covers several technical disciplines including the civil, electrical, mechanical, and structural engineering elements related to project design and construction. It reviews the project's consistency with applicable LORS, but does not address the project's environmental impacts under the California Environmental Quality Act (CEQA), which is covered in the environmental review section of this Decision.

SUMMARY AND DISCUSSION OF THE EVIDENCE

The Application for Certification (Ex. 4) and the document entitled Project Enhancements and Refinements (Ex. 35) describe the project's facility design and engineering plans. In evaluating the proposed engineering plans, we have considered whether the power plant and linear facilities are described with sufficient detail to ensure that the project can be designed and constructed in accordance with applicable engineering laws, ordinances, regulations, and standards (LORS). We have also identified any special design features that will be necessary to address unique site conditions, including those which could potentially affect public health and safety and/or the operational reliability of the project. (Ex. 200, pp. 5.1-1 – 5.1-3.)

The record includes analyses of potential geological and seismic hazards as well as discussion of preliminary project design plans related to grading, flood protection, erosion control, site drainage, site access, and the construction of linear facilities. (Exs. 4, Appendices 2A – 2G; 200, p. 5.1-3.) The **Geology and Paleontology** section of this Decision provides further discussion of geological and seismic issues that must be addressed by the project. The evidence establishes that the project's proposed design incorporates accepted industry standards for preparing and developing the site. The project owner must implement the provisions of Conditions **CIVIL-1** through **CIVIL-4** to ensure that design and construction activities comply with applicable LORS.

The record describes the major structures, systems, equipment, and associated components necessary for power production, including storage facilities for hazardous or toxic materials that could potentially cause health or safety hazards if not constructed properly. (Ex. 200, p. 5.1-3.) Condition **GEN-2** incorporates **Table 1**, which lists the major structures and equipment included in the initial engineering design of the project.[1] Conditions **GEN-3** through **GEN-8** requires the project owner to employ qualified engineers to monitor and inspect construction of the facility. Conditions **MECH-1** through **MECH-3** require the project owner to implement a quality assurance/quality control program to ensure that the project's components are designed, procured, fabricated, and installed as required by applicable LORS. Condition **ELEC-1** ensures that design and construction of the major electrical features will comply with applicable LORS. The project owner must also provide verification of compliance with design requirements in conjunction with specific inspections and audits as required by the **Facility Design** Conditions. (*Id.* at p. 5.1-4.)

The project is located in Seismic Risk Zone 4, which is designated as an area with the highest likelihood for earthquake activity. (Ex. 200, p. 5.1-2.) The latest version (2010) of the California Building Standards Code (CBSC) requires specific "dynamic" lateral force procedures for certain structures to comply with seismic design criteria for Zone 4. To ensure that project structures are analyzed appropriately, Condition **STRUC-1** requires the project owner to submit its proposed lateral force procedures to the Chief Building Official (CBO) for review and approval prior to the start of construction.[2] (*Id.* at p. 5.1-3.)

Condition **GEN-1** requires that project must be designed and constructed in conformance with the most current edition of the CBSC and other applicable codes and standards in effect at the time design approval and construction actually begin. (Ex. 200, pp. 5.1-3 – 5.1-4.)

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[1] The master drawing and master specifications lists described in Condition **GEN-2** include structures and equipment based on the project's *preliminary* design and may include supplemental materials for structures and equipment not currently identified in Table 1.

[2] The Energy Commission is the CBO for certified power plants under our jurisdiction. We may delegate CBO authority to local building officials and/or to independent consultants to carry out design review and construction inspections. When CBO duties are delegated, we require a Memorandum of Understanding with the delegated entity to outline respective roles, responsibilities, and qualifications of involved individuals such as those described in Conditions of Certification **GEN-1** through **GEN-8**. The Conditions further require that every element of project construction must first be approved by the CBO and that qualified engineers perform or oversee the inspections. (Ex. 200, p. 5.1-4.)

Additionally, the record addresses project closure, which may range from "mothballing" the facility to removing all equipment and restoring the site. To ensure that facility decommissioning conforms to applicable LORS and is completed in a manner that protects the environment and public health and safety, the project owner must submit a decommissioning plan that identifies decommissioning activities, applicable LORS in effect when decommissioning occurs, activities necessary to restore the site, if appropriate, and decommissioning alternatives. (Ex. 200, p. 5.1-5.) The **Compliance and Closure** section of this Decision describes the general closure provisions and requirements.

FINDINGS OF FACT

Based on the uncontroverted evidence, the Commission makes the following findings:

1. The **Facility Design** evidence provides a preliminary engineering design and description of the Carlsbad Energy Center Project.

2. The **Facility Design** evidence addresses consistency with applicable engineering LORS but does not discuss the project's potential environmental impacts, which are covered in the environmental assessment sections of this Decision.

3. Based on the **Facility Design** evidence, the project can be designed and constructed in conformity with the applicable laws, ordinances, regulations, and standards (LORS) set forth in the appropriate portion of **Appendix A** of this Decision.

4. The **Facility Design** Conditions of Certification, below, require the project owner to implement the most current version of the California Building Standards Code and other applicable LORS in effect at the time that construction begins.

5. The **Facility Design** Conditions of Certification, below, require that qualified engineering personnel perform design review, plan checking, and field inspections of the project.

6. Implementation of the **Facility Design** Conditions of Certification, below, will ensure that the project is designed and constructed in accordance with applicable law and in a manner that protects public health and safety.

7. The **General Conditions,** included in the **Compliance and Closure** section of this Decision, delineate the requirements for closure and decommissioning of the project.

CONCLUSION OF LAW

1. Implementation of the **Facility Design** Conditions of Certification listed below ensure that the Carlsbad Energy Center Project will be designed and constructed in conformance with the applicable LORS related to the engineering elements summarized in this section of the Decision.

CONDITIONS OF CERTIFICATION

GEN-1 The project owner shall design, construct, and inspect the project in accordance with the 2010 California Building Standards Code (CBSC), also known as Title 24, California Code of Regulations, which encompasses the California Building Code (CBC), California Administrative Code, California Electrical Code, California Mechanical Code, California Plumbing Code, California Energy Code, California Fire Code, California Code for Building Conservation, California Reference Standards Code, and all other applicable engineering laws, ordinances, regulations and standards (LORS) in effect at the time initial design plans are submitted to the chief building official (CBO) for review and approval (the CBSC in effect is the edition that has been adopted by the California Building Standards Commission and published at least 180 days previously). The project owner shall ensure that all the provisions of the above applicable codes are enforced during the construction, addition, alteration, moving, demolition, repair, or maintenance of the completed facility (2010 CBC, Appendix Chapter 1, § 101.2, Scope). All transmission facilities (lines, switchyards, switching stations and substations) are covered in the conditions of certification in the **Transmission System Engineering** section of this Decision.

In the event that the initial engineering designs are submitted to the CBO when the successor to the 2010 CBSC is in effect, the 2010 CBSC provisions shall be replaced with the applicable successor provisions. Where, in any specific case, different sections of the code specify different materials, methods of construction or other requirements, the most restrictive shall govern. Where there is a conflict between a general requirement and a specific requirement, the specific requirement shall govern.

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

Verification: Within 30 days following receipt of the certificate of occupancy, the project owner shall submit to the compliance project manager (CPM) a statement of verification, signed by the responsible design engineer, attesting that all designs, construction, installation, and inspection requirements of the applicable LORS and the Energy Commission's decision have been met in the area of facility design. The project owner shall provide the CPM a copy of the certificate of occupancy within 30 days of receipt from the CBO (2010 CBC, Appendix Chapter 1, § 110, Certificate of Occupancy).

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

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

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

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FACILITY DESIGN Table 2
Major Structures and Equipment List

Equipment/System	Quantity (Plant)
Combustion Gas Turbine (CGT) Foundation and Connections	2
Heat Recover Steam Generator (HRSG) Foundation and Connections	2
HRSG Stack Foundations and Connections	2
Steam Turbine (ST) Foundations and Connections	2
CGT Generator Foundations and Connections	2
ST Generator Foundations and Connections	2
CGT Generator Transformer Foundations and Connections	2
ST Generator Transformer Foundations and Connections	2
Auxiliary Transformer Foundations and Connections	2
Generator Circuit Breaker Foundations and Connections	2
Electrical Package Foundations and Connections	2
Medium Voltage Switchgear Foundations and Connections	2
ST Fin Fan Cooler Foundations and Connections	2
Rotor Air Fin Fan Cooler Foundations and Connections	2
Condensate Polishing Fin Fan Cooler Foundations and Connections	2
ST Lube Oil Cooler Foundations and Connections	2
CGT Lube Oil Cooler Foundations and Connections	2
CGT Inlet Filter Foundations and Connections	2
Air Compressor Foundations and Connections	2
Fuel Gas Compressors Enclosure Foundations and Connections	1
Fuel Gas Conditioner/Meter Foundations and Connections	1
Selective Catalytic Reduction Skid Foundations and Connections	2
Balance of Plant Power Control Center Foundations and Connections	2
Steam Turbine Power Control Center Foundations and Connections	2
Continuous Emissions Monitoring System Foundations and Connections	2
Ammonia Storage Foundations and Connections	2
Chemical Dosing Equipment Foundations and Connections	2
Oil/Water Separator Foundations and Connections	2
Boiler Feedwater Pump Foundation and Connections	2
Boiler Blowdown Tank Foundations and Connections	2
Gland Steam Condenser Foundations and Connections	2
Raw/Reclaimed Water Tank Foundation and Connections	1
Demineralized Water Storage Tank Foundation and Connections	1
Fire Water Tank Foundation and Connections	1
Raw Water Forwarding Pumps Foundations and Connections	1
Demineralized Water Forwarding Pumps Foundations and Connections	1

Equipment/System	Quantity (Plant)
Fire Water Pumps Enclosure Foundations and Connections	1
Deaerator/Drain Tanks/ Condensate Pumps Foundations and Connections	2
Reverse Osmosis Drain Foundations and Connections	1
Crane Maintenance Pad Foundations and Connections	2

GEN-3 The project owner shall make payments to the CBO for design review, plan checks, and construction inspections, based upon a reasonable fee schedule to be negotiated between the project owner and the CBO. These fees may be consistent with the fees listed in the 2010 CBC (2010 CBC, Appendix Chapter 1, § 108, Fees; Chapter 1, § 108.4, Permits, Fees, Applications and Inspections), 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 otherwise agreed upon by the project owner and the CBO.

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

GEN-4 Prior to the start of rough grading, the project owner shall assign a California- registered architect, structural engineer, or civil engineer, as the resident engineer in charge of the project (2010 California Administrative Code, § 4-209, Designation of Responsibilities). All transmission facilities (lines, switchyards, switching stations, and substations) are addressed in the conditions of certification in the **Transmission System Engineering** section of this document.

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

The resident engineer shall:

1. Monitor progress of construction work requiring CBO design review and inspection to ensure compliance with LORS;
2. Ensure that construction of all facilities subject to CBO design review and inspection conforms in every material respect to applicable LORS, these conditions of certification, approved plans, and specifications;

3. Prepare documents to initiate changes in approved drawings and specifications when either directed by the project owner or as required by the conditions of the project;
4. Be responsible for providing project inspectors and testing agencies with complete and up-to-date sets of stamped drawings, plans, specifications, and any other required documents;
5. Be responsible for the timely submittal of construction progress reports to the CBO from the project inspectors, the contractor, and other engineers who have been delegated responsibility for portions of the project; and
6. Be responsible for notifying the CBO of corrective action or the disposition of items noted on laboratory reports or other tests when they do not conform to approved plans and specifications.

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

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

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

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

GEN-5 Prior to the start of rough grading, the project owner shall assign at least one of each of the following California registered engineers to the project: a civil engineer; a soils, geotechnical, or civil engineer experienced and knowledgeable in the practice of soils engineering; and an engineering geologist. Prior to the start of construction, the project owner shall assign at least one of each of the following California registered engineers to the project: a design engineer who is either a structural engineer or a civil engineer fully competent and proficient in the design of power plant structures and equipment supports; a mechanical engineer; and an electrical engineer. (California Business and Professions Code § 6704 et seq., and §§ 6730, 6731 and 6736 require state

registration to practice as a civil engineer or structural engineer in California.) All transmission facilities (lines, switchyards, switching stations, and substations) are handled in the conditions of certification in the **Transmission System Engineering** section of this document.

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

The project owner shall submit, to the CBO for review and approval, the names, qualifications, and registration numbers of all responsible engineers assigned to the project (2010 CBC, Appendix Chapter 1, § 104, Duties and Powers of Building Official).

If any one of the designated responsible engineers is subsequently reassigned or replaced, the project owner shall submit the name, qualifications and registration number of the newly assigned responsible engineer to the CBO for review and approval. The project owner shall notify the CPM of the CBO's approval of the new engineer.

A. The civil engineer shall:

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

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

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

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

   1. Review all the engineering geology reports;

2. Prepare the foundation investigations, geotechnical, or soils reports containing field exploration reports, laboratory tests, and engineering analysis detailing the nature and extent of the soils that could be susceptible to liquefaction, rapid settlement or collapse when saturated under load (2010 CBC, Appendix J, § J104.3, Soils Report; Chapter 18, § 1802.2, Foundation and Soils Investigations)
3. Be present, as required, during site grading and earthwork to provide consultation and monitor compliance with requirements set forth in the 2010 CBC, Appendix J, § J105, Inspections, and the 2010 California Administrative Code, § 4-211, Observation and Inspection of Construction (depending on the site conditions, this may be the responsibility of either the soils engineer, the engineering geologist, or both); and
4. Recommend field changes to the civil engineer and resident engineer.

This engineer shall be authorized to halt earthwork and to require changes if site conditions are unsafe or do not conform to the predicted conditions used as the basis for design of earthwork or foundations (2010 CBC, Appendix Chapter 1, § 114, Stop Orders).

C. The engineering geologist shall:

1. Review all the engineering geology reports and prepare a final soils grading report; and
2. Be present, as required, during site grading and earthwork to provide consultation and monitor compliance with the requirements set forth in the 2010 California Administrative Code, § 4-211, Observation and Inspection of Construction (depending on the site conditions, this may be the responsibility of either the soils engineer, the engineering geologist, or both).

D. The design engineer shall:

1. Be directly responsible for the design of the proposed structures and equipment supports;
2. Provide consultation to the resident engineer during design and construction of the project;
3. Monitor construction progress to ensure compliance with engineering LORS;
4. Evaluate and recommend necessary changes in design; and
5. Prepare and sign all major building plans, specifications, and calculations.

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

F. The electrical engineer shall:

1. Be responsible for the electrical design of the project; and
2. Sign and stamp electrical design drawings, plans, specifications, and calculations.

Verification: At least 30 days (or within a project owner- and CBO-approved alternative time frame) prior to the start of rough grading, the project owner shall submit to the CBO for review and approval, resumes and registration numbers of the responsible civil engineer, soils (geotechnical) engineer and engineering geologist assigned to the project.

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

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

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

GEN-6 Prior to the start of an activity requiring special inspection, the project owner shall assign to the project qualified and certified special inspector(s) who shall be responsible for the special inspections required by the 2010 CBC, Chapter 17, § 1704; Special Inspections, Chapter 17A, § 1704A, Special Inspections; and Appendix Chapter 1, § 109, Inspections. All transmission facilities (lines, switchyards, switching stations, and substations) are handled in conditions of certification in the **Transmission System Engineering** section of this document.

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

The special inspector shall:

1. Be a qualified person who shall demonstrate competence, to the satisfaction of the CBO, for inspection of the particular type of construction requiring special or continuous inspection;
2. Observe the work assigned for conformance with the approved design drawings and specifications;
3. Furnish inspection reports to the CBO and resident engineer. All discrepancies shall be brought to the immediate attention of the resident engineer for correction, then, if uncorrected, to the CBO and the CPM for corrective action [2010 CBC, Chapter 17, § 1704.1.2, Report Requirements]; and
4. Submit a final signed report to the resident engineer, CBO, and CPM, stating whether the work requiring special inspection was, to the best of the inspector's knowledge, in conformance with the approved plans, specifications, and other provisions of the applicable edition of the CBC.

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

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

GEN-7 If any discrepancy in design and/or construction is discovered in any engineering work that has undergone CBO design review and approval, the project owner shall document the discrepancy and recommend required corrective actions (2010 CBC, Appendix Chapter 1, § 109.6, Approval Required; Chapter 17, § 1704.1.2, Report Requirements). The discrepancy documentation shall be submitted to the CBO for review and approval. The discrepancy documentation shall reference this condition of certification and, if appropriate, applicable sections of the CBC and/or other LORS.

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

GEN-8 The project owner shall obtain the CBO's final approval of all completed work that has undergone CBO design review and approval. The project owner shall request the CBO to inspect the completed structure and review the submitted documents. The project owner shall notify the CPM after obtaining the CBO's final approval. The project owner shall retain one set of approved engineering plans, specifications, and calculations (including all approved changes) at the project site or at an alternative site approved by the CPM during the operating life of the project (2010 CBC, Appendix Chapter 1, § 106.3.1, Approval of Construction Documents). Electronic copies of the approved plans, specifications, calculations, and marked-up as-builts shall be provided to the CBO for retention by the CPM.

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

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

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

1. Design of the proposed drainage structures and the grading plan;
2. An erosion and sedimentation control plan;
3. Related calculations and specifications, signed and stamped by the responsible civil engineer; and
4. Soils, geotechnical, or foundation investigations reports required by the 2010 CBC, Appendix J, § J104.3, Soils Report; and Chapter 18, § 1802.2, Foundation and Soils Investigation.

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

CIVIL-2 The resident engineer shall, if appropriate, stop all earthwork and construction in the affected areas when the responsible soils engineer,

geotechnical engineer, or the civil engineer experienced and knowledgeable in the practice of soils engineering identifies unforeseen adverse soil or geologic conditions. The project owner shall submit modified plans, specifications, and calculations to the CBO based on these new conditions. The project owner shall obtain approval from the CBO before resuming earthwork and construction in the affected area (2010 CBC, Appendix Chapter 1, § 114, Stop Work Orders).

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

CIVIL-3 The project owner shall perform inspections in accordance with the 2010 CBC, Appendix Chapter 1, § 109, Inspections; and Chapter 17, § 1704, Special Inspections. All plant site-grading operations, for which a grading permit is required, shall be subject to inspection by the CBO.

If, in the course of inspection, it is discovered that the work is not being performed in accordance with the approved plans, the discrepancies shall be reported immediately to the resident engineer, the CBO, and the CPM (2010 CBC, Chapter 17, § 1704.1.2, Report Requirements). The project owner shall prepare a written report, with copies to the CBO and the CPM, detailing all discrepancies, non-compliance items, and the proposed corrective action.

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

CIVIL-4 After completion of finished grading and erosion and sedimentation control and drainage work, the project owner shall obtain the CBO's approval of the final grading plans (including final changes) for the erosion and sedimentation control work. The civil engineer shall state that the work within his/her area of responsibility was done in accordance with the final approved plans (2010 CBC, Chapter 17, § 1703.2, Written Approval).

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

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

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

1. Major project structures;
2. Major foundations, equipment supports, and anchorage; and
3. Large field-fabricated tanks.

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

The project owner shall:

1. Obtain approval from the CBO of lateral force procedures proposed for project structures;
2. Obtain approval from the CBO for the final design plans, specifications, calculations, soils reports, and applicable quality control procedures. If there are conflicting requirements, the more stringent shall govern (for example, highest loads, or lowest allowable stresses shall govern). All plans, calculations, and specifications for foundations that support structures shall be filed concurrently with the structure plans, calculations, and specifications (2010 CBC, Appendix Chapter 1, § 109.6, Approval Required);
3. Submit to the CBO the required number of copies of the structural plans, specifications, calculations, and other required documents of the designated major structures prior to the start of on-site fabrication and installation of each structure, equipment support, or foundation (2010 California Administrative Code, § 4-210, Plans, Specifications, Computations and Other Data);
4. Ensure that the final plans, calculations, and specifications clearly reflect the inclusion of approved criteria, assumptions, and methods used to develop the design. The final designs, plans, calculations, and specifications shall be signed and stamped by the responsible design engineer (2010 CBC, Appendix Chapter 1, § 106.3.4, Design Professional in Responsible Charge); and

5. Submit to the CBO the responsible design engineer's signed statement that the final design plans conform to applicable LORS (2010 CBC, Appendix Chapter 1, § 106.3.4, Design Professional in Responsible Charge).

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

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

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

1. Concrete cylinder strength test reports (including date of testing, date sample taken, design concrete strength, tested cylinder strength, age of test, type and size of sample, location and quantity of concrete placement from which sample was taken, and mix design designation and parameters);
2. Concrete pour sign-off sheets;
3. Bolt torque inspection reports (including location of test, date, bolt size, and recorded torques);
4. Field weld inspection reports (including type of weld, location of weld, inspection of non-destructive testing procedure and results, welder qualifications, certifications, qualified procedure description or number (ref: AWS); and
5. Reports covering other structural activities requiring special inspections shall be in accordance with the 2010 CBC, Chapter 17, § 1704, Special Inspections, and § 1709.1, Structural Observations.

Verification: If a discrepancy is discovered in any of the above data, the project owner shall, within five days, prepare and submit an NCR describing the nature of the discrepancies and the proposed corrective action to the CBO, with a copy of the transmittal letter to the CPM (2010 CBC, Chapter 17, § 1704.1.2, Report Requirements). The NCR shall reference the condition(s) of certification and the applicable CBC chapter and section. Within five days of resolution of the NCR, the project owner shall submit a copy of the corrective action to the CBO and the CPM.

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

STRUC-3 The project owner shall submit to the CBO design changes to the final plans required by the 2010 CBC, including the revised drawings, specifications, calculations, and a complete description of, and supporting rationale for, the proposed changes, and shall give to the CBO prior notice of the intended filing (2010 CBC, Appendix Chapter 1, § 106.1, Submittal Documents; § 106.4, Amended Construction Documents; 2010 California Administrative Code, § 4-215, Changes in Approved Drawings and Specifications).

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

STRUC-4 Tanks and vessels containing quantities of toxic or hazardous materials exceeding amounts specified in the 2010 CBC, Chapter 3, Table 307.1(2), shall, at a minimum, be designed to comply with the requirements of that chapter.

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

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

MECH-1 The project owner shall submit, for CBO design review and approval, the proposed final design, specifications and calculations for each plant major piping and plumbing system listed in **FACILITY DESIGN Table 2**, Condition of Certification **GEN-2**, above. 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 that construction (2010 CBC, Appendix Chapter 1, § 106.1, Submittal Documents; § 109.5, Inspection Requests; § 109.6, Approval Required; 2010 California Plumbing Code, § 301.1.1, Approvals).

The responsible mechanical engineer shall stamp and sign all plans, drawings, and calculations for the major piping and plumbing systems, subject to CBO design review and approval, and submit a signed statement to the CBO when the proposed piping and plumbing systems have been designed, fabricated, and installed in accordance with all of the applicable laws, ordinances, regulations and industry standards (2010 CBC, Appendix Chapter 1, § 106.3.4, Design Professional in Responsible Charge), which may include, but are not limited to:

- American National Standards Institute (ANSI) B31.1 (Power Piping Code);
- ANSI 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);
- San Diego County codes; and
- City of Carlsbad regulations and ordinances.

The CBO may deputize inspectors to carry out the functions of the code enforcement agency (2010 CBC, Appendix Chapter 1, §103.3, Deputies).

Verification: At least 30 days (or within a project owner- and CBO-approved alternative time frame) prior to the start of any increment of major piping or plumbing construction listed in **FACILITY DESIGN Table 2**, Condition of Certification **GEN-2,** above, the project owner shall submit to the CBO for design review and approval the final plans, specifications, and calculations, including a copy of the signed and stamped statement from the responsible mechanical engineer certifying compliance with applicable LORS, and shall send the CPM a copy of the transmittal letter in the next monthly compliance report.

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

MECH-2 For all pressure vessels installed in the plant, the project owner shall submit to the CBO and California Occupational Safety and Health Administration (Cal-OSHA), prior to operation, the code certification papers and other documents required by applicable LORS. Upon completion of the installation of any pressure vessel, the project owner

shall request the appropriate CBO and/or Cal-OSHA inspection of that installation (2010 CBC, Appendix Chapter 1, § 109.5, Inspection Requests).

The project owner shall:

1. Ensure that all boilers and fired and unfired pressure vessels are designed, fabricated, and installed in accordance with the appropriate section of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, or other applicable code. Vendor certification, with identification of applicable code, shall be submitted for prefabricated vessels and tanks; and
2. Have the responsible design engineer submit a statement to the CBO that the proposed final design plans, specifications, and calculations conform to all of the requirements set forth in the appropriate ASME Boiler and Pressure Vessel Code or other applicable codes.

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

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

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

The project owner shall design and install all HVAC and refrigeration systems within buildings and related structures in accordance with the CBC and other applicable codes. Upon completion of any increment of construction, the project owner shall request the CBO's inspection and approval of that construction. The final plans, specifications and calculations shall include approved criteria, assumptions, and methods used to develop the design. In addition, the responsible mechanical engineer shall sign and stamp all plans, drawings and calculations and submit a signed statement to the CBO that the proposed final design plans, specifications and calculations conform with the applicable LORS (2010 CBC, Appendix Chapter 1, § 109.3.7, Energy Efficiency Inspections; § 106.3.4, Design Professionals in Responsible Charge).

Verification: At least 30 days (or within a project owner- and CBO-approved alternative time frame) prior to the start of construction of any HVAC or refrigeration system, the project owner shall submit to the CBO the required HVAC and refrigeration calculations, plans, and specifications, including a copy

of the signed and stamped statement from the responsible mechanical engineer certifying compliance with the CBC and other applicable codes, with a copy of the transmittal letter to the CPM.

ELEC-1 Prior to the start of any increment of electrical construction for all electrical equipment and systems 480 Volts or higher (see a representative list, below), with the exception of underground duct work and any physical layout drawings and drawings not related to code compliance and life safety, the project owner shall submit, for CBO design review and approval, the proposed final design, specifications, and calculations (2010 CBC, Appendix Chapter 1, § 106.1, 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 (2010 CBC, Appendix Chapter 1, § 109.6, Approval Required; § 109.5, Inspection Requests). All transmission facilities (lines, switchyards, switching stations, and substations) are handled in conditions of certification in the **Transmission System Engineering** section of this 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 must establish:

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

C. The following activities shall be reported 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 within a project owner- and CBO-approved alternative time frame) prior to the start of each increment of electrical construction, the project owner shall submit to the CBO for design review and approval the above-listed documents. The project owner shall include in this submittal a copy of the signed and stamped statement from the responsible electrical engineer attesting compliance with the applicable LORS, and shall send the CPM a copy of the transmittal letter in the next monthly compliance report.

B. POWER PLANT EFFICIENCY

The natural gas-fired Carlsbad Energy Center Project (CECP) will use substantial amounts of natural gas to fuel its operations. The California Environmental Quality Act (CEQA) requires a determination of whether the consumption of a non-renewable source of energy, such as natural gas, will result in substantial impacts upon energy resources. (Cal. Code Regs., tit. 14, § 15126.4(a)(1), Appen. F.)

The evidentiary record describes the project's energy requirements and its energy use efficiency; the project's effects on local and regional energy supplies and resources; requirements for additional energy supply capacity; and compliance with CEQA. In addition, the record addresses whether there are feasible alternatives that could reduce any wasteful, inefficient, or unnecessary energy consumption attributable to the project. The evidence on this topic was consistent with typical industry norms for natural gas-fired power plants. (2/2/10 RT 202-221, 290-291; Exs. 4, § 2.0, Figure 2.2-5, §§ 2.3.3, 4.0; 19; 35, § 4.0; 143, Part 3; 200, § 5.3.0; 734-737.)

SUMMARY AND DISCUSSION OF THE EVIDENCE

Project fuel efficiency, and its rate of energy consumption, is determined by the configuration of the power plant and the selection of equipment used to generate power. The evidence shows that only natural gas-burning technologies are feasible for this project. Other technologies are either incapable of providing the project's peaking and base load services (*e.g.,* solar), are unavailable in the area (*e.g.*, wind, geothermal, biomass), or are too highly polluting (*e.g*., coal, oil). (Ex. 200*,* p. 5.3-4.)

The CECP is designed as a combined cycle natural gas-fired 540-MW power plant consisting of two independent power trains. Each train includes one Siemens SCC6-5000F combustion gas turbine generator with evaporative inlet air cooling and steam injection power augmentation (PAG) systems, one single-pressure, fast start, heat recovery steam generator (HRSG), and one condensing steam turbine generator, arranged in a one-on-one combined cycle configuration. (Exs. 4, §§ 1.2, 2.1, 2.2, 2.2.4, 2.2.4.1, 2.2.4.2; 200, pp. 5.3-1 — 5.3-2.)

As a combined cycle plant, electricity will be generated by the two gas turbines and two steam turbines operating on heat energy recovered from the gas turbines' exhaust. By recovering this heat, which would otherwise be lost up the

exhaust stacks, the efficiency of any combined cycle power plant is increased considerably from that of either gas turbines or a steam turbine operating alone. This configuration is well suited to maintain the efficiency of a base load plant that generates energy over long periods of time. (Exs. 4, §§ 1.2, 2.1, 2.2, 2.3.3; 200, p. 5.3-3.)

According to Staff, the evaporative inlet air coolers, steam injection PAG, single-pressure HRSGs, steam turbine units, and dry cooling systems provide meaningful efficiency enhancements to CECP. The dual-train combustion turbine/HRSG/steam turbine configuration is also highly efficient during unit turndown since one train can be shut down, leaving the other fully loaded. This allows the efficient operation of one train instead of the operation of both trains operating at a less efficient 50 percent load. (Exs. 4, §§ 1.2, 2.1, 2.2; 200, pp. 5.3-3, 5.3-6.)

The Siemens Rapid Response Combined Cycle technology (R2C2 technology) combines the fast start capability of simple cycle gas turbine technology and the efficiency of combined cycle technology. The CECP generating system is designed to start and ramp up to 150 MW in 10 minutes and operate at an average of 37 percent efficiency during this period. This efficiency rating is comparable to the efficiency rating of a typical simple cycle plant used for peaking purposes. (Ex. 200, p. 5.3-4.)

Generally, however, the CECP is expected to operate in daily cycling duty (plant shutdown 8 hours). In this mode, the CECP will be able to reach full load and operate at a combined cycle efficiency of approximately 48 percent in about 45 minutes for a hot start and about 125 minutes for a cold start. In comparison, a typical combined cycle plant operating in daily cycling duty normally requires 160 minutes or more to reach full load and operates at an average of 30 percent efficiency during this period before finally reaching a combined cycle efficiency of approximately 55-56 percent at full load. (Ex. 4, § 2.0, Figure 2.2-5, § 2.3.3.) According to Staff, the CECP's anticipated base load efficiency of approximately 48 percent compares favorably with the average fuel efficiency of a typical base load power plant because it provides more power in a shorter timeframe when needed.[1] (Ex. 200, pp. 5.3-2, 5.3-4.)

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[1] Staff noted that one possible alternative to the R2C2 technology is the General Electric Frame 7F Rapid Response (Op-Flex) technology, which can produce approximately 270 MW at 55.5 percent efficiency LHV in a one-on-one train combined cycle configuration. Although the rated efficiency of the Op-Flex is several percentage points higher than that of the R2C2, it can achieve only 70 MW of output within 10 minutes of startup, while the R2C2 can achieve 150 MW (more

Under normal conditions, CECP will burn natural gas at a maximum rate of approximately 770 million British thermal units (MMBtu) per hour, lower heating value (LHV), during base load operation. This is a substantial rate of energy consumption that could potentially impact energy supplies. (Ex. 200, p. 5.3-2.)

Natural gas will be delivered to CECP via a new 18-inch diameter gas line connected to the natural gas pipeline system operated by Southern California Gas Company (SoCalGas). (Exs. 4, §§ 1.2, 2.1, 2.3.2.3, 4.0; 35, § 4.0.) The evidence establishes that the gas supply capacity provided by SoCalGas is sufficient to meet the project's fuel needs, and that the project will not require additional energy resources. The record also indicates that CECP's gas demand will not adversely impact other customers served by SoCalGas. (Ex. 200, pp. 5.3-3, 5.3-6.)

In the competitive power market, where operating costs are critical in determining the competitiveness and profitability of a power plant, the project owner is strongly motivated to purchase fuel-efficient machinery. Older, less efficient power plants consume more natural gas than new, more efficient plants such as the CECP. As a result, more efficient plants are called upon to run more frequently. According to Applicant and Staff, the quick ramp-up and base load capability of the CECP will allow it to compete favorably, run at high capacity, and replace less efficient power plants.

Intervenors Power of Vision (POV) and the City of Carlsbad disputed the choice of the Siemens turbines. The Intervenors believe that using the Siemens system violates CEQA because it will result in higher fuel consumption, higher fuel costs, and higher GHG emissions than the more efficient G-class and H-class turbines. (POV Exs. 734 - 737, Opening Brief at 18; COC, Opening Brief at 135.)

We are not persuaded by the Intervenors' arguments. The evidence shows that the Siemens R2C2 technology provides flexibility for ramping up quickly in response to dispatch orders for grid support. Dispatch orders call for the most efficiently generated energy first, especially when peaking energy is required. Therefore, the older, less efficient plants will be displaced by the CECP and other modern gas-fired and renewable power generation. On balance, we find that the

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than twice as much power) within 10 minutes of startup. Since the CECP is capable of up to 300 startups per year, the evidence supports a finding that the R2C2 technology's faster ramping rate makes it a more viable option to satisfy the CECP's objectives. Other options include the more efficient G-class or H-class next generation gas turbines but neither technology offers the commercially available fast-start capability incorporated in the R2C2 turbines selected for this project. (Ex. 200, pp. 5.3-4 – 5.3-5.)

project will not adversely impact the cumulative amount of natural gas consumed for power generation in California nor consume energy in a wasteful or inefficient manner. (Exs. 200, pp. 5.3-6 – 5.3-7; 143, Part 3.)

FINDINGS OF FACT

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

1. The Carlsbad Energy Center (CECP) is designed as a combined cycle, natural gas-fired 540-MW power plant consisting of two independent power trains, each including a Siemens SCC6-5000F combustion gas turbine generator.

2. The Siemens SCC6-5000F turbine generators employ Rapid Response Combined Cycle technology (R2C2 technology), which combines the fast start capability of simple cycle gas turbine technology and the efficiency of combined cycle technology.

3. The CECP's generating system is designed to start and ramp up to 150 MW in 10 minutes and operate at an average of 37 percent efficiency during this period, which is comparable to the efficiency rating of a typical simple cycle plant used for peaking purposes.

4. The CECP can reach full load and operate at a combined cycle efficiency of approximately 48 percent lower heating value (LVH) in about 45 minutes for a hot start and about 125 minutes for a cold start, which compares favorably with the average fuel efficiency of a typical base load plant because it provides more power in a shorter timeframe when needed.

5. The R2C2 technology's faster ramping rate makes it a more viable option to satisfy the CECP's objectives compared with higher efficiency turbine technologies without fast-start capability.

6. The record contains a comparative analysis of alternative fuel sources and generation technologies, all of which were either infeasible or inferior to the R2C2 technology for meeting project objectives in an efficient manner.

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

8. The project will benefit the state's electrical system by providing peaking power and base load services in the most efficient manner practicable.

9. No federal, state, or local laws, ordinances, regulations, or standards have been established to regulate the efficiency of gas-fired power plants.

CONCLUSION OF LAW

1. We therefore conclude that the Carlsbad Energy Center Project satisfies the standards established by the CEQA Guidelines for non-renewable energy consumption because it will not result in adverse effects upon energy supplies or resources, nor require additional sources of energy supply, nor consume energy in a wasteful or inefficient manner.

No Conditions of Certification are required for this topic.

C. POWER PLANT RELIABILITY

The Energy Commission must determine whether the CECP will be designed, sited, and operated to ensure safe and reliable operation. (Pub. Res. Code, § 25520(b); Cal. Code Regs., tit. 20, § 1752(c)(2).) However, there are no specific LORS that establish either power plant reliability criteria or procedures for attaining reliable operation.

In the last decade, the California Independent System Operator (CAISO) has established specific criteria for load-serving entities in the competitive electricity market to ensure that grid operators can purchase sufficient generating capacity and ancillary services to meet demand and to maintain system-wide reliability.[1]

In reviewing a new power plant's potential effect on system reliability, the Energy Commission examines whether the power plant will be built and operated at the typical level of reliability reflected in the power generation industry because, if it compares favorably to industry norms, it is not likely to degrade the overall reliability of the electricity system it serves. (Ex. 200, p. 5.4-2.)

SUMMARY AND DISCUSSION OF THE EVIDENCE

The Applicant proposes to operate the 540 MW Carlsbad Project as a fast start, quick ramp, combined cycle power plant with maximum operating flexibility (with ability to start up, shut down, turn down, and provide peaking power). Under this scenario, the project can be readily adapted to changing conditions within the regional and state-wide energy and ancillary services markets. In addition, since the plant will generate power near the electric load, it will likely increase reliability of the regional grid and reduce dependence on imported power. (Exs. 4, § 1.2; 200, p. 5.4-2.)

For practical purposes, a reliable power plant is one that is available when called upon to operate. According to the record, the Carlsbad Project will provide an

[1] Section 380 of the Public Utilities Code requires the Public Utilities Commission to consult with the CAISO to establish resource adequacy requirements for all load-serving entities (both public and privately-owned utility companies). These requirements include maintaining a minimum reserve margin (extra generating capacity to serve in times of equipment failure or unexpected demand) and maintaining sufficient local generating resources to satisfy the load-serving entity's peak demand and operating reserve requirements. (Ex. 200, p. 5.4-2.)

equivalent availability factor of 92 to 98 percent. Due to regional system needs in the SDG&E service area, the Applicant expects the project to normally be called upon to operate at intermediate average annual capacity and the facility is therefore designed to operate between 25 to 100 percent of base load to support dispatch service. (Exs. 4, §§ 2.3.2.1, 2.2.16; 200, p. 5.4-2.)

The evidence shows that delivering acceptable reliability entails: (1) adequate levels of equipment availability; (2) plant maintainability with scheduled maintenance outages; (3) fuel and water availability; and (4) resistance to natural hazards. (Ex. 200, p. 5.4-3.)

In evaluating the evidence, we have considered "typical industry norms" as the benchmark for assessing power plant reliability.

1. Equipment Availability

The project's equipment availability will be ensured by implementing appropriate quality assurance/quality control (QA/QC) programs during design, procurement, construction, and operation of the plant and by providing adequate maintenance and repair of the equipment and systems. The project owner will use a QA/QC program typical in the power industry. Equipment will be purchased from qualified suppliers and the project owner will perform receipt inspections, test components, and administer independent testing contracts. (Exs 4, § 2.3.2.5; 200, p. 5.4-3.) The **Facility Design** Conditions of Certification incorporate these requirements.

2. Plant Maintainability

The Carlsbad Energy Center Project will be operated in peaking service. It must thus be capable of being maintained while operating. A typical approach for achieving this is to provide redundant pieces of the equipment most likely to require service or repair. (Ex. 200, p. 5.4-4.)

The evidence shows that the project incorporates an appropriate redundancy of function. It consists of two combustion turbine generators operating in parallel as independent equipment trains. A single equipment failure cannot disable more than one train, thus allowing the plant to continue to generate at reduced output. In addition, all plant ancillary systems are designed with adequate redundancy to ensure continued operation in the face of equipment failure. (Exs 4, § 2.3.2.2, Table 2.3-1; 200, p. 5.4-4.)

The project owner will establish a maintenance program typical of the power generation industry and based on recommendations from the various equipment manufacturers. This will encompass both preventive and predictive maintenance techniques. Maintenance outages will be planned for periods of low electricity demand. The evidence establishes that the planned maintenance measures will ensure acceptable reliability. (Ex. 200, p. 5.4-4.)

3. Fuel and Water Availability

The long-term availability of fuel and water for cooling or process use, is necessary to ensure power plant reliability. The project will burn natural gas delivered via a new 18-inch diameter natural gas pipeline that will connect to an existing Southern California Gas Company (SoCalGas) gas transmission pipeline. The evidence establishes that SoCalGas can provide access to adequate supplies of natural gas to meet the project's needs. (Exs. 4, § 4.0; 200, p. 5.4-4.)

The project will use dry cooling technology, which eliminates the need for large amounts of water required by wet-cooled power projects. (Ex. 200, p. 5.4-4.)

The source(s) of industrial water for the project's process, evaporative cooling, and miscellaneous plant uses will either be desalinated water produced on-site by the project's ocean water purification system, or recycled water purchased from the City of Carlsbad Water Recycling Facility, and/or other water suppliers. According to the Applicant, interruptions to the water supply can be managed by taking water from the on-site, 360,000-gallon raw water storage tank to permit continuous operation regardless of the power plant's operating mode. If the duration of the interruption exceeds the capacity of on-site storage, the Applicant will notify CAISO to coordinate with other generating sources while project operations are down.[2] (Exs. 4, §§ 1.2, 1.7.14, 2.1, 2.3.2.4; 35, § 2.3.2; 200, pp. 5.4-4 to 5.4-5.)

Intervenor City of Carlsbad disputes the Applicant's proposal to use and desalinate ocean water as well as the proposal to purchase reclaimed water from the City. See the **Soils & Water Resources** section of this Decision.

[2] According to Staff, the potential impact of a long interruption to the water supply is not likely to degrade the overall reliability of the electricity system because power can be drawn from other generators to compensate for the project's temporary outage. This situation would be similar to a typical planned maintenance outage but with a shorter notice of unavailability. (Ex. 200, p. 5.4-5.)

4. Natural Hazards

The site lies in Seismic Risk Zone 4. The project will be designed and constructed according to Seismic Zone 4 requirements of the current California Building Standards Code and other applicable LORS. By implementing these seismic design criteria, the project will likely perform at least as well as, and generally better than, existing plants in the electric power system. The **Facility Design** Conditions of Certification ensure compliance with applicable seismic design LORS.

The risk of flooding is minimal because the site is not located within a 100-year flood plain. However, the site will be graded for proper drainage in accordance with applicable LORS to prevent on-site flooding and to minimize the potential for flooding to neighboring areas. For further discussion, see the **Soils and Water Resources** and **Geology and Paleontology** sections in this Decision. (Ex. 200, p. 5.4-5.)

5. Comparison to Industry Norms

The North American Electric Reliability Corporation (NERC) maintains industry statistics for availability factors and other related reliability data. NERC's statistics for the years 2002 through 2006 demonstrate an availability factor of 89.86 percent for combined cycle power plant units of all sizes. The project's Siemens SGT6 gas turbines have been on the market for many years and can be expected to exhibit typical high availability. We are persuaded that the project will likely reach its predicted annual availability factor approaching 92 to 98 percent. (Exs. 4, § 2.2.4.1; 200, pp. 5.4-6.)

Finally, the evidence shows that the CECP will enhance power supply reliability and contribute to the electricity reserves in the region. (Ex. 200, p. 5.4-7.)

FINDINGS OF FACT

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

1. There are no specific federal or state LORS that establish either power plant reliability criteria or procedures for attaining reliable operation.

2. A project's reliability is acceptable if it does not degrade the reliability of the electrical grid to which it is connected.

3. The North American Electric Reliability Corporation (NERC) reports that, for the years 2002 through 2006, combined cycle units of all sizes (in megawatts) exhibited an availability factor of 89.86 percent.

4. Evidence indicates that the CECP can achieve an availability factor of 92 to 98 percent, exceeding industry norms for combined cycle units.

5. Implementation of Quality Assurance/Quality Control (QA/QC) programs during design, procurement, construction, and operation of the CECP, as well as adequate maintenance and repair of the equipment and systems, will ensure the CECP is sufficiently reliable.

6. The **Facility Design** Conditions of Certification in this Decision ensure implementation of the QA/QC programs and conformance with seismic design criteria.

7. The CECP's fuel supply will be provided via a new gas pipeline interconnection to the existing SoCalGas pipeline system and will likely be reliable.

8. The CECP's water supplies will likely be reliable if the City of Carlsbad and the Applicant can resolve their dispute regarding the appropriate sources of water for project operations as discussed in the **Soils and Water Resources** section of this Decision.

9. The CECP will be designed and constructed in accordance with applicable engineering LORS to withstand seismic events and to prevent incidents of flooding.

10. The CECP is expected to meet or exceed industry norms for power generation reliability and will not degrade the overall electrical system.

11. The use of two combustion turbine generators, configured as independent equipment trains, ensures inherent reliability of the CECP's generating capacity.

12. The CECP is designed to provide base load, intermediate, and peaking power according to demand.

13. The CECP will enhance California's power supply reliability and contribute to electricity reserves in the region.

CONCLUSIONS OF LAW

1. We therefore conclude that the Carlsbad Energy Center Project will meet industry norms and will not degrade the overall reliability of the electrical system.

2. No Conditions of Certification are required for this topic area. Implementation of the **Facility Design** Conditions of Certification will ensure that the project can be designed to meet industry norms for generating reliability.

D. TRANSMISSION SYSTEM ENGINEERING

Under this topic, the Commission assesses the engineering and long-term planning consequences of new transmission facilities associated with a proposed project. 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.) Under this authority, the Commission evaluates whether the project's new transmission facilities and outlet line to the point of interconnection will comply with applicable LORS and whether any upgrades beyond the interconnection point are necessary to mitigate potential project-related impacts to the electrical grid.

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 staff consulted with CAISO in assessing the project's impacts on the transmission system. (Ex. 200, p. 5.5-2.)

The CECP's new transmission lines will interconnect to the San Diego Gas & Electric (SDG&E) electrical grid. As the responsible interconnecting authority, SDG&E must prepare an Interconnection Facilities Study in conjunction with the CAISO to identify project-related downstream impacts and any mitigation measures necessary to accommodate the new interconnection. (Ex. 200, pp. 5.5-2, 5.5-8 et seq.)

The evidence on this topic was uncontested. (02/04/10 RT 155-156; Exs. 4, § 3.1 et seq; 12, p. 2 et seq.; 19, DR 52-60; 20 [System Impact Study]; 35 § 3.1, et seq., New Appendix 3B [Final Interconnection Facilities Study]; 45, [DR 155-128]; 57; 127; 200, § 5.5.)

SUMMARY AND DISCUSSION OF THE EVIDENCE

The CECP consists of two generation trains designated as Units 6 and 7, with a total nominal output of 520 MW. Each train includes one steam turbine generator (STG) rated 76.8 MVA, 13.8-kV and one combustion turbine generator (CTG) rated 244 MVA, 16.5-kV with a total net output of 260 MW. The project also includes a new 138-kV switchyard and a new 230-kV switchyard at the CECP site. The new 138-kV and 230-kV switchyard outlet lines will interconnect, respectively, to SDG&E's existing 138-kV switchyard on the EPS site and to a

new East Encina 230-kV switchyard, east of SDG&E's existing Encina 230-kV switchyard. (Exs. 35, §§ 3.1, 3.2.2; 200, p. 5.5-5.)

1. Configuration

According to Applicant, the CECP site was selected, in part, because the existing Encina Power Station (EPS) is already connected to SDG&E's transmission grid via SDG&E's existing 138-kV and 230-kV Encina switchyards. EPS generation Units 1, 2, and 3, which are currently connected to the existing 138-kV Encina switchyard, will be retired when CECP Units 6 and 7 are operational. (Ex. 35, § 3.1.)

Unit 6. For Unit 6, the STG will be connected through a 4,000-ampere segregated bus duct and a 4,000-ampere 15-kV breaker to the low voltage terminal of a dedicated 54/72/90 MVA, 13.8/138-kV generator step-up (GSU) transformer with a specified impedance of 8.5 percent @54 MVA. The CTG will be connected through a 10,000-ampere segregated bus duct to the low voltage terminal of a dedicated 168/224/280 MVA, 16.5/138-kV GSU transformer with a specified impedance of 8.6 percent @168 MVA. (Ex. 200, pp. 5.5-5 – 5.5-7.)

Unit 6 will connect to a new CECP 138-kV switchyard, which is proposed as a 2,000-ampere single bus arrangement with two SF6 gas-insulated (GIS) 2,000-ampere breakers and a 2,000-ampere disconnect switch. This configuration includes two 138-kV S6 circuit breakers, each with a 40 kA interrupting capacity, connected by short overhead conductors to the 138-kV high voltage terminals of the respective Unit 6 GSU transformers. (Exs. 35, § 3.2.2.2, Revised Figures 3.1-1A – 3.1-1F, 3.1-2 – 3.1-5, 3.2-2 - 3.2-5; 200, pp. 5.5-5 – 5.5-7.)

The new CECP 138-kV switchyard will be interconnected to the existing SDG&E Encina 138-kV switchyard bus by a new 1,250-foot to 2,059-foot long, 138-kV single circuit overhead transmission line within the fence line of the Encina generating station with a bundled 1272 kcmil steel reinforced aluminum conductor (ACSR) conductor on 57-foot to 106-foot high tubular steel poles. The project owner will build, own and operate the CECP 138 kV switchyard and the overhead tie line. (Exs. 35, § 3.2.2.2, Revised Figures 3.1-1A – 3.1-1F, 3.1-2 – 3.1-5, 3.2-2 - 3.2-5; 200, pp. 5.5-5 – 5.5-7.)

Unit 7. The STG of Unit 7 will be connected through a 4,000-ampere segregated bus duct and a 4,000-ampere 15-kV breaker to the low voltage terminal of a dedicated 54/72/90 MVA, 13.8/230-kV GSU transformer with a specified

impedance of 8.5 percent @54 MVA. The CTG of Unit 7 will be connected through a 10,000-ampere segregated bus duct to the low voltage terminal of a dedicated 168/224/280 MVA, 16.5/230-kV GSU transformer with a specified impedance of 8.6 percent @168 MVA. This configuration will include two 230-kV SF6 circuit breakers connected to the high side of the GSU transformers, which will then be tied together and connected to a new 230-kV transmission line. This new 1,800-foot long, 230-kV line will be constructed overhead on the EPS site to the CECP south property line. From there, the line will use 230-kV cables in an underground duck band or trenches with removable covers to interconnect to the new Encina East 230-kV switchyard located east of SDG&E's existing Encina 230-kV switchyard, all within the adjacent SDG&E property. (Exs. 35, § 3.2.2.1, Revised Figures 3.1-1A – 3.1-1F, 3.1-2 – 3.1-7; 200, pp. 5.5-5 – 5.5-7.)

2. Compliance with Engineering Standards and CEQA

The evidence establishes that the proposed new Encina East 230-kV switchyard, the generator tie lines from CECP Units 6 and 7, respectively, to the existing Encina 138-kV switchyard and to the new Encina East 230-kV switchyard and their terminations, as well as any necessary SDG&E network upgrades, will be designed in accordance with industry standards and good utility practices, and will comply with applicable laws, ordinances, regulations, and standards (LORS).[1] (Ex. 200, pp. 5.5-7, 5.5-14.) Implementation of Condition of Certification **TSE-5** will ensure that these facilities comply with applicable LORS.

In addition, the tie lines from CECP Units 6 and 7 will follow the shortest and most economic routes within the existing EPS fence line. As such, this result complies with CEQA and no alternate routes or lines were considered. (Ex. 200, p. 5.5-14.)

3. System Impact and Facilities Studies

The interconnecting utility and the control area operator are responsible for ensuring grid reliability when new generation is interconnected to the grid. Accordingly, the CAISO in coordination with SDG&E conducted System Impact Studies (SIS) and Facilities Studies (FS) to determine the preferred and alternate methods of interconnection to the grid, the downstream transmission system impacts, and the mitigation measures needed to ensure system conformance with performance levels required by the utility reliability criteria, North American

[1] See, e.g., California Public Utilities Commission (CPUC) General Order 95 (GO-95) and GO-28, and the National Electric Safety Code.

Electric Reliability Council (NERC) planning standards, Western Electricity Coordinating Council (WECC) reliability criteria, and CAISO reliability criteria. (Exs. 20, 35, New Appendix 3B; 200, p. 5.5-8.)

In this case, the SIS and FS analyzed the grid with and without the CECP under conditions specified in the planning standards and reliability criteria for the proposed first year of operation using a forecast of loads, generation, and transmission for the current interconnection queue. The studies focused on thermal overloads, voltage deviations, system stability (excessive oscillations in generators and transmission system, voltage collapse, loss of loads or cascading outages), and short circuit duties. As a result, the analyses found specific events when the CECP could affect grid reliability and identified the upgrades necessary to bring the grid into compliance. (*Id.*)

SDG&E is responsible for construction of the reliability network upgrades needed to interconnect CECP Units 6 & 7 to the grid. The CAISO/FERC Electric Tariff provides guidelines for construction of all transmission additions/upgrades within the CAISO-controlled grid and the CPUC has jurisdiction to ensure CEQA compliance and to approve any upgrades. This process is described in the evidentiary record. We note that the upgrades described in the record may ultimately be modified during the approval process. (Ex. 200, pp. 5.5-5, 5.5-13, 5.5-15.)

Unit 6. The Draft SIS for Unit 6, which was dated October 9, 2007, evaluated the downstream impact of the new 260 MW output from Unit 6 on the existing Encina 138-kV switchyard. Based on an estimated May, 2010 commercial operation date (COD)[2] and also for future years, the study was conducted with a 2010 heavy summer peak case, a 2012 heavy summer case, and a 2011-2012 light winter case. (Exs. 20; 35, § 3.2.3; 200, p. 5.5-9.)

The study cases were derived from the estimated 2010 heavy summer and 2011-12 light winter WECC full-loop cases. The cases were developed to include SDG&E's updated transmission network, all CAISO queue generation with a position higher than the CECP, and planned SDG&E transmission projects including the 230-kV Otay Metro Powerloop, Silvergate Substation, and Sunrise Power Link. The 2010 and 2012 summer peak base cases were prepared with and without CECP Unit 6 with 1-in-10 year heat wave San Diego area load

[2] The estimated COD of May 2010 could not be achieved and therefore, an updated SIS and FS may be required before interconnection can be approved. See, Condition **TSE-5**, paragraph (f), section iii.

forecasts of 4,865 MW and 4,987 MW respectively, and 3,295 MW and 3,394 MW import levels respectively. The 2011-2012 light winter case has an off-peak SDG&E load forecast of 2,516 MW (50 percent of summer peak demand) and 1,326 MW import level. (*Id*.)

In all base cases, EPS Unit 4 (299 MW output) was considered on-line and EPS Units 1, 2 and 3 were considered on-line in the pre-project cases and off-line in the post-project cases. The study included a Power Flow analysis, a Short Circuit analysis, a Transient Stability analysis, a Post-Transient Voltage analysis and a Reactive Power analysis and substation evaluations, and found that CECP Unit 6 would not cause impacts in any of these categories. (Exs. 20; 35, § 3.2.2.1, New Appendix 3C; 200, pp. 5.5-9 – 5.5-12.)

The SIS demonstrated that after retirement of old EPS Units 1, 2 and 3, CECP Unit 6 generation would have some adverse impacts on SDG&E facilities under normal (N-0) and certain emergency contingency conditions. However, further analysis revealed that interconnection of Unit 6 was not responsible for the identified reliability criteria violations. (Ex. 200, p. 5.5-10.)

The Final FS for Unit 6, dated July 7, 2008, was based on an estimated October 1, 2010 in-service date and an estimated June 1, 2011 COD. The FS reviewed the October 9, 2007 SIS and performed additional transient stability analysis under selected critical contingencies. The FS also determined the scope of work including identification of interconnection facilities and reliability network upgrades, and provided cost estimates for the upgrades necessary for Unit 6 to interconnect to the grid. The FS assumed that SDG&E would construct, own and maintain the interconnecting terminating facilities (except the CECP's 138-kV switchyard and 138-kV interconnection line) and the required reliability upgrades at the existing Encina 138-kV switchyard. (Exs. 20, 35, § 3.2.3, New Appendix 3C; 200, p. 5.5-9.)

<u>Unit 7</u>. The Draft SIS for Unit 7, dated June 5, 2007, was revised in the Final FS for Unit 7 dated June 4, 2008. The Final FS evaluated the impact of the new 260 MW generation output from CECP Unit 7 to a new Encina East 230-kV switchyard. Based on the estimated COD of August, 2010,[3] the study was conducted with a 2011 heavy summer full-loop case with and without the proposed CECP Unit 7 and incorporated several SDG&E transmission projects approved by the California ISO,

[3] The estimated COD of August 2010 could not be achieved and therefore, an updated SIS and FS may be required before interconnection can be approved. See, Condition **TSE-5**, paragraph (f), section iii.

including a new Miguel 230/138-kV transformer, Main Street loop-in and a second Division-Naval Station metering line. The existing EPS Unit 5 was considered connected to the existing Encina 230-kV switchyard. The study included a Power Flow analysis, a Short Circuit analysis, a Transient Stability analysis, a Post-Transient Voltage analysis and a Reactive Power Deficiency analysis, and found that CECP Unit 7 would not cause impacts in any of these categories. (Exs. 20; 35, § 3.2.2.1, New Appendix 3B; 200, pp. 5.5-9 – 5.5-12.)

The FS identified necessary reliability network upgrades, and provided estimated costs and construction time for interconnection to the new Encina East 230-kV switchyard, assuming SDG&E would construct, own and operate the interconnecting terminating facilities (except the CECP 230-kV switchyard and the 230-kV overhead tie line) and the reliability upgrades. (Ex. 35, § 3.2.2.1, New Appendix 3B.)

The FS indicated that CECP Unit 7 would have some adverse impacts on SDG&E facilities under certain emergency contingency conditions but further analysis revealed that interconnection of Unit 7 was not responsible for the identified reliability criteria violations. (Exs.20; 35, 3.2.3, New Appendix 3B; 200, p. 5.5-11.)

4. Cumulative Impacts

Since commercial operation of CECP Unit 6 would replace the output of existing EPS Units 1, 2 and 3 (total 300 MW output), the evidence indicates that Unit 6 may have some marginal cumulative effects on the grid due to rapid load growth in the SDG&E system. Additionally, since existing EPS Unit 5 (315 MW output) will remain online after CECP Unit 7 begins commercial operation, Unit 7 could result in cumulative impacts in the 230-kV and 138-kV area network until SDG&E's pending transmission upgrade projects are implemented. However, the evidence establishes that the cumulative marginal impacts of CECP Units 6 and 7 will be mitigated by the upgrades described in the SIS and FS. The evidence also indicates that CECP Units 6 and 7 will provide some positive impacts because the new efficient CECP generation will replace old EPS steam units and enhance the economics and reliability of the SDG&E network. (Ex. 200, p. 5.5-14.)

5. Public Comment

In a letter dated January 30, 2009, the City of Carlsbad indicated concern that the CECP's commercial operation dates (COD) would not occur until 2012/2013,

and therefore, the Energy Commission should require an updated SIS to determine if the new online date would impact grid reliability. According to Staff, a new COD does not change the results of the SIS or FS because the studies were performed under 2011 and 2012 system conditions, which incorporated deferral of the COD to 2011 or 2012. Staff also noted that deferral of the COD to 2013 would not have any additional significant impacts requiring modified or new downstream facilities. The provisions of the LGIP require the CAISO to perform an Operational Study based on the current COD (2012 to 2013) to mitigate any current operational reliability concerns. Condition **TSE-5** (f) (iii) ensures compliance with this requirement. In the event that the COD is later than 2013, the Energy Commission believes this issue should be revisited. (Ex. 200, p. 5.5-15.)

FINDINGS OF FACT

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

1. The CECP consists of two generation trains designated as Units 6 and 7, each featuring a gas-fired combustion turbine and a steam turbine, for a total nominal output of 520 MW.

2. The project includes a new 138-kV switchyard and a new 230-kV switchyard at the CECP site, each of which will interconnect, respectively, via new 138-kV and 230-kV switchyard outlet lines to SDG&E's existing Encina 138-kV switchyard on the EPS site and to a proposed new East Encina 230-kV switchyard, east of SDG&E's existing Encina 230-kV switchyard on SDG&E property.

3. SDG&E's existing Encina 138-kV switchyard and the proposed new East Encina 230-kV switchyard represent the CECP's primary points of interconnection to the SDG&E grid.

4. The evidence establishes that the proposed new Encina East 230-kV switchyard, the generator tie lines from CECP Units 6 and 7 to the existing Encina 138-kV switchyard and to the new Encina East 230-kV switchyard and their terminations, as well as any necessary SDG&E network upgrades, will be designed in accordance with industry standards and good utility practices.

5. The tie lines from CECP Units 6 and 7 will follow the shortest and most economic routes within the existing EPS fence line and therefore, no alternative routes were considered.

6. The CAISO's System Impact (SIS) and Facilities Studies (FS) for the CECP assumed a commercial operation date (COD) in 2010 for both CECP Units 6 and 7 but included years 2011-2013 in evaluating the potential downstream impacts of interconnecting CECP Units 6 and 7 to the SDG&E grid.

7. Although the project's 2010 COD has been delayed, the CAISO will perform an Operational Study based on the current COD to mitigate any operational reliability concerns; however if the COD is later than 2013, additional, revised downstream impact analyses may be necessary before interconnection can be approved.

8. The SIS and FS identified necessary reliability network upgrades, and provided estimated costs and construction times for interconnecting CECP Unit 6 to the existing Encina 138-kV switchyard and interconnecting CECP Unit 7 to the new Encina East 230-kV switchyard.

9. SDG&E is responsible for construction of any reliability network upgrades needed to interconnect CECP Units 6 & 7 to the grid.

10. SDG&E's proposed reliability network upgrades are subject to review and modification by the CPUC and the CAISO.

11. The evidence establishes that the cumulative marginal impacts of CECP Units 6 and 7 will be mitigated by the upgrades described in the SIS and FS.

12. Implementation of the Conditions of Certification, below, will ensure that CECP does not adversely impact the transmission grid.

CONCLUSIONS OF LAW

1. The proposed CECP outlet transmission lines and terminations are designed to comply with all applicable LORS.

2. The project's interconnection to the grid will require reliability network upgrades subject to CEQA review under the CPUC's jurisdiction.

3. Implementation of the mitigation measures specified in the evidentiary record and in this Decision will ensure that the CECP's proposed transmission interconnections will not contribute to significant adverse direct, indirect, or cumulative impacts.

4. The Conditions of Certification below ensure that the CECP's electricity transmission system will be designed, constructed, and operated in

conformance with the applicable laws, ordinances, regulations, and standards (LORS) identified in the appropriate portion of **Appendix A** of this Decision.

CONDITIONS OF CERTIFICATION

TSE-1 The project owner shall furnish to the CPM and to the CBO a schedule of transmission facility design submittals, a Master Drawing List, a Master Specifications List, and a Major Equipment and Structure List. The schedule shall contain a description and list of proposed submittal packages for design, calculations, and specifications for major structures and equipment. To facilitate audits by Energy Commission staff, the project owner shall provide designated packages to the CPM when requested.

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

Table 1: Major Equipment List
Breakers
Step-up Transformer
Switchyard
Busses
Surge Arrestors
Disconnects and Wave-traps
Take off facilities
Electrical Control Building
Switchyard Control Building
Transmission Pole/Tower
Insulators and Conductors
Grounding System

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

6704 et seq. require state registration to practice as a civil engineer or structural engineer in California.)

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

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

The electrical engineer shall:

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

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

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

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

TSE-3 If any discrepancy in design and/or construction is discovered in any engineering work that has undergone CBO design review and approval, the project owner shall document the discrepancy and recommend

corrective action. (1998 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 become a controlled document and shall be submitted to the CBO for review and approval and shall reference this condition of certification.

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

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

a) receipt or delay of major electrical equipment;

b) testing or energization of major electrical equipment; and

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

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

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

a) The power plant switchyards and outlet lines shall meet or exceed the electrical, mechanical, civil and structural requirements of CPUC General Order 95 or National Electric Safety Code (NESC), Title 8 of the California Code and Regulations (Title 8), Articles 35, 36 and 37 of

the "High Voltage Electric Safety Orders", California ISO standards, National Electric Code (NEC) and related industry standards.

b) Breakers and busses in the power plant switchyards and other switchyards, where applicable, shall be sized to accommodate full output from the project and to comply with a short-circuit analysis.

c) 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.

d) The project conductors shall be sized to accommodate the full output from the project.

e) Termination facilities shall comply with applicable SDG&E interconnection standards.

f) The project owner shall provide the following to the CPM as separate submittals, respectively, for CECP Unit 6 and for CECP Unit 7:

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

   II. A letter stating that the mitigation measures or projects selected by the transmission owners for each criteria violation are acceptable, if applicable,

   III. The Operational study report based on 2010 in-service date or current Commercial Operation Date (COD) system conditions from the California ISO and/or SDG&E.

   IV. A copy of the executed LGIA signed by the California ISO and the project owner.

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

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

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"[4] and a statement signed and sealed by the registered engineer in responsible charge, or other acceptable alternative verification, that the transmission element(s) will conform with CPUC General Order 95 or NESC, Title 8, California Code of Regulations, Articles 35, 36 and 37 of the "High

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

Voltage Electric Safety Orders", NEC, applicable interconnection standards, and related industry standards.

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

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

e. A letter stating that the mitigation measures or projects selected by the transmission owners for each criteria violation are acceptable, if applicable.

f. The Operational study report for the CECP Units 6 and 7 based on 2010 in-service date or current COD system conditions from the California ISO and/or SDG&E.

g. A copy of the executed LGIA for the CECP Units 6 and 7 signed by the California ISO and the project owner.

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

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

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

1. At least one week prior to synchronizing the facility with the grid for testing, provide the California ISO a letter stating the proposed date of synchronization; and
2. At least one business day prior to synchronizing the facility with the grid for testing, provide telephone notification to the California ISO Outage Coordination Department.

Verification: The project owner shall provide copies to the CPM of the California ISO letter when it is sent to the California ISO one week prior to initial synchronization with the grid. The project owner shall contact the California ISO Outage Coordination Department, Monday through Friday, between the hours of

0700 and 1530 at 1-916-351-2300 at least one business day prior to synchronizing the facility with the grid for testing. A report of conversation with the California ISO shall be provided electronically to the CPM one day before synchronizing the facility with the California transmission system for the first time.

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

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

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

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

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

E. TRANSMISSION LINE SAFETY AND NUISANCE

The Carlsbad Energy Center Project's (CECP) transmission line must be constructed and operated in a manner that protects environmental quality, assures public health and safety, and complies with applicable law. This topic assesses the potential impacts of the transmission line on aviation safety, radio frequency interference, audible noise, fire hazards, and the creation of hazardous and/or nuisance electrical shocks. The evidence also evaluates any potential risks resulting from electric and magnetic field (EMF) exposure, and identifies mitigation measures that would reduce any potential impacts to insignificant levels. The evidence on this topic was uncontested. (2/4/10 RT 155 – 156, 31; Exs. 4; § 3; 35, §§ 2.3.4, 3.2; 200, § 4.11.)

SUMMARY AND DISCUSSION OF THE EVIDENCE

The present proposal is to build two new generating units (Units 6 and 7) and connect Unit 6 to SDG&E's existing 138-kV Encina switchyard with a 2,059-foot overhead line while connecting Unit 7 to a new, 230-kV SDG&E switchyard directly south of the SDG&E Cannon Substation. This connection will be made by installing a 1,800-foot overhead line to an overhead/underground transition point at the CECP south property line from which the final connection will be completed via a new underground line. These lines and the new SDG&E switchyard will reside within the existing Encina Power Station (EPS) and SDG&E property lines. Using the new SDG&E switchyard avoids connecting CECP to the existing SDG&E 230-kV switchyard west of the railroad tracks. (Exs. 35, § 2.3.4; 200, pp. 4.11-3 **–** 4.11-4.)

The project's outlet lines will be owned, operated, and maintained by the Applicant, Carlsbad Energy Center LLC, in accordance with SDG&E guidelines that ensure line safety and efficiency as well as reliability and maintainability. The conductors in the underground section of the connection to the new switchyard will be located in duct-bank trenches in accordance with standard SDG&E design and construction practices. Since underground cables are located more closely together in their encasements than overhead lines, they produce (through field cancellation effects) the lowest possible intensity fields without affecting safety, maintainability, or reliability. (Exs. 4, § 3.2, Figures 3.2-2 **–** 3.2-5; 200, p. 4.11-4.) Condition of Certification **TLSN-1** incorporates these design plans.

The potential health and safety impacts that could implicate the project's transmission lines involve aircraft collisions, interference with radio frequency communication, audible noise, hazardous shocks, nuisance shocks, fire danger, and EMF exposure. The evidence regarding these potential impacts is discussed below.

- *Aviation Safety*

The nearest public airport to the CECP site is McClellan Palomar Airport, which is about 14,300 feet away at its nearest point from the project's transmission lines. According to FAA requirements, the maximum height of any line support structure at this distance cannot exceed 143 feet to ensure the required maximum ratio of 100:1 (between the distance from the runway and height of the potentially obstructing structure) that does not require FAA notification. The project owner will comply with this height limitation by ensuring a design height of less than 143 feet for the line structures. Since there is no heliport located within 5,000 feet of the project lines, there is no evidence that the project's lines will pose an aviation hazard to either area helicopters or to fixed-wing aircraft. (Ex. 200, p. 4.11-5.)

- *Interference with Radio-Frequency Communication*

Radio-frequency interference is primarily a concern for overhead lines larger than 345-kV. It is caused by "corona discharge" or "spark gap electric discharge" which occurs within gaps between the conductor and insulators or metal fittings on the transmission line. The project's138-kV line and the overhead section of the 230-kV line will be constructed according to SDG&E standards for low corona design that minimizes surface irregularities or discontinuities and reduces surface-field strengths. Since the project's overhead lines are below the 345-kV threshold and are located far from area residences, it is unlikely that project-related radio-frequency interference will occur. No condition of certification is required. (Ex. 200, pp. 4.11-5 – 4.11-6.)

- *Audible Noise*

This is typically perceived as a characteristic crackling, hissing, or frying sound or hum, especially in wet weather. The noise level depends upon the strength of the line's electric field, and is a concern mainly for overhead lines rated at 345-kV or higher. The project lines will embody a low corona design to minimize field strengths. It is not expected that the lines will add significantly to the current

background noise levels. See discussion in the **Noise and Vibration** section of this Decision. (Ex. 200, p. 4.11-6.)

- *Hazardous Shocks*

Hazardous shocks could result from direct or indirect contact with the energized transmission lines. Compliance with the CPUC's GO-95 and GO-128 (for overhead and underground lines, respectively) is required in Condition of Certification **TLSN-1** to ensure that adequate measures are implemented to mitigate this potential impact. (Ex. 200, p. 4.11-6.)

- *Nuisance Shocks*

Nuisance shocks are effectively minimized through grounding procedures for all metallic objects within the transmission lines' rights-of-way as specified in Condition of Certification **TLSN-4**. (Ex. 200, p. 4.11-6.)

- *Fire Hazards*

Fire can be caused by sparks from the line's conductors or by direct contact between the line and nearby combustible objects. SDG&E's standard fire prevention and suppression measures and compliance with the CPUC's GO-95 and GO-128 are required in Condition of Certification **TLSN-3** to ensure that appropriate fire prevention measures are implemented. (Ex. 200, p. 4.11-6.)

- *Exposure to Electric and Magnetic Fields*

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.[1] Due to the scientific uncertainty regarding potential health effects from EMF exposure, CPUC policy requires reduction of such fields, if feasible, without affecting safety, efficiency, reliability, or maintainability of the transmission grid. (Ex. 200, p. 4.11-8.)

[1] 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 SDG&E, to incorporate EMF-reducing measures in the design, construction, and maintenance of new transmission facilities and to operate existing facilities in accordance with those measures. (Ex. 200, pp. 4.11-8 – 4.11-9.)

The CPUC requires each new transmission line in California to be designed in accordance with 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. If the project's transmission lines are designed in accord with existing SDG&E field strength-reducing guidelines, they will comply with CPUC requirements for EMF management. (Ex. 200, p. 4.11-8.)

SDG&E's specific field strength-reducing measures will be incorporated into the design of the project's transmission lines and include:

- 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.)

The publicly inaccessible routes of the project's transmission lines have no nearby residences, thereby eliminating the potential for residential field exposures at the root of the public health concern. The strength of EMF exposure along the transmission line routes will depend on the effectiveness of the field-reducing measures incorporated into their designs. These fields must not exceed the intensity of existing SDG&E lines of the same voltage and current-carrying capacity. Condition of Certification **TLSN-**2 requires the project owner to conduct field strength measurements after line energization to validate the project's minimization efficiency and to assess any contribution the project may make to cumulative area exposures. (Ex. 200, pp. 4.11-9 – 4.11-10.)

Overall, the evidence shows that the project will be designed, constructed, operated, and maintained in compliance with applicable LORS. Implementation of the Conditions of Certification will ensure that any impacts are reduced to less than significant levels. (Ex. 200, pp. 4.11-10 **–** 4.11-11.)

FINDINGS OF FACT

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

1. The Carlsbad Energy Center Project (CECP) will connect Unit 6 to SDG&E's existing 138-kV Encina switchyard with a 2,059-foot overhead line and connect Unit 7 to a new, 230-kV SDG&E switchyard directly south of the SDG&E Cannon Substation by installing a 1,800-foot overhead line

to an overhead/underground transition point at CECP's south property line from which the final connection will be completed with a new underground line.

2. The new interconnection lines will be routed entirely within the existing Encina Power Station (EPS) and SDG&E property lines.

3. The CECP lines will not exceed the height threshold established by the FAA and there is no evidence that the project's lines will pose an aviation hazard to either area helicopters or to fixed-wing aircraft.

4. There is no evidence that the CECP lines will result in significant audible noise or radio-frequency interference because the lines will incorporate a low corona design to minimize field strengths and are below the general voltage threshold for these phenomena to occur.

5. Compliance with CPUC and SDG&E fire prevention and hazardous/nuisance shock prevention requirements will ensure that the CECP lines do not result in significant public health and safety impacts.

6. The available scientific evidence does not conclusively establish that electric and magnetic fields (EMF) pose a significant health hazard to humans.

7. There are no residences along the route of the CECP's transmission lines.

8. The CECP transmission lines will incorporate standard EMF-reducing measures established by the CPUC and as required by SDG&E.

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

10. The CECP's transmission lines will not result in significant impacts to public health and safety or cause significant direct, indirect, or cumulative impacts in the areas of aviation safety, radio frequency communication, fire hazards, nuisance or hazardous shocks, or electric and magnetic field exposure.

CONCLUSION OF LAW

We therefore conclude that implementation of the Conditions of Certification, below, will ensure that the Carlsbad Energy Center Project's transmission lines comply with all applicable laws, ordinances, regulations, and standards relating to transmission line safety and nuisance as identified in the pertinent portion of **Appendix A** of this Decision.

CONDITIONS OF CERTIFICATION

TLSN-1 The project owner shall ensure that the proposed 138-kV and 230-kV transmission lines and related switchyards are constructed according to the respective requirements of California Public Utility Commission's GO-95, GO-52, GO-131-D, GO-128, Title 8, and Group 2, High Voltage Electrical Safety Orders, sections 2700 through 2974 of the California Code of Regulations, and San Diego Gas & Electric's EMF-reduction guidelines.

Verification: No later than 30 days before starting the upgrade of the transmission line or related structures and facilities, the project owner shall submit to the Compliance Project Manager (CPM) a letter signed by a California registered electrical engineer affirming that the lines will be constructed according to the requirements stated in the condition.

TLSN-2 The project owner shall use a qualified professional to measure the strengths of the electric and magnetic fields from each line at the points of maximum intensity along its route. The measurements shall be made after energization according to the American National Standard Institute/Institute of Electrical and Electronic Engineers (ANSI/IEEE) standard procedures. These measurements shall be completed no later than six months after the start of operations.

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

TLSN-3 The project owner shall ensure that the rights-of-way of the transmission lines are kept free of combustible material, as required under the provisions of section 4292 of the Public Resources Code and section 1250 of Title 14 of the California Code of Regulations.

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

TLSN-4 The project owner shall ensure that all permanent metallic objects within the right-of-way of each of the two project-related lines are grounded according to PUC requirements and SDG&E's industry standards.

Verification: No later than 30 days before the lines are energized, the project owner shall transmit to the CPM a letter confirming compliance with this condition.

VI. PUBLIC HEALTH AND SAFETY

A. GREENHOUSE GAS (GHG) EMISSIONS

1. Introduction and Summary

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

The GHG's consist of carbon dioxide (CO_2), nitrous oxide (N_2O), methane (CH_4), sulfur hexafluoride (SF_6), hydrofluorocarbons (HFC), and perflurocarbons (PFC). CO_2 emissions are far and away the most common of these emissions; as a result, even though the other GHGs have a greater impact on climate change on a per-unit basis, GHG emissions are often expressed in terms of "metric tons of CO_2-equivalent" ($MTCO_2e$) for simplicity. (Ex. 222, p. 4.1-106.)

There is general scientific consensus that climate change is occurring and that man-made emissions of GHG, if not sufficiently curtailed, are likely to contribute further to continued increases in global temperatures. Adding GHG to the atmosphere increases the insulating power of the air and thereby traps more heat at and near the earth's surface. State law declares that "[g]lobal warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California." (Health & Saf. Code, § 38500.) (Ex. 222, p. 4.1-103.)

In this part of the Decision we determine that:

- The CECP's construction-produced GHG emissions will be insignificant;
- From a physical standpoint, the GHG emissions from a power plant's operation should be assessed not by treating the plant as a standalone facility

operating in a vacuum, but rather in the context of the operation of the entire electricity system of which the plant is an integrated part;

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

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

As a result we find that the CECP's GHG emissions will comply with all applicable LORS (discussed below and identified in **Appendix A** of this Decision) and will not result in any significant environmental impacts. We also find that the project is consistent with California's ambitious GHG goals and policies.

2. Policy and Regulatory Framework

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

a. AB 32

The organizing framework for California's GHG policy is set forth in the California Global Warming Solutions Act of 2006. [Assembly Bill 32, codified in Health & Saf. Code, § 38560 et seq. (hereinafter AB 32).] As required by AB 32, the California Air Resources Board ("CARB") adopted regulations that will reduce statewide GHG emissions, by the year 2020, to the level of statewide GHG emissions that existed in 1990. Gubernatorial Executive Order S-3-05 (June 1, 2005) requires a further reduction, to a level 80 percent below the 1990 GHG emissions, by the year 2050. (Ex. 222, p. 4.1-103.)

The Energy Commission recognizes that meeting the AB 32 goals is vital to the state's economic and environmental health. CARB staff is developing regulatory language to implement its plan and holds ongoing public workshops on key

elements of the recommended GHG reduction measures, including market mechanisms. The scoping plan adopted by CARB relies heavily on cost-effective energy efficiency and demand response, renewable energy, and other priority resources in the loading order (discussed below) to achieve significant reductions of emissions in the electricity sector by 2020. Even more dramatic reductions in electricity sector emissions would likely be required to meet California's 2050 greenhouse gas reduction goal. CARB has approved a CO_2 Cap and Trade regulation that would, upon its completion and implementation, add to the market forces driving towards the most efficient fossil-fuel fired generation; and the CECP would be subject to this Cap and Trade regulation. In evaluating the GHG emissions generated by a facility under our jurisdiction, we assess whether the facility would be consistent with and support these policies.

b. Renewable Portfolio Standard

California statutory law requires the state's utilities to provide at least 20 percent of their electricity supplies from renewable sources by the year 2020. (Pub. Util. Code, § 399.11 et seq.) Recent gubernatorial Executive Orders increase the requirement to 33 percent and CARB adopted regulations to achieve the goal. [Governor's Exec. Orders Nos. S-21-09 (Sept. 15, 2009), S-14-08 (Nov. 17, 2008).] On April 12, 2011, Governor Edmund G. Brown, Jr. signed SBX1 2, which establishes the 33 percent requirement as state law. This law also provides support for our conclusion that in licensing a facility under our jurisdiction, we must assess whether it would be consistent with and support the renewable energy objectives expressed in the Renewable Portfolio Standard.

c. Emissions Performance Standard

Senate Bill (SB) 1368 of 2006, and regulations adopted by the Energy Commission and the Public Utilities Commission pursuant to the bill, prohibit utilities from entering into long-term commitments with any facilities having a capacity factor greater than or equal to a 60 percent that exceed an Emission Performance Standard (EPS) of 0.500 metric tonnes of CO_2 per megawatt-hour. This is the equivalent of 1,100 pounds CO_2/MWh. (Pub. Util. Code, § 8340 et seq.; Cal. Code Regs., tit. 20, § 2900 et seq.; CPUC D0701039.) (Ex. 222. p. 4.1-104.) The EPS is not applicable to the CECP facility because it is an intermediate or mid-merit facility that operates on a more intermittent basis than a baseload facility (i.e., at less than a 60 percent capacity factor).

d. Loading Order

In 2003 the Energy Commission and the CPUC agreed on a "loading order" for meeting electricity needs. The first resources that should be added are energy efficiency and demand response (at the maximum level that is feasible and cost-effective) followed by renewables, distributed generation and combined heat and power (also known as cogeneration) and finally efficient fossil sources and infrastructure development.[1] CARB's AB 32 Scoping Plan reflects these policy preferences. (California Air Resources Board, Climate Change Scoping Plan, December 2008). In evaluating a facility under our jurisdiction, we examine its expected efficiency, and compare it to the other plants in the system and which it may displace.

e. CEQA Guidelines on GHG Emissions

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

The Guidelines set forth three factors for a lead agency to consider, among others, in assessing the significance of impact from GHG emissions and the environment: "(1) The extent to which the project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting; (2) Whether the project emissions exceed a threshold of significance that the lead agency applies to the project; [and] (3) The extent to which the project complies with regulations or requirements adopted to implement a statewide regional or local plan for the reduction or mitigation of greenhouse gas emissions." (*Id.)* While the Guidelines do not specify any threshold of significance for GHGs, they continue to encourage agencies to adopt quantitative thresholds of significance for pollutants through a formal rulemaking process, and the amendments to expressly allow agencies to "consider thresholds previously

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

adopted or recommended by other public agencies or recommended by experts, provided the decision of the lead agency to adopt such a threshold is supported by substantial evidence." (14 Cal. Code Regs., § 15064.7.) The Energy Commission relies on these guidelines in evaluating the degree to which a project will increase GHG emissions and the significance of any such increases.

f. Energy Commission Precedent

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

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

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

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

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

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

While Avenal was decided before the Natural Resources Agency amended its CEQA Guidelines to specifically address GHG Emissions, we find the above factors to be consistent with the CEQA Guidelines, particularly the guidance set forth in Title 14, California Code of Regulations, Section 15064.4(b)(1) & (3):

(b) A lead agency should consider the following factors, among others, when assessing the significance of impacts from greenhouse gas emissions on the environment:

(1) The extent to which the project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting . . . .

(3) The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions. . . .

In general, these policies direct us to assess GHG emission impacts by evaluating the effect of project operation on the GHG emissions of existing generation and on the integration of existing and new renewable generation. Both of these types of effects must be evaluated to determine a project's GHG emissions impacts. We now turn to a discussion of whether, and how well, the project would comply with the above-stated policies.

3. Construction Emissions Impacts

Power plant construction involves vehicles and other equipment that emit GHG. The CECP's construction emissions are projected at 4,686 metric tons of CO_2-equivalent GHG during the 25-month construction period. (Ex. 222, **Greenhouse Gas Table 2**, p. 4.1-106.) By way of comparison, as discussed in the next section Commission staff estimates that if operated for 4,100 hours per year as permitted, the project would emit 846,076 metric tons annually. In any case, it is clear that annual operational emissions will be many times greater than total construction emissions.

As noted above, the CEQA Guidelines do not specify any threshold of significance for the emission of GHGs during project construction. In Avenal, we observed that draft guidance from CARB staff recommends a "best practices" performance standard for construction emissions of industrial projects, because construction emissions tend to be much smaller than operational emissions. [*See* CARB, Preliminary Draft Staff Proposal, *Recommended Approaches for Setting Interim Significance Thresholds for Greenhouse Gases under the California*

Environmental Quality Act (Oct. 24, 2008), p. 9: **www.opr.ca.gov/ceqa/pdfs/Prelim_Draft_Staff_Proposal_10-24-08.pdf]**.

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

The South Coast Air Quality Management District (SCAQMD) approved a different approach to significance of GHG impacts at its December 5, 2008 Board Meeting. Rather than set a threshold for operational emissions, construction emissions are amortized over the life of a project and considered in combination with operational emissions. [See Proposal to Adopt Interim CEQA GHG Significance Threshold for Stationary Sources, **http://www.aqmd.gov/hb/2008/December/081231a.htm**.[3]. Applying the SCAQMD approach to CECP, GHG emissions from construction of CECP, amortized annually over the project's operating life of 30 years, would be 156 $MTCO_2e$ tons per year, a tiny fraction of a percent of estimated annual emissions from operation.

We support all approaches – whether recommended by CARB, adopted by BAAQMD, or applied in Avenal – that will minimize GHG construction emissions. We find these approaches to be consistent with the CEQA Guidelines, which permit Lead Agencies flexibility in assessing the impact of GHG emissions. (14 Cal. Code Regs., § 15064.4(a)(2).)

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

For this project, we believe that a “best practices” approach, as discussed above, will the most effective way to minimize GHG emissions from construction activities. In order to limit vehicle emissions of both criteria pollutants and GHG during construction, the project owner will use: (1) operational measures, such as limiting vehicle idling time and shutting down equipment when not in use; (2) regular preventive maintenance to manufacturer specifications; (3) low-emitting diesel engines meeting federal emissions standards for construction equipment, whenever available; and (4) equipment that meets the latest criteria emissions standards. These are the current “best practices” for limiting emissions from construction equipment and no party suggested otherwise. (Ex. 222, pp. 4.1-109; see Condition of Certification **AQ-SC5**.)

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

4. Operations Emissions Impacts

a. CECP Emissions

The CECP will provide a nominal capacity of 558 MW through two stationary Siemens SGT6 gas turbine generators operating in rapid response combined cycle mode. The CECP is an intermediate (or mid-merit) project that will provide peaking power, and it will be permitted to operate at an annual capacity factor of up to 47 percent (4,100 of 8,760 possible hours). The actual operational profile of this peaking plant will depend on the variable demand for electricity, the supply of other generation including intermittent renewable resources, and the need to provide year-round electricity reliability. The Applicant selected this technology to suit California’s expected needs in integrating intermittent renewable energy. (Exs. 200, p. 3-3; 222, pp. 4.1-24, 4.1-106 – 4.1-107.)

The primary sources of GHG emissions would be the natural gas fired combustion turbines. There would also be a small amount of GHG emissions from sulfur hexafluoride (SF_6), methane (CH_4), and nitrous oxide (N_2O). Similar to our conclusion discussed above under Construction Emission Impacts, the

employee and delivery traffic GHG emissions from off-site activities are negligible in comparison with the gas turbine GHG emissions.

Greenhouse Gas Table 1, below, shows what the proposed project could potentially emit in greenhouse gases on an annual basis if it operated at its maximum annual capacity. All emissions are converted to CO_2-equivalent and totaled. Electricity generation GHG emissions are generally dominated by CO_2 emissions from the carbon-based fuels; other sources of GHG are typically small and also are more likely to be easily controlled or reused/recycled, but are nevertheless documented here as some of the compounds have very high relative global warming potentials. A small amount of new SF_6 containing equipment will be required for this project, and the leakage of SF_6 and its CO_2 equivalent emissions have been estimated. (Ex. 222, p. 4.1-107.)

Greenhouse Gas Table 1
CECP Estimated Potential Operating Greenhouse Gas Emissions

	Project Emissions (metric tonnes [a] per year)	**Global Warming Potential [b]**	**CO_2-equivalent (MTCO2E per year)**
Carbon Dioxide (CO_2)	844,091	1	844,091
Methane (CH_4)	14.4	21	302
Nitrous Oxide (N_2O)	1.6	310	495
Hexafluoride (SF_6)	0.05	23,900	1,188
Hydrofluorocarbons (HFCs)	0	---	0
Perfluorocarbons (PFCs)	0	7,850	0
Total Project GHG emissions – MTCO2E per year			846,076
Total Project MWh per year (net)			2,089,764
Project CO_2 Emissions Performance - MTCO2/MWh			0.404
Project GHG Emissions Performance - MTCO2E per MWh			0.405

Source: Ex. 222, p. 4.1-107.

b. Determining Significance: the Necessity of a System Approach

The process of electricity generation, production, and consumption is unique compared to other industrial projects. As a result, assessing the GHG impacts of power plants requires an approach that is different from the approach taken to analyze other types of project impacts. This approach recognizes the global effect of GHG emissions. (2/3/10 RT 167 – 168, 242 – 243.)

In general, when an agency conducts a CEQA analysis of a project such as a proposed factory, shopping mall, or residential subdivision, it does not need to

analyze how the operation of the proposed project will affect the larger system or group of factories, malls, or houses in a large multistate region. Rather, such projects are generally analyzed and evaluated on a stand-alone basis. The analysis and evaluation for power plants is, by necessity, different.

California's electricity system – which is actually a system serving the entire western region of the U.S., Canada, and Mexico – is large and complex. Hundreds of power plants, thousands of miles of transmission and distribution lines, and millions of points of electricity demand operate in an interconnected, integrated, and simultaneous fashion. Because the system is integrated, and because electricity is produced and consumed instantaneously, and will be unless and until large-scale electricity storage technologies are available, any change in demand and, most important for this analysis, any change in output from any generation source, is likely to affect the output from other generators. (Ex. 204, *Committee Guidance on Fulfilling California Environmental Quality Act Responsibilities for Greenhouse Gas Impacts in Power Plant Siting Applications,* CEC-700-2009-004; hereinafter: "Committee CEQA Guidance.")

Not only is the electricity system integrated physically, but also operates as such. The California Independent System Operator (CAISO) is responsible for operating the system so that it provides power reliably and at the lowest cost. Thus the CAISO dispatches generating facilities that are required to meet system needs in order of cheapest to operate (i.e., typically the most efficient) to most expensive (i.e., typically the least efficient). (Ex. 204, Committee CEQA Guidance, p. 20.) Because operating cost is correlated with heat rate (the amount of fuel that it takes to generate a unit of electricity), and, in turn, heat rate is directly correlated with emissions (including GHG emissions), *when one power plant runs, it usually will take the place of another facility with higher emissions that otherwise would have operated* (emphasis added). (Committee CEQA Guidance, *2007 IEPR*.)

As a result, the unique way power plants operate in an integrated system means that we must assess their operational GHG emissions on a system-wide basis rather than on a stand-alone basis.

CBD challenges staff's use of a system approach, stating that it deprives decision-makers and the public with the information needed to "partake in a meaningful analysis of the environmental impacts of CECP." (CBD Opening Brief, p. 17.) CBD characterizes the flaws in this approach as failing to identify the proper baseline and failing to explain how gains in system efficiency create

reductions in GHG emissions. We find this argument puzzling, because Staff explained exactly how and under what circumstances introduction of a new, efficient plant to the electric system creates a reduction in net GHG emissions. Because the system operates as "an integrated whole to meet demand" (Ex. 222, p. 4.1-105), Staff assesses a project's impacts by looking at changes induced by adding the project to the system. CBD apparently believes that the Energy Commission should only look at project GHG emissions and not take into account the system reductions in GHG emissions that are likely to occur when the facility operates. Similarly, CBD also states that staff should have evaluated GHG impacts to the physical environment in the vicinity of CEC. (CBD Opening Brief, p. 23.) CBD is wrong. Its approach would require the Energy Commission to ignore the likely reduction in GHG emissions, and consider only the increases. The CEQA Guidelines and other policy guidance specifically allow a Lead Agency to consider the extent to which the project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting. [Cal. Code Regs., tit. 14, § 15064.4(a).] We find Staff's analysis to be reasonable and rely on it in determining the project impacts must be evaluated by looking at the operation of the interconnected electric system as a whole.

We also agree with Staff that proposed facilities that are more efficient than other facilities currently relied upon to provide the same services are likely to displace the electrical production of those facilities. (Ex. 222, p. 4.1-109.) CBD counters by stating that the Energy Commission should look at both efficiency and GHG emissions. (CDB Opening Brief, p. 16.) We don't disagree, but note that if a project's efficiency results in a net reduction in GHG emissions, the amount of project emissions by themselves will not change a conclusion that the net reductions are beneficial and not adverse. Thus, we concur that the relative efficiency of a project compared to those it may displace is a crucial part of our analysis of project GHG impacts, and that GHG emission levels alone are not necessarily determinative.

We now turn to the specifics of the project's operation, focusing on the project's relative efficiency in providing services currently provided by other plants and on the effect of the project in fostering the integration of renewable energy sources into the state's electricity system.

c. CECP's Effects on the Electricity System

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

Although California's electricity system is being rapidly changed by renewable generation, gas-fired plants remain necessary to provide reliability. Electricity demand is instantaneous and electricity cannot be stored in large quantities. Load serving entities must have capacity that they can quickly dispatch to meet fluctuating demand, including for emergencies and for peak load summer days. Capacity is the total amount of electric generation (expressed in MW) needed to meet instantaneous demand. A reliable electric system must have enough capacity to meet load demand on a hot summer afternoon when air conditioning demand is high in a given area. Many urban areas have intense electricity loads that surpass what can be delivered purely from transmission from more distant places. These load pockets can only have reliable electric service if additional capacity can be generated by power plants within the load pockets. These load pocket requirements are also called local capacity requirements.

Some capacity requirements are met by renewable generation, but the system also requires peakers that provide power when demand is highest, as well as load following generation that can run in place of intermittent renewable generation when such renewables are not generating (i.e., when the wind doesn't blow, when it is cloudy, or after dark). Gas-fired facilities serve this purpose. (Ex. 222, p. 4.1-110.) In addition, the system requires plants that provide ancillary services: regulation, spinning reserve, non-spinning reserve, voltage support, and black start capability. (Ex. 222, p.4.1- 105.) In the San Diego area, the CAISO has "reliability must run" contracts with several old, less-efficient plants in part to provide ancillary services. (Ex. 222, p. 4.1-111.)

The CECP will have a heat rate of 7,147 Btu/kWh. (Ex. 222, p. 4.1-112.) The heat rate, energy output and GHG emissions of other local generation resources are compared to those for CECP in **Greenhouse Gas Table 2**. There are few other existing peaker or intermediate load power plants in the Greater San Diego Area. Compared to the other existing power plants that remain in place to provide local reliability and that the CECP would be likely to displace, the CECP would reduce the overall system heat rate for natural gas-fired power plants. (Ex. 222, pp. 4.1-111 – 4.1-115.) In fact, the heat rate of the CECP is less than all of the comparable facilities in the Greater San Diego Area where the CECP would interconnect. (Ex. 222, pp. 4.1-82 Greenhouse Gas Table 4, 4.1-90.) Thus, CECP is likely to displace generation from these facilities. Since these facilities are less efficient, they produce more GHG per unit of energy generated. (Ex. 222, p.4.1-101.)

Greenhouse Gas Table 2
Greater San Diego Area, Local Generation Heat Rates and 2008 Energy Outputs

Plant Name	Capacity (MW)	Capacity Factor	2008 Heat Rate (Btu/kWh)	2008 Energy Output (GWh)	GHG Performance (MTCO2/MWh)
Palomar Energy Center	559	73.1%	6,959	3,590.37	0.368
South Bay Power Plant (1-4)	696	16.7%	11,534	1,015.24	0.610
Encina Power Plant (1-5)	951	12.0%	12,360	997.01	0.654
Larkspur Energy LLC (1-2)	90	8.0%	10,019	63.22	0.530
CalPeak Power - Border	50	3.4%	10,772	14.73	0.570
CalPeak Power - Enterprise	49	3.0%	10,743	12.92	0.568
CalPeak Power - El Cajon	49	2.8%	10,961	12.04	0.580
Kearny (1-3D)	127	0.4%	16,723	4.46	0.885
MMC Chula Vista, LLC	44	0.5%	16,596	1.92	0.878
MMC Escondido, LLC	44	0.4%	18,391	1.73	0.973
Miramar (1A-1B)	33	0.3%	18,018	0.89	0.953
El Cajon	13	0.6%	19,851	0.67	1.050
South Bay Peaking Turbine	13	0.5%	16,234	0.54	0.859
Encina Peaking Turbine	14	0.3%	17,634	0.37	0.933
Proposed Carlsbad Energy Center	**558**	**47.0%**	**7,147**	**n/a**	**0.405**

Ex. 222, p. 4.1-113.

Furthermore, the record shows that as California moves to a high renewable/low-GHG electricity system, non-renewable generation will have to be reduced by as much as 36,000 GWhs per year resulting in a net electricity system GHG emissions decrease. (Ex. 222, p. 4.1-84, Greenhouse Gas Table 5.) Targeting older, less efficient facilities as candidates for replacement or reduction in hours of operation will help the state meet its GHG emission reduction goals. Highly dispatchable fast start and simple cycle projects, like the CECP, are the key to allowing the retirements or curtailments of legacy fossil units, while meeting the state's goal of integrating renewables and firming the grid by operating when capacity and ancillary services are needed. (Ex. 222, p. 4.1-89, Greenhouse Gas Table 8.) In fact, the 2005 IEPR and 2007 IEPR identified Encina (960 MW) and South Bay (708 MW) as among the aging facilities that the state needs to shut down, repower, or replace, while preserving system reliability in the San Diego load pocket. This policy is endorsed by the CAISO, the California Public Utilities Commission, and the State Water Resources Control Board; the latter

agency insists that all once-through cooling facilities (like those at South Bay and Encina) eventually be replaced by power plants that do not use this form of cooling technology. Shutting down Encina and South Bay would remove 1,668 MW of generation from the San Diego load pocket. On the other hand, several generation projects other than CECP are currently being constructed or are in the licensing process and these will increase load pocket generation. These are depicted in **Greenhouse Gas Table 3**.

Greenhouse Gas Table 3
Pending Projects in San Diego Basin

Project Name	Technology	MW	Status
Otay Mesa	NG combined cycle	561	Operational
Orange Grove	NG peakers	94	Operational
Wellhead Margarita	NG peaker	44	On Hold
Bull Moose	Biomass	27	Undergoing Permit Review
Lake Hodges	Pump Storage Hydro	40	Under Construction
Pio Pico	NG peakers	300	Undergoing Licensing Review

Source: EX. 222, P. 4.1-112. Current status updated by Energy Commission staff.

Assuming the addition of all the new facilities shown in **Table 3**, 1039 MW will be added to the San Diego load pocket prior to 2015. Retirement of Encina and South Bay would nevertheless constitute a net reduction of capacity in San Diego of 929 MW, leaving 2,295 MW of local capacity. This is 140 MW less than that estimated by the CAISO as necessary to meet local capacity requirements in 2015 (reference: 2013-2015 Local Capacity Technical Analysis, ISO, 12/31/10). The capacity provided by CECP will allow for the retirement of the Encina units (1-3); it should also reduce operation of Encina Units 4-5, and facilitate their future retirement. (Ex. 222, pp. 4.1-111 – 4.1-112.)

Although staff's analysis supports a conclusion that the electricity system will create fewer GHG emissions with the addition of CECP, CBD challenges the use of a system approach, claiming that it fails to provide an accurate description of project emissions. We disagree. We have already discussed why a system approach is appropriate. In addition, evidence in the record of this case demonstrates that the CECP is likely to displace less efficient, higher emitting facilities in the San Diego region when it operates, as well as support the shutdown of these facilities. CBD counters that this argument must fail because

the system GHG emission reductions are not quantified. (CBD Opening Brief, p. 18.) However, given the number of variables involved in dispatching decisions we would not expect precision in that regard. The impossibility of calculating exact system operations in to the future does not require the Energy Commission to ignore the compelling evidence presented by staff that the integration of CECP into to electricity system will result in a net decrease in system GHG emissions. "While foreseeing the unforeseeable is not possible, an agency must use its best efforts to find out and disclose all that it reasonably can. " (Cal. Code Regs., tit. 14, § 15144.) We find that the Staff disclosed all relevant information about the project's potential GHG emission impacts, and that its conclusion does not fail due to the impossibility of specifically quantifying the GHG emission reductions identified.

Finally, CBD asserts that Staff's analysis is inadequate because it does not account for the possibility that natural gas sourced from abroad as liquefied natural gas (LNG) may make its way from the ocean terminal at Costa Azul in northern Mexico to be combusted in CECP's turbines. CBD states that burning LNG will lead to greater GHG emissions per unit of output than domestic natural gas. CBD's arguments are unavailing. In the first place, whether LNG will ever be available in Carlsbad and used in CECP, and the extent to which GHG emission rates will change, is speculative. (2/2/10 RT:100; 2/3/10 RT:169–170.) More importantly, to the extent that LNG actually enters the natural gas distribution system, LNG use will affect *all* customers, including other power plants. CBD has provided no evidence that CECP and CECP alone would operate on LNG, and we cannot reach a conclusion that such a result could occur. Thus, even if CBD is correct about the introduction on LNG, the fact that CECP will displace operation of existing generation facilities means that CECP operation would reduce GHG emissions over what they would be if natural gas generation switched to LNG as a fuel. (2/3/10 RT:170.)

(2) Fostering Renewables Integration

Most new renewable generation in California will be wind and solar generated power. But the wind and the sun are not continuous, on-demand resources. Thus, as more renewable generation is introduced into the system, on-demand power plants will be necessary to provide intermittent generation support, grid operations support, extreme load and system emergencies support, and general energy support, as well as meet local capacity requirements. At this time, gas-fired plants are better able to provide such services than are most renewables because they can be called upon when they are needed (dispatchable). (Ex. 222,

p. 4.1-116.) As a result, in order to rely on such intermittent sources of renewable-generated power, utilities must have available other, nonrenewable generating resources or significant storage that can fill the gap when renewable generation decreases. Indeed, because of this need for backup generation, or if and when utility-scale storage becomes feasible and cost-effective, nonrenewable generation must increase in order for the state to meet California's RPS and GHG goals. (Ex. 222, p. 4.1-113.)

CECP is an intermediate or "mid-merit" facility that would provide flexible, dispatchable, and fast start power. (Ex. 222, p. 4.1-101.) These characteristics are critical in integrating renewable energy into the electricity system. In general, combustion turbines can startup quickly, but the output of a large-scale combined cycle facility can be limited by the steam turbine to about 15 MW per minute. The CECP rapid response turbines, under hot start conditions, would be capable of ramping up to 150 MW of output within ten minutes and capable of a 45 minute complete startup cycle. Intermittent renewable sources of energy would be accommodated by CECP varying its energy output as needed to integrate the renewable sources, which enables CECP to play a role in most system operating scenarios. (Ex. 222, p. 4.1-116.)

The flexibility of California's fleet of fossil fuel generation, including those in the San Diego Area listed in **Table 3** above, will need to be significantly increased to meet the statewide 20 percent RPS; the recently legislated 33 percent RPS will require even more flexibility to integrate the renewables. We find that power-plants with the operational flexibility of and offering the ancillary services provided by the CECP are needed by California to meet its renewable energy policy goals.

This does not imply, however, that the existing and new fossil fuel capacity will operate more. **Greenhouse Gas Table 4** shows how the build-out of either the 20 percent or the 33 percent statewide RPS goal will affect generation from new and existing non-renewable resources. Should California reach its goal of meeting 33 percent of its retail demand in 2020 with renewable energy, non-renewable, most likely fossil-fueled, energy needs will fall by over 36,000 GWh/year. In other words, all growth will need to come from renewable resources to achieve the 33 percent RPS. In addition, however, those fossil units that do operate will need to be more flexible than the current fleet. Increasing system flexibility by adding new generation also offers benefits to California in reduced air emissions, include GHGs.

Greenhouse Gas Table 4
Estimated Changes in Non-Renewable Energy Potentially Needed to Meet California Loads, 2008-2020

California Electricity Supply	**Annual GWh**	
Statewide Retail Sales, 2008, estimated [a]	265,185	
Statewide Retail Sales, 2020, forecast [a]	308,070	
Growth in Retail Sales, 2008-20	42,885	
Growth in Net Energy for Load [b]	46,316	
California Renewable Electricity	**GWh @ 20% RPS**	**GWh @ 33% RPS**
Renewable Energy Requirements, 2020 [c]	61,614	101,663
Current Renewable Energy, 2008	29,174	
Change in Renewable Energy between 2008 to 2020 [c]	32,440	72,489
Resulting Change in Non-Renewable Energy [d]	13,876	(-36,173)

Source: Energy Commission staff.
Notes:
a. Not including eight percent transmission and distribution losses
b. Based eight percent transmission and distribution losses, or 42,885 GWh x 0.08 = 46,316 GWh.
c. Renewable standards are calculated on retail sales and not on total generation, which accounts for eight percent transmission and distribution losses.
d. Based on net energy (including eight percent transmission and distribution losses), not based on retail sales.

We find that the CECP would not interfere with generation from existing renewable facilities nor with the integration of new renewable generation. The CECP is designed to operate for reliability, namely for backup and renewable integration purposes, with a low annual capacity factor The CECP would be much more likely to foster integration of renewable energy than comparable non-renewable base load or intermediate energy resources.

We therefore find that GHG emissions from operation activities will not have a significant environmental impact.

5. Cumulative Impacts

Above we find that construction of the CECP will lead to a net reduction in GHG emissions. As it will contribute to a decrease in GHG emissions, CECP will not

cause any cumulative impacts. Although CBD challenges staff's cumulative impacts analysis by saying that it must include an examination of other probable future projects, the fact that CECP will reduce GHG emissions necessarily means that it cannot create a cumulatively significant contribution to a significant effect. Moreover, staff did evaluate probable future projects. (Ex. 222, p. 4.1-119 – 120.) Consistent with its analysis of CECP, Staff concluded that even with the addition of these projects, operation of CECP will allow for the retirement and reduction in operation of less-efficient, higher emitting facilities. (*Ibid*.) We find the Staff analysis persuasive and rely on it to reach our conclusion that the project's GHG emission impacts are not significant.

6. Conclusion

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

In this case, the evidence establishes that the CECP will decrease the system heat rate as it has a significantly lower heat rate than all of the peaker generators in the San Diego area. It will support, rather than interfere with, existing and new renewable generation. Finally, it will reduce system-wide GHG emissions and otherwise support the goals of AB 32. We find the proposed project is consistent with state energy policy, and will help the state achieve its renewable energy goals.

FINDINGS OF FACT

1. The GHG emissions from CECP construction are likely to be 4,686 $MTCO_2$ equivalent ("$MTCO_2E$") during the 25-month construction period.

2. There is no numerical threshold of significance under CEQA for construction-related GHG emissions, but the CEQA Guidelines provide flexibility to Lead Agencies and expressly allow them to "consider thresholds previously adopted or recommended by other public agencies or recommended by experts, provided the decision of the lead agency to adopt such a threshold is supported by substantial evidence."

3. Construction-related GHG emissions can be minimized through the use of best practices.

4. Under the CECP's annual capacity factor of 47 percent, the maximum annual CO_2 emissions from the CECP's operation will be 846,076 $MTCO_2E$, which constitutes an emissions performance factor of 0.405 $MTCO_2E$ / MWh.

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

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

7. Even as more renewable generation is added to the California electricity system, gas-fired power plants such as the CECP will be necessary to meet local capacity requirements and to provide intermittent generation support, grid operations support, extreme load and system emergencies support, and general energy support. New gas-fired generation units, when added to the electric generation and transmission grid, replace or displace the generation of existing units that are less efficient.

8. When it operates, the CECP will have a heat rate of 7,147 Btu/kWhr which would make it significantly more efficient than nearly all other regional gas-fired generating units.

9. When it operates, the CECP will displace generation from less-efficient (i.e., higher-heat-rate and therefore higher-GHG-emitting) power plants in the San Diego Area.

10. The CECP's operation will reduce overall GHG emissions from the electricity system.

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

12. Intermittent generation needs dispatchable generation, such as the CECP, in order to be integrated effectively into the electricity system.

13. The CECP's quick start and fast ramping capabilities will help integrate additional renewable generation into the electricity system, which is necessary to further reduce system GHG emissions from the electricity generation system.

14. Power-plants with the operational flexibility of and offering the ancillary services provided by the CECP are needed by California to meet its renewable energy policy goals.

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

CONCLUSIONS OF LAW

1. With the use of best practices, the CECP's construction-related GHG emissions will not cause a significant environmental impact.

2 The CECP's operational effect will be to reduce GHG emissions from the integrated electric grid, and will not result in a significant environmental impact.

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

4. The CECP operation will be consistent with California's loading order.

5. The CECP operation will foster the achievement of the GHG goals of AB 32, Executive Order S-3-05, and SBX1 2.

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

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

   a) not increase the overall system heat rate for natural gas plants;

   b) not interfere with generation from existing renewables or with the integration of new renewable generation; and

   c) have the ability to reduce system-wide GHG emissions.

8. The CECP will not increase the overall system heat rate for natural gas plants.

9. The CECP will not interfere with generation from existing renewables or with the integration of new renewable generation.

10. The CECP will reduce system-wide GHG emissions.

B. AIR QUALITY

Construction and operation of Carlsbad Energy Center Project (CECP) will emit combustion products and use certain hazardous materials that could expose the general public and onsite workers to potential health effects. This section on air quality examines whether CECP will likely comply with applicable state and federal air quality LORS, whether it will likely result in significant air quality impacts, and whether the proposed mitigation measures will likely reduce potential impacts to insignificant levels.

SUMMARY AND DISCUSSION OF THE EVIDENCE

The Federal Clean Air Act[1] and the California Clean Air Act[2] both require the establishment of ambient air quality standards (AAQS) for the maximum allowable concentrations of "criteria air pollutants." The California AAQS (CAAQS) established by the California Air Resources Board (CARB) are typically lower (more protective) than the National AAQS (NAAQS), which are established by the United States Environmental Protection Agency (U.S. EPA).

"Criteria air pollutants" include nitrogen dioxide (NO_2), sulfur dioxide (SO_2), carbon monoxide (CO), ozone (O_3), and inhalable/fine particulate matter (PM10/PM2.5). In addition, precursor pollutants for ozone include nitrogen oxides (NO_X), consisting of nitric oxide [NO] and NO_2) and volatile organic compounds (VOC). Precursors for particulate matter are primarily NO_X, sulfur oxides (SO_X) and ammonia (NH_3). (Ex. 222, p. 4.1-2.)

The federal and state AAQS consist of two parts: an allowable pollutant concentration and an averaging time over which the concentration is measured. **Air Quality Table 1** below**,** which replicates a table prepared by Staff, shows the federal and state standards. (Ex. 222, p. 4.1-7.)

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

[2] California Health and Safety Code, section 40910 et seq.

Air Quality Table 1
Federal and State Ambient Air Quality Standards

Pollutant	Averaging Time	Federal Standard	California Standard
Ozone (O_3)	8 Hour	0.075 ppm (147 µg/m^3)	0.070 ppm (137 µg/m^3)
	1 Hour	—	0.09 ppm (180 µg/m^3)
Carbon Monoxide (CO)	8 Hour	9 ppm (10 mg/m^3)	9.0 ppm (10 mg/m^3)
	1 Hour	35 ppm (40 mg/m^3)	20 ppm (23 mg/m^3)
Nitrogen Dioxide (NO_2)	Annual	0.053 ppm (100 µg/m^3)	0.03 ppm (57 µg/m^3)
	1 Hour	0.100 ppm	0.18 ppm (339 µg/m^3)
Sulfur Dioxide (SO_2)	Annual	0.030 ppm (80 µg/m^3)	—
	24 Hour	0.14 ppm (365 µg/m^3)	0.04 ppm (105 µg/m^3)
	3 Hour	0.5 ppm (1300 µg/m^3)	—
	1 Hour	—	0.25 ppm (655 µg/m^3)
Particulate Matter (PM10)	Annual	—	20 µg/m^3
	24 Hour	150 µg/m^3	50 µg/m^3
Fine Particulate Matter (PM2.5)	Annual	15 µg/m^3	12 µg/m^3
	24 Hour	35 µg/m^3	—
Sulfates (SO_4)	24 Hour	—	25 µg/m^3
Lead	30 Day Average	—	1.5 µg/m^3
	Calendar Quarter	1.5 µg/m^3	—
Hydrogen Sulfide (H_2S)	1 Hour	—	0.03 ppm (42 µg/m^3)
Vinyl Chloride (chloroethene)	24 Hour	—	0.01 ppm (26 µg/m^3)
Visibility Reducing Particulates	8 Hour	—	In sufficient amount to produce an extinction coefficient of 0.23 per kilometer due to particles when the relative humidity is less than 70%.

Source: Ex. 222, p. 4.1-7.

The U.S. EPA has designated all areas of the U.S. as attainment (below NAAQS), nonattainment (exceeds NAAQS), or unclassifiable (insufficient data). An area may be attainment under the federal standard and nonattainment under the state standard for the same air contaminant. The Clean Air requires a periodic review of the standards to provide for necessary updates.[3] (Ex. 222, pp. 4.1-4 – 4.1-6.)

[3] "The ambient air quality standards that staff uses as a basis for determining project significance are health-based standards established by the ARB and U.S. EPA. They are set at levels to adequately protect the health of all members of the public, including those most sensitive to

1. Existing Air Quality

The CECP project site is located within the San Diego Air Basin (SDAB) and is under the jurisdiction of the San Diego Air Pollution Control District (SDAPCD or District). The area is designated as nonattainment for both the federal and state ozone standards and the state PM10 and PM2.5 standards. **Air Quality Table 2** summarizes federal and state attainment status of criteria pollutants for the SDAB. The SDAB is designated attainment or unclassified for the state and federal CO, NO_X, and SO_X standards, and the federal PM2.5 standard. (Ex. 222, pp. 4.1-5 – 4.1-7.)

Air Quality Table 2
Federal and State Attainment Status for the San Diego Air Basin

Pollutant	**Attainment Status**	
	Federal	***State***
Ozone	Former Subpart 1 Nonattainment (8-hr) [a]	Serious Nonattainment (1-hr)
CO	Attainment	Attainment
NO_2	Attainment	Attainment
SO_2	Attainment	Attainment
PM10	Attainment	Nonattainment
PM2.5	Attainment	Nonattainment

Source: Ex. 222, p. 4.1-7.
Notes:[a] The U.S. EPA is in the process of redesignating the San Diego Air Basin to moderate non-attainment.

Meteorological Conditions

The climate of San Diego County is controlled by a semi-permanent subtropical high-pressure system that is located off the Pacific Ocean. In the summer, this strong high-pressure system results in clear skies, high temperatures, and low humidity. Very little precipitation occurs during the summer months because storms are blocked by the high-pressure system. Beginning in the fall and continuing through the winter, the high pressure weakens and moves south, allowing storm systems to move through the area. Temperature, winds, and rainfall are more variable during these months, and stagnant conditions occur more frequently than during summer months. Weather patterns include periods of stormy weather with rain and gusty winds, clear weather that can occur after a storm, or persistent marine layer conditions, with or without ground fog, that can

adverse air quality impacts such as the aged, people with existing illnesses, children, and infants, including a margin of safety." (Ex. 222, p. 4.1-29.)

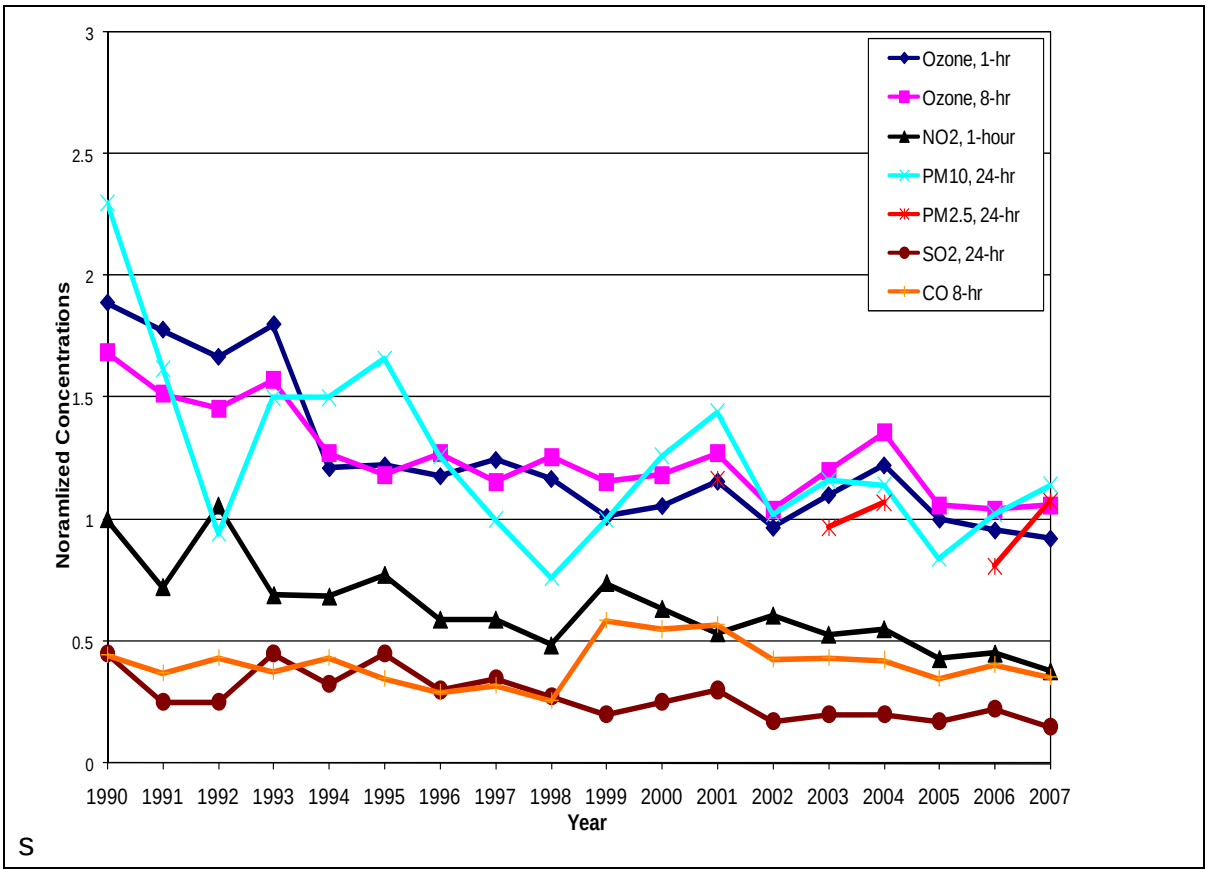
occur during extended parts of the year. The City of Carlsbad receives an average of 11 inches of rain annually.

Temperature, wind speed, and wind direction data collected in Camp Pendleton, about 6.3 miles north northwest of the project site, were processed and provided to the Applicant by the SDAPCD. The specific location of this meteorological station is approximately one-half mile from the surf zone, on the ocean side of the I-5 Freeway, and should represent the local weather patterns, including persistent marine layer and fog conditions, nearly identical to the project site. The most predominant annual wind direction from this monitoring site is onshore from the southwest to the west northwest with a strong secondary northeast to east northeast offshore component. Onshore winds are the most predominant during both the 2nd and 3rd quarters. The winds during the 1st and 4th quarters have a more predominate offshore component. The average wind speed is 5.3 miles per hour, and dead calm hours occur less than one percent of the time. The wind speeds are generally higher during daylight hours, and are highest during the 1st and 2nd quarters.

The operating monitoring stations closest to the proposed project site with long-term records for ozone and NO_X are the Camp Pendleton and Oceanside Mission Avenue monitoring stations, for CO and PM10/PM2.5, the Escondido East Valley Parkway monitoring station, and for SO_X the San Diego 12th Avenue and Beardsley Street monitoring stations. The coastal location of the Camp Pendleton, Oceanside and San Diego monitoring stations make them somewhat more representative of conditions in Carlsbad than the inland Escondido monitoring stations, which due to its inland valley location would be expected to have higher CO and PM10/PM2.5 concentrations than found in coastal Carlsbad.

Air Quality Figure 1 summarizes the historical air quality data for the project location, recorded at representative air monitoring stations (1990-2007 for Ozone, PM10, CO, NO_2, SO_2; 1999-2007 for PM2.5). In **Air Quality Figure 1**, the short term normalized concentrations are provided from 1990 to 2007. Normalized concentrations represent the ratio of the highest measured concentrations in a given year to the most-stringent applicable national or state ambient air quality standard. Therefore, normalized concentrations lower than one indicates that the measured concentrations were lower than the most-stringent ambient air quality standard. (Ex. 222, pp. 4.1-4 – 4.1- 8.)

Air Quality Figure 1
Normalized Maximum Short-Term Historical Air Pollutant Concentrations



Source: Ex. 222, p. 4.1-8.

A Normalized Concentration is the ratio of the highest measured concentration to the applicable most stringent air quality standard. For example, in 1999 the highest one-hour average ozone concentration measured at the Oceanside Mission Avenue station was 0.091 ppm. Since the most stringent ambient air quality standard is the state standard of 0.09 ppm, the 1999 normalized concentration is 0.091/0.09 = 1.011.

2. SDAPCD's Final Determination of Compliance

SDAPCD released its Final Determination of Compliance (FDOC) in August, 2009, stating that the project is expected to comply with applicable Air District rules, which incorporate state and federal requirements. (Ex. 201.) The SDAPCD's permit conditions for the project are specified in the FDOC and included in this Decision as a matter of law. (Cal. Code Regs., tit. 20, §§ 1744.5, 1752.3.) See Conditions **AQ-1** through **AQ-100**, below. The conditions include emissions limitations, operating limitations, offset requirements, and testing, monitoring, record keeping, and reporting requirements. Condition **AQ-SC6** requires the project owner to notify the Energy Commission whenever the owner requests the Air District or U.S. EPA to modify the project's permit conditions.

3. CEQA Requirements

We assess three kinds of impacts: construction, operation, and cumulative effects. Construction impacts result from the emissions occurring during the construction of the project. The operation impacts result from the emissions of the proposed project during operation. Cumulative impacts analysis assesses the impacts that result from the proposed project's incremental effect viewed over time, together with other closely related past, present, and reasonably foreseeable future projects whose impacts may compound or increase the incremental effect of the proposed project. (Pub. Resources Code § 21083; Cal. Code Regs., tit. 14, §§ 15064(h), 15065(c), 15130, and 15355.)

4. Methodology

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

Air dispersion models provide a means of predicting the location and ground level magnitude of the impacts of a new emissions source. These models consist of several complex series of mathematical equations, which are repeatedly calculated by a computer for many ambient conditions to provide theoretical maximum offsite pollutant concentrations for short-term (1-hour, 3-hour, 8-hour, and 24-hour) and annual periods. The model results are generally described as

maximum concentrations, often described as a unit of mass per volume of air, such as micrograms per cubic meter ($\mu g/m^3$).

The Applicant used EPA-approved screening (SCREEN3) and refined (ISCST3 and AERMOD version 07026) air dispersion models to estimate the direct impacts of the project's NO_X, PM10, CO, and SO_x emissions resulting from project construction and operation.

Staff revised the background concentrations provided by the Applicant, replacing them with the highest available ambient background concentrations. Staff added the modeled impacts to these background concentrations, then compared the results with the ambient air quality standards for each respective air contaminant to determine whether the project's emission impacts would cause a new violation of the ambient air quality standards or would contribute to an existing violation. (Ex. 222, pp 4.1-29 – 4.1-30.)

5. Construction Impacts and Mitigation

The construction phase is temporary and will occur over a period of 25 months and consist of the following onsite activities: 1) demolition of the existing oil tanks; 2) removal of oil contaminated soils; 3) site preparation, grading and reclaimed water pipeline installation; 4) reconstruction of the berm; 5) power plant construction. Air pollutants will be generated from diesel exhaust emitted by heavy duty construction vehicles and equipment. In addition, fugitive dust will be caused by site grading/excavation activities, installation of new on-site transmission lines, water and gas pipelines, construction of power plant facilities, roads, and substations, and vehicle travel on paved/unpaved roads. (Ex. 222, pp. 4.1-20 – 4.1-21.)

The Applicant's estimates for the maximum daily emissions during construction period are shown in **Air Quality Table 3**.

Air Quality Table 3
Maximum Daily Emissions During Construction, lbs/day

Activity	NO_X	CO	VOC	SO_X	PM10	PM2.5
On-Site						
Construction Equipment	274.90	150.27	25.19	0.30	11.45	11.45
Fugitive Dust	--	--	--	--	30.77	6.14
Off-site						
Worker Travel, Truck, Rail Deliveries	218.78	379.15	42.62	0.40	9.45	9.45
Total Maximum Daily Emissions	493.67	529.42	67.82	0.71	51.66	27.04

The peak annual on-site and off-site construction equipment exhaust and fugitive emissions, which for NO_X occur during months 5 through 16 of the 25 month construction schedule, are summarized in **Air Quality Table 4**.

Air Quality Table 4
Peak Annual Emissions During Construction, tons/year

Activity	NO_X	CO	VOC	SO_X	PM10	PM2.5
On-Site						
Construction Equipment	16.94	13.34	1.68	0.02	0.71	0.71
Fugitive Dust	--	--	--	--	2.47	0.45
Off-site						
Worker Travel, Truck, Rail Deliveries	9.69	31.61	3.26	0.03	0.49	0.49
Total Peak Annual Emissions	26.63	44.95	4.94	0.05	3.68	1.65

(Ex. 222, pp. 4.1-21 – 4.1-22.)

To determine the construction impacts on short-term ambient standards (i.e., 1-hour through 24 hours) the worst-case daily on-site construction emission levels were modeled[4]. For pollutants with annual average ambient standards, the annual on-site emissions levels were added to a conservatively estimated "background" of existing emissions to determine the cumulative effect. For the modeling analysis, it is assumed that all of the equipment would operate from 7 am to 4 pm for the short-term impact modeling (24 hours or less) and also only work on weekdays for the annual impact modeling. **Air Quality Table 5** provides the results of this modeling analysis.

[4] The modeled emissions are based on an earlier construction equipment emission estimate that was somewhat higher than the latest emission estimate shown in **AIR QUALITY Tables 3** and **4**.

Air Quality Table 5
CECP Maximum Onsite Construction Impacts, (μg/m^3)

Pollutant	Averaging Period	Project Impact (μg/m^3)	Background (μg/m^3) [a]	Total Impact (μg/m^3)	Limiting Standard (μg/m^3)	Type of Standard	Percent of Standard
NO_2	1 hour [b]	244	30	274	339	CAAQS	81%
	annual [c]	9	22.8	31.8	57	CAAQS	56%
PM10	24 hour	17	57	74	50	CAAQS	148%
	annual	2.4	24.2	26.6	20	CAAQS	133%
PM2.5	24 hour	7.1	37.7	44.8	35	NAAQS	128%
	annual	0.9	12	12.9	12	CAAQS	108%
CO	1 hour	1,343	6,785	8,128	23,000	CAAQS	35%
	8 hour	168	4,011	4,179	10,000	CAAQS	42%
SO_2	1 hour	2.7	94.3	97.0	655	CAAQS	15%
	3 hour	0.9	84.9	85.8	1,300	NAAQS	7%
	24 hour	0.1	23.6	23.7	105	CAAQS	23%
	annual	0.01	10.7	10.7	80	NAAQS	14%

(Ex. 222, p. 4.1-31.)

[a] Background values, other than the 1-hour NO_2 value, have been adjusted per staff recommended background concentrations.

[b] The NO_X modeling analysis was performed using the ozone limiting method and matched both hourly background and hourly NO_2 background concentrations for the ten highest modeled concentrations of each of the three modeled years (2003 to 2005) to determine a maximum hourly concentration.

[c] The annual modeling results were adjusted using the U.S. EPA default annual average Ambient Ratio Method (ARM) NO_X ratio of 0.75.

Air Quality Table 5, demonstrates that the construction impacts have the potential to worsen the existing violations of the PM10 and PM2.5 ambient air quality standards and are, therefore, potentially significant and require all feasible mitigation. The maximum NO_2, CO and SO_2 impacts would remain below the CAAQS and NAAQS. The NO_X and VOC emissions from construction, when considering their potential secondary ozone formation added to the existing ozone "background", have the potential to contribute to existing exceedances of the ozone standard and are therefore potentially significant and require all feasible mitigation.

The maximum construction impacts occur at the property line. The maximum residential and nearest school receptor[5] impacts of gaseous air pollutants (NO_X, CO, and SO_X) are lower than the maximum impact levels at the property line shown in **Air Quality Table 5.** The maximum property line impacts are well below the ambient air quality standards for these pollutants. The maximum

[5] The nearest residence is located approximately 0.44 miles to the northeast of the site, with other residences 0.49 miles and 0.51 miles to the northwest and southwest of the site. The nearest school, Jefferson Elementary, is located approximately 0.69 miles north northwest of the site.

modeled residential and school receptor PM10 and PM2.5 concentrations, not including background, were determined to be as follows:

	Residential Receptor	**School Receptor**[6]
PM10 24-hour	6.25 µg/m^3	<5.36 µg/m^3
PM10 annual	0.082 µg/m^3	<0.017 µg/m^3
PM2.5 24-hour	2.60 µg/m^3	<2.22 µg/m^3
PM2.5 annual	0.031 µg/m^3	<0.006 µg/m^3

(Ex. 222, pp. 4.1-30 – 4.1-32.)

Construction Mitigation

Construction emission impacts will be mitigated by including all required measures from the District's rules and regulations, as well as other measures. The standard recommended Energy Commission fugitive dust control conditions would require control measures that are as strict or stricter than the requirements of new District Rule 55 which took effect in December, 2009. (Ex. 222, p. 4.1-32.)

The Applicant proposed the following construction emission mitigation measures:

- Unpaved roads and disturbed areas in the project construction site will be watered as frequently as necessary to prevent fugitive dust plumes. The frequency of watering can be reduced or eliminated during periods of precipitation.
- The vehicle speed limit will be 15 miles per hour within the construction site.
- The construction site entrances shall be posted with visible speed limit signs.
- Construction equipment vehicle tires will be inspected and washed as necessary to be cleaned free of dirt prior to entering paved roadways.
- Gravel ramps of at least 20 feet in length will be provided at the tire washing/cleaning station.
- Unpaved exits from the construction site will be graveled or treated to prevent track out to public roadways.
- Construction vehicles will enter the construction site through the treated entrance roadways, unless an alternative route has been submitted to and approved by the Compliance Project Manager.

[6] The impacts shown are for a point approximately 500 meters south of the school as the receptor grid did not extend far enough north to include the school. The more distant school would have lower impacts.

- Construction areas adjacent to any paved roadway will be provided with sandbags or other measures as specified in the Storm Water Pollution Prevention Plan (SWPPP) to prevent run-off to roadways.
- Paved roads within the construction site will be swept at least twice daily (or less during periods of precipitation) on days when construction activity occurs to prevent the accumulation or dirt and debris.
- At least the first 500 feet of any public roadway exiting from the construction site shall be swept at least twice daily (or less during periods of precipitation) on days when construction activity occurs or on any other day when dirt or runoff from the construction site is visible on public roadways.
- Soil storage piles and disturbed areas that remain inactive for longer than 10 days will be covered or treated with appropriate dust suppressant compounds.
- Vehicles used to transport solid bulk material on public roadways and having the potential to cause visible emissions will be provided with a cover, or the materials will be sufficiently wetted and loaded onto the trucks in a manner to provide at least one foot of freeboard.
- Wind erosion control techniques (such as windbreaks, water, chemical dust suppressants, and / or vegetation) will be used on all construction areas that may be disturbed. Any windbreaks installed to comply with this condition shall remain in place until the soil is stabilized or permanently covered with vegetation.

(Ex. 4, Appendix 5.1E.)

The Applicant's construction emissions estimates presented in **Air Quality Tables 3** and **4,** and as construction modeling impact results shown in **Air Quality Table 5** assume the use of these fugitive emission control measures, as well as, the use of construction equipment that meets U.S. EPA/ARB Tier 2 nonroad diesel engine standards. (Ex. 222, p. 4.1-33.)

Construction PM10 and NO_X emission mitigation measures as articulated in Conditions of Certification **AQ-SC1** through **AQ-SC5** include the mitigation measures proposed by the applicant, with additional construction PM10 emission mitigation measures, revised construction equipment mitigation measures, and an addition to mitigate the potential for dust plume impacts on the adjacent I-5 freeway to assure maximum feasible fugitive dust control performance, construction equipment exhaust emissions control, and compliance enforcement mechanisms.

Condition **AQ-SC1** requires the Applicant to have an on-site construction mitigation manager who would be responsible for the implementation and

compliance of the construction mitigation program. The documentation of the ongoing implementation and compliance with the construction mitigation program would be provided in the monthly construction compliance report that is required in Staff's recommended Condition of Certification **AQ-SC2**.

The Applicant's proposed fugitive dust mitigation measures are formalized in Condition of Certification **AQ-SC3**.

Condition of Certification **AQ-SC4** limits the potential offsite impacts from visible dust emissions, to respond to situations where the control measures required by **AQ-SC3** are not working effectively to prevent fugitive dust from leaving the construction site area, and to respond to any potential dust plume impacts to the adjacent I-5 freeway.

Condition of Certification **AQ-SC5**, integrates and augments the applicant's construction equipment mitigation to mitigate the PM and NO_X emissions from the large diesel-fueled construction equipment. This condition, which has been updated from the version in the FSA to the latest Commission-approved version, requires the use of EPA/ARB Tier 3 engine compliant equipment for equipment over 50 horsepower where available, and also includes equipment idle time restrictions and engine maintenance provisions. The Tier 3 standards became effective for engine/equipment model years 2006 to 2008, for engines between 50 and 750 horsepower.

Implementation of Staff's recommended construction emission mitigation measures contained in the Conditions of Certification would substantially reduce fugitive dust and tailpipe emissions during construction, particularly during the peak construction grading period, and reduce the potentially significant air quality impacts from this temporary emission source to insignificant levels.

6. Operation Impacts and Mitigation

The CECP facility consists of two power blocks, with the following major components, providing a total nominal generating capacity of 540.4 MW net:

- Two Siemens SGT6-PAC5000F Combustion Turbine generators (CTG) equipped with Dry Low-NO_X (DLN) combustion system, inlet air filters, steam power augmentation, and inlet air evaporative coolers;
- Two Heat Recovery Steam Generators (HRSG), each equipped with a selective catalytic reduction (SCR) system with 19 percent aqueous ammonia

injection to further reduce NO_X emissions, and an oxidation catalyst to reduce CO emissions;

- Two condensing steam turbine generators (STG);
- Two air-cooled fin-fan coolers;
- Two 139-foot tall, 21.3-foot diameter exhaust stacks;
- A continuous emission monitoring (CEM) system installed on each stack to record concentrations of NO_X, CO, and oxygen in the flue gas; and
- A 246 brake horsepower (bhp) emergency fire pump engine.

CECP would be capable of operating 7 days a week, 24 hours per day, but is being permitted to a maximum emission equivalent of 4,100 hours per year. This is equivalent to an annual capacity factor of approximately 47 percent. The Applicant expects that the new facility would be operated primarily as an intermediate duty unit (aka mid-merit) on a daily basis, especially during summer months when there are peak demands. Annual non-emergency operation of the emergency fire pump engine would be limited to 50 hours of engine testing.

The Applicant is not able to determine the exact operational schedule for CECP since the operation profile would change depending on the variable demand in the service area. The Energy Commission 2007 Integrated Energy Policy Report (IEPR) forecasts an increasing demand for electricity in the San Diego region. Retirement of the South Bay Power plant in the service region city of Chula Vista, is possible in the near future. Therefore, overall power generation at the Encina Power Station is likely to increase, rather than decrease, over the next several years.

CECP operations would require a 14 person workforce including operators on rotating shifts and maintenance technicians during the standard 8-hour work day. However, CECP operation would not require new employees because this 14 person workforce would be provided by the 50 person workforce which operates the existing Encina Power Station. (Ex. 222, pp. 4.1-23 – 4.1-24.)

The exclusive use of pipeline-quality natural gas, a relatively clean-burning fuel, would limit the formation of VOC, PM10, and SO_2 emissions. Natural gas contains very little noncombustible gas or solid residues and a small amount of reduced sulfur compounds, including mercaptan. A dry low-NO_X (DLN) combustor and post-combustion NO_X control in the form of a selective catalytic reduction (SCR) system would be provided for each power block to control NOx concentrations in the exhaust gas. The SCR system would use 19 percent

aqueous ammonia to reduce NO_X emissions to no greater than 2.0 parts per million by volume, dry (ppmvd) adjusted to 15 percent oxygen from the gas turbines/SCR systems. Ammonia slip would be limited to 5 ppmvd at 15 percent oxygen on a dry basis. Staged combustion of a pre-mixed fuel/air charge would reduce CO and VOC emissions. An oxidizing catalytic converter would be used to further reduce the CO concentration in the exhaust gas emitted to the atmosphere to 2.0 ppmvd. VOC emissions would also be limited to 2.0 ppmvd. Particulate and SO_X emissions would be controlled using natural gas as the sole fuel for the CTGs. The emergency fire pump engine emissions would be controlled by the use of an engine meeting U.S.EPA/ARB Tier 2 engine emission standards, or Tier 3 if available, and using California low sulfur (15 ppm sulfur) diesel fuel.

Two 139-foot tall, 21.3-foot diameter stacks would release the CTGs exhaust gas into the atmosphere. A continuous emission monitoring (CEM) system would be installed on the CTG stack to monitor flue gas flow rate, NO_X and CO concentration levels, and percentage of oxygen in the flue gas to assure adherence with the proposed emission limits. The CEM system would generate reports of emissions data in accordance with permit requirements and send alarm signals to the control room in the plant when the level of emissions approaches or exceeds pre-selected limits. (Ex. 222, pp. 4.1-24 – 4.1-25.)

Air Quality Table 6 summarizes the maximum (worst-case) estimated daily emissions for CECP. Maximum daily emissions for turbines are based on 6 hours of startup, 6 hours of shutdown, and 12 hours of normal operation.

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Air Quality Table 6
CECP Worst-Case Hourly and Daily Emissions

	Hours	NO_X	CO	VOC	SO_X[a]	PM10	NH_3
Startup (lbs/hr)	6	69.2	545	15.5	4.40	9.50	14.01
Shutdown (lbs/hr)	6	47	286	8.2	4.40	9.50	14.01
Normal Operation (lbs/hr)	12	15.1	9.2	4.0	4.40	9.50	14.01
Emergency Fire Pump (lbs/hr)	1	2.08	0.24	0.05	0.00	0.035	0.00
Maximum (Single gas turbine, lbs/day)		877	5102	190	106	228	336
Maximum (Two gas turbines, lbs/day)		1,754	10205	380	211	456	672
Maximum (New Equipment, lbs/day)		1,756	10205	380	211	456	672

Source: Ex. 222, p. 4.1-27.
[a] SO_2 annual emissions are based on SDG&E tariff basis of 0.75 grains/100 dry standard cubic feet.

Maximum annual emissions for turbines are based on 300 hours of startup and 300 hours of shutdown and 3500 hours of normal operation at annual average base conditions, along with 50 hours operation of the fire pump. The maximum annual emissions are shown in **AIR QUALITY Table 7**. The emission rates for annual worst-case emissions calculation are slightly lower than those for daily worst-case emissions calculation, as the Applicant has assumed somewhat different annual average and hourly/daily worst case startup and shutdown emissions; and the operating condition assumed for the annual emissions calculations is the average ambient base load case, rather than the cold ambient base load case that was used to calculate the maximum potential daily emissions. (Ex. 222, pp. 4.1-25 – 4.1-27.)

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Air Quality Table 7
CECP Worst-Case Hourly and Annual Emissions

	Hours	NO_X	CO	VOC	SO_X[a]	PM10	NH_3
Startup (lbs/hr)	300	51.88	409.25	15.5	1.37	9.5	13.08
Shutdown (lbs/hr)	300	35.05	214.71	8.2	1.37	9.5	13.08
Normal Operation (lbs/hr)	3500	14.13	8.6	3.7	1.37	9.5	13.08
Emergency Fire Pump (lbs/hr)	50	2.08	0.24	0.05	0.0	0.035	0.0
Maximum (Single gas turbine, ton/yr)		37.77	108.65	10.03	2.81	19.48	26.81
Maximum (Two gas turbines, ton/yr)		75.54	217.30	20.05	5.61	38.95	53.62
Maximum (New Equipment, ton/yr)		75.59	217.31	20.05	5.61	38.95	53.62

Source: Ex. 222, p. 4.1-27

[a] For the purposes of determining annual average SO_X emissions a natural gas sulfur content of 0.25 grains/100 dry standard cubic feet is used. The FDOC indicates an annual permitted emission rate of 8.43 tons per year per turbine based on a sulfur content of 0.75 grains/100 dry standard cubic feet.

Air Quality Table 8, following, summarizes the expected Applicant's estimate for the maximum annual emissions for the CECP, the existing Encina Power Plant Unit 1-3 annual emissions baseline[7], and the expected maximum annual incremental project emission increase.

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[7] Baseline was determined by SDAPCD staff through correspondence with the Encina project owner using an average of 2002 to 2006 emissions, correcting 2002 and 2003 NO_X emissions for Rule 69 compliance. The specific annual corrected emissions baseline for Encina boiler units 1 to 3, in tons per year, determined by SDAPCD staff are as follows (SDAPCD 2008c):

	2002	2003	2004	2005	2006	Average
NO_X	39.99	27.7	46	31.73	16.17	32.21
CO	494.59	344.03	266.73	144.25	94.43	268.80
VOC	16.18	14.83	22.14	15.41	8.11	15.33
SO_X	9.53	12.51	2.41	3.69	2.59	6.15
PM10	34.97	27.66	45.28	33.58	15.97	31.49

Air Quality Table 8
CECP Incremental Annual Emissions

	Pollutant (tons/year)				
Emission Source	**NO_X[a]**	**CO[b]**	**VOC[c]**	**SO_X**	**PM10[d]**
CECP Expected Maximum	72.11[a]	217.3	20.1	5.6	39.0
Encina Power Plant Units 1-3	32.21	268.80	15.3	6.15	31.5
Net Emissions Increase	39.9	-51.51[b]	4.8	-0.6	7.5

Source: Ex. 222, p. 4.1-28.
[a] The Applicant has taken a reduced facility-wide NO_X emission limit to ensure that emissions were limited below PSD permitting thresholds.
[b] This represents normal operating years. For the initial commissioning year the annual CO emissions would be permitted to 339.9 tons, which for that one year of initial commissioning would result in an emission increase in CO of 71.0 tons.
[c] This represents normal operating years. For the initial commissioning year the annual VOC emissions would be permitted to 23.7 tons, which for that one year of initial commissioning would result in an emission increase in VOC of 8.4 tons compared to the average annual potential VOC increase of 4.8 tons.
[d] The total emission increase for PM2.5 is 7.6 tons.

The Applicant used the AERMOD model to estimate ambient impacts, and the SDAPCD completed additional modeling using AERMOD to assess compliance with the new federal 1-hour NO_2 standard. **Air Quality Table 9** below, summarizes the results of the modeling analysis with both turbine units operating. (Ex. 222, pp. 4.1-35 – 4.1-36; Ex. 226.)

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Air Quality Table 9
CECP Normal Gas Turbine Operating Impacts – Both CTGs, (µg/m^3)

Pollutant	Averaging Period	Project Impact (µg/m^3)	Background (µg/m^3)	Total Impact (µg/m^3)	Limiting Standard (µg/m^3)	Type of Standard	Percent of Standard
NO_2	1 hour Federal	--	--	85.7[a]	100	NAAQS	86%
	1 hour State	13.3	152.6	165.9	339	CAAQS	49%
	Annual	0.1	22.8	22.9	57	CAAQS	40%
PM10	24 hour	1.2	57	58.2	50	CAAQS	117%
	Annual	0.1	24.2	24.3	20	CAAQS	122%
PM2.5	24 hour	1.2	37.7	38.9	35	NAAQS	111%
	Annual	0.1	12	12.1	12	CAAQS	101%
CO	1 hour	9.0	6,785	6,794	23,000	CAAQS	30%
	8 hour	1.9	4,011	4,013	10,000	CAAQS	40%
SO_2 [b]	1 hour	4.3	94.3	98.6	655	CAAQS	15%
	3 hour	2.0	84.9	86.9	1,300	NAAQS	7%
	24 hour	0.4	23.6	24.0	105	CAAQS	23%
	Annual	0.0	10.7	10.7	80	NAAQS	13%

Source: Ex. 222, p. 4.1-36.
[a] Represents the air quality standard basis of the three year average of the 98th percentile of maximum daily 1-hour values.

Additional modeling indicates that the project would not cause any new violations of federal or state air quality standards during the simultaneous startup and shutdown of the two units, during fumigation conditions, during initial commissioning of the turbine units, or due to the chemical reaction of plant emissions in the atmosphere. (Ex. 222, p. 4.1-37 – 4.1-41.)

Emission Controls

The Applicant proposes to employ dry lo-NO_X burners, SCR with ammonia injection, CO catalyst, and operate exclusively on pipeline quality natural gas to limit turbine emission levels. The AFC (Ex. 4) and the FDOC (Ex. 201) provide the following BACT emission limits, each for the two CTGs:

- NO_X: 2.0 ppmvd at 15 percent O_2 (one-hour average, excluding startup/shutdown) and 15.1 lb/hr
- CO: 2.0 ppmvd at 15 percent O_2 (one-hour rolling average, excluding startup/shutdown) and 9.2 lb/hr
- VOC: 1.5 ppmvd at 15 percent O_2 (one-hour rolling average, excluding startup/shutdown) and 4.0 lb/hr

- PM10: 9.5 lb/hr
- SO_2: 4.4 lb/hr with fuel sulfur content of 0.75 grains/100 scf
- NH_3: 5 ppmvd at 15 percent O_2 and 13.08 lb/hr

The District's FDOC conditions, adopted as Conditions of Certification **AQ-1** through **AQ-100**, include provisions to allow the NO_X and CO emissions to meet 2.0 ppmvd with a three hour averaging period during transient load conditions and VOC emissions to meet 1.5 ppmvd with a three hour averaging period during transient load conditions, as well as, allowing higher NO_X emissions during low load and tuning periods (see Conditions of Certification **AQ-28**, **29**, **30**, **32**, **33**, and **34**), and provide separate emission limits for startup, shutdown, and initial commissioning (see Conditions of Certification **AQ-40** to **AQ-43**). (Ex. 222, pp. 4.1-41 – 4.1-42.)

Emission Offsets

District Rules 20.1 and 20.3 require NO_X and VOC offsets for a major modification to an existing major stationary source, defined as an emission increase of more than 25 tons per year for NO_X or VOC. The net emissions increase from the new facility, the CECP permitted emissions minus the baseline emissions from the existing Encina boiler units 1, 2, and 3, would exceed the District's NO_X offset threshold level but not the VOC offset threshold, as shown in **AIR QUALITY Table 9**, above. The Applicant proposes to offset NO_X emission through NO_X and VOC emission reduction credits, using the interpollutant ratio of 2:1 for VOC ERCs for NO_X emissions and the District's Federal Offset Requirement ratio of 1.2 to 1 for both interpollutant traded VOC offsets and NO_X offsets. The Applicant has proposed four offset certificates that total, after application of the interpollutant offset ratio, 49.6 tons of NO_X equivalent per year. This amount is more than sufficient, with the offset ratio of 1.2 to 1, to offset the proposed 39.9 ton/year NO_X emission increase, shown in **Air Quality Table 10**.

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Air Quality Table 10
NO_X Offsets Surrendered for Carlsbad

Pollutant	Location	Credit Number	ERC Amount (tpy)	NOx equivalent Amount (tpy)
NO_X	Naval Air Station – North Island	978938-05	35.3	35.3
NO_X	3200 Harbor Drive, San Diego	981518-01	2.3	2.3
VOC	850 Lagoon Drive, Chula Vista	070823-02	5.3	2.65
VOC	7757 Andrews Avenue, San Diego	080212-01	18.7	9.35
Total ERC				49.6
Total Required (at 1.2:1 ratio)				47.88
Total Surplus				1.72

Source: Ex. 222, p. 4.1-42.

The Applicant proposes the use of 2.9 tons of PM10 ERCs that it currently owns and funding the creation of emission reduction credits for the remainder of the PM10 and VOC credits to meet CEC recommended 1:1 emission mitigation for the other non-attainment pollutant and precursors that have permitted emission increases (PM10 and VOC). The maximum permitted emission increases are 7.6 tons PM, based on PM2.5, and 8.4 tons of VOC during initial commissioning.

CO is attainment for the region. No offsets are proposed or required. (Ex. 222, pp. 4.1-42 – 4.1-43.)

Staff and the District testified that the project's proposed emission controls/emission levels for criteria pollutants and ammonia slip meet BACT requirements and that the proposed emission levels are reduced to the lowest technically feasible levels. They further assert that the Applicant's offset proposal would fully mitigate the proposed project's net NO_X emissions increase.

We adopt Staff proposed Condition of Certification **AQ-SC7** to ensure that on-site soil remediation activities, other than transportation of contaminated soils would not occur at the project site. On-site soil remediation activities, such as soil farming, have not been analyzed and would increase emissions and localized impacts during construction.

We adopt Staff proposed Conditions **AQ-SC6** and **AQ-SC8** to ensure that the Commission's Certification (permit) is amended as necessary to incorporate

changes to the air quality permits and ensure ongoing compliance through the requirement of quarterly reports.

We adopt Condition **AQ-SC9** to ensure that initial commissioning occurs sequentially with only one turbine undergoing initial commissioning at a time.

We adopt Condition **AQ-SC10** to specify the following four methods that the Applicant can choose among to offset its emission increases for PM and VOC:

1. ERCs from the SDAPCD bank that are currently owned by the Applicant.
2. Create enforceable emission reductions from the site, such as by shutting down the existing peaking turbine.
3. Create enforceable emission reductions from third party sources, which could be accomplished by funding the Carl Moyer Program[8] or a similar emission reduction program specific to this project[9].
4. ERCs from the SDAPCD bank to be obtained by the applicant only if local emission reduction projects are clearly demonstrated to be unavailable, using methods 2 or 3 above, to meet the total emission reduction liability.

If the Applicant chooses to use its currently owned PM10 credits to partially meet the Staff recommended offset liability, the Applicant's emission reduction fee for the remaining 13.1 tons of emissions would equal $251,520 based on the Carl Moyer Program Guideline cost effectiveness cap value at the time of the evidentiary hearing, and the cost will increase over time as ARB periodically updates the cost effectiveness cap value.

Compliance with the emission controls and emission limits set forth in the Conditions of Certification will mitigate all project operation air quality impacts to less than significant levels. (Ex. 222, pp. 4.1-43 – 4.1-44.)

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[8] The ARB Carl Moyer Web page has the following description of the program: "The Carl Moyer Memorial Air Quality Standards Attainment Program provides incentive grants for cleaner-than-required engines, equipment and other sources of pollution providing early or extra emission reductions. Eligible projects include cleaner on-road, off-road, marine, locomotive and stationary agricultural pump engines, as well as forklifts, airport ground support equipment, and auxiliary power units. The program achieves near-term reductions in emissions of oxides of nitrogen (NO_X), particulate matter (PM), and reactive organic gas (ROG) which are necessary for California to meet its clean air commitments under the State Implementation Plan Program funds" (ARB 2008e).

[9] An example of a power plant project that completed a project specific emission reduction program is the Otay Mesa Power Plant Project.

7. Cumulative Impacts

Cumulative impacts may result from the project's incremental effect, together with other closely related past, present and reasonably foreseeable future projects whose impacts may compound or increase the incremental effect of the proposed project. (Pub. Resources Code § 21083; Cal. Code Regs., tit. 14, §§ 15064(h), 15130, 15355.)

The air quality analysis is concerned with criteria air pollutants, which have impacts that are typically cumulative by nature. Although a project by itself would rarely cause a violation of a federal or state criteria pollutant standard, a new source of pollution may contribute to violations of criteria pollutant standards in the context of existing background pollutant sources or foreseeable future projects. (Ex. 222, p. 4.1-44.)

Since the power plant air quality impacts can be reasonably estimated through air dispersion modeling (see the "Operational Modeling Analysis" subsection) the project contributions to localized cumulative impacts can be estimated. To represent *past* and, to an extent, *present projects* that contribute to ambient air quality conditions, we use ambient air quality monitoring data referred to as the *background*. New potential sources within six miles of the proposed project are identified along with existing sources that may for some reason not be captured in the background data. In this case no such sources were identified beyond four having emissions less than 5 tons/year of any criteria pollutant, and thus unlikely to create significant cumulative impacts.

Therefore, the local cumulative assessment for CECP, which is comprised of a short-term modeling analysis for worst-case NO_2 and CO impacts, only includes the existing Encina Power Plant facilities that would remain in operation after the construction of the project.

There are proposed construction projects near the proposed project site such as the I-5 widening project[10]; however, the timeframe and emissions from these

[10] A draft environmental document has not yet been prepared for the I-5 widening project, and due to the delay in the environmental documentation it is likely that the project will not begin construction near the CECP project site until sometime between 2015 and 2020, so the CECP construction and I-5 widening project construction will not occur at the same time in the same general area (i.e. no cumulative air quality impacts). The CECP operation and the I-5 widening construction are expected to have maximum air quality impacts in different locations due to the differences in the types emission sources and their relative buoyancy and downwind dispersion. Therefore, significant cumulative impacts from the CECP operation and I-5 widening construction are not expected.

projects is unknown and these construction projects would be limited in duration. Meanwhile emissions from existing mobile emission sources, such as the I-5 freeway, and temporary construction emission sources are forecast to have long-term emission reductions or significantly reduced emission potentials for most pollutants through improvements in on-road and off-road vehicle engine technology and vehicle turnover, respectively.

The Applicant used stack and building parameters and emission data for the existing Encina Power Plant, specifically boiler units 4 and 5 that would remain after construction of the project, and generally followed the same modeling procedures used for the CECP operating emissions modeling analysis, using the most recent version of AERMOD (Version 07026). The modeling assumed worst-case short-term emissions for the CECP (cold startup) and assumed full load emissions for the existing Encina Power Station boiler units 4 and 5 and peaking turbine. Additionally, the SDAPCD completed additional cumulative modeling using AERMOD to assess compliance with the new federal 1-hour NO_2 standard. The results of these modeling efforts, **Air Quality Table 11**, show that CECP, along with the existing Encina Power Station, would not contribute to new short-term AAQS violations for NO_2 or CO.

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Air Quality Table 11
Cumulative Impacts Modeling Results (µg/m^3)

Pollutant	Averaging Period	Project Impact (µg/m^3)	Background (µg/m^3) [a]	Total Impact (µg/m^3)	Limiting Standard (µg/m^3)	Type of Standard	Percent of Standard
NO_2	1 hour Federal	--	--	88.3[d]	100	NAAQS	88%
	1 hour State	133.5	152.6	286.1	339	CAAQS	84%
	annual [b]	0.3	22.8	23.1	57	CAAQS	41%
PM10	24 hour [c]	7.1	57	64.1	50	CAAQS	128%
	Annual	0.1	24.2	24.3	20	CAAQS	122%
PM2.5	24 hour [c]	7.1	37.7	44.8	35	NAAQS	128%
	Annual	0.1	12	12.1	12	CAAQS	101%
CO	1 hour	3,228	6,785	10,013	23,000	CAAQS	44%
	8 hour	676	4,011	4,687	10,000	CAAQS	47%
SO_2	24 hour [c]	10.5	23.6	34.1	105	CAAQS	32%
	annual	0.1	10.7	10.8	80	NAAQS	14%

Sources: Ex. 222, p. 4.1-50.

[a] Background values have been adjusted per staff recommended background concentrations.

[b] Annual NO_2 impact has been multiplied by the U.S.EPA Ambient Ratio Method value of 0.75.

[c] These 24-hour values are all based on worst-case existing Encina Boilers firing oil, when firing natural gas the worst-case cumulative PM10/PM2.5 and SO2 impacts are 1.4 and 0.4 µg/m^3, respectively.

[d.] Represents the air quality standard basis of the three year average of the 98th percentile of maximum daily 1-hour values.

The CECP would mitigate emissions through the use of BACT and District required and Staff recommended banked or new, owner-funded, emission reductions. Therefore, the cumulative operating impacts after mitigation are less than significant. (Ex. 222, pp. 4.1-48 – 4.1-51.)

The Carlsbad community has expressed concerns regarding the potential for direct impacts to local air temperatures from the new gas turbine/HRSG stacks and two air-cooled fin-fan cooler units, both of which emit their heat at much lower heights than the existing combined boiler stack. Additionally, while the maximum heat rejection from the existing Encina facility boilers 1-3 is much higher than the CECP, the heat is rejected using a once-through ocean water cooling system which would not be expected to impact local air temperatures significantly. Staff conducted a modeling analysis to determine the potential localized heat impacts. **Air Quality Table 12** provides the results.

Air Quality Table 12
Localized Heat Impact Modeling Results

Equipment Type	Temperature Increase
1-Hour Peak Impacts	
HRSGs (both)	1.92°F
Fin Fan Coolers (both)	1.65°F
Entire Facility	1.35°F
Annual Average Impacts	
HRSGs (both)	0.012°F
Fin Fan Coolers (both)	0.0084°F
Entire Facility	0.0055°F

Source: Ex. 222, p. 4.1-51.

The worst-case annual average heat impacts are very minor at only 0.012 degrees Fahrenheit at any specific location. The maximum 1-hour heat impacts were determined to occur in locations that were on hilltops or ridges to the west southwest of the project site that are not populated; however, the maximum heat impacts found in the nearby adjacent populated areas were nearly as high. While the highest hourly impact is over 1.5 degrees Fahrenheit, the frequency of impacts above 1 degree Fahrenheit in populated areas is less than ten hours per year. Additionally, the heat impacts to the populated areas occur during onshore wind conditions that are generally consistent with cooler conditions, for example the peak one-hour impact was determined during an ambient temperature of under 70 degrees Fahrenheit. Thus, any increases in temperature would be relatively small even when calculated with conservative modeling assumptions, would be transient in nature. (Ex. 222, pp. 4.1-51 – 4.1-52.)

8. Compliance with LORS

The San Diego Air Pollution Control District issued a Preliminary Determination of Compliance (PDOC) for the CECP on November 21, 2008, with public notice occurring on November 25, 2008. The District issued a Final Determination of Compliance August 4, 2009 (Ex. 201) that included consideration of comments received from responsible agencies and the public. Compliance with all District Rules and Regulations was demonstrated to the District's satisfaction in the FDOC. The District's FDOC conditions are adopted in the Conditions of Certification.

The District rules and regulations specify the emissions control and offset requirements for new sources such as the CECP. Best Available Control Technology would be implemented, and emission reduction credits (ERCs) for

NO_X emissions are required by District rules and regulations based on the permitted emission levels for this project. Compliance with the Districts new source requirements would ensure that the project would be consistent with the strategies and future emissions anticipated under the Districts air quality attainment and maintenance plans.

Staff testified that the CECP will satisfy all other applicable federal, state, and local LORS relating to air quality. (Ex. 222, pp. 4.1-52 – 4.1-58.)

Dr. Stephen Moore, representing the District, testified regarding the required findings specified in Public Resources Code section 25523(d)(2) that the project Applicant has identified sufficient emissions offsets for this project and that those offsets will be obtained as required by the SDAPCD's rules. (2/2/10 RT, 76:11 – 76:23.)

9. Prevention of Significant Deterioration (PSD) Permit

There is some disagreement among the parties about whether the CECP will be subject to a PSD permit for its GHG emissions. The PSD is a federal permit, issued either by the local air district under delegated authority or by US EPA, in either case not subject to the Energy Commission's. Some of the Intervenors argue that the Energy Commission cannot issue its certification until after the PSD permit is issued or a determination that no permit is required is made. (See, eg, the Center for Biological Diversity's brief dated January 10, 2012.)

Staff's expert witness testified that it was unlikely that US EPA would require anything by way of design or operations features beyond those already required by the SDAPCD and reflected in our conditions of certification below. Rather than hold up approval, adding additional delay before construction can begin following approval of a PSD permit, we believe it best to go forward with our approval at this time. To be clear that construction cannot begin until the PSD permit is either issued or found inapplicable, we add Condition **AQ-SC11** to that effect. Compliance with federal law is assured because the project cannot go forward until the permit is obtained or found unnecessary.

FINDINGS OF FACT

Based on the record, we find as follows:

1. The CECP project is located in the San Diego Air Basin and is under the jurisdiction of the San Diego Air Pollution Control District (SDAPCD).

2. SDAPCD released its Final Determination of Compliance (FDOC) on August 4, 2009, stating that the project will comply with applicable Air District rules, which incorporate state and federal requirements.
3. The CECP project area is designated nonattainment for the federal and state ozone and State PM10 and PM2.5 ambient air quality standards, and attainment for the federal and state CO, NO_2, and SO_2 standards and the federal PM10 and PM2.5 standards.
4. The project's unmitigated vehicle/equipment diesel exhaust and fugitive dust generated during construction will exceed daily significance thresholds for ozone, PM10 and PM2.5, and constitute potentially significant impacts under CEQA.
5. The mitigation measures contained in Conditions **AQ-SC1** through **AQ-SC-5** will reduce the project's construction-related air quality impacts to insignificant levels under CEQA.
6. The SDAPCD requires the project to mitigate stationary source NO_X, VOC, SO_2, and PM10/PM2.5 emissions by employing Best Available Control Technology (BACT).
7. As certified by the SDAPCD, the project Applicant has identified sufficient emissions offsets for this project and those offsets will be obtained as required by the SDAPCD's rules.
8. Application of BACT and other measures specified in the Conditions of Certification will reduce potential air quality impacts from the operation of CECP to insignificant levels.
9. The record contains an adequate analysis of the project's potential contributions to cumulative air quality impacts.
10. There is no evidence that project-related air emissions will result in significant nuisance odors or any significant air quality impacts on soils, vegetation or sensitive species

CONCLUSIONS OF LAW

1. Implementation of the mitigation measures described in the record and contained in the following Conditions of Certification are sufficient to ensure that CECP will conform 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.

2. Implementation of the mitigation measures described in the record and contained in the Conditions of Certification ensures that the project will not result in significant direct, indirect, or cumulative air quality impacts.

CONDITIONS OF CERTIFICATION

STAFF CONDITIONS

AQ-SC1 Air Quality Construction Mitigation Manager (AQCMM): The project owner shall designate and retain an on-site AQCMM who shall be responsible for directing and documenting compliance with conditions **AQ-SC3, AQ-SC4, and AQ-SC5** for the entire project site and linear facility construction. The on-site AQCMM may delegate responsibilities to one or more AQCMM Delegates. The AQCMM and AQCMM Delegates shall have full access to all areas of construction on the project site and linear facilities and shall have the authority to stop any or all construction activities as warranted by applicable construction mitigation conditions. The AQCMM and AQCMM Delegates may have other responsibilities in addition to those described in this condition. The AQCMM shall not be terminated without written consent of the Compliance Project Manager (CPM).

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

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

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

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

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

B. No vehicle shall exceed 10 miles per hour on unpaved areas within the project and laydown construction sites.

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

D. All construction equipment vehicle tires shall be inspected and washed as necessary to be cleaned and 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 runoff 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 the construction site shall be swept visually clean, using wet sweepers or air filtered dry vacuum sweepers, at least twice daily (or less during periods of precipitation) on days when construction activity occurs or on any other day when dirt or runoff from the construction site is visible on the public roadways.

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

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

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

N. Disturbed areas will be re-vegetated as soon as practical.

The fugitive dust requirements listed in this condition may be replaced with as stringent or more stringent methods as required by SDAPCD Rule 55.

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 Delegate shall monitor all construction activities for visible dust plumes. Observations of visible dust plumes that have the potential to be transported (1) off the project site or (2) 200 feet beyond the centerline of the construction of linear facilities, (3) within 100 feet upwind of any regularly occupied structures not owned by the project owner, or (4) within 50 feet upwind of the I-5 freeway indicate that existing mitigation measures are not resulting in effective mitigation. The AQCMM or Delegate shall implement the following procedures for additional mitigation measures in the event that such visible dust plumes, other than those occurring upwind of the I-5 Freeway, are observed:

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

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

Step 3: The AQCMM or Delegate shall direct a temporary shutdown of the activity causing the emissions if Step 2 specified above fails to result in effective mitigation within one hour of the original determination. The activity shall not restart until the AQCMM or Delegate is satisfied that appropriate additional mitigation or other site conditions have changed so that visual dust plumes will not result upon restarting the shut-down 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.

The AQCMM or Delegate shall implement the following procedures for additional mitigation measures in the event that such visible dust plumes occurring upwind of the I-5 Freeway are observed:

Step 1: The AQCMM or Delegate shall immediately cease the activities causing the visible dust plumes if any obscuration of visibility is occurring to drivers on the I-5 freeway. The AQCMM or Delegate shall direct more intensive application of the existing mitigation methods immediately if the visible plumes are seen within 50 feet of the I-5 freeway but are not causing obscuration of visibility to drivers.

Step 2: The AQCMM or Delegate shall direct implementation of additional methods of dust suppression and monitor the start-up and/or continuation of the dust causing activities to ensure that the additional mitigation is effective.

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. The activity shall not restart until the AQCMM or Delegate is satisfied that appropriate additional mitigation or other site conditions have changed so that visual dust plumes that could impact visibility on the I-5 Freeway will not occur upon restarting the shut-down source.

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

AQ-SC5 Diesel-Fueled Engine Control: The AQCMM shall submit to the CPM, in the Monthly Compliance Report, a construction mitigation report that demonstrates compliance with the AQCMP mitigation measures for purposes of controlling diesel construction-related emissions. The following off-road diesel construction equipment mitigation measures shall be included in the Air Quality Construction Mitigation Plan (AQCMP) required by AQ-SC2, and any deviation from the AQCMP mitigation measures shall require prior CPM notification and approval.

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

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

more than Tier 2 levels unless certified by engine manufacturers or the on-site AQCMM that the use of such devices is not practical for specific engine types. For purposes of this condition, the use of such devices is “not practical” for the following, as well as other, reasons.

1. There is no available retrofit control device that has been verified by either the California Air Resources Board or U.S. Environmental Protection Agency to control the engine in question to Tier 2 equivalent emission levels and the highest level of available control using retrofit or Tier 1 engines is being used for the engine in question; or
2. The construction equipment is intended to be on site for 10 days or less.
3. The CPM may grant relief from this requirement if the AQCMM can demonstrate a good faith effort to comply with this requirement and that compliance is not practical.

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

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

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

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

f. Construction equipment will employ electric motors when feasible.

Verification: The AQCMM shall include in the Monthly Compliance Report the following to demonstrate control of diesel construction-related emissions:

A. A summary of all actions taken to control diesel construction related emissions;

B. A list of all heavy equipment used on site during that month, including the owner of that equipment and a letter from each owner indicating that equipment has been properly maintained; and

C. Any other documentation deemed necessary by the CPM, and the AQCMM to verify compliance with this condition. Such information may be provided via electronic format or disk at the project owner's discretion.

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

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

AQ-SC7 The project owner shall not conduct any on-site remediation of contaminated soils at the project site, other than removal and transport.

Verification: The project owner shall provide transportation and disposition records of the contaminated soil removal and offsite remediation completion demonstrating compliance with this condition as part of the MCR until the contaminated soil removal is complete.

AQ-SC8 The project owner shall submit to the CPM Quarterly Operation Reports, following the end of each calendar quarter that include operational and emissions information as necessary to demonstrate compliance with the Conditions of Certification herein. The Quarterly Operation Report will specifically note or highlight incidences of noncompliance.

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

AQ-SC9 Only one combustion turbine shall undergo commissioning at a time.

Verification: The project owner shall provide the CPM CEMS data demonstrating compliance with this condition as part of the monthly commissioning status report (**AQ-80**).

AQ-SC10 The project owner shall provide emission reduction mitigation to offset the project's PM (based on PM2.5) and VOC emission increases at a ratio of 1:1. These emission reductions are based on the following maximum annual emissions for the facility (tons/yr).

Emission Reduction Credits/Pollutant	Tons/yr
PM10	7.6
VOC	8.4
Total Tons	16.0

Emission reductions can be provided using any one of the following methods in the following order of preference of their use:

1. Additional enforceable emission reductions created at the Encina Power Station site, such as the permanent shutdown of the Encina gas turbine peaker.
2. The project owner can fund enforceable emission reductions through the Carl Moyer Fund in the amount of $16,000/ton, or the applicable ARB Carl Moyer Program Guideline cost effectiveness cap value at the time of funding the emission reductions, for the total ton quantity listed in the above table, minus any tons offset using the other two listed methods, with an additional 20 percent administration fee to fund the SDAPCD and/or other responsible local agencies with jurisdiction within 25 miles of the project site to be used to find and fund local emission reduction projects to the extent feasible. Emission reduction projects funded by this method will be weighted for evaluation and selection, within the funding guideline value of $16,000/ton of reduction, or revised current funding guideline limit value, based on the proximity of the emission reduction project and the relative health benefit to the local community surrounding the project site. Emission reduction project cost will not be a consideration for selection as long as the emission reduction project is within the approved 2008, or later year as applicable, Carl Moyer funding guideline value,
3. The project owner can fund other existing public agency regulated stationary or mobile source emission reduction programs or create a project specific fund to be administered through the SDAPCD or other local agency, which would provide enforceable surplus emission reductions. This funding shall include appropriate

administrative fees as determined by the administering agency to obtain local emission reductions to the extent feasible. The project owner shall be responsible for demonstrating that the amount of such funding meets the emission reduction requirements of this condition. Emission reduction projects funding by this method will be weighted for evaluation and selection based on the proximity of the emission reduction project and the relative health benefit to the local community surrounding the project site.

4. 2.9 tons of PM10 ERCs currently owned by the applicant can be used to partially offset the PM emissions increase.

5. ERC certificates from other emission reductions occurring in the San Diego Air Basin can be purchased and used to offset each pollutant on a 1:1 offset ratio basis only if local emission reduction projects are clearly demonstrated to be unavailable using methods 1 to 3 to meet the total emission reduction burden required by this condition. ERCs can be used on an interpollutant basis for SO_X for PM10 and NO_X for VOC, where the project owner will provide a letter from the SDAPCD that indicates the District's allowed interpollutant offset ratio, or PM10 for SO_X ERCs can be used on a 1:1 basis.

Carl Moyer or other emission reduction funding shall be provided to the responsible agencies prior to the initiation of on-site construction activities. The project owner shall work with the appropriate agencies to target emission reduction projects in the project area to the extent feasible. Emission reduction project selection information will be provided to the CPM for review and comment. Unused administrative fees shall be used for additional emission reduction program funding. ERC certificates, if used, will be surrendered prior to first turbine fire.

Verification: The project owner shall submit to the CPM confirmation that the appropriate quantity of Carl Moyer Project or other emission reduction program funding and/or ERCs have been provided prior to initiation of on-site construction activities for emission reduction program funding and at least 30 days prior to turbine first fire for ERCs. The project owner shall provide emission reduction project selection information to the CPM for review and approval at least 15 days prior to committing funds to each selected emission reduction project. The project owner shall provide confirmation that the level of emission reduction program funding will meet the emission reduction requirements of this condition.

AQ-SC11 Prior to the start of construction, the Project Owner shall provide proof of US EPA's approval of a Prevention of Significant Deterioration (PSD) Permit for CECP or certification that no such permit is required.

Verification: The project owner shall provide a report of its progress toward obtaining the PSD permit or the CPM CEMS data demonstrating compliance with this condition as part of monthly compliance reports.

DISTRICT FINAL DETERMINATION OF COMPLIANCE CONDITIONS

District Application Number 985745

Power block Unit #6 consisting of one nominal 208 MW (219 MW with steam augmentation) natural-gas fired combined-cycle Siemens SGT6-PAC5000F combustion turbine generator, serial number to be determined, with an ultra low NO_X (ULN) combustor, an evaporative inlet air cooler, a heat recovery steam generator with a selective catalytic reduction unit, an oxidation catalyst, and a steam turbine generator and associated air-cooled heat exchanger to condense the exhaust steam from the steam turbine.

District Application Number 985747

Power block Unit #7 consisting of one nominal 208 MW (219 MW with steam augmentation) natural-gas fired combined-cycle Siemens SGT6-PAC5000F combustion turbine generator, serial number to be determined, with an ultra low NO_X (ULN) combustor, an evaporative inlet air cooler, a heat recovery steam generator with a selective catalytic reduction unit, an oxidation catalyst, and a steam turbine generator and associated air-cooled heat exchanger to condense the exhaust steam from the steam turbine.

GENERAL CONDITIONS

AQ-1 This equipment shall be properly maintained and kept in good operating condition at all times and, to the extent practicable, the project owner shall maintain and operate the equipment and any associated air pollution control equipment in a manner consistent with good air pollution control practices for minimizing emissions. [Rule 21 and 40 CFR §60.11]

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

AQ-2 The project owner shall operate the project in accordance with all data and specifications submitted with the application under which this license is issued and District Application Nos. 985745, 985747 and 985748. [Rule 14]

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

AQ-3 The project owner shall provide access, facilities, utilities, and any necessary safety equipment, with the exception of personal protective equipment requiring individual fitting and specialized training, for source testing and inspection upon request of the Air Pollution Control District. [Rule 19]

Verification: The project owner shall provide facilities, utilities, and safety equipment for source testing and inspections upon request of the District, ARB, and the Energy Commission.

AQ-4 The project owner shall obtain any necessary District permits for all ancillary combustion equipment including emergency engines, prior to on-site delivery of the equipment. [Rule 10]

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

AQ-5 Prior to the earlier of the initial startup dates for either of the two combustion turbines, the project owner shall surrender to the District Class A Emission Reduction Credits (ERCs) in an amount equivalent to 47.9 tons per year of oxides of nitrogen (NO_X) to offset the net maximum allowable increase of 39.9 tons per year of NO_X emissions for the two combustion turbines and the emergency fire pump engine described in District Application Nos. 985745, 985747, and 985748. [Rule 20.3(d)(8)]

Verification: The project owner shall submit to the CPM, within 15 days of ERC surrender to the District, information demonstrating compliance with this condition.

AQ-6 A rolling 12-calendar-month period is one of a series of successive consecutive 12-calendar-month periods. The initial 12-month-calendar period of such a series shall begin on the first day of the month in which the applicable beginning date for that series occurs as specified in this permit. [Rule 20.3 (d)(3), Rule 20.3(d)(8) and Rule 21]

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

AQ-7 Pursuant to 40 CFR §72.30(b)(2)(ii) of the Federal Acid Rain Program, the project owner shall submit an application for a Title IV Operating Permit at least 24 months prior to the initial startup of the combustion turbines. [40 CFR Part 72]

Verification: The project owner shall submit to the CPM copies of the acid rain permit application within five working days of its submittal by the project owner to the District.

AQ-8 The project owner shall comply with all applicable provisions of 40 CFR Part 73, including requirements to offset, hold and retire sulfur dioxide (SO_2) allowances. [40 CFR Part 73]

Verification: The project owner shall submit to the CPM and the District the CTG annual operating data and SO_2 allowance information demonstrating compliance with all applicable provisions of 40 CFR 73 as part of the Quarterly Operation Reports **(AQ-SC8)**.

AQ-9 All records required by this permit shall be maintained on site for a minimum of five years and made available to the District upon request. [Rule 1421]

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

COMBUSTION TURBINE CONDITIONS

AQ-10 For purposes of determining compliance with the emission limits of this permit, a shutdown period is the period of time that begins with the lowering of the gross electrical output (load) of the combustion turbine below 114 megawatts (MW) and that ends five minutes after fuel flow to the combustion turbine ceases, not to exceed 35 consecutive minutes. [Rule 20.3 (d)(1)]

Verification: The project owner shall submit to the CPM the CTG shutdown event duration data demonstrating compliance with this condition as part of the Quarterly Operation Reports **(AQ-SC8)**.

AQ-11 A startup period is the period of time that begins when fuel flows to the combustion turbine following a non-operational period. For purposes of determining compliance with the emission limits of this permit, the duration of a startup period shall not exceed 60 consecutive minutes. [Rule 20.3(d)(1)]

Verification: The project owner shall submit to the CPM the CTG startup event duration data demonstrating compliance with this condition as part of the Quarterly Operation Reports **(AQ-SC8)**.

AQ-12 A non-operational period is any five-consecutive-minute period when fuel does not flow to the combustion turbine. [Rule 20.3(d)(1)]

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

AQ-13 Tuning is defined as adjustments to the combustion or emission control system that involves operating the combustion turbine or emission control system in a manner such that the emissions control equipment may not be fully effective or operational. Only one gas turbine shall be tuned at any given time. Tuning events shall not exceed 720 unit operating minutes in a calendar day nor exceed 40 hours in a calendar year for each turbine. The District compliance division shall be notified at least 24 hours in advance of any tuning event. For purposes of this

condition, the number of hours of tuning in a calendar year is defined as the total unit operating minutes of tuning during the calendar year divided by 60. [Rule 20.3(d)(1)]

Verification: The project owner shall notify the District and CPM at least 24 hours in advance of any tuning event. The project owner shall submit to the CPM the CTG operating data demonstrating compliance with tuning limitations identified in this condition as part of the Quarterly Operation Reports **(AQ-SC8)**.

AQ-14 A Continuous Emission Monitoring System (CEMS) protocol is a document approved in writing by the District that describes the methodology and quality assurance and quality control procedures for monitoring, calculating, and recording stack emissions from the combustion turbine that is monitored by the CEMS. [Rules 69.3, 69.3.1, and 20.3(d)(1) and 40 CFR Part 60 Subpart KKKK, and 40 CFR Part 75]

Verification: The project owner shall maintain a copy of the CEMS protocol on site and provide it for inspection on request by representatives of the District, ARB, and the Energy Commission.

AQ-15 A transient hour is a clock hour during which the change in gross electrical output produced by the combustion turbine exceeds 50 MW per minute for one minute or longer during any period that is not part of a startup or shutdown period. [Rule 20.3(d)(1)]

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

AQ-16 For each combustion turbine, the commissioning period is the period of time commencing with the initial startup of that turbine and ending the sooner of 120 calendar days from the initial startup, after 415 hours of turbine operation, or the date the project owner notifies the District the commissioning period has ended. For purposes of this condition, the number of hours of turbine operation is defined as the total unit operating minutes during the commissioning period divided by 60. [Rule 20.3(d)(1)]

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

AQ-17 For each combustion turbine, the shakedown period is the period of time commencing with the initial startup that turbine and ending the sooner of 180 calendar days from the initial startup or the date the project owner notifies the District that the shakedown period has ended. [Rules 20.1(c)(16) and 21]

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

AQ-18 Turbine A is the combustion turbine as described on Applications No. 985745 or No. 985747, as applicable, that first completes its shakedown period. If both turbines complete their shakedown period on the same date, then Turbine A is the turbine described on Application No. 985745. [Rules 20.1(c)(16) and 21]

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

AQ-19 Turbine B is the combustion turbine as described on Applications No. 985745 or No. 985747, as applicable, that last completes its shakedown period. If both turbines complete their shakedown period on the same date, then Turbine B is the turbine described on Application No. 985747. [Rules 20.1(c)(16) and 21]

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

AQ-20 Low load operation is a period of time that begins when the gross electrical output (load) of the combustion turbine is reduced below 114 MW and that ends 10 consecutive minutes after the combustion turbine load exceeds 114 MW, provided that fuel is continuously combusted during the entire period and one or more clock hour concentration emission limits specified in this permit are exceeded as a result of the low-load operation. For each combustion turbine, periods of operation at low load shall not exceed 130 unit operating minutes in any calendar day nor an aggregate of 780 unit operating minutes in any calendar year. No low load operation period shall begin during a startup period. [Rule 20.3(d)(1)]

Verification: The project owner shall submit to the CPM the gas turbine operating data demonstrating compliance with this condition on request and shall make the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.

AQ-21 For each combustion turbine, a unit operating day, hour, and minute mean the following:

A. A unit operating day means any calendar day in which the turbine combusts fuel.

B. A unit operating hour means any clock hour in which the turbine combusts fuel.

C. A unit operating minute means any clock minute in which the turbine combusts fuel and any clock minute that is part of a shutdown period.

[Rule 21, 40 CFR Part 75, Rule 20.3(d)(1), 40 CFR Part 60 Subpart KKKK]

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

AQ-22 The exhaust stacks for each combustion turbine shall be at least 139 feet in height above site base elevation. [Rules 20.3(d)(2) and 1200]

Verification: The project owner shall submit to the CPM for review the exhaust stack specification at least 60 days before the installation of the stack.

AQ-23 The combustion turbines shall be fired on Public Utility Commission (PUC) quality natural gas. The project owner shall maintain, on site, quarterly records of the natural gas sulfur content (grains of sulfur compounds per 100 dscf of natural gas) and hourly records of the higher and lower heating values (btu/scf) of the natural gas; and provide records to District personnel upon request. [Rule 20.3(d)(1)]

Verification: The project owner shall submit the quarterly fuel sulfur content values in the in the Quarterly Operation Reports **(AQ-SC8)** and make the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.

AQ-24 Unless otherwise specified in this permit, all continuous monitoring data shall be collected at least once every minute. [Rules 69.3, 69.3.1, and 20.3(d)(1)]

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

Emission Limits

AQ-25 For purposes of determining compliance with emission limits based on source testing, the average of three subtests shall be used. For purposes of determining compliance with emission limits based on a Continuous Emission Monitoring System (CEMS), data collected in accordance with the CEMS protocol shall be used and the averages for averaging periods specified herein shall be calculated as specified in the CEMS protocol. [Rules 69.3, 69.3.1, and 20.3(d)(1) and 40 CFR Part 60 Subpart KKKK, and 40 CFR Part 75]

Verification: Source tests demonstrating compliance with this condition shall be provided to the CPM and are due within the timeframes specified in Conditions **AQ-53** and **AQ-54**. CEMS data summaries shall be submitted to the CPM as part of the Quarterly Operation Reports **(AQ-SC8)**.

AQ-26 For purposes of determining compliance with emission limits based on CEMS data, all CEMS calculations, averages, and aggregates shall be performed in accordance with the CEMS protocol approved in writing by the District. [Rules 69.3, 69.3.1, and 20.3(d)(1) and 40 CFR Part 60 Subpart KKKK, and 40 CFR Part 75]

Verification: CEMS data summaries shall be submitted to the CPM as part of the Quarterly Operation Reports **(AQ-SC8)**.

AQ-27 For each emission limit expressed as pounds, pounds per hour, or parts per million based on a one-hour or less averaging period or compliance period, compliance shall be based on using data collected at least once every minute when compliance is based on CEMS data. [Rules 69.3, 69.3.1, and 20.3(d)(1)]

Verification: CEMS data summaries shall be submitted to the CPM as part of the Quarterly Operation Reports **(AQ-SC8)**.

AQ-28 When a combustion turbine is combusting fuel (operating), the emission concentration of oxides of nitrogen (NO_X), calculated as nitrogen dioxide (NO_2), shall not exceed 2.0 parts per million by volume on a dry basis (ppmvd) corrected to 15% oxygen, except during commissioning, low load operation, startup, shutdown, or tuning periods for that turbine. For purposes of determining compliance based on CEMS data, the following averaging periods calculated in accordance with the CEMS protocol shall apply:

a. For any transient hour, a 3-clock hour average, calculated as the average of the transient hour, the clock hour immediately prior to the transient hour and the clock hour immediately following the transient hour.

b. For all other hours, a 1-clock hour average.

[Rule 20.3(d)(1)]

Verification: The project owner shall provide CEMS emissions data to demonstrate compliance with this condition as part of the Quarterly Operation Reports **(AQ-SC8)**.

AQ-29 When a combustion turbine is operating, the emission concentration of carbon monoxide (CO) shall not exceed 2.0 ppmvd corrected to 15 percent oxygen, except during commissioning, low load operation, startup, shutdown, or tuning periods for that turbine. For purposes of determining compliance based on CEMS data, the following averaging periods calculated in accordance with the CEMS protocol shall apply:

a. For any transient hour, a 3-clock-hour average, calculated as the average of the transient hour, the clock hour immediately prior to the transient hour and the clock hour immediately following the transient hour.

b. For all other hours, a 1-clock-hour average.

[Rule 20.3(d)(1)]

Verification: The project owner shall provide CEMS emissions data to demonstrate compliance with this condition as part of the Quarterly Operation Reports **(AQ-SC8)**.

AQ-30 When a combustion turbine is operating, the volatile organic compound (VOC) concentration, calculated as methane, measured in the exhaust stack, shall not exceed 1.5 ppmvd corrected to 15 percent oxygen, except during commissioning, low load operation, startup, shutdown, or tuning periods for that turbine. For purposes of determining compliance based on the CEMS, the District approved CO/VOC surrogate relationship, the CO CEMS data, and the following averaging periods calculated in accordance with the CEMS protocol shall be used:

a. For any transient hour, a 3-clock-hour average, calculated as the average of the transient hour, the clock hour immediately prior to the transient hour and the clock hour immediately following the transient hour.

b. For all other hours, a 1-clock-hour average.

The CO/VOC surrogate relationship shall be verified and/or modified, if necessary, based on source testing. [Rule 20.3(d)(1)]

Verification: The project owner shall provide the CEMS data, using the appropriate CO/VOC surrogate relationship, to demonstrate compliance with this condition as part of the Quarterly Operation Reports **(AQ-SC8)**.

AQ-31 When a combustion turbine is operating, the ammonia concentration (ammonia slip), shall not exceed 5.0 ppmvd corrected to 15 percent oxygen, except during commissioning, low load operation, startup, shutdown, or tuning periods for that turbine. [Rule 1200]

Verification: The project owner shall provide the estimated ammonia concentrations and ammonia emissions based on the annual source test data, the CEMS data and SCR ammonia flow data to demonstrate compliance with this condition as part of the Quarterly Operation Reports **(AQ-SC8)**.

AQ-32 When a combustion turbine is operating with post-combustion air pollution control equipment that controls oxides of nitrogen (NO_X) emissions, the emission concentration NO_X, calculated as nitrogen dioxide (NO_2), shall not exceed 12.9 ppmvd calculated over each clock hour period and corrected to 15 percent oxygen, except for periods of startup and shutdown, as defined in Rule 69.3.1. This limit does not apply during any period in which the facility is subject to a variance from the emission limits contained in Rule 69.3.1. [Rule 69.3.1]

Verification: The project owner shall provide CEMS emissions data to demonstrate compliance with this condition as part of the Quarterly Operation Reports **(AQ-SC8)**.

AQ-33 When a combustion turbine is operating without any post-combustion air pollution control equipment that controls oxides of nitrogen (NO_X) emissions, the emission concentration of NO_X calculated as nitrogen dioxide (NO_2) from each turbine shall not exceed 21.6 parts per million by volume on a dry basis (ppmvd) calculated over each clock hour period and corrected to 15 percent oxygen, except for periods of startup and shutdown, as defined in Rule 69.3.1. This limit does not apply during any period in which the facility is subject to a variance from the emission limits contained in Rule 69.3.1. [Rule 69.3.1]

Verification: The project owner shall provide CEMS emissions data to demonstrate compliance with this condition as part of the Quarterly Operation Reports **(AQ-SC8)**.

AQ-34 When a combustion turbine is operating, the emission concentration of oxides of nitrogen (NO_X), calculated as nitrogen dioxide (NO_2) shall not exceed 42 ppmvd calculated over each clock hour period and corrected to 15 percent oxygen, on a dry basis, except during periods of startup and shutdown, as defined in Rule 69.3. This limit does not apply during any period in which the facility is subject to a variance from the emission limits contained in Rule 69.3. [Rule 69.3]

Verification: The project owner shall provide CEMS emissions data to demonstrate compliance with this condition as part of the Quarterly Operation Reports **(AQ-SC8)**.

AQ-35 For each rolling 30-day-unit-operating-day period, average emission concentration of oxides of nitrogen (NO_X) for each turbine calculated as nitrogen dioxide (NO_2) in parts per million by volume dry (ppmvd) corrected to 15 percent oxygen or, alternatively, as elected by the project owner, the average NO_X emission rate in pounds per megawatt-hour (lb/MWh) shall not exceed an average emission limit calculated in accordance with 40 CFR Section 60.4380(b)(3). The emission concentration and emission rate averages shall be calculated in accordance with 40 CFR Section 60.4380(b)(1). The average emission concentration limit and emission rate limit shall be based on an average of hourly emission limits over the 30-day-unit-operating-day period. The hourly emission concentration limit and emission rate limit shall be15 ppmvd corrected to 15 percent oxygen and 0.43 lb/MWh, respectively, for clock hours when the combustion turbine load is equal to or greater than 156 megawatts at all times during the clock hour, respectively, and 96 ppmvd corrected to 15 percent oxygen and 4.7 lb/MWh for all other clock hours when the combustion turbine is operating, respectively. The averages shall exclude all clock hours occurring before the Initial Emission Source Test but shall include emissions during all other times that the equipment is operating including, but not limited to, emissions during low load operation, startup, shutdown, and tuning periods. For each six-calendar-month

period, emissions in excess of these limits and monitor downtime shall be identified in accordance with 40 CFR Sections 60.4350 and 60.4380(b)(2), except that Section 60.4350(c) shall not apply for identifying periods in excess of a NO_X concentration limit, and reported to the District and the federal EPA in accordance with Title V Operating Permit No. 974488. [40 CFR Part 60 Subpart KKKK]

Verification: The project owner shall provide CEMS emissions data to demonstrate compliance with this condition as part of the Quarterly Operation Reports **(AQ-SC8)**.

AQ-36 The emissions of particulate matter less than or equal to 10 microns in diameter (PM10) shall not exceed 9.5 pounds per hour for each combustion turbine. [Rule 20.3(d)(2)]

Verification: Source tests demonstrating compliance with this condition shall be provided to the CPM and are due within the timeframes specified in Conditions **AQ-53** and **AQ-54**.

AQ-37 The discharge of particulate matter from the exhaust stack of each combustion turbine shall not exceed 0.10 grains per dry standard cubic foot (0.23 grams/dscm). The District may require periodic testing to verify compliance with this standard. [Rule 53]

Verification: Source tests demonstrating compliance with this condition shall be provided to the CPM and are due within the timeframes specified in Conditions **AQ-53** and **AQ-54**.

AQ-38 Visible emissions from the lube oil vents and the exhaust stack of each combustion turbine shall not exceed 20 percent opacity for more than three (3) minutes in any period of 60 consecutive minutes. [Rule 50]

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

AQ-39 Mass emissions from each combustion turbine of oxides of nitrogen (NO_X), calculated as NO_2; carbon monoxide (CO); and volatile organic compounds (VOC), calculated as methane, shall not exceed the following limits, except during commissioning, low load operation, startup, shutdown, or tuning periods for that turbine. A 1-clock-hour averaging period for these limits shall apply to CEMS data except for emissions during transient hours when a 3-clock-hour averaging period shall apply. [Rule 20.3(d)(2)]

Pollutant	*Emission Limit, lb*
a. NO_X	*15.1*
b. CO	*9.2*
c. VOC	*4.0*

Verification: The project owner shall submit to the CPM operating data demonstrating compliance with this condition as part of the Quarterly Operation Reports **(AQ-SC8)**.

AQ-40 Excluding any minutes that are coincident with a shutdown period, cumulative mass emissions of oxides of nitrogen (NO_x), calculated as NO_2; carbon monoxide (CO); and volatile organic compounds (VOC), calculated as methane, during a combustion turbine's startup period shall not exceed the following limits during any startup period, except during that turbine's commissioning period. [Rule 20.3(d)(1)]

Pollutant	*Emission Limit,lb*
a. NO_X	*69.2*
b. CO	*545*
c. VOC	*15.5*

Verification: The project owner shall submit to the CPM operating data demonstrating compliance with this condition as part of the Quarterly Operation Reports **(AQ-SC8)**.

AQ-41 Cumulative mass emissions of oxides of nitrogen (NO_X), calculated as NO_2; carbon monoxide (CO); and volatile organic compounds (VOC), calculated as methane, during a combustion turbine's shutdown period shall not exceed the following limits during any shutdown period, except during that turbine's commissioning period. [Rule 20.3(d)(1)]

Pollutant	*Emission Limit,lb*
a. NO	*25.7*
b. CO	*277*
c. VOC	*6.2*

Verification: The project owner shall provide CEMS emissions data to demonstrate compliance with this condition as part of the Quarterly Operation Reports **(AQ-SC8)**.

AQ-42 The oxides of nitrogen (NO_X) emissions from each combustion turbine shall not exceed 200 pounds per hour and total aggregate NO_X emissions from both combustion turbines combined shall not exceed 286 pounds per hour, calculated as nitrogen dioxide and measured over each 1-clock hour period. These emission limits shall apply during all times one or both turbines are operating, including, but not limited to, emissions during commissioning, low load operation, startup, shutdown, and tuning periods. [Rule 20.3(d)(2)]

Verification: The project owner shall provide CEMS emissions data to demonstrate compliance with this condition as part of the Quarterly Operation Reports **(AQ-SC8)**.

AQ-43 The carbon monoxide (CO) emissions from each combustion turbine shall not exceed 3813 pounds per hour and total aggregate CO emissions from both combustion turbines combined shall not exceed 4627 pounds per hour measured over each 1-clock hour period. This emission limit shall apply during all times that one or both turbines are operating, including, but not limited to emissions during commissioning, low load operation, startup, shutdown, and tuning periods. [Rule 20.3(d)(2)(i)]

Verification: The project owner shall provide CEMS emissions data to demonstrate compliance with this condition as part of the Quarterly Operation Reports **(AQ-SC8)**.

AQ-44 Beginning with the earlier of the initial startup dates for either combustion turbine, aggregate emissions of oxides of nitrogen (NO_X), calculated as nitrogen dioxide (NO_2); carbon monoxide (CO); volatile organic compounds (VOCs), calculated as methane; particulate matter less than or equal to 10 microns in diameter (PM10); and oxides of sulfur (SO_X), calculated as sulfur dioxide (SO_2), from the combustion turbines described in District Applications No. 985745 and 985747 and the emergency fire pump described in Application No. 985748, except emissions or emission units excluded from the calculation of aggregate potential to emit as specified in Rule 20.1 (d) (1), shall not exceed the following limits for each rolling 12-calendar-month period:

Pollutant	*Emission Limit, tons per year*
a. NO_X	*72.11*
b. CO	*339.9*
c. VOC	*23.7*
d. PM10	*39.0*
e. SO_X (calculated as SO_2)	*5.6*

In addition, beginning with the date on which both turbines have completed their commissioning periods aggregate emissions of CO and VOC from the equipment specified above in this condition shall not exceed 217.3 and 20.1 tons per year, respectively, for each rolling 12-calendar-month period.

The aggregate emissions of each pollutant shall include emissions during all times that the equipment is operating including, but not limited to, emissions during commissioning, low load operation, startup, shutdown, and tuning periods. [Rules 20.3(d)(3), 20.3(d)(8) and 21]

Verification: The project owner shall submit to the CPM and the District the facility annual operating and emissions data demonstrating compliance with this condition as part of the fourth quarter's Quarterly Operation Reports **(AQ-SC8)**.

AQ-45 For each calendar month, the project owner shall maintain records, as applicable, on a calendar monthly basis, of mass emissions during each calendar month of NO_X (calculated as NO_2), CO, VOCs (calculated as methane), PM10, and SO_X (calculated as SO_2), in tons, from each emission unit described in District Applications No. 985745, 985747, and 985748 , except for emissions or emission units excluded from the calculation of aggregate potential to emit as specified in Rule 20.1 (d) (1). These records shall be made available for inspection within 15 calendar days after the end of each calendar month. [Rules 20.3(d)(3), 20.3(d)(8) and 21]

Verification: The project owner shall provide emissions summary data in compliance with this condition as part of the Quarterly Operation Reports **(AQ-SC8)**. The project owner shall make the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.

AQ-46 For each calendar month and each rolling 12-calendar-month period, the project owner shall maintain records as applicable, on a calendar monthly basis, of aggregate mass emissions of NO_X (calculated as NO_2), CO, VOCs (calculated as methane), PM10, and SO_X (calculated as SO_2) in tons for the emission units described in District Applications No. 985745, 985747, and 985748, except for emissions or emission units excluded from the calculation of aggregate potential to emit as specified in Rule 20.1 (d) (1). These records shall be made available for inspection within 15 calendar days after the end of each calendar month. [Rules 20.3(d)(3), 20.3(d)(8) and 21]

Verification: The project owner shall provide emissions summary data in compliance with this condition as part of the Quarterly Operation Reports **(AQ-SC8)**. The project owner shall make the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.

AQ-47 For each combustion turbine, the number of startup periods occurring in each calendar year shall not exceed 1460. [Rules 1200 and 21]

Verification: The project owner shall submit facility annual operating data demonstrating compliance with this condition as part of the fourth quarter's Quarterly Operation Reports **(AQ-SC8)**.

Ammonia – SCR

AQ-48 Not later than 90 calendar days prior to the start of construction, the project owner shall submit to the District the final selection, design parameters and details of the selective catalytic reduction (SCR) and oxidation catalyst emission control systems for the combustion turbines

including, but not limited to, the minimum ammonia injection temperature for the SCR; the catalyst volume, space velocity and area velocity at full load with and without steam injection; and control efficiencies of the SCR and the oxidation catalyst CO at temperatures between 100 °F and 1000 °F at space velocities corresponding to 100 percent (with steam injection) and 60 percent load. Such information may be submitted to the District as trade secret and confidential pursuant to District Rules 175 and 176. [Rules 20.3(d)(1) and 14]

Verification: The project owner shall submit to the CPM for review and District for approval final selection, design parameters and details of the SCR and oxidation catalyst emission control systems at least 90 days prior to the start of construction.

AQ-49 When a combustion turbine is operating, ammonia shall be injected at all times that the associated selective catalytic reduction (SCR) system outlet temperature is 450 degrees Fahrenheit or greater. [Rule 20.3 (d)(1)]

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

AQ-50 Continuous monitors shall be installed on each SCR system prior to their initial operation to monitor or calculate, and record the ammonia solution injection rate in pounds per hour and the SCR outlet temperature in degrees Fahrenheit for each unit operating minute. The monitors shall be installed, calibrated and maintained in accordance with a District approved protocol, which may be part of the CEMS protocol. This protocol, which shall include the calculation methodology, shall be submitted to the District for written approval at least 90 days prior to initial startup of the gas turbines with the SCR system. The monitors shall be in full operation at all times when the turbine is in operation. [Rule 20.3(d)(1)]

Verification: The project owner shall submit to the CPM for review and the District for approval a turbine operation monitoring protocol in compliance with this condition at least 90 days prior to the initial startup.

AQ-51 Except during periods when the ammonia injection system is being tuned or one or more ammonia injection systems is in manual control for compliance with applicable permit conditions, the automatic ammonia injection system serving the SCR system shall be in operation in accordance with manufacturer's specifications at all times when ammonia is being injected into the SCR system. Manufacturer specifications shall be maintained on site and made available to District personnel upon request. [Rule 20.3(d)(1)]

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

AQ-52 The concentration of ammonia solution used in the ammonia injection system shall be less than 20 percent ammonia by weight. Records of ammonia solution concentration shall be maintained on site and made available to District personnel upon request. [Rule 14]

Verification: The project owner shall maintain on site and provide on request of the CPM or District the ammonia delivery records that demonstrate compliance with this condition.

Testing

AQ-53 All source test or other tests required by this permit/license shall be performed by the District or an independent contractor approved by the District. Unless otherwise specified in this permit or authorized in writing by the District, if testing will be performed by an independent contractor and witnessed by the District, a proposed test protocol shall be submitted to the District for written approval at least 60 days prior to source testing. Additionally, the District shall be notified a minimum of 30 days prior to the test so that observers may be present unless otherwise authorized in writing by the District. [Rules 20.3(d)(1) and 1200 and 40 CFR Part60 Subpart KKKK and 40 CFR §60.8]

Verification: The project owner shall submit to the CPM for review and the District for approval the initial source test protocol at least 60 days prior to the initial source test. The project owner shall notify the CPM and District no later than 30 days prior to the proposed source test date and time.

AQ-54 Unless otherwise specified in this permit or authorized in writing by the District, within 45 days after completion of a source test or RATA performed by an independent contractor, a final test report shall be submitted to the District for review and approval. [Rules 20.3(d)(1) and 1200 and 40 CFR Part 60 Subpart KKKK, 40 CFR §60.8, and 40 CFR Part 75]

Verification: The project owner will submit all RATA or source test reports to the CPM for review and the District for approval within 45 days of the completion of those tests.

AQ-55 The exhaust stacks for each combustion turbine shall be equipped with source test ports and platforms to allow for the measurement and collection of stack gas samples consistent with all approved test protocols. The ports and platforms shall be constructed in accordance with District Method 3A, Figure 2, and approved by the District. Ninety days prior to construction of the turbine stacks the project owner shall provide to the District for written approval detailed plan drawings of the turbine stacks that show the sampling ports and demonstrate compliance with the requirements of this condition. [Rule 20]

Verification: The project owner shall submit to the CPM for review and District for approval a stack test port and platform plan at least 90 days before the construction of the turbine stacks.

AQ-56 Not later than 60 calendar days after completion of the commissioning period for each combustion turbine, an Initial Emissions Source Test shall be conducted on that turbine to demonstrate compliance with the NO_X, CO, VOC, PM10, and ammonia emission standards of this permit. The source test protocol shall comply with all of the following requirements:

a. Measurements of NO_X, CO concentrations and emissions and oxygen (O_2) concentration shall be conducted in accordance with U.S. Environmental Protection Agency (EPA) methods 7E, 10, and 3A, respectively, and District source test Method 100, or alternative methods approved by the District and EPA;

b. Measurement of VOC emissions shall be conducted in accordance with EPA Methods 25A and/or 18, or alternative methods approved by the District and EPA;

c. Measurements of ammonia emissions shall be conducted in accordance with Bay Area Air Quality Management District Method ST-1B or an alternative method approved by the District and EPA;

d. Measurements of PM10 emissions shall be conducted in accordance with EPA Methods 201A and 202 or alternative methods approved by the district and EPA;

e. Source testing shall be performed at the normal load level, as specified in 40 CFR Part 75 Appendix A Section 6.5.2.1 (d), provided it is not less than 80 percent of the combustion turbine's rated load unless it is demonstrated to the satisfaction of the District that the combustion turbine cannot operate under these conditions . If the demonstration is accepted, then emissions source testing shall be performed at the highest achievable continuous power level. The District may specify additional testing at different load levels or operational conditions to ensure compliance with the emission limits of this permit and District Rules and Regulations;

f. Measurements of particulate matter emissions shall be conducted in accordance with SDAPCD Method 5 or an alternative method approved by the District and EPA; and

g. Measurements of opacity shall be conducted in accordance with EPA Method 9 or an alternative method approved by the District and EPA.

h. Unless otherwise authorized in writing by the District, testing for NO_X, CO, VOC, PM10 and ammonia concentrations and emissions, as applicable, shall be conducted concurrently with the NO_X and

CO continuous emission measurement system (CEMS) Relative Accuracy Test Audit (RATA).

[Rule 20.3(d)(1) and 1200]

Verification: The project owner shall submit to the CPM for review and the District for approval the initial source test protocol and source test report within the timeframes specified in Conditions **AQ-53** and **AQ-54**.

AQ-57 A renewal source test and a NO_X and CO Relative Accuracy Test Audit (RATA) shall be periodically conducted on each combustion turbine to demonstrate compliance with the NO_X, CO, VOC, PM10, and ammonia emission standards of this permit and applicable relative accuracy requirements for the CEMS systems using District approved methods. The renewal source test and the NO_X and CO RATAs shall be conducted in accordance with the applicable RATA frequency requirements of 40 CFR 75, Appendix B, Sections 2.3.1 and 2.3.3. The renewal source test shall be conducted in accordance with a protocol complying with all the applicable requirements of the source test protocol for the Initial Emissions Source Test. [Rules 69.3, 69.3.1, and 20.3(d)(1) and 40 CFR Part 60 Subpart KKKK, and 40 CFR Part 75]

Verification: The project owner shall submit to the CPM for review and the District for approval the periodic RATA and source test protocols, and RATA source test reports within the timeframes specified in Conditions **AQ-53** and **AQ-54**.

AQ-58 Relative Accuracy Test Audit (RATAs) and all other required certification tests shall be performed and completed on the NO_X CEMS in accordance with applicable provisions of 40 CFR Part 75 Appendix A and B and 40 CFR §60.4405 and on the CO CEMS in accordance with applicable provisions of 40 CFR Part 60 Appendix B and F. [Rule 21, Rule 20.3 (d)(1), 40 CFR Part 60 Subpart KKKK and 40 CFR Part 75]

Verification: The results and field data collected during source tests required by this condition shall be submitted to the CPM for review and the District for approval as required by Condition **AQ-54**.

AQ-59 Not later than 60 calendar days after completion of the commissioning period for each combustion turbine, an initial emission source test for toxic air contaminants shall be conducted on that turbine to determine the emissions of toxic air contaminants from the combustion turbines. At a minimum the following compounds shall be tested for, and emissions, if any, quantified:

a. Acetaldehyde

b. Acrolein

c. Benzene

d. Formaldehyde

e. Toluene

f. Xylenes

This list of compounds may be adjusted by the District based on source test results to ensure compliance with District Rule 1200 is demonstrated. The District may require one or more or additional compounds to be quantified through source testing as needed to ensure compliance with Rule 1200. Within 60 calendar days after completion of a source test performed by an independent contractor, a final test report shall be submitted to the District for review and approval. [Rule 1200]

Verification: The results and field data collected during source tests required by this condition shall be submitted to the CPM for review and the District for approval within 60 days of testing.

AQ-60 The District may require one or more of the following compounds, or additional compounds to be quantified through source testing periodically to ensure compliance with rule 1200:

a. Acetaldehyde

b. Acrolein

c. Benzene

d. Formaldehyde

e. Toluene

f. Xylenes

If the District requires the project owner to perform this source testing, the District shall request the testing in writing a reasonable period of time prior to the testing date. [Rule 1200]

Verification: The results and field data collected during source tests required by the District under this condition shall be submitted to the CPM for review and the District for approval within 60 days of testing.

AQ-61 The higher heating value of the combustion turbine fuel shall be measured by ASTM D1826–94, Standard Test Method for Calorific Value of Gases in Natural Gas Range by Continuous Recording Calorimeter or ASTM D1945–96, Standard Method for Analysis of Natural Gas by Gas Chromatography or an alternative test method approved by the District and EPA. [Rules 69.3, 69.3.1, and 20.3(d)(1) and 40 CFR Part 60 Subpart KKKK, and 40 CFR Part 75]

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

AQ-62 The sulfur content of the combustion turbine fuel shall be sampled not less than once each calendar quarter in accordance with a protocol approved by the District, which shall be submitted to the District for approval not later than 90 days before the earlier of the initial startup dates for either of the two combustion turbines and measured with ASTM D1072–90 (Reapproved 1994), Standard Test Method for Total Sulfur in Fuel Gases; ASTM D3246–05, Standard Test Method for Sulfur in Petroleum Gas by Oxidative Microcoulometry; ASTM D4468–85 (Reapproved 2000), Standard Test Method for Total Sulfur in Gaseous Fuels by Hydrogenolysis and Rateometric Colorimetry; ASTM D6228–98 (Reapproved 2003), Standard Test Method for Determination of Sulfur Compounds in Natural Gas and Gaseous Fuels by Gas Chromatography and Flame Photometric Detection; or ASTM D6667–04, Standard Test Method for Determination of Total Volatile Sulfur in Gaseous Hydrocarbons and Liquefied Petroleum Gases by Ultraviolet Fluorescence or an alternative test method approved by the District and EPA. [Rule 20.3 (d)(1), Rule 21, and 40 CFR Part 75]

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

Continuous Monitoring

AQ-63 The project owner shall comply with the applicable continuous emission monitoring requirements of 40 CFR Part 75. [40 CFR Part 75.]

Verification: The project owner shall maintain a copy of the CEMS protocol required by **AQ-65** on site and provide it, other CEMS data, and the CEMS for inspection on request by representatives of the District, ARB, and the Energy Commission.

AQ-64 A continuous emission monitoring system (CEMS) shall be installed on each combustion turbine and properly maintained and calibrated to measure, calculate, and record the following, in accordance with the District approved CEMS protocol:

A. Hourly average(s) concentration of oxides of nitrogen (NO_X) uncorrected and corrected to 15 percent oxygen, in parts per million (ppmvd), necessary to demonstrate compliance with the NO_X limits of this permit;

B. Hourly average concentration of carbon monoxide (CO) uncorrected and corrected to 15 percent oxygen, in parts per million (ppmvd), necessary to demonstrate compliance with the CO limits of this permit;

C. Percent oxygen (O_2) in the exhaust gas for each unit operating minute;

D. Average concentration of oxides of nitrogen (NO_X) for each continuous rolling 3-hour period, in parts per million (ppmv) corrected to 15 percent oxygen;

E. Hourly mass emissions of oxides of nitrogen (NO_x), in pounds;

F. Cumulative mass emissions of oxides of nitrogen (NO_x) in each startup and shutdown period, in pounds;

G. Daily mass emissions of oxides of nitrogen (NO_X), in pounds;

H. Calendar monthly mass emissions of oxides of nitrogen (NO_X), in pounds;

I. Rolling 30-unit-operating-day average concentration of oxides of nitrogen (NO_X) corrected to 15 percent oxygen, in parts per million (ppmvd);

J. Rolling 30-unit-operating-day average oxides of nitrogen (NO_X) emission rate, in pounds per megawatt-hour (MWh);

K. Calendar quarter, calendar year, and rolling 12-calendar-month period mass emissions of oxides of nitrogen (NO_X), in tons;

L. Cumulative mass emissions of carbon monoxide (CO) in each startup and shutdown period, in pounds;

M. Hourly mass emissions of carbon monoxide (CO), in pounds;

N. Daily mass emission of carbon monoxide (CO), in pounds;

O. Calendar monthly mass emission of carbon monoxide (CO), in pounds;

P. Rolling 12-calendar-month period mass emission of carbon monoxide (CO), in tons;

Q. Average concentration of oxides of nitrogen (NO_x) and carbon monoxide (CO) uncorrected and corrected to 15 percent oxygen, in parts per million (ppmvd), during each unit operating minute;

R. Average emission rate in pounds per hour of oxides of nitrogen (NO_x) and carbon monoxide (CO) during each unit operating minute.

[Rules 69.3, 69.3.1, and 20.3(d)(1) and 40 CFR Part 60 Subpart KKKK, and 40 CFR Part 75.]

Verification: The project owner shall submit to the CPM for review and the District for approval a CEMS protocol, as required by **AQ-65**, which includes description of the methods of compliance with the requirements of this condition. The project owner shall make the site available for inspection of records and equipment by representatives of the District, ARB, and the Energy Commission.

AQ-65 No later than 90 calendar days prior to initial startup of each combustion turbine, the project owner shall submit a CEMS protocol to the District, for written approval that shows how the CEMS will be able to meet all District monitoring requirements. [Rules 69.3, 69.3.1, and 20.3(d)(1) and 40 CFR Part 60 Subpart KKKK, and 40 CFR Part 75]

Verification: The project owner shall submit to the CPM for review and the District for approval a CEMS operating protocol at least 90 days prior to the initial startup of each combustion turbine.

AQ-66 No later than the earlier of 90 unit operating days or 180 calendar days after each combustion turbine commences commercial operation, a Relative Accuracy Test Audit (RATA) and other required certification tests shall be performed an completed on the that turbine's NO_x CEMS in accordance with 40 CFR Part 75 Appendix A and on the CO CEMS in accordance with 40 CFR Part 60 Appendix B. The RATAs shall demonstrate that the NO_X and CO CEMS comply with the applicable relative accuracy requirements. At least 60 calendar days prior to the test date, the project owner shall submit a test protocol to the District for written approval. Additionally, the District and U.S. EPA shall be notified a minimum of 45 calendar days prior to the test so that observers may be present. Within 45 calendar days of completion of this test, a written test report shall be submitted to the District for approval. For purposes of this condition, commences commercial operation is defined as the first instance when power is sold to the electrical grid. [Rules 69.3, 69.3.1, and 20.3(d)(1) and 40 CFR Part 60 Subpart KKKK, and 40 CFR Part 75]

Verification: The project owner shall submit to the CPM for review and the District for approval the RATA certification test protocol at least 60 days prior to the RATA test and shall notify the CPM and District of the RATA test date at least 45 days prior to conducting the RATA and other certification tests. The project owner will submit all RATA or source test reports to the CPM for review and the District for approval within 45 days of the completion of those tests.

AQ-67 A monitoring plan in conformance with 40 CFR 75.53 shall be submitted to U.S EPA Region 9 and the District at least 45 calendar days prior to the Relative Accuracy Test Audit (RATA), as required in 40 CFR 75.62. [40 CFR Part 75]

Verification: The project owner shall submit to the CPM for review and the District for approval a monitoring plan in compliance with this condition at least 45 days prior to the RATA test.

AQ-68 The oxides of nitrogen (NO_X) and oxygen (O_2) components of the CEMS shall be certified and maintained in accordance with applicable Federal Regulations including the requirements of sections 75.10 and 75.12 of title 40, Code of Federal Regulations Part 75 (40 CFR 75), the performance specifications of Appendix A of 40 CFR 75, the quality

assurance procedures of Appendix B of 40 CFR 75 and the CEMS protocol approved by the District. The carbon monoxide (CO) components of the CEMS shall be certified and maintained in accordance with 40 CFR 60, Appendices B and F, unless otherwise specified in this permit, and the CEMS protocol approved by the District. [Rule 69.3, 69.3.1 and 20.3(d)(1) and 40 CFR Part 60 Subpart KKKK, and 40 CFR Part 75]

Verification: The project owner shall submit to the CPM for review and the District for approval a CEMS protocol, as required by **AQ-65**, which includes description of the methods of compliance with the requirements of this condition. The project owner shall make the site available for inspection of records and equipment by representatives of the District, ARB, and the Energy Commission.

AQ-69 The CEMS shall be in operation in accordance with the District approved CEMs protocol at all times when the turbine is in operation a copy of the District approved CEMS monitoring protocol shall be maintained on site and made available to District personnel upon request. [Rules 69.3, 69.3.1, and 20.3(d)(1) and 40 CFR Part 60 Subpart KKKK, and 40 CFR Part 75]

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

AQ-70 When the CEMS is not recording data and the combustion turbine is operating, hourly NO_x emissions for purposes of calendar year and rolling 12-calendar-month period emission calculations shall be determined in accordance with 40 CFR 75 Subpart C. Additionally, hourly CO emissions for rolling 12-calendar-month period emission calculations shall be determined using CO emission factors to be determined from source test emission factors, recorded CEMS data, and fuel consumption data, in terms of pounds per hour of CO for the gas turbine. Emission calculations used to determine hourly emission rates shall be reviewed and approved by the District, in writing, before the hourly emission rates are incorporated into the CEMS emission data. [Rules 20.3(d)(3) and 21 and 40 CFR Part 75]

Verification: The project owner shall provide the District for approval and the CPM for review all emission calculations required by this condition, in a manner and time required by the District, and shall provide notation of when such calculations are used in place of operating CEMS data in the Quarterly Operation Reports **(AQ-SC8)**.

AQ-71 Any violation of any emission standard as indicated by the CEMS shall be reported to the District's compliance division within 96 hours after such occurrence. [Rule 19.2]

Verification: The project owner shall notify the District regarding any emission standard violation as required in this condition and shall document all such occurrences in each Quarterly Operation Report **(AQ-SC8)**.

AQ-72 The CEMS shall be maintained and operated, and reports submitted, in accordance with the requirements of rule 19.2 Sections (d), (e), (f) (1), (f) (2), (f) (3), (f) (4) and (f) (5), and a CEMS protocol approved by the District. [Rule 19.2]

Verification: The project owner shall submit to the District the CEMS reports as required in this condition and shall make the site available for inspection of records and equipment by representatives of the District, ARB, and the Energy Commission.

AQ-73 Except for changes that are specified in the initial approved CEMS protocol or a subsequent revision to that protocol that is approved in advance, in writing by the District, the District shall be notified in writing at least thirty (30) calendar days prior to any planned changes made in the CEMS or Data Acquisition and Handling System (DAHS), including, but not limited to, the programmable logic controller, software which affects the value of data displayed on the CEMS / DAHS monitors with respect to the parameters measured by their respective sensing devices or any planned changes to the software that controls the ammonia flow to the SCR. Unplanned or emergency changes shall be reported within 96 hours. [Rules 69.3, 69.3.1, and 20.3(d)(1) and 40 CFR Part 60 Subpart KKKK, and 40 CFR Part 75]

Verification: The project owner shall submit to the CPM for review and the District for approval any revision to the CEMS/DAHS or ammonia flow control software, as required by this condition, to be approved in advance at least 30 days before any planned changes are made. The project owner shall notify the District regarding any unplanned emergency changes to these software systems within 96 hours and shall document all such occurrences in each Quarterly Operation Report **(AQ-SC8)**.

AQ-74 At least 90 calendar days prior to the Initial Emissions Source Test, the project owner shall submit a monitoring protocol to the District for written approval which shall specify a method of determining the CO/VOC surrogate relationship that shall be used to demonstrate compliance with all VOC emission limits. This protocol can be provided as part of the Initial Source Emissions Testing Protocol. [Rule 20.3 (d)(1)]

Verification: The project owner shall submit to the CPM for review and the District for approval the monitoring protocol as part of the initial source test protocol in compliance with requirements of this condition at least 90 days prior to the initial source test.

AQ-75 Fuel flowmeters shall be installed and maintained to measure the fuel flow rate, corrected for temperature and pressure, to each combustion turbine. Correction factors and constants shall be maintained on site and made available to the District upon request. The fuel flowmeters shall meet the applicable quality assurance requirements of 40 CFR Part 75, Appendix D, and Section 2.1.6. [Rules 69.3, 69.3.1, and 20.3(d)(1) and 40 CFR Part 60 Subpart KKKK, and 40 CFR Part 75]

Verification: The project owner shall submit to the CPM the natural gas usage data from the fuel flow meters as part of the Quarterly Operation Report (**AQ-SC8**).

AQ-76 Each combustion turbine shall be equipped with continuous monitors to measure, calculate and record unit operating days and hours and the following operational characteristics:

A. Date and time;

B. Natural gas flow rate to the combustion turbine during each unit operating minute, in standard cubic feet per hour;

C. Total heat input to the combustion turbine based the fuels higher heating value during each unit operating minute, in million British thermal units per hour (MMBtu/hr);

D. Higher heating value of the fuel on an hourly basis, in million British thermal units per standard cubic foot (MMBtu/scf);

E. Stack exhaust gas temperature during each unit operating minute, in degrees Fahrenheit;

F. Combustion turbine energy output during each unit operating minute in megawatts hours (MWh); and

G. Steam turbine energy output during each unit operating minute in megawatts hours (MWh).

The values of these operational characteristics shall be recorded each unit operating minute. The monitors shall be installed, calibrated, and maintained in accordance with a turbine operation monitoring protocol, which may be part of the CEMS protocol, approved by the District, which shall include any relevant calculation methodologies. The monitors shall be in full operation at all times when the combustion turbine is in operation. Calibration records for the continuous monitors shall be maintained on site and made available to the District upon request. [Rules 69.3, 69.3.1, and 20.3(d)(1) and 40 CFR Part 60 Subpart KKKK, and 40 CFR Part 75]

Verification: The project owner shall submit to the CPM for review and the District for approval a turbine operation monitoring protocol in compliance with this condition and within the timeframes specified in **AQ-77** and the project owner shall make the site available for inspection of records and equipment required in

this condition by representatives of the District, ARB, and the Energy Commission.

AQ-77 At least 90 calendar days prior to initial startup of the each combustion turbine, the project owner shall submit a turbine monitoring protocol to the District for written approval. This may be part of the CEMS protocol. [Rule 69.3, 69.3.1, and 20.3 (d)(1) and 40 CFR Part 60 Subpart KKKK, and 40 CFR Part 75]

Verification: The project owner shall submit to the CPM for review and the District for approval a turbine monitoring protocol in compliance with this condition at least 90 days prior to the initial startup of each combustion turbine.

AQ-78 Operating logs or Data Acquisition and Handling System (DAHS) records shall be maintained to record the beginning and end times and durations of all startups, shutdowns, and tuning periods to the nearest minute, quantity of fuel used in each clock hour, calendar month, and 12-calendar-month period in standard cubic feet; hours of operation each day; and hours of operation during each calendar year. For purposes of this condition, the hours of turbine operation is defined as the total minutes the turbine is combusting fuel during the calendar year divided by 60. [Rules 69.3, 69.3.1, and 20.3(d)(1) and 40 CFR Part 60 Subpart KKKK, and 40 CFR Part 75]

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

Commissioning and Shakedown

AQ-79 Before the end of the commissioning period for each combustion turbine, the project owner shall install post-combustion air pollution control equipment on that turbine to minimize NO_X and CO emissions. Once installed, the post-combustion air pollution control equipment shall be maintained in good condition and shall be in full operation at all times when the turbine is combusting fuel and the air pollution control equipment is at or above its minimum operating temperature. [Rule 20.3(d)(1)]

Verification: The project owner shall provide the CPM District records demonstrating compliance with this condition as part of the monthly commissioning status report **(AQ-80)**.

AQ-80 Thirty calendar days after the end of the commissioning period for each combustion turbine, the project owner shall submit a written progress report to the District. This report shall include, at a minimum, the date the commissioning period ended, the periods of startup and shutdown, the emissions of NO_X and CO during startup and shutdown, and the emissions of NO_X and CO during steady state operation. This report shall also detail any turbine or emission control equipment

malfunction, upset, repairs, maintenance, modifications, or replacements affecting emissions of air contaminants that occurred during the commissioning period. All of the following continuous monitoring information shall be reported for each minute and, except for cumulative mass emissions, averaged over each hour of operation:

A. Concentration of oxides of nitrogen (NO_X) uncorrected and corrected to 15% oxygen, in parts per million (ppmvd);

B. Concentration of carbon monoxide (CO) uncorrected and corrected to 15% oxygen, in parts per million (ppmvd);

C. Percent oxygen (O_2) in the exhaust gas;

D. Mass emissions of oxides of nitrogen ($NO_{x)}$, in pounds;

E. Cumulative mass emissions of oxides of nitrogen (NO_x) in each startup and shutdown period, in pounds;

F. Cumulative mass emissions of carbon monoxide (CO) in each startup and shutdown period, in pounds;

G. Mass emissions of carbon monoxide (CO), in pounds;

H. Total heat input to the combustion turbine based on the fuel's higher heating value, in million British thermal units per hour (MMBtu/hr);

I. Higher heating value of the fuel on an hourly basis, in million British thermal units per standard cubic foot (MMBtu/scf);

J. Gross electrical power output of the turbine, in megawatts hours (MWh) for each hour; and

K. SCR outlet temperature, in degrees Fahrenheit; and

L. Stack exhaust gas temperature, in degrees Fahrenheit.

The hourly average information shall be submitted in writing and in an electronic format approved by the District. The minute-by-minute information shall be submitted in an electronic format approved by the District. [Rules 69.3, 69.3.1, 20.3(d)(1) and 20.3(d)(2)]

Verification: A log of the dates, times, and cumulative unit operating hours when fuel is being combusted during the commissioning period shall be maintained by the project owner. The project owner shall submit, commencing one month from the time of gas turbine first fire, a monthly commissioning status report throughout the duration of the commissioning phase that demonstrates compliance with the requirements listed in this condition. The monthly commissioning status report shall be submitted to the CPM by the 10th of each month for the previous month, for all months with turbine commissioning activities following the turbine first fire date. The project owner shall also provide the reporting required by this condition to the District and CPM within 30 day of completing commissioning of each turbine. The project owner shall make the site

available for inspection of records by representatives of the District, ARB, and the Energy Commission.

AQ-81 The three utility boilers described on District Permits to Operate No. 791, 792, and 793 shall not operate at any time one or both combustion turbines are operating. [Rules 20.3(d)(3), 20.3(d)(8) and 21 and 40 CFR §52.1]

Verification: The project owner shall submit to the CPM and the District the facility operating and emissions data demonstrating compliance with this condition, while the boilers regulated by this condition are still operational, as part of the monthly commissioning status report (**AQ-80**).

AQ-82 Beginning with the initial startup of Turbine A, aggregate emissions of oxides of nitrogen (NO_X), calculated as nitrogen dioxide (NO_2); carbon monoxide (CO); volatile organic compounds (VOCs), calculated as methane; particulate matter less than or equal to 10 microns in diameter (PM10); and oxides of sulfur (SO_X), calculated as sulfur dioxides (SO_2), from Turbine A and the emergency fire pump described in Application No. 985748, except emissions or emission units excluded from the calculation of aggregate potential to emit as specified in Rule 20.1(d)(1), shall not exceed the following limits for each rolling 12-calendar-month period:

Pollutant	*Emission Limit, tons per year*
a. NO_X	*36.05*
b. CO	*169.95*
c. VOC	*11.85*
d. PM10	*19.5*
e. SO_X	*2.8*

The aggregate emissions of each pollutant shall include emissions during all times that the equipment is operating including, but not limited to, emissions during commissioning, low load operation, startup, shutdown, and tuning periods. This condition shall not apply on and after the date Turbine B completes its shakedown period. [Rules 20.3(d)(3), 20.3(d)(8) and 21]

Verification: The project owner shall submit to the CPM and the District the facility 12-month rolling operating and emissions data demonstrating compliance with this condition as part of the monthly commissioning status report (**AQ-80**).

AQ-83 Beginning with the date Turbine A completes its shakedown period, aggregate emissions of carbon monoxide (CO); particulate matter less than or equal to 2.5 microns in diameter (PM2.5); and particulate matter less than or equal to 10 microns in diameter (PM10) from the three utility boilers described on District Permits to Operate No. 791,

792, and 793, shall not exceed the following limits for each rolling 12-calendar-month period:

Pollutant	*Emission Limit, tons per year*
a. CO	*198.75*
b. PM2.5	*21.80*
c. PM10	*26.89*

The aggregate emissions of each pollutant shall include emissions during all times that the equipment is operating including, but not limited to, emissions during startup, shutdown, and tuning periods. [Rules 20.3(d)(3), 20.3(d)(8) and 21]

Verification: The project owner shall submit to the CPM and the District the facility 12-month rolling operating and emissions data demonstrating compliance with this condition as part of the monthly commissioning status report (**AQ-80**).

AQ-84 On and after the date that Turbine B completes its shakedown period, the three utility boilers described on District Permits to Operate No. 791, 792, and 793 shall not operate. [Rules 20.3(d)(3), 20.3(d)(8) and 21]

Verification: The project owner shall submit to the CPM and the District information that the boiler regulated by this condition are no longer operational, or the steps being taken to ensure that they will not be operated, once Turbine B completes its shakedown period as part of the final monthly commissioning status report (**AQ-80**).

AQ-85 For each calendar month and each rolling 12-calendar-month period, the project owner shall maintain records on a calendar monthly basis, of aggregate mass emissions of NO_x (calculated as NO_2), CO, and PM10 in tons, for Turbine A and the emergency generator described on Application No. 985748, except for emissions or emission units excluded from the calculation of aggregate potential to emit as specified in Rule 20.1(d)(1). There records shall be made available for inspection within 15 calendar days after the end of each calendar month. [Rules 20.3(d)(3), 20.3(d)(8) and 21]

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

AQ-86 For each calendar month, the project owner shall maintain records on a calendar monthly basis, of mass emissions during each calendar month of NO_x (calculated as NO_2), CO, PM10, and PM2.5, in tons, from each emission unit described on District Permits to Operate No. 791, 792, and 793. These records shall be made available for inspection within 15 calendar days after the end of each calendar month. [Rules 20.3(d)(3), 20.3(d)(8) and 21]

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

AQ-87 For each calendar month and each rolling 12-calendar-month period, the project owner shall maintain records on a calendar monthly basis, of aggregate mass emissions of NO_x (calculated as NO_2), CO, PM10, and PM2.5, in tons, for the emission units described in District Permits to Operate No. 791, 792, and 793. These records shall be made available for inspection within 15 calendar days after the end of each calendar month. [Rules 20.3(d)(3), 20.3(d)(8) and 21.]

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

AQ-88 No later than 18 months before the initial startup of either combustion turbine, the project owner shall submit an application to the District for a significant Title V permit modification to limit the aggregate emissions of oxides of nitrogen (NO_X), calculated as nitrogen dioxide; carbon monoxide (CO); particulate matter less than or equal to 10 microns in diameter (PM10); and particulate matter less than or equal to 2.5 microns in diameter (PM2.5), from the three utility boilers described on District Permits to Operate No. 791, 792, and 793 in each rolling 12-calendar-month period as specified in this permit. The application shall include a proposed emissions calculation protocol to calculate the emissions from each emission unit. Where applicable, this protocol may rely in whole or in part on the CEMS or other monitoring protocols required by this permit. [Rules 20.3(d)(3), 20.3(d)(8), 1410 and 21.]

Verification: The project owner shall submit copies of all applications and protocols required by this condition to the CPM for review within 5 days of their submittal to the District and no later than 18 months before the initial startup of either combustion turbine.

AQ-89 For each combustion turbine, the project owner shall submit the following notifications to the District and U.S. EPA, Region IX:

a. A notification in accordance with 40 CFR Section 60.7(a)(1) delivered or postmarked not later than 30 calendar days after construction has commenced;

b. A notification in accordance with 40 CFR Section 60.7(a)(3) delivered or postmarked within 15 calendar days after initial startup; and

c. An Initial Notification in accordance with 40 CFR Section 63.6145(c) and 40 CFR Section 63.9(b)(2) submitted no later than 120 calendar days after the initial startup of the turbine.

In addition, the project owner shall notify the District when: (1) construction is complete by submitting a Construction Completion Notice before operating any unit that is the subject of this permit, (2)

each combustion turbine first combusts fuel by submitting a First Fuel Fire Notice within five calendar days of the initial operation of the unit, and (3) each combustion turbine first generates electrical power that is sold by providing written notice within 5 days of this event.

[Rules 24 and 21 and 40 CFR Part 75, 40 CFR Part 60 Subpart KKKK, 40 CFR Part §60.7, 40 CFR Part 63 Subpart YYYY, and 40 CFR Part §63.9.]

Verification: The project owner shall provide notification to the District and U.S. EPA Region IX as required by this condition and shall provide copies of these notifications as part of the final monthly commissioning status reports (**AQ-80**) due the month after the notifications are sent.

District Application Number 985093

An emergency fire pump engine, Cummins diesel engine, Model CFP6E-F35, as preliminarily proposed, rated at 246 brake horsepower.

CONDITIONS FOR EMERGENCY FIRE PUMP ENGINE

AQ-90 The engine shall be EPA certified to the 2009 model year or later requirements for emergency fire pump engines of 40 CFR Part 60 Subpart IIII, Standards of Performance for Stationary Compression Ignition Internal Combustion Engines. [Rule 20.3(d)(1), 40 CFR Part 60 Subpart IIII, and 40 CFR Part 63 Subpart ZZZZ]

Verification: The project owner shall provide to the CPM for review and approval engine documentation demonstrating compliance with the condition at least 30 days prior to purchasing the engine.

AQ-91 Engine operation for maintenance and testing purposes shall not exceed 50 hours per calendar year. (ATCM reportable) [Rule 20.3(d)(1) and 17 CCR §93115]

Verification: The project owner shall submit to the CPM the fire pump engine operating data demonstrating compliance with this condition as part of the Quarterly Operation Report **(AQ-SC8)**.

AQ-92 The engine shall only use CARB Diesel Fuel. [Rule 20.3(d)(1), 69.4.1, and 17 CCR §93115]

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

AQ-93 Visible emissions including crankcase smoke shall comply with Air Pollution Control District Rule 50. [Rule 50]

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

AQ-94 The equipment described above shall not cause or contribute to public nuisance. [Rule 51]

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

AQ-95 This engine shall not operate for non-emergency use during the following periods, as applicable:

A. Whenever there is any school sponsored activity, if engine is located on school grounds or

B. Between 7:30 and 3:30 PM on days when school is in session, if the engine is located within 500 feet of, but not on school grounds.

This condition shall not apply to an engine located at or near any school grounds that also serve as the student's place of residence. (ATCM reportable) [17 CCR §93115]

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

AQ-96 A non-resettable engine hour meter shall be installed on this engine, maintained in good working order, and used for recording engine operating hours. If a meter is replaced, the Air Pollution Control District's Compliance Division shall be notified in writing within 10 calendar days. The written notification shall include the following information:

A. Old meter's hour reading.

B. Replacement meter's manufacturer name, model, and serial number if available and current hour reading on replacement meter.

C. Copy of receipt of new meter or of installation work order.

A copy of the meter replacement notification shall be maintained on site and made available to the Air Pollution Control District upon request. [Rules 69.4.1, 17 CCR §93115, and 40 CFR Part 60 Subpart IIII]

Verification: The project owner shall provide notification to the District as required by this condition and shall make the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.

AQ-97 The owner or operator shall conduct periodic maintenance of this engine and add-on control equipment, if any, as recommended by the engine and control equipment manufacturers or as specified by the engine servicing company's maintenance procedure. The periodic maintenance shall be conducted at least once each calendar year. [Rule 69.4.1]

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

AQ-98 The owner or operator of the engine shall maintain the following records on site for at least the same period of time as the engine to which the records apply is located at the site:

A. Documentation shall be maintained identifying the fuel as CARB diesel;

B. Manual of recommended maintenance provided by the manufacturer, or maintenance procedures specified by the engine servicing company; and

C. Records of annual engine maintenance, including the date the maintenance was performed.

These records shall be made available to the Air Pollution Control District upon request. [Rule 69.4.1]

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

AQ-99 The owner or operator of this equipment shall maintain a monthly operating log containing, at a minimum, the following:

A. Dates and times of engine operation, indicating whether the operation was for maintenance and testing purposes or emergency use; and, the nature of the emergency, if known;

B. Hours of operation for all uses other than those specified above and identification of the nature of that use.

[Rule 69.4.1, and 17 CCR §93115]

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

ADDITIONAL TITLE V CONDITIONS

AQ-100 The project owner shall submit to the District and to the federal EPA a compliance certification for the new equipment subject to this permit, in a manner or form approved in writing by the District, within one year of completing construction of that equipment, that includes the identification of each applicable term or condition of the final permit for which the compliance status is being certified, the current compliance status and whether the modified equipment was in continuous or intermittent compliance during the certification period, identification of the applicable permitted method used to determine compliance during the certification period, and any other information required by the District to determine the compliance status. [Rule 1421]

Verification: The project owner shall submit to the District and U.S. EPA required Title V submittals and will provide the cover letters of these submittals to the CPM within 15 days of their submittal.

C. PUBLIC HEALTH

This analysis supplements the previous discussion on air quality and considers the potential public health effects from project emissions of toxic air contaminants (TACs). We review here the evidence concerning whether such emissions will result in significant public health impacts or violate standards for public health protection.[1] (2/2/10 RT 74-76, 85-91, 97-98, 123-124, 170-172, 177-181; Exs. 4; 8; 12; 19; 35; 69; 137; 143; 200, § 4.7.)

SUMMARY AND DISCUSSION OF THE EVIDENCE

Project construction and operation will result in routine emissions of toxic air contaminants for which no ambient air quality standards have been established. These substances are categorized as noncriteria pollutants. (2/210 RT 86:23 - 87:7; Ex. 200, p. 4.7-5.) In the absence of standards, state and federal regulatory agencies have developed health risk assessment procedures to evaluate potential health effects from exposure to these toxic air contaminants.

The risk assessment consists of the following steps:

- Identify the types and amounts of hazardous substances that the Carlsbad Energy Center Project (CECP) could emit into 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 (skin) contact; and
- Characterize potential health risks by comparing worst-case exposure to the project's emissions with the scientific safety standards based on known health effects. (Ex. 200, pp. 4.7-5 - 4.7-6.)

[1] This Decision discusses other potential public health concerns under various topics. For instance, impacts from emissions of criteria pollutants are treated in the **Air Quality** section. The accidental release of hazardous materials is addressed in **Hazardous Materials Management**. Electromagnetic fields are covered in **Transmission Line Safety and Nuisance**. Potential impacts to soils and surface water sources are considered in the **Soil and Water Resources** section. Potential exposure to contaminated soils and hazardous wastes is described in **Waste Management**. (Ex. 200, p. 4.7-1.)

Typically, the initial health risk analysis is performed at a "screening level," which is designed to conservatively estimate potential health risks.[2] The risks for screening purposes are based on examining conditions that would lead to the highest, or worst-case, risks and then modeling those conditions to analyze results. Such conditions include:

- Using the highest levels of pollutants that could be emitted from the power plant;
- Assuming weather conditions that would lead to the maximum ambient concentration of pollutants;
- Using the type of air quality computer model which predicts the greatest plausible impacts;
- Calculating health risks at the location where the pollutant concentrations are estimated to be the highest;
- Assuming that an individual's exposure to cancer-causing agents occurs continuously for 70 years; and
- Using health-based standards designed to protect the most sensitive members of the population (i.e., the young, elderly, and those with respiratory illnesses). (Ex. 200, p. 4.7-6.)

The risk assessment for the CECP addresses three categories of potential health impacts: acute (short-term) effects; chronic (long-term) noncancer effects; and cancer risk (also long-term). Acute health effects result from short-term (one hour) exposure to relatively high concentrations of pollutants; these effects are temporary. Chronic noncancer health effects occur as a result of long-term exposure (8 to 70 years) to lower concentrations of pollutants. For carcinogenic substances, the health assessment considers the total risk of developing cancer and assumes that continuous exposure to the cancer-causing substance occurs over a 70-year lifetime. (Ex. 200, pp. 4.7-6 - 4.7-7.)

The analysis for noncancer chronic health effects compares the maximum project contaminant levels to safe levels called Reference Exposure Levels (RELs). These exposure levels are designed to protect the most sensitive individuals in the population such as infants, the elderly, and people suffering from illnesses or diseases which make them more susceptible to the effects of toxic substance exposure. The RELs are based on the most sensitive adverse health effects

[2] The evidence shows that this risk analysis overstates actual health risks. (2/2/10 RT 74, 89; Ex. 200, p. 4.7-6.)

reported in medical and toxicological literature, and include margins of safety. (Ex. 200, p. 4.7-7.) A "hazard index" of less than 1.0 signifies that the worst-case exposure is less than the safe exposure level, and thus there are not likely to be adverse noncancer health effects. (Ex. 200, p. 4.7-8.)

The assessment also considers risk from all cancer-causing chemicals from project emissions. The calculated risk is not meant to predict the actual expected incidence of cancer, but is rather a theoretical estimate based on worst-case assumptions. (Ex. 200, p. 4.7-7.) Cancer risk is expressed in chances per million and is a function of the maximum expected pollutant concentration, the probability that a particular pollutant will cause cancer, and the length of the exposure period. The State of California has determined that "the risk level which represents no significant risk shall be one which is calculated to result in one excess case of cancer in an exposed population of 100,000, assuming lifetime exposure." (Cal. Code Regs., tit. 22, § 12703(b).) This risk level is equivalent to a cancer risk of 10 in one million, or $10x10^{-6}$. The conservative nature of the screening assumptions means that actual cancer risks due to project emissions are likely to be considerably lower than those estimated. (Ex. 200, pp. 4.7-7 - 4.7-8.)

If the screening analysis predicts no significant risks, then no further analysis is required. However, if the predicted risk is significant, then further analysis using more realistic, site-specific assumptions is performed to obtain a more accurate assessment of potential health risks. If the site-specific analysis confirms that the risk exceeds the significance level, then appropriate mitigation measures are necessary to reduce the risk to less than significant. The evidence explains that if a refined analysis identifies a cancer risk that exceeds the significance level after all risk reduction measures have been considered, Commission staff would not recommend approval of the project. (Ex. 200, p. 4.7-9.)

The evidence further shows that the Applicant, the Staff[3], and the Air District each performed independent screening level risk assessments. (2/2/10 RT 74, 86: 5-12.) Each concluded that no significant public health effects are expected from project construction or operation. (Ex. 200, pp. 4.7-13 – 4.7-22, 4.7-25.)

[3] Staff's witness characterized his analysis as "…the most in-depth human health risk assessment that I've conducted for a stationary source emitting toxic air contaminants." (2/210 RT 87: 10-12.) This expert has participated in 82 power plant licensing cases. (2/2/10 RT 85:9-10.)

1. Construction Impacts and Mitigation

The nearest residence is approximately 0.44 miles northeast of the site; additional residences are located about 0.49 miles and 0.51 miles to the northwest and southwest, respectively. Two schools are north of the site, and an elder care facility is to the northeast; these receptors are each about 0.8 miles away. (Ex. 200, p. 4.7-3.)

Construction is expected to take place over a period of 25 months. (Ex. 200, p. 4.7-10.) Diesel emissions will occur from trucks, graders, cranes, welding machines, electric generators, air compressors, and water pumps. (Ex. 200, pp. 4.7-9 - 4.7-10.) Worst-case total particulate matter emissions of less than 10 microns (PM10) are estimated to be 67.7 lb/day; particulate matter less than 2.5 microns (PM2.5) emissions are estimated at 33.6 lb./day for on-site construction activities, fugitive dust, and off-site construction traffic. (Ex. 200, p. 4.7-10.)

These emissions are short-term in nature. Mitigation measures required in the **AIR QUALITY** Conditions of Certification — such as fugitive dust control measures, use of ultra low-sulfur diesel fuel, and installation of oxidation catalyst and soot filters on diesel equipment — will reduce particulate matter concentrations approximately 85 to 90 percent. (Ex. 200, p. 4.7-11.)

The evidence also contains an analysis of potential construction phase health impacts which could occur from exposure to toxic substances in contaminated soil disturbed during site preparation. (Ex. 200, p. 4.7-9.) A Phase I Environmental Site Assessment conducted in 2007 concluded that areas beneath existing structures, such as the above ground storage tanks 4-7, may require remediation because of stored fuel oil. The evidence further indicates that this matter will be assessed when storage tanks 5, 6, and 7 are demolished (tank 4 will not be demolished) and the need for proper remediation determined. If, however, any unexpected contamination is encountered during construction, then compliance with Conditions of Certification **Waste Management WASTE-1** and **WASTE-2** will ensure that contaminated soil does not affect the public. These Conditions require that a registered professional engineer or geologist be available during soil excavation and grading to ensure proper handling and disposal of contaminated soil. (Ex. 200, p. 4.7-9.)

2. Operation Impacts and Mitigation

The CECP's operational emissions sources include two natural gas-fired combustion turbines and one diesel-powered emergency fire water pump engine. (Ex. 200, p. 4.7-11.) The evidence specifies and quantifies emissions from these sources and identifies the types of health effects which could occur. (Ex. 200, p. 4.7-12.)

The record also discloses the methodology used in identifying and quantifying the emission rates of the toxic noncriteria pollutants that could adversely affect public health. (Ex. 200, pp. 4.7-12 - 4.7-13.) **Table 1**, below, shows the results from Applicant's modeling of facility emissions:

PUBLIC HEALTH Table 1
Operation Hazard/Risk at Point of Maximum Impact: Applicant Assessment

Type of Hazard/Risk	Hazard Index/Risk	Staff's Significance Level	Significant?
ACUTE NONCANCER	0.09	1.0	No
CHRONIC NONCANCER	0.003	1.0	No
INDIVIDUAL CANCER	0.1 in one million	10.0 in one million	No

Source: Ex. 200, p. 4.7-13.

Applicant's calculations thus show that the total worst-case individual health risks for acute and chronic noncancer hazard risks from project operations are below the significance level of 1.0, and that the cancer risk from project operations is below the significance level of 10 in 1,000,000. (Ex. 200, p. 4.7-13.)

Staff conducted an independent risk assessment that included emission factors during start-up, shut down, commissioning, and normal operations of the CECP. (2/2/10 RT 87; *Id.*) Because of public concerns, Staff also assessed the cumulative risks posed by the existing Encina Power Station and the CECP. (2/2/10 RT 87: 20 - 88:6.) The evidence details Staff's modeling methodology and assumptions. (2/2/10 RT 88-91; Ex. 200, pp. 4.7-13 - 4.7-22.)

Even when using conservative assumptions which overstate the project's potential health impacts, the evidence from the three health risk assessments performed is uniform in establishing that the CECP will not create an adverse

public health impact. (2/2/10 RT 74:12-21, 91:5-13; Ex. 200, pp. 4.7-1, 4.7-25; see also Staff's Opening Brief, p. 25.)

3. Cumulative Impacts

A project may result in a significant adverse impact where its effects are cumulatively considerable. "Cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects. (Cal. Code Regs., tit.14, § 15130.)

Cumulative impacts would be significant only if other emission sources were close enough to the CECP that the combined emission plumes would produce a cumulative risk where no significant individual risk currently exists. (Ex. 200, p. 4.7-22.) Applicant consulted the Air District for a list of nearby projects. The only project indentified was the existing Encina Power Station (EPS). (*Id.*) Staff's quantitative health risk assessment, which includes the elements of the EPS which will not be retired, is explained in the evidence. (Ex. 200, pp. 4.7-22 - 4.7-24.) Staff's study establishes that concurrent operation of the CECP and the EPS would not create a significant cumulative health risk[4]. (2/2/10 RT 74:22 - 75: 3, 86 - 91; Ex. 200, p. 4.7-24.)

Intervenors contend that the cumulative analysis is flawed because it does not include the existing emissions from traffic on Interstate 5, the existing railway, and the future widening of I-5. (See, e.g. 2/2/10 RT 97-98:10, 170:11-24; Terramar Witness List (1/6/10), pp. 33-35; City of Carlsbad Opening Brief, pp. 45-47.) The evidence shows, however, that for public health and air quality purposes, emissions from the EPS and I-5 were included as comprising part of the existing background risk. (2/2/10 RT 171:9-14; Ex. 200, pp. 4.7-27 - 4.7-28.) As Staff points out, the level of emissions due to any proposed widening of I-5 in the future is presently speculative. (2/2/10 RT 171:20 - 172:8; Ex. 200, p. 4.7-28; Staff's Reply Brief, p. 9.)

On balance, we conclude that the cumulative aspect of the public health analysis is adequate. The evidence establishes that levels of emissions from existing sources such as I-5 and the EPS are identified and included in the analysis, that

[4] This conclusion is based, in part, on the use of natural gas rather than back-up diesel or fuel oil in the CECP and EPS as required in **PUBLIC HEALTH-1**. (2/2/10 RT 4:8, Ex. 200, p. 4.7-24.)

levels from future sources are currently unknown and speculative, and that other contributing sources must be close enough to the CECP so that the emission plumes could combine to produce a significant health risk. No party offered evidence establishing that additional sources of noncriteria pollutant emissions, not already considered, exist or would combine with CECP's emissions to create a significant effect.

4. Response to Public Comments

We received extensive public comment expressing concerns that the operation of CECP would adversely affect the health of nearby residents. Several commenters described what they believed to be an unusually high cancer rate among children in Carlsbad. (2/1/10 RT 324, 370, 405; 2/2/11 RT 330, 342, 371, 380.)

We express no opinion about what might be causing the health issues the commenters spoke of. As for the likely effects of the CECP, however, the evidence, described above, is that it will not significantly affect the health of its neighbors. Health effects were projected assuming that an individual is born and never leaves the point of maximum impact for 70 years, with exposure factors that assume the highest level of sensitivity to contaminants. Even with those protective assumptions, the modeled cancer risk was 0.1 in one million, an insignificant additional risk when compared to background risk levels of 250,000 in 1 million (1 in 4) or higher.

FINDINGS OF FACT

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

1. Construction and operation of the CECP will result in the routine release of criteria and noncriteria pollutants that have the potential to adversely impact public health.

2. Exposure to diesel particulate emissions from construction equipment is short-term and will not result in long-term carcinogenic or non-carcinogenic health effects.

3. Exposure to construction-related diesel particulate emissions will be mitigated to the extent feasible by implementing measures to reduce equipment emissions.

4. Exposure to fugitive dust due to excavation and construction activities will be mitigated to insignificant levels by implementing measures to reduce dust production and dispersal.

5. Emissions of criteria pollutants, as discussed in the **Air Quality** section of this Decision, will be mitigated to levels consistent with applicable state and federal standards.

6. Emissions of noncriteria pollutants or toxic air contaminants are assessed according to procedures developed by state and federal regulatory agencies to evaluate potential health effects.

7. The accepted method used by state regulatory agencies in assessing the significance of both acute and chronic non-carcinogenic public health effects of noncriteria pollutants is known as the hazard index method. A similar method is used for assessing the significance of potential carcinogenic effects.

8. Screening level health risk assessments of the CECP's potential health effects due to emissions of toxic air contaminants were conducted by the applicant, staff, and the air district.

9. The health risk assessments are 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.

10. Cumulative impacts from non-criteria (i.e., toxic) pollutants were analyzed in accordance with the provisions of CEQA and are not expected to be significant.

11. The evidence contains a health risk assessment that includes operational impacts from both the Carlsbad Energy Center Project and the existing Encina Power Station Units 4 and 5.

12. Concurrent operation of the Carlsbad Energy Center Project and Units 4 and 5 of the existing Encina Power Station will not cause a cumulatively significant health effect.

13. Cumulative public health impacts from noncriteria polluntant emissions can be significant only if other emissions sources are close enough to the

Carlsbad Energy Center Project that the combined emission plumes would produce a significant cumulative risk where insignificant individual risks currently exist.

14. The evidence does not establish the existence of sources of noncriteria pollutant emission which were not considered as part of the cumulative public health analysis.

15. The levels of noncriteria pollutant emissions from the proposed widening of Interstate 5 are currently speculative.

CONCLUSIONS OF LAW

1. We therefore conclude that emissions of noncriteria pollutants from the construction and operation of the Carlsbad Energy Center Project do not pose a significant direct, indirect, or cumulative adverse public health risk.

2. The project will comply with the applicable laws, ordinances, regulations, and standards specified in the appropriate portion of **Appendix A** of this Decision.

CONDITION OF CERTIFICATION

PUBLIC HEALTH-1 The project owner shall only use pipeline quality natural gas in the Carlsbad Energy Center Project, Encina Unit 4, Encina Unit 5, and Encina EGT.

Verification: The project owner shall provide a statement to the CPM in the yearly compliance report that only natural gas has been used to fuel the CECP and the Encina Power Station.

D. WORKER SAFETY AND FIRE PROTECTION

Workers at industrial facilities are commonly exposed to potential health and safety hazards on a daily basis. Implementation of various existing laws and standards suffices to reduce these hazards to minimal levels. (Ex. 222, p. 4.14-4.) Therefore, this section of the Decision focuses on whether Applicant's proposed health and safety plans are in accordance with all applicable LORS and thus adequate to protect industrial workers. We also address the availability and adequacy of fire protection and emergency response services.

As more fully discussed below, the parties disagreed regarding whether the (1) the project will cause direct, indirect, or cumulative impacts on fire protection and emergency services; (2) and if so, the appropriate level of mitigation to reduce the impacts to a less than significant level. A point of significant disagreement was the minimum width of fire access roads and lanes.

SUMMARY AND DISCUSSION OF THE EVIDENCE

1. Worker Safety

Industrial environments are potentially dangerous during construction, operation, and demolition activities. Workers at the CECP will be exposed to loud noises, moving equipment, trenches, and confined space entry and egress problems. They may experience falls, trips, burns, lacerations, and various other injuries. They may be exposed to falling equipment or structures, chemical spills, hazardous waste, fires, explosions, electrical sparks, and electrocution. (Ex. 222, p. 4.14-5.)

This power plant comprises a work environment which includes natural gas-fired turbines. Workers will be exposed to hazards typical for construction and operation of a simple cycle gas-fired facility.

The evidence details the type and content of various plans which must be developed to ensure the protection of worker health and safety, as well as compliance with applicable LORS. For example, the project owner will develop and implement a "Construction Safety and Health Program" and an "Operations and Maintenance Safety and Health Program," both of which must be reviewed by the Compliance Project Manager prior to project construction and operation, respectively. A separate "Injury and Illness Prevention Program," a "Personal

Protective Equipment Program," an "Emergency Action Plan," a "Fire Prevention Plan," and other general safety procedures will be prepared for both the construction and operation phases of the project. Conditions of Certification **WORKER SAFETY-1** and **-2** ensure that these measures will be developed and implemented. (Ex. 222, pp. 4.14-5 – 4.14-9.)

OSHA and Cal-OSHA standards encourage employers to monitor worker safety by employing a "competent person" who has knowledge and experience enforcing workplace safety standards, can identify hazards relating to specific project operations, and has authority to take appropriate action. To implement the intent to provide a safe workplace during power plant construction, Condition **WORKER SAFETY-3** requires the project owner to designate a power plant Construction Safety Supervisor. This individual will coordinate and implement the Construction and Operation Safety and Health Programs, as well as investigate any safety-related incidents and emergency responses. (Ex. 222, pp. 4.14-10 – 4.14-11.)

The evidence includes a summary review by Staff of accidents, fires, and a worker death that occurred at Energy Commission-certified power plants in the recent past. Staff asserts these events were due to the failure to recognize and control safety hazards and the inability to adequately supervise compliance with occupational safety and health regulations. (Ex. 222, pp. 4.14-10 – 4.14-11.)

To reduce and/or eliminate safety hazards during project construction and operation, it is necessary to employ a professional Safety Monitor. The Safety Monitor, who is hired by the project owner but reports to the Chief Building Official and the Compliance Project Manager (CPM), will track compliance with OSHA/Cal-OSHA regulations and serve as an on-site OSHA expert. This professional will periodically audit safety compliance during construction, commissioning, and the transition to operational status as well as ensure that safety procedures and practices are fully implemented. (*Id*.) Condition **WORKER SAFETY-4** describes the role of the Safety Monitor.

The project owner will maintain a portable automatic defibrillator on-site to provide immediate response in the event of medical emergency.[1] Condition

[1] Staff's testimony indicates 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. Many modern industrial and commercial enterprises maintain defibrillators

WORKER SAFETY-5 requires the project owner to ensure this device is available during construction and operation, and that appropriate personnel are trained to use it. (Ex. 222, p. 4.14-13.)

2. Fire Protection and Emergency Response

Project construction and operation pose the potential for both small fires and major structural fires. Electrical sparks, combustion of natural gas, hydraulic fluid, mineral oil, insulating fluid at the power plant switchyard or flammable liquids, explosions, and over-heated equipment, may cause small fires. Major structural fires in areas without automatic fire detection and suppression systems are unlikely to develop at power plants. Fires and explosions of natural gas or other flammable gasses or liquids are rare. Compliance with all LORS would be adequate to assure protection from all fire hazards. (Ex. 222, p. 4.14-11.)

The project will rely upon both on-site and local fire protection services. The on-site fire protection system provides the first line of defense for such occurrences. (*Id*.) The Construction Fire Prevention Plan (Condition **WORKER SAFETY-1**) must address and detail measures to minimize the likelihood of fires during construction. These measures include the placement of portable fire extinguishers, safety procedures, and training. Ex. 222, pp. 4.14-7 – 4.14-8.)

Local fire support services are under the Carlsbad Fire Department's (CFD) jurisdiction. There are a total of six fire stations within the City of Carlsbad. The closest station to the CECP site would be Station #1, located at 1275 Carlsbad Village Drive, approximately 1.7 miles away. The total response time from the moment a call is made to the point of arrival at the site would be approximately six minutes. The next closest station would be Station #4, located at 6885 Batiquitos Drive, about 3.7 miles away, which would respond within seven to eight minutes.[2]

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for emergency use. We find this to be an appropriate safety and health precaution. (Ex. 222, p. 4.14-13.)

[2] Both response estimates were given to Staff by the CFD during the preparation of Staff's analysis. After further consideration, CFD representatives provided revised estimates, lengthening the response times by several minutes, depending on the level of response, in their testimony for and during the Evidentiary Hearings. (Ex. 433, Heiser testimony, Qs 8 – 9, p. 3 – 4; 2/4/10 RT: 69 – 71.) The import of this change is discussed below.

The CFD would also be the first responder to incidents involving hazardous materials, with backup support provide by a U.S. Marine Corp unit based at Camp Pendleton, and/or the San Diego City and County Hazardous Materials Incident Response Team (DEH-HIRT). According to the DEH-HIRT, it is capable of handling any hazardous materials-related incident and would have a minimal response time of one hour. All CFD firefighters (except one) are trained paramedics. (Ex. 222, p. 4.14-3.)

During construction, portable fire extinguishers would be placed throughout the site at appropriate intervals and periodically maintained, and safety procedures and training would be implemented according to the guidelines of the Construction Fire Protection and Prevention Program. In addition, the CECP proposed site is within the tank farm area of the Encina Power Station, which has an existing hydrant system that could provide extra protection during construction. (Ex. 222, p. 4.14-12.)

During operation, the project will meet the fire protection and suppression requirements of the California Fire Code, all applicable recommended National Fire Protection Association (NFPA) standards (including Standard 850 addressing fire protection at electric generating plants), and all Cal/OSHA requirements. Fire suppression elements will include both fixed and portable fire extinguishing systems. The fire protection system would be comprised of the existing hydrant system and a new R2C2 system installed for CECP structures. The fire water would be potable city water supplied by the fire protection tank with water pressure maintained by a jockey pump, an electric pump, and a diesel-driven pump.

Emergency access to the site will be via two points: one on the south via Cannon Road to Avenida Encinas to the project site and the other from the west via Carlsbad Boulevard and through the Encina Power Station. Access to the below-grade “bowl” will also be via two points, one on the south and one on the north. **Worker Safety Figure 1** shows these access points and depicts the width of the ramps leading down into the bowl and set-back space of the structures from the sides of the bowl. All distances shown on this figure are consistent with the requirements of the fire codes for a “fire lane” and thus will allow fire trucks and other emergency vehicle access to the actual power plant site in the bowl. California Fire Code (CFC) section 503.1.1 and NFPA 1 Uniform Fire Code section 18.2.2.3.1 both require that an access road extend to within 150 feet of all portions of a facility. CFC section 503.2.1 and NFPA 1 section18.2.2.5.1.1

both require that the access road have an unobstructed width of at least 20 feet. Testimony establishes that these minimum requirements will be met and exceeded. Both ramps and the road around the power plant at the bottom of the "bowl" will be at least 28 feet wide at all places.

Therefore, all emergency vehicles and especially fire trucks will have ample space to be able to respond to an emergency at any location within the bowl.

Nevertheless, while these codes and requirements are known to the Applicant as evidenced by their listing in the AFC, in order to ensure that the project owner builds the facility precisely to code, we adopt an additional Condition of Certification **WORKER SAFETY-6** that requires the project owner to construct the facility with the fire lanes and ramp-widths as described in **Worker Safety Figure 1**. The widths of the fire lanes will be no less than 28 feet and the ramps will have a grade no greater than 10 percent. Should any change or revision to these widths be requested for any reason by the project owner, the project owner would be required to submit those changes to the CPM for review and approval and to the CFD for review and comment.

Fire hydrants would be installed per NFPA requirements. A fixed water mist system would be installed in areas of risk (including the ammonia storage area, fire pumps, and turbines), and a fixed sprinkler system installed in the turbine lube oil system. A carbon dioxide or dry chemical fire protection system would be provided for the combustion turbine generators and accessory equipment.

The fire protection system would have fire detection sensors and monitoring equipment that would trigger alarms and automatically actuate the suppression systems. In addition to the fixed fire protection system, appropriate class of service portable extinguishers and fire hydrants/hose stations would be located throughout the facility at code-approved intervals. These systems are standard requirements by the NFPA, and the UFC and Staff testified that they will ensure adequate fire protection.

Conditions of Certification **WORKER SAFETY-1** and **-2** require the project owner, prior to construction and operation of the project, to provide the final Fire Prevention Program to the Compliance Project Manager and the local fire authorities. These entities will then confirm its adequacy. (Ex. 222, pp. 4.14-12 – 4.14-14.)

3. Widening Of Interstate-5

A separate future project that is several years off—the widening of Interstate Highway 5 (I-5) through Carlsbad—has the potential to affect the setting for emergency response by the CFD. The widened freeway may encroach on the present "buffer" that exists between the highway and the facility fenceline. This "buffer" consists of trees, bushes, and a raised area above the I-5 grade. All four configurations of the I-5 widening currently under consideration will result in the removal of some if not all the current vegetation and raised area that serve as the "buffer". The present "buffer" would serve many safety functions if the CECP is certified, built, and operated, including protection of critical energy infrastructure and workers from errant vehicles leaving I-5, increasing security of the power plant by blocking access and line-of-sight viewing, and enabling fire-fighting equipment to use the existing upper ("ring") road that is above the power plant site as a viewing and fire-fighting platform.

After extensive review of the various potential outcomes with the assistance of Caltrans, Staff testified that there is ample room under both the 8+4 and 10+4 configurations (the widest configurations Caltrans is considering) for the placement of a dirt berm west of the future Caltrans ROW. This berm can serve as a place for visual-blocking vegetation and serve as a protective barrier with room for a security fence. The I-5 encroachment will still leave room for a perimeter fire access road at the bottom of the bowl where the power plant will be located. Therefore, Staff found that the widening of I-5 will not impact safety or emergency response access to the proposed CECP site. (Ex. 200, pp. 4.14-15 – 4.14-16.)

We therefore adopt Condition of Certification **WORKER SAFETY-7** to require the project placement of a barrier (earth or other materials) along the entire eastern property line shared by the CECP and I-5 of sufficient strength and height so as to prevent a runaway car or semi-trailer truck from piercing the barrier and going over the edge and down into the power plant site. This barrier will also serve to prevent line-of-sight viewing of the power plant site from the shoulder of I-5. In designing the barrier, the project owner will consult with Caltrans and then submit a final plan to the Energy Commission Compliance Project Manager for review and approval. The project owner will be free to negotiate cost-sharing of this barrier with Caltrans and will be required to submit the cost-sharing contract with Caltrans to the CPM for review and approval. Staff believes that this barrier will serve the dual purpose of protecting safety and security. The loss of the existing

above-grade “ring” road is offset by the required below-grade perimeter road for emergency response vehicles that will be built to code specifications under Condition **WORKER SAFETY-6**.

4. Coastal Rail Trail

Another fire access issue involves the various proposed routes for a Coastal Rail Trail. Staff testified that a Rail Trail on the eastern side of the railroad ROW, an option under consideration, raises several security, safety, and fire access problems.

The current rail corridor is single-track and sunken below existing grade as it goes by the power plant site. One option for the LOSSAN Rail Corridor would have two tracks within this area and sink the new side-by-side tracks a bit further below grade. A dirt road that currently exists just east of the western fenceline of the CECP site is very wide, runs the length of the CECP site, and starts on the south end of the site (the SW corner of the site) where an access gate is located. This access gate and dirt road will serve as the construction entrance for heavy equipment and for access to the north side of the site for this heavy equipment. The Applicant proposes to pave this road or at least make a sturdier route with gravel. After construction, the gate at the SW corner will serve as an emergency vehicle access point that will be required by proposed Condition of Certification **WORKER SAFETY-6**. This road will also serve as faster means of accessing the northern end of the site for emergency response vehicles during commissioning and operations and the placement of dirt spoils to form a berm along most of it will not block its use. Furthermore, the City has a sewer under this road now and maintains a sewer easement. Therefore, in order to preserve this road on the western side of the CECP site for emergency response access, we adopt Condition of Certification **WORKER SAFETY-9** which will require the continued presence of this access road and prohibit the placement of a coastal rail trail at this location. (Exs. 200, pp. 4.4-17 – 4.4-18; 222, pp. 4.14-15 – 4.14-16.)

5. Operation Staffing

The Applicant proposes to operate the CECP from a remote control room on the EPS site, which raises concern about:

- The proposed use, location, and redundancy of operational warning sensors, fire sensors, ammonia sensors, pipeline sensors, valve activation, fire suppression systems, and CCTV locations.
- The response times for personnel to reach the power plant from the control room.
- The staffing level of each shift and whether they are dedicated to running the CECP or will have duties involving the EPS.
- The frequency of routine visual inspections and the time spent on the CECP site.
- The frequency of on-site security surveillance of the CECP site by security guards.
- The worker training program for a remote operation.
- How workers will access the CECP site in an emergency given the frequency of long freight trains blocking access to the site directly from the EPS site for a period of time.
- The location and response times for all manually activated valves (e.g., the main gas pipeline shut-off valve) should remote activation fail.
- Emergency shut-down procedures should access to the site be blocked or delayed due to an accident (vehicle, train), high winds knocking down power lines, etc. when a shut-down is warranted.

We adopt Staff's recommendation that a combined cycle power plant requires that personnel be on-site during its operation in order to address small problems before they become large incidents. We adopt Condition of Certification **WORKER SAFETY-8** to require that two operations employees be sent to the plant site while the generator(s) operate.

6. Cumulative Impacts

A significant cumulative Worker Safety/Fire Protection impact is defined as the simultaneous need for a fire department to respond to multiple locations such that its resources and those of the mutual aid fire departments are over-whelmed and cannot effectively respond.

During review of the project, the CFD had indicated that although it is currently able to respond to all incidents in its jurisdiction, resources are stretched thin and the proposed CECP may add a burden to the department. The CFD as a whole has six fire stations spread over 48 square miles. In CFD's opinion, this low

station density and the fact that the CFD has not expanded while the City of Carlsbad has grown, contribute to the CFD's concern regarding future response capabilities. A particular concern of the CFD is the likelihood of a seismic event in the region, which would require that all of its resources be used.

Staff gathered data from the Applicant about the number and nature of emergency responses at the Encina Power Station. EPS has experienced no fires of any type since NRG acquired EPS in 1999, no hazmat spills requiring CFD or County response, no accidents or rescues, and one EMS response every two to three years. (Ex. 200, p. 4.14-17.)

While it is possible that during a major earthquake (or other major event) response to the power plant could impact the Carlsbad Fire Department, the probability of that happening is less than significant. Therefore, this project would not have a significant incremental or cumulative impact on the department's ability to respond to a fire or other emergency.

7. City Fire Department Concerns

The City of Carlsbad asserts that the fire protection systems and access designs are inadequate on several grounds, which we now address.

Fire protection water supply

The City asserts that the proposed on-site 250,000 gallon fire water storage tank and pumping system is not adequate and should be connected to the City's water system as a more reliable means of assuring adequate water to fight fires on the CECP site. It fears that a failure of the on-site pumps will lead to inadequate fire water flow. (Ex. 433, Weigand testimony, p. 5; 2/4/10 RT, 57 - 58.) Staff and the Applicant describe the NFPA as requiring the 250,000 gallon fire water storage tank as protection against disruption of an off-site water supply. (Ex. 203, p. 25; 2/4/10 RT, 19.) Staff witness Dr. Greenberg and Applicant's witness Frank Collins offered their professional opinions that the on-site water storage and pumping system provided a suitable level of fire protection. (Ex. 203, p. 25.) During the May 19, 2011 reopened Evidentiary Hearing, witnesses for the Staff, Applicant and City agreed that the fire water system will be connected both to the storage tank via fire pumps and to the City's water system, providing redundancy and addressing the concerns of each. (5/19/11 RT, pp. 43 – 70.) We memorialize this design decision in new Condition of Certification **WORKER SAFETY-11**.

Timely emergency response

City Fire staff testified that the response times projected by Staff and described above are shorter than can realistically expected. They attribute this to the possibility of congested highways and roads during a major event and that the emergency vehicles will have to slow down when navigating the portion of the response route on the EPS site, which contains 90-degree turns and a railroad crossing. The original estimates were given to Staff by the Fire Department, however, they now believe them to be too short by as much as a factor of two (12 minutes vs. the former 6 minutes), depending on the level of response. (Ex. 433, Heiser testimony, Qs 8 – 9, p. 3 – 4; 2/4/10 RT: 61, 69 – 71, 116.) The Applicant was not concerned about the revised estimates. This appears to be based in large part on its fire safety strategy in which on-site systems, many of them automatic, along with trained plant personnel are the first line of protection with the CFD first responders in a secondary response role. (2/4/10 RT: 17 – 18, 19 – 20.)

Adequacy of access to and around site

Aside from its effect on response times, CFD testified that the proposed access roads on the CECP site were not sufficiently wide to allow it to adequately respond to fires and other emergency events. The access is depicted on **Worker Safety Figure 1**. Condition of Certification **WORKER SAFETY-6** specifies a minimum 28-foot width for the fire lanes and ramps leading down into the recessed plant areas. Fire Code standards specify a 20-foot minimum width, but allow fire officials to increase the width where circumstances require it. (2/4/10 RT: 46.)

Here, CFD asserts that anything less than a 50-foot width inadequate. 50 feet allows the flexibility they feel they need in parking fire response vehicles and accessing the equipment stored on those vehicles without impeding the passage of other vehicles. (2/4/10 RT: 52 – 55.)

In addition, CFD is concerned that the “rim” road along the top of the berms in which the CECP power units would not completely encircle the berms, especially if the Interstate Widening Project goes forward. Staff and the Applicant’s experts testified that a circle road was not necessary, and that the typical fire was better fought from the bottom of the berms at grade with the power equipment, not from the top of the berm. (2/4/10 RT: 24.)

Staff testified to the results of its survey of access widths at other power plants approved by the Energy Commission. In some cases widths were as low as 20 feet. No complaints from fire service providers could be recalled. While we recognize the CFD's desire to optimize its working environment, after taking into account the low probability of a major event and our experience in other projects, we find the 28-foot minimum width and partial rim road to provide satisfactory access for emergency services. (2/4/10 RT: 131 – 134.) Following a discussion during the May 19, 2011 reopened Evidentiary Hearing, we strengthen the 28-foot access roads' effectiveness by adding a requirement (to condition **WORKER SAFETY-6**) that they be "red curbed"- painted red on their edges and signed to indicate that parking is not allowed. (5/19/11 RT, pp. 141, 168.)

The City insists that the Commission must adopt the access standards set by its fire officials, citing provisions of the Fire Code (24 Cal. Code Regs. §§ 503.2.1, 503.2.2) setting a 20-foot minimum width and allowing the "fire code official" to "require an increase in the minimum access widths where they are inadequate for fire or rescue operations." (24 Cal. Code Regs. § 503.2.2.) "Fire code official" is defined as "[t]he fire chief or other designated authority charged with the administration and enforcement of the code, or a duly authorized representative." (24 Cal. Code Regs., § 202.) Given the Energy Commission's exclusive jurisdiction over the permitting and regulation of thermal power plants such as the CECP, the final determination of the appropriate access width is ours to make as we must both set the development standards for the project and then enforce them. While the opinions of the local fire officials who will provide the fire protection services are an important consideration, they are not dispositive. After considering those opinions, along with those of other experts, we decide that a 28-foot minimum road width is appropriate for this project. The local fire department will continue to provide fire services to the project; ours is a planning and regulatory role.

8. Public Comment

Several members of the public expressed concerns that a fire at the CECP might endanger the public. As we discuss above, the CECP would contain various fire suppression systems, backed up by the CFD. History suggests that few incidents are likely to occur and those that do will be of a relatively minor nature. Should a major incident occur, adequate fire fighting capacity is available and capable of responding.

FINDINGS OF FACT

Based on the evidence, and assuming implementation of the Conditions of Certification below, the Commission makes the following findings:

1. Industrial workers are exposed to potential health and safety hazards on a daily basis.
2. To protect workers from job-related injuries and illnesses, the project owner will implement comprehensive Safety and Health Programs for both the construction and the operation phases of the project.
3. The project will employ an on-site professional Safety Monitor during construction and operation.
4. The CECP will include on-site fire protection and suppression systems as the first line of defense in the event of a fire.
5. The Carlsbad Fire Department will provide fire protection and emergency response services to the project and will able to respond to the site within an acceptable time.
6. The design of the project, including fire lanes with a minimum width of 28 feet as required by this decision, affords satisfactory access for fire and emergency responders.
7. A sufficient quantity of fire suppression water will be available.
8. The project will not have a significant direct, indirect, or cumulative impacts on worker safety, fire protection and emergency services
9. The possible future widening of the Interstate 5 freeway will not degrade fire protection in any significant way.
10. The project will meet or exceed the requirements of the most recently adoption edition of the California Fire Code and applicable NFPA standards.
11. With implementation of the Conditions of Certification, below, the CECP will comply with all applicable LORS.

CONCLUSION OF LAW

We therefore conclude that the CECP will not create significant health and safety impacts to workers, and will comply with all applicable laws, ordinances, regulations, and standards listed in the appropriate portion of Appendix A of this Decision.

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:

1. a Construction Personal Protective Equipment Program;
2. a Construction Exposure Monitoring Program;
3. a Construction Injury and Illness Prevention Program;
4. a Construction Emergency Action Plan; and
5. 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 Carlsbad 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 Carlsbad 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:

1. an Operation Injury and Illness Prevention Plan;
2. an Emergency Action Plan;
3. Hazardous Materials Management Program;
4. Fire Prevention Plan (8 Cal Code Regs., § 3221); and
5. Personal Protective Equipment Program (8 Cal Code Regs., §§ 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 programs with all applicable safety orders. The Fire Prevention Plan and the Emergency Action Plan shall also be submitted to the Carlsbad 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 Carlsbad Fire Department stating the fire department's comments on the Operations Fire Prevention Plan and Emergency Action Plan.

WORKER SAFETY-3 The project owner shall provide a site Construction Safety Supervisor (CSS) who, by way of training and/or experience, is knowledgeable of power plant construction activities and relevant laws, ordinances, regulations, and standards; is capable of identifying workplace hazards relating to the construction activities; and has authority to take appropriate action to assure compliance and mitigate hazards. The CSS shall:

1. have overall authority for coordination and implementation of all occupational safety and health practices, policies, and programs;
2. assure that the safety program for the project complies with Cal/OSHA and federal regulations related to power plant projects;
3. assure that all construction and commissioning workers and supervisors receive adequate safety training;
4. complete accident and safety-related incident investigations and emergency response reports for injuries and inform the CPM of safety-related incidents; and
5. assure that all the plans identified in Conditions of Certification **Worker Safety-1** and **-2** are implemented.

Verification: At least 60 days prior to the start of site mobilization, the project owner shall submit to the CPM the name and contact information for the Construction Safety Supervisor (CSS). The contact information of any replacement CSS shall be submitted to the CPM within one business day.

The CSS shall submit in the Monthly Compliance Report a monthly safety inspection report to include:

1. record of all employees trained for that month (all records shall be kept on site for the duration of the project);
2. summary report of safety management actions and safety-related incidents that occurred during the month;
3. report of any continuing or unresolved situations and incidents that may pose danger to life or health; and
4. report of accidents and injuries that occurred during the month.

WORKER SAFETY-4 The project owner shall make payments to the Chief Building Official (CBO) for the services of a Safety Monitor based upon a reasonable fee schedule to be negotiated between the project owner and the CBO. Those services shall be in addition to other work performed by the CBO. The Safety Monitor shall be selected by and report directly to the CBO and will be responsible for verifying that the Construction Safety Supervisor, as required in Condition of Certification **Worker Safety-3**, and for implementing all appropriate Cal/OSHA and Energy Commission safety requirements. The Safety Monitor shall conduct on-site (including linear facilities) safety inspections at intervals necessary to fulfill those responsibilities.

Verification: At least 60 days prior to the start of construction, the project owner shall provide proof of its agreement to fund the Safety Monitor services to the CPM for review and approval.

WORKER SAFETY-5 The project owner shall ensure that a portable automatic external defibrillator (AED) is located on site during construction and operations and shall implement a program to ensure that workers are properly trained in its use and that the equipment is properly maintained and functioning at all times. During construction and commissioning, the following persons shall be trained in its use and shall be on site whenever the workers that they supervise are on site: the Construction Project Manager or delegate, the Construction Safety Supervisor or delegate, and all shift foremen. During operations, all power plant employees shall be trained in its use. The training program shall be submitted to the CPM for review and approval.

Verification: At least 60 days prior to the start of site mobilization, the project owner shall submit to the CPM proof that a portable automatic external defibrillator (AED) exists on site and a copy of the training and maintenance program for review and approval.

WORKER SAFETY-6 The project owner shall ensure that the below-grade site fire lanes, access points, and ramps (with no more than a 10 percent grade) are constructed as per the dimensions shown in **Worker Safety Figure 1** and that at least two access points through the site perimeter and into the below-grade power plant site are available to the CFD and other emergency response providers. The access roads, below-grate perimeter road, and ramps shall be no less than 28 feet wide. The project owner shall guarantee that the two fire access ramps down into the project site and the fire lane around the perimeter of the below-grade site are free and clear of all vehicles, equipment, or any other object (mobile or stationary) at all times and that the boundaries or curbs of the ramps and lanes are painted red and contain signage to indicate that they are fire roads and lanes on which parking is not

allowed. The final blueprints for the site shall be submitted at least 30 days prior to the start of site mobilization to the Carlsbad Fire Department for review and comment and to the CPM for review and approval. Any requested changes in the fire lanes, ramps, and access points shall be made is writing to the CPM and the CBO for review and approval after obtaining comments from the CFD.

Verification: At least 60 days prior to the start of site mobilization, the project owner shall submit a copy of the final site blueprints to the Carlsbad Fire Department for review and comments and to the CPM for review and approval. The project owner shall also submit to the CPM a copy of the transmittal letter to the CFD.

At least 60 days prior to the start of commissioning or the arrival on-site of any liquid fuel, natural gas, or hazardous material, whichever occurs first, the project owner shall submit to the CBO for information, to the Carlsbad Fire Department for review and comment, and to the CPM for review and approval a signed declaration along with photographic evidence that the access ramps and fire lanes are guaranteed to always be clear and unobstructed and that signs and red paint have been placed in the appropriate locations.

WORKER SAFETY-7 The project owner shall place a barrier of sufficient strength and height at the eastern fence line of the project at the widened I-5 Right-of-Way so as to prevent a runaway car or semi-trailer truck from piercing the barrier and going over the edge and down into the power plant site. This barrier shall also serve to prevent line-of-sight viewing of the power plant site from the shoulder of I-5. In designing this barrier, the project owner shall consult with Caltrans and then submit a final plan to the CPM for review and approval. The project owner may also negotiate cost-sharing of this barrier with Caltrans and if the project owner chooses to do so, the cost-sharing contract with Caltrans shall be submitted to the CPM for review and approval.

Verification: At least 60 days prior to the start of site mobilization, the project owner shall submit a copy of the final plans for the barrier and any cost-sharing contract to the CPM for review and approval.

WORKER SAFETY-8 The project owner shall ensure that not less than two workers - two technical workers or one technical and one security staff - will be present on the site (the “bowl”) at all times whenever the CECP is operating. When the units are dispatched from a shutdown condition, the project owner shall send the two workers to the site while commencing startup; and those two workers shall proceed directly to the site. The project owner shall prepare a plan describing the work-force that shall be present on the power plant site (the “bowl”), their

shifts, their duties, their training, the method(s) of real-time continuous communication with the control room they will have available, their enclosed stations (e.g., portable office building), and facilities for personal hygiene on the site, to the CPM for review and approval.

Verification: At least 60 days prior to the start of commercial operations, the project owner shall submit a copy of the staffing plan to the CPM for review and approval.

WORKER SAFETY-9 The project owner shall maintain the current dirt access road located on the western perimeter fenceline in a sufficient state so as to serve as an emergency response road. In no event shall the project owner grant or dedicate an easement for the Coastal Rail Trail east of the Rail Corridor on the CECP site.

Verification: At least 60 days prior to the start of site mobilization, the project owner shall submit to the CPM for review and approval a copy of the final plans for maintaining this access road.

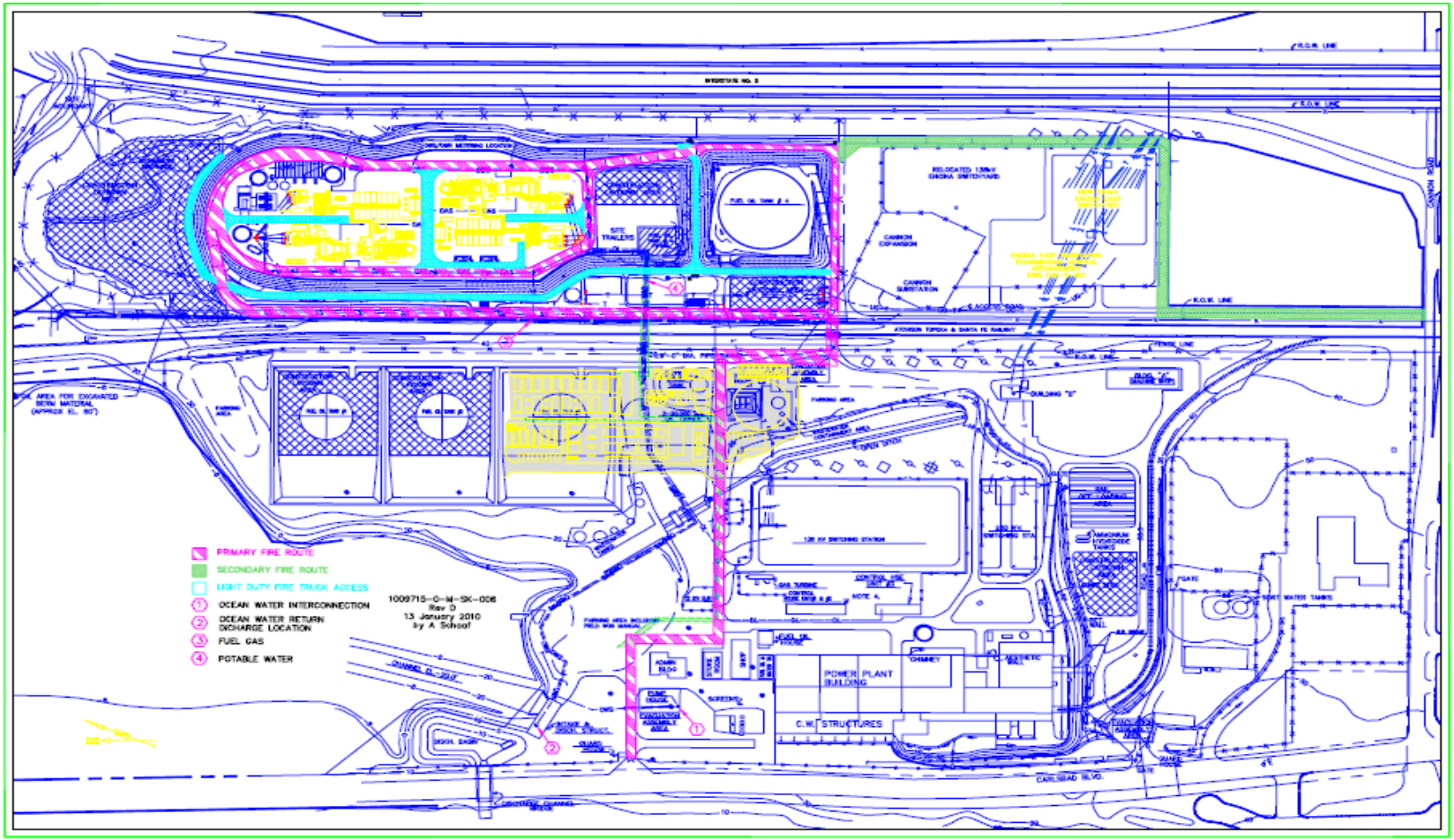
WORKER SAFETY-10 The project owner shall prepare a Transformer Fire Protection Plan which shall evaluate any feasible methods that can be used to prevent, contain, and/or control a transformer fire, including the use of new dielectric fluids, pressure sensors with shut-down capability, dissolved gas analyzers, use of compressed-air-foam for fire suppression, on-site storage of suppressants, and sub-surface vaults to contain spilled/leaked dielectric fluids. The project owner shall submit this Plan to the CBO for information, to the Carlsbad Fire Department for review and comment, and to the CPM for review and approval.

Verification: At least 60 days before the arrival of a transformer on site, the project owner shall submit a copy of the Transformer Fire Protection Plan to the CBO for information, to the Carlsbad Fire Department for review and comment, and to the CPM for review and approval.

WORKER SAFETY-11 The project owner shall ensure that the primary source of fire protection water is the City of Carlsbad water system and that the on-site 250,000 gallon storage tank is the back-up supply.

Verification: At least 60 days before commencing commissioning, the project owner shall submit to the Carlsbad Fire Department for review and comment, and to the CPM for review and approval engineering drawings showing the source and piping of the primary and back-up fire protection water supplies and a statement that the primary supply is the City of Carlsbad water system.

Worker Safety Figure 1—
Fire Access Routes



Ex. 190, Revised Plot Plan re Secondary Access.

E. HAZARDOUS MATERIALS MANAGEMENT

This section considers whether the construction and operation of the Carlsbad Energy Center Project (CECP) will create significant impacts to public health and safety resulting from the use, handling, transportation, or storage of hazardous materials.[1] Several locational factors affect the potential for project-related hazardous materials to cause adverse impacts. These include meteorological conditions, terrain characteristics, any special site factors, and the proximity of population centers and sensitive receptors. (Ex. 200, p. 4.4-5.) In addition, sensitive subgroups such as the young, the elderly, and those with existing conditions may be at heightened risk from exposure to hazardous materials accidents. (2/4/10 RT 145-53; Exs. 4; 8; 24; 25; 35; 69; 130; 200, § 4.4.)

SUMMARY AND DISCUSSION OF THE EVIDENCE

1. Potential Risks

The evidence chronicles the method used to assess risks posed by hazardous materials. This method included the following elements:

- A review of chemicals, the amounts proposed for on-site use, and a determination of the need and appropriateness of their use.
- Chemicals which would be used in small amounts, or whose physical state is such that there is virtually no chance that a spill would migrate off the site and impact the public, were removed from further consideration.
- Measures proposed to prevent spills were reviewed and evaluated. These included engineering controls such as automatic shut-off valves and different size transfer-hose couplings, as well as administrative controls such as worker training and safety management programs.
- Measures proposed to respond to accidents were reviewed and evaluated. These included engineering controls such as catchment basins and methods to keep vapors from spreading, as well as administrative controls such as training emergency response crews.
- An analysis of the theoretical impacts on the public of a worst-case spill of hazardous materials even with the mitigation measures in place. (Ex. 200, pp. 4.4-6 to 4.4-7.)

[1] The **Worker Safety and Fire Protection** portion of this Decision addresses the protection of workers from such risks. (Ex. 200, p. 4.4-1.)

Hazardous materials used during construction will include hydraulic fluid, gasoline, diesel fuel, motor oil, welding flux, lubricants, cleaners, solvents, paint, and paint thinner. These will be used in small quantities, and any spills or other releases will be confined to the site. No acutely toxic materials will be used on-site during construction. During operations, hazardous materials such as cleaning agents, lube oil, and mineral insulating oil will be used or stored only in small quantities; these present limited off-site dangers because of their low volatility and/or toxicity. (Ex. 200, pp. 4.4-2, 4.4-7.) The proposed ion exchange system for ocean water purification will require that two storage trailers (each with up to 55,000 pounds of resin) be continuously on-site. The resin will remain inside the trailers at all times, and the evidence establishes it will not constitute an off-site hazard. (Ex. 200, p. 4.4-7.)

ATTACHMENT A (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. Condition **HAZ-1** prohibits the project owner from using hazardous materials not listed in **ATTACHMENT A**, or storing them in greater quantities than specified, without prior approval of the Energy Commission's Compliance Project Manager. None of these materials, except for natural gas and aqueous ammonia as discussed below, pose significant potential for off-site impacts as a result of the quantities on-site, their relative toxicity, their physical state, and/or their environmental mobility. (Ex. 200, pp. 4.4-7 - 4.4-8.)

a. Natural Gas

Project operations will involve the handling – but not storage – of large quantities of natural gas. The new gas pipeline will be entirely on-site and will connect to the existing pipeline that serves the Encina Power Station. The pipeline will be designed for Class 3 service and will meet CPUC and federal standards. The evidence shows that, while natural gas poses some risk of both fire and explosion, this risk can be reduced to insignificant levels through adherence to applicable codes and the development and implementation of effective safety management practices. For example, National Fire Protection Association (NFPA) Code 85A requires both the use of double-block and bleed valves for gas shut-off and automated combustion controls. These measures significantly reduce the likelihood of an explosion in gas-fired equipment. Additionally, air purging of the gas turbines is required prior to start-up, thereby precluding the presence of an explosive mixture. The required safety management plan must address the handling and use of natural gas, and the evidence establishes that it

will significantly reduce the potential for equipment failure because of either improper maintenance or human error. (Ex. 200, pp. 4.4-8 - 4.4-9.)

b. Aqueous Ammonia

Aqueous ammonia will be used to control oxides of nitrogen (NO_X) emissions resulting from natural gas combustion. The evidence is in accord that aqueous ammonia is the only hazardous material that could realistically, without proper mitigation, pose a significant risk of off-site impact. This could result from the release of ammonia vapor in the event of a spill. (Ex. 200, p. 4.4-9.) The evidence contains a detailed analysis of both the potential impacts resulting from an ammonia spill and the adequacy of measures available to limit the severity of any impacts.

2. Risk Mitigation

Aqueous ammonia (in a 19 percent solution) will be stored in two stationary above ground storage tanks. Each will have a 10,000 gallon capacity, but be filled only to a maximum of 8,500 gallons. (*Id.)* To assess the potential off-site impacts associated with an accidental release of aqueous ammonia, Staff used several benchmark exposure levels. These include:

a. the lowest concentration posing a risk of lethality, i.e. 2,000 parts per million (ppm);

b. the concentration immediately dangerous to life and health, a level of 300 ppm;

c. the emergency response planning guideline level 2 of 150 ppm; and

d. the level of 75 ppm, considered by the Energy Commission staff to be without serious adverse effects on the public for a one-time exposure.

If the exposure associated with a potential release exceeds 75 ppm at any public receptor, Staff also assesses the probability of occurrence of the release, the severity of the consequences, and the nature of the potentially exposed population in determining whether the likelihood and extent of exposure would be significant.[2] (*Id.*)

[2] Staff's Hazardous Materials Appendix A (Ex. 200, pp. 4.4-30 - 4.4-34) discusses the criteria for ammonia exposure guidelines, their applicability to sensitive populations, and exposure-specific conditions.

Applicant performed on off-site consequence analysis for a worst-case accidental release of aqueous ammonia. This involved the failure and complete discharge of one of the two storage tanks. (Ex. 200, pp. 4.4-9 - 4.4-10.) The evidence cites the modeling parameters used. Applicant's analysis showed that no ammonia concentrations exceeding 75 ppm would occur off-site. (Ex. 200, p. 4.4-10.) Staff conducted an independent analysis and concluded that, in the event of a worst-case release, workers and the off-site public (including motorists on I-5 and those using the nearby public hiking trail) would be subject to ammonia concentrations well below the 75 ppm threshold for potentially significant impacts. (Ex. 200, pp. 4.4-10 - 4.4-11, 4.4-35.)

3. Engineering and Administrative Controls

Engineering controls and administrative controls affect the significance of potential impacts from hazardous materials usage. Engineering controls are those physical or mechanical systems (such as storage tanks or automatic shut-off valves) which can prevent a hazardous material spill from occurring, which can limit the spill to a small amount, or which can confine it to a small area. Administrative controls are those rules and procedures that workers at the facility must follow. These are designed to help prevent accidents or keep them small if they do occur. Timely and adequate emergency spill response is also a crucial factor. (Ex. 200, p. 4.4-6.)

The engineered safety features which will be used at the CECP include:

- Construction of secondary containment areas surrounding each of the hazardous materials storage areas designed to contain accidental releases that might happen during storage or delivery plus the volume of water associated with 20 minutes of fire suppression;

- Physical separation of stored chemicals in isolated containment areas with a non-combustible partition in order to prevent accidental mixing of incompatible materials which could result in the evolution and release of toxic gases or fumes;

- Installation of a fire protection system for hazardous materials storage areas;

- Construction of bermed containment areas surrounding each of the aqueous ammonia storage tanks capable of holding the entire volume of the tank plus the water associated with a 24-hour period of a 25-year storm;

- Construction of a sloped ammonia unloading pad that drains into the storage tank's secondary containment structure;

- Process protective systems including continuous tank level monitors, automatic leak detectors, temperature and pressure monitors, alarms, and emergency block valves. (Ex. 200, pp. 4.4-11 - 4.4-12.)

Administrative controls also help prevent accidents and releases (spills) from moving off-site and affecting neighboring communities. These include those required in Conditions of Certification **HAZ-1** (limitations on the use and storage of hazardous materials and their strength and volume), **HAZ-2 (**risk management plan), and **HAZ-3** (development of a safety management plan). (Ex. 200, p. 4.4-12.)

Worker training programs, process safety management programs, and compliance with all applicable health and safety laws, ordinances, and standards will also reduce risks. The project owner's worker health and safety program will include (but not be limited to) the following elements:

- Worker training regarding chemical hazards, health and safety issues, and hazard communications;
- Procedures to ensure the proper use of personal protective equipment;
- Safety operating procedures for the operation and maintenance of systems utilizing hazardous materials;
- Fire safety and prevention; and
- Emergency response actions including facility evacuation, hazardous material spill clean-up, and fire prevention. (*Id*.)

The project owner must prepare and implement an emergency response plan for spill response that includes information on hazardous materials contingency and emergency response procedures, spill containment and prevention systems, personnel training, spill notification, and on-site containment as well as other elements. Emergency procedures will include evacuation, spill cleanup, hazard prevention, and emergency response. (Ex. 200, p. 4.4-12 - 4.4-13.)

The Carlsbad Fire Department's Stations #1 and #4 will be the first responders for hazardous materials incidents. The San Diego City and County Department of Environmental Health, Hazardous Materials Response Team (DEH-HIRT) will respond to hazardous material incidents. This unit is capable of handling any hazardous materials incident at the CECP. Its response time is one hour. (Ex. 200, p. 4.4-13.)

Overall, the evidence conclusively establishes that the project's use and storage of hazardous materials, including natural gas and aqueous ammonia, poses a less than significant risk to public health and safety.

4. Transportation Risk Reduction

The evidence shows that transport of aqueous ammonia poses the predominant risk to off-site receptors. Ammonia can be released during a transportation accident; the extent of impact depends upon the location of the accident and the rate of dispersion of ammonia vapor from the surface of the aqueous ammonia pool. The actual likelihood of an accidental release during transport depends upon the tanker driver's skill, the type of transport vehicle, and accident rates. (Ex. 200, p. 4.4-13.)

Aqueous ammonia will be delivered to the facility in DOT-certified vehicles with design capacities of 6,500 gallons. These high-integrity vehicles are designed to DOT Code MC-307 and are suitable for hauling caustic materials such as ammonia. Condition of Certification **HAZ-5** ensures that only tankers which meet or exceed these specifications will be used for ammonia deliveries. (Ex. 200, pp. 4.4-13 - 4.4-14.)

Trucks will travel on I-5 to Cannon Road to Avenida Encinas to the project site. There are no schools, parks, or residences along the route.[3] (Ex. 200, p. 4.4-13.) Operation of the CECP will require about two ammonia deliveries per month, with up to five deliveries during peak operation periods. Each delivery will travel about 0.2 miles from I-5 along Cannon Road, then about 0.6 miles along Avenida Encinas to the facility. This results in a maximum of 2.4 miles of tanker truck delivery travel per month during peak operation and an average of about 29 miles of travel per year. (Ex. 200, p. 4.4-14.)

Data show that the actual risk of a fatality over the past five years from all forms of hazardous material transportation is approximately 0.1 in 1,000,000. Staff's transportation risk assessment model shows that there is a risk of a release of hazardous materials of 0.15 in 1,000,000 for one trip from I-5 and a total annual risk of 5.4 in 1,000,000 for 36 annual deliveries. (*Id.*) Given the inherent conservatism of the assumptions used, the evidence supports the conclusion that the risk of a transportation accident resulting in the release of a hazardous material is insignificant.

[3] Condition **HAZ-6** restricts hazardous materials deliveries to this route. (Ex. 200, p. 4.4-15.)

5. Site Security

The hazardous materials used by the CECP 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.) The evidence also shows that a minimum level of security measures is appropriate in order to protect California's electrical infrastructure from malicious mischief, vandalism, or terrorist attack. (Ex. 200, p. 4.4-16.)

Perimeter security measures include fencing, security guards, security alarms, breach and motion detectors, and video or camera systems. The project owner must prepare security plans for the construction and operation phases which include a description of perimeter security measures and procedures for evacuation, notifying authorities of a security breach, monitoring fire alarms, and conducting background checks for site personnel and hazardous materials drivers. (*Id*.)

Site access for vendors will be strictly controlled. Consistent with current state and federal regulations governing the transport of hazardous materials, hazardous materials vendors will have to maintain their transport vehicle fleet and employ only properly licensed and trained drivers. The project owner is required, through the use of contractual language with vendors, to ensure that vendors supplying hazardous materials strictly adhere to the U.S. DOT requirements for hazardous materials vendors to prepare and implement security plans and to ensure that all hazardous materials drivers are in compliance through personnel background security checks. The compliance project manager (CPM) may authorize modifications to these measures or may require additional measures in response to guidance provided by the U.S. Department of Homeland Security, the U.S. DOE, or the NERC after consultation with both appropriate law enforcement agencies and the project owner. (Ex. 200, p. 4.4-17.) Conditions of Certification **HAZ-7** and **HAZ-8** embody these requirements for both the construction and operation phases.

The evidence also details Staff's security concerns for the proposed route of the Coastal Rail Trail. In essence, these center around potential placement of the trail along the east side of the existing rail corridor. (Ex. 200, pp. 4.4-17 - 4.4-18, 4.4-35.) In Staff's view, such placement raises security, safety, and fire protection access issues.[4] (Ex. 200, pp. 4.4-17 - 4.4-18.) The safety and

[4] Fire protection access issues are discussed in the **Worker Safety** and **Fire Protection** section of this Decision.

security concerns arise due to interference with the location of the power plant's perimeter fence and sizing of the protective berm, as well as the potential for line-of-sight viewing of the power plant from the proposed trail. (Ex. 200, p. 4.4-18.)

There is no evidence contradicting Staff's security concerns. We therefore adopt Condition **HAZ-9** which prevents the project owner from granting a trail easement on CECP property to the east of the rail corridor.[5]

6. Cumulative Risks

Finally, the evidence contains an analysis of potential cumulative impacts. For present purposes, a significant cumulative impact is basically the simultaneous uncontrolled release of hazardous materials from multiple locations in a form (gas or liquid) that could cause a significant impact.

The evidence demonstrates that the CECP poses a minimal risk of creating off-site impacts from an accidental release. The evidence also establishes that none of the existing or planned projects in the vicinity of CECP store or use hazardous materials which would contribute to a potential cumulative impact, except for the EPS. The EPS stores 19 percent aqueous ammonia. As mentioned earlier, modeling indicates that significant off-site exposures in the event of a release from the CECP would not occur. The evidence establishes that it is highly unlikely that accidental ammonia releases from the CECP and EPS would occur simultaneously. (Ex. 200, pp. 4.4-18 - 4.4-19.) We therefore conclude that the CECP facility will not cause, or contribute to, a significant cumulative impact.

FINDINGS OF FACT

Based on the evidence of record, we make the following findings:

1. The Carlsbad Energy Center Project will use hazardous materials, including aqueous ammonia and natural gas, during construction and operation.

2. The major public health and safety dangers associated with these hazardous materials include the accidental release of aqueous ammonia as well as fire and explosion from natural gas.

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[5] We note the City of Carlsbad opposes Condition **HAZ-9**. (City's Opening Brief, p. 143.) This matter appears based upon land use contentions which are addressed in the **Land Use** portion of this Decision.

3. Staff's independent analysis indicates 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 release.

4. Compliance with appropriate engineering and regulatory requirements for safe transportation, delivery, handling, and storage of aqueous ammonia will reduce potential risks of accidental release to insignificant levels.

5. The risk of fire and explosion from natural gas will be reduced to insignificant levels through adherence to applicable codes and the implementation of effective safety management practices.

6. Potential impacts from the other hazardous substances used on-site are not significant since quantities will be limited and appropriate storage will be maintained in accordance with applicable law.

7. The project owner will ensure that truck deliveries of aqueous ammonia are restricted to the delivery routes specified in Condition of Certification **HAZ-6**, below.

8. The likelihood of cumulative impacts originating from simultaneous releases of hazardous materials from the CECP and the EPS is statistically remote and considered insignificant.

9. Local emergency responders are adequately equipped and trained to deal with hazardous materials accidents at the CECP.

10. Implementation of the mitigation measures described in the evidence and contained in the Conditions of Certification, below, ensures that the project will not cause significant impacts to public health and safety as a result of the handling, use, storage, or transportation of hazardous materials.

11. With implementation of the Conditions of Certification, below, the CECP 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.

12. Placement of the proposed Coastal Rail Trail along the east side of the rail corridor right-of-way could adversely affect the security of the CECP.

CONCLUSION OF LAW

The Commission concludes, therefore, that the storage, use, handling, and transportation of hazardous materials associated with the Carlsbad Energy Center Project will not result in any significant indirect, direct, or cumulative adverse public health and safety impacts.

CONDITIONS OF CERTIFICATION

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

Verification: The project owner shall provide to the CPM, in the Annual Compliance Report, a list of hazardous materials 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 San Diego County Department of Environmental Health, Hazardous Materials Division (DEH HMD) and the CPM for review. After receiving comments from the San Diego County DEH HMD 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 San Diego County DEH HMD and the Carlsbad 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 Certified Unified Program Agency and the Carlsbad Fire Department 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 by tanker truck. The plan shall include procedures, protective equipment requirements, training, and a checklist. It shall also include a section describing all measures to be implemented to prevent mixing of incompatible hazardous materials including provisions to maintain lockout control by a power plant employee not involved in the delivery or transfer operation. This plan shall be applicable during construction, commissioning, and operation of the power plant.

Verification: At least 30 days prior to the delivery of any liquid 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 facility shall be designed to either the ASME Pressure Vessel Code and ANSI K61.6 or to API 620. In either case, the storage tanks shall be protected by a secondary containment basin capable of holding 125 percent of the storage volume or the storage volume plus the volume associated with 24 hours of rain, assuming the 25-year storm. The final design drawings and

specifications for the ammonia storage tanks and secondary containment basins shall be submitted to the CPM.

Verification: At least 60 days prior to delivery of aqueous ammonia to the facility, the project owner shall submit final design drawings and specifications for the ammonia storage tank and secondary containment basin to the CPM for review and approval.

HAZ-5 The project owner shall 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 (I-5 to Cannon Road to Avenida Encinas to the project site). The project owner shall obtain approval of the CPM if an alternate route is desired.

Verification: At least 60 days prior to receipt of any hazardous materials on-site, the project owner shall submit copies of the required transportation route limitation direction to the CPM for review and approval.

HAZ-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 eight feet high and topped with barbed wire or the equivalent (and with slats or other methods to restrict visibility if a fence is selected);
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;
   A. a statement (refer to sample, **ATTACHMENT B**), 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 C**), 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;
6. site access controls for employees, contractors, vendors, and visitors;
7. a statement(s) (refer to sample, ATTACHMENT D), 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;

8. closed circuit TV (CCTV) monitoring system, recordable, and viewable in the power plant control room and security station (if separate from the control room) with cameras able to pan, tilt, and zoom, and which have low-light capability 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; and
9. additional measures to ensure adequate perimeter security consisting of either:
   A. security guard(s) present 24 hours per day, 7 days per week; **or**
   B. power plant personnel on site 24 hours per day, 7 days per week, and perimeter breach detectors **or** 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 plant components— 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.

HAZ-9 If the project owner dedicates an easement for the Coastal Rail Trail, it shall be located within the boundaries of the overall Encina Power Station Precise Development Plan area in a location mutually agreed upon with the City of Carlsbad and located west of the north/south AT&SF/North County Transit District Rail Corridor. In no event shall the project owner grant or dedicate an easement for the Coastal Rail Trail east of the Rail Corridor on the CECP site.

Verification: Not later than 10 days after drafting an agreement, the project owner shall submit to the CPM for review and approval the instrument of

easement dedication showing that the location mutually agreed upon with the City of Carlsbad is west of the north/south AT&SF/North County Transit District Rail Corridor.

HAZ-10 The project owner shall not conduct or allow any fuel gas pipe cleaning activities on the site involving fuel gas pipe of four-inches or greater external diameter, either before placing the pipe into service or at any time during the lifetime of the facility, that involve "flammable gas blows" where natural (or flammable) gas is used to blow out debris from piping and then vented to atmosphere. Instead, an inherently safer method involving a non-flammable gas (e.g. high pressure air, nitrogen, steam) or mechanical "pigging" shall be used. The project owner shall prepare a Fuel Gas Pipe Cleaning Work Plan which shall indicate the method of cleaning to be used, what gas will be used, the source of pressurization, and whether a mechanical Pipeline Inspection Gizmo (PIG) will be used, and submit this Plan to the CBO for information, to the Carlsbad Fire Department for review and comment, and to the CPM for review and approval. Exceptions to any of these provisions will be made only if no other satisfactory method is available, and then only with the approval of the CPM after review and comment from the CBO and the Carlsbad Fire Department.

Verification: At least 30 days before any fuel gas pipe cleaning activities involving pipe of four-inches or greater external diameter, the project owner shall submit a copy of the Fuel Gas Pipe Cleaning Work Plan to the CBO for information, to the Carlsbad Fire Department for review and comment, and to the CPM for review and approval.

HAZARDOUS MATERIALS
ATTACHMENT A

Hazardous Materials for Use at the Carlsbad Energy Center Project

HAZARDOUS MATERIALS
ATTACHMENT A

Hazardous Materials Proposed for Use at the CECP

Material	CAS No.	Application	Hazardous Characteristics	Maximum Quantity On Site	CERCLA SARA RQ[a]
Acetylene	47-86-2	Welding gas	Health: hazardous if inhaled Physical: combustible, flammable	300 pounds	NA
Aqueous Ammonia 19% Solution	7664-41-7	NO_X emissions control	Health: irritation to permanent damage from inhalation, ingestion, and skin contact Physical: reactive, vapor is combustible	10,200 gallons	100 pounds
Cleaning Chemicals/ Detergents	None	Periodic cleaning of combustion turbine	Health: various Physical: various	Up to 25 gallons or 100 pounds per chemical	NA
Hydraulic Oil	None	In combustion turbine and turbine control valve actuators	Health: hazardous if ingested Physical: may be flammable/combustible	150 gallons	42 gallons
Ion Exchange Resin	None	Demineralization of boiler feedwater	Health: immediate health hazard	110,000 pounds	NA
Lubrication Oil	None	Lubricate rotating equipment	Health: hazardous if ingested Physical: may be flammable/combustible	400 gallons	42 gallons
Mineral Insulating Oil	8012-95-1	Transformers/switch yard	Health: hazardous if ingested Physical: may be flammable/combustible	550 gallons	42 gallons
Oxygen	7782-44-7	Welding gas	Health: skin irritant Physical: flammable	300 pounds	NA
Paint	Various	Touchup of painted surfaces	Health: various Physical: various	Up to 25 gallons or 100 pounds per type	NA
Propane	74-98-6	Torch gas	Health: causes frostbites Physical: flammable, oxidizing	100 pounds	NA
Sulfure Hexaflouride/ USEPA Protocol Gases	2551-62-4	Calibration gases	Health: hazardous if inhaled Physical: flammable	400 pounds	NA

Source: CECP 2007a Tables 5.5-1 through 5.5-3, and SR 2008h Tables 4.12-1A through 4.12-3A.

a. Reportable quantities for a pure chemical, per the Comprehensive Environmental Response, Compensation, and Liability Act.

SAMPLE CERTIFICATIONS

(Attachments B, C, and D)

SAMPLE CERTIFICATION (Attachment B)

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 C)

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 D)

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.

F. WASTE MANAGEMENT

The Carlsbad Energy Center Project (CECP) will generate hazardous and non-hazardous wastes during demolition, construction, and operation. This section reviews the project's waste management plans for reducing the potential health risks and environmental impacts associated with handling, storage, and disposal of project-related hazardous and non-hazardous wastes.

Hazardous waste consists of materials that exceed criteria for toxicity, corrosivity, ignitability, or reactivity as established by the California Department of Toxic Substances Control (DTSC).[1] State law requires hazardous waste generators to obtain U.S. EPA identification numbers and to contract with registered hazardous waste transporters to transfer hazardous waste to appropriate Class I disposal facilities. (Cal. Code Regs., tit. 22, § 66262.10 et seq.)

Non-hazardous wastes are degradable or inert materials, which do not contain concentrations of soluble pollutants that could degrade water quality, and are therefore eligible for disposal at Class II or Class III disposal facilities. (Cal. Code Regs., tit. 14, § 17200 et seq.)

The evidence on this topic was undisputed. (2/4/10 RT 155-156; Exs. 4, §§ 2.2.9, 5.14, Appendix 5.14A [Phase I ESA]; 35, § 5.14, New Appendix 2H); 13; 19, DR 71-73, [Phase II ESA]; 21; 25, DR 112; 131; 200, § 4.13.)

SUMMARY AND DISCUSSION OF THE EVIDENCE

1. Existing Site Conditions

The CECP will be built on the East Tank Farm and Impoundment Basin area of the existing Encina Power Station (EPS). The Tank Farm includes seven large aboveground storage tanks (AST) that previously stored No. 6 fuel oil for use in the historical operation of EPS Units 1-5.[2] The AT&SF railway divides the seven ASTs into the West Tank Farm and East Tank Farm. The older, West Tank Farm consists of Tanks 1, 2, and 3, each with a capacity of 5,502,000 gallons. The East Tank Farm consists of Tanks 4 and 5, each with a capacity of

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[1] California Health and Safety Code, section 25100 et seq. (Hazardous Waste Control Act of 1972, as amended) and Title 22, California Code of Regulations, section 66261.1 et seq.

[2] No. 6 fuel oil is a complex blend of hydrocarbons derived from various refinery streams that could be hazardous, including trace quantities of hydrogen sulfide that may accumulate to toxic concentrations in the tank vapor space. (Ex. 200, pp. 4.13-9 – 4.13-10.)

10,500,000 gallons, and Tanks 6 and 7 each with a capacity of 18,900,000 gallons. (Ex. 4, Appendix 5.14A, p. 2-3.) According to the Applicant, Tanks 1, 3, 5, 6, and 7 are surplus while Tanks 2 and 4 are active tanks used at the EPS. Construction of the CECP requires demolition of Tanks 5, 6, and 7. (Ex. 25, DR 112, p. 47.) A portion of the construction laydown area will be located in the Tank 1 and 2 basins.[3] (Ex. 200, pp. 4.13-6 - 4.13-7.)

The certification process requires a Phase I Environmental Site Assessment (ESA) to identify potential and/or existing releases of hazardous substances or contamination at or adjacent to the project site, or within or adjacent to the project's linear corridors. If any hazardous conditions are identified, a Phase II ESA must be conducted to evaluate the extent of possible contamination and to describe the appropriate mitigation measures. (Ex. 200, pp. 4.13-7 - 4.13-8.)

The Applicant submitted a Phase I ESA, dated September 2007, which was performed in accordance with the American Society for Testing and Materials Standard Practice E 1527-05 for ESAs and encompassed 375 acres including the entire Tank Farm and the project site footprint. (Ex. 4, Appendix 5.14A.)

SDG&E owned and operated the EPS from its original commissioning in 1954 until 1999, when the Applicant purchased most of the property. The purchase was completed in 2003. A previous Phase I ESA performed by SDG&E in 1998 identified several Recognized Environmental Conditions (RECs) at the EPS site.[4] SDG&E's subsequent Phase II ESA, dated July 1998, recommended extensive soil remediation due to fuel oil contamination from the ASTs. (Ex. 19, Attachment DR73-1.) Remedial activities were conducted in 2003 when approximately 4,426 cubic yards of petroleum hydrocarbon-impacted soil were excavated around Tanks 1 and 7 and transferred off-site for treatment and disposal. Applicant's 2007 Phase I ESA confirmed the previous ESA findings that existing tanks, piping, and buildings are potential RECs since soil samples could not be collected beneath the existing structures. (Exs. 200, p. 4.13-9; 4, § 5.14.3.1.1, Appendix 5.14A.)

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[3] Only the perimeters of the Tank 1 and 2 impoundment basins will be used for the laydown area. The tanks will not be removed because their footprint areas are not needed. (Exs. 200, p. 4.13-9; 25, DR 112, p. 48.)

[4] A recognized environmental condition is the presence or likely presence of any hazardous substances or petroleum products on a property where circumstances indicate an existing release, past release, or a material threat of a release of hazardous substances or petroleum products into existing structures or into the ground, groundwater, or surface water of the property. (Ex. 200, p. 4.13-9.)

2. Demolition

Since the Tank Farm area has been identified as an Historical REC, the demolition of Tanks 5, 6, and 7 includes the removal and remediation of any contaminated soils beneath the tanks and their respective impoundment basins. (Ex. 200, p. 4.13-9.) The San Diego Regional Water Quality Control Board (SDRWQCB) is the lead agency for the demolition Phase II ESA and will coordinate with the DTSC in the investigation and remediation of hazardous wastes during demolition activities. (Ex. 25, DR 112, p. 46.)

In November 2007, the Applicant agreed to participate in a Voluntary Assistance Program (VAP) with the San Diego County Department of Environmental Health (SDCDEH) Site Assessment and Mitigation Division for the demolition of Tanks 5, 6, and 7. SDCDEH is designated as the local oversight agency for AST tank closure on behalf of the SDRWQCB and DTSC. Under the VAP, SDCDEH will oversee the post-demolition soil corrective action plan (CAP). Condition of Certification **WASTE-1** requires the project owner to properly characterize the site, complete remediation in compliance with the CAP and applicable LORS, and obtain approval by the appropriate regulatory agencies before construction can begin. (Exs. 25, DR 112, pp. 46-47; 35, § 5.14.3.2, New Appendix 2H; 200, pp. 4.13-10, 4.13-22 – 4.13-23.)

The tank demolition activities will generate approximately 3,800 tons of metal debris, 49,000 gallons of residual No. 6 fuel oil remaining in the tanks, and 11,300 tons of waste soil. The Applicant's management of these hazardous materials, wastes, and recyclable materials during demolition must be approved by the SDCDEH's Hazardous Materials Division.[5] San Diego County is the Certified Unified Program Agency and requires the Applicant to verify that a licensed waste generator has properly cleaned the ASTs before demolition can begin. The City of Carlsbad Fire Department requires a demolition permit for ASTs that contain hazardous or flammable liquids. Condition of Certification **WASTE-2** ensures that the project owner will obtain the appropriate permits from SDCDEH and the Carlsbad Fire Department in compliance with applicable LORS. (Exs. 200, p. 4.13-11; 4, § 5.14.2; 35, 5.14.3.2.)

[5] Hazardous and non-hazardous wastes generated during demolition will be characterized and deposited at appropriate disposal facilities. Some of the excavated soils may be used as daily cover at the Otay Landfill in accordance with applicable law. (Ex. 35, §§ 5.14.4.1, 5.14.5.)

If additional potential contamination or hazardous substance releases are identified during assessment of the project site either before or after demolition activities, Condition **WASTE-1** requires that any additional remediation must be subject to the oversight of SDCDEH and the Energy Commission Compliance Project Manager (CPM). Condition **WASTE-3** requires that an experienced Professional Engineer or Geologist must be available for consultation in the event that contaminated soil or groundwater is encountered. If contaminated soil or groundwater is encountered, Condition **WASTE-4** requires the Professional Engineer or Geologist to inspect the site, determine the necessary characterization, and report to the SDCDEH and CPM with appropriate findings and recommended remedial actions. (Ex. 200, p. 4.13-11.)

During demolition, an estimated 60 tons of asbestos will be removed from the site. The San Diego Air Pollution Control District (SDAPCD) requires an Asbestos Demolition Plan before any asbestos stripping or removal work can begin. Condition **WASTE-6** requires the project owner to submit an approved SDAPCD Asbestos Notification Form to the CPM prior to removal and disposal of asbestos. (Exs. 200, p. 4.13-12; 35, § 5.14.4.1, Table 5.14-1.)

3. Construction Impacts and Mitigation

Construction of the project and its associated facilities will generate hazardous and non-hazardous wastes. With implementation of source reduction and recycling, the amount of waste generated during project construction is expected to be minimal.[6] (Exs. 4, § 5.14.4.1; 200, p. 4.13-11.)

Approximately 455 tons of non-hazardous solid wastes will be generated during construction, including scrap wood, concrete, steel/metal, paper, glass, and plastic waste. Recyclable materials will be separated and removed to recycling facilities and non-recyclable materials will be collected and deposited at Class III landfills in accordance with applicable LORS. (Exs. 4, § 5.14.4.1.1, Table 5.14-2; 200, p. 4.13-12.)

Non-hazardous liquid wastes include sanitary wastes and dust suppression, drainage, and equipment washwater. Sanitary wastes will be collected in portable, self-contained toilets and pumped periodically for disposal at an appropriate facility. Potentially contaminated wastewater will be contained at

[6] The evidence includes analyses of wastes generated during construction and operation of the ocean-water purification system and the new SDG&E 230-kV switchyard, and indicates that potential impacts will be mitigated to insignificant levels. (Ex. 35, §§ 5.14.4.3, 5.14.4.4, 5.14.3.3.)

designated collection areas and tested before transport to an appropriate wastewater treatment facility. See the **Soil and Water Resources** section of this Decision for further discussion of wastewater management. (Exs. 4, § 5.14.4.1.2, Table 5.14-2; 200, p. 4.13-12.)

Hazardous wastes generated during construction will include liquid and solid wastes such as empty hazardous material containers, solvents, waste paint, oil absorbents, used oil, oily rags, batteries, and cleaning wastes. Hazardous materials that cannot be recycled or used for energy recovery will be properly manifested, transported to, and deposited at a Class I hazardous waste facility by licensed hazardous waste collection and disposal companies. The disposal methods described in the evidentiary record are consistent with applicable LORS. (Exs. 4, § 5.14.4.1.3, Table 5.14-2; 200, p. 4.13-12.)

Condition **WASTE-5** requires the project owner to implement an approved Construction Waste Management Plan to ensure compliance with applicable LORS. Condition **WASTE-7** requires the project owner to obtain a hazardous waste generator identification number from the U.S. EPA before generating any hazardous wastes during construction and operation. Condition **WASTE-8** requires the project owner to notify the CPM whenever any waste management related enforcement action is initiated by a local, state, or federal authority concerning the project or its waste disposal contractors. (Ex. 200, p. 4.13-12.)

4. Operation Impacts and Mitigation

During operation, the project will generate hazardous and non-hazardous wastes subject to regulatory review. **Waste Management Table 1** summarizes the anticipated operation waste streams, estimated waste quantities, and proposed disposal methods. (Ex. 4, § 5.14.4.2, Table 5.14-3.)

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Waste Management Table 1
Hazardous Wastes Generated at the CECP Facility During Operation

Waste	*Origin*	*Composition*	*Estimated Quantity*	*Classification*	*Disposal*
Lubricating Oil/oil sorbents	Small leaks and spills from the gas turbine lubricating oil system	Hydrocarbons	700 lb/yr	Hazardous	Cleaned up using sorbent and rags—disposed of by certified oil recycler
Lubricating oil filters	Gas turbine lubricating oil system	Paper, metal, and hydrocarbons	1,000 lb/yr	Hazardous	Recycled by certified oil recycler
Lubricating oil	Maintenance of turbine, equipment	Hydrocarbons	500 lb/yr	Hazardous	Recycled by certified oil recycler
Solvents, paint, adhesives	Maintenance	Varies	200 lbs/mo	Hazardous	Recycle at a permitted TSDF
Laboratory analysis waste	Water Treatment	Waste reagents/laboratory chemicals	50 gal/yr	Hazardous	Recycled by certified recycler
SCR catalyst units	SCR system (Warranty is 3 years-use tends to be 3 to 5 years	Metal and heavy metals, including vanadium	60 to 70 tons every 3 to 5 years	Hazardous	Recycled by SCR manufacturer to disposed of in Class I landfill
CO catalyst units	HRSG (Use tends to be 3 to 5 years	Metal and heavy metals, including vanadium	6 to 7 tons every 3 to 5 years	Hazardous	Recycled by Manufacturer
Spent lead acid batteries	Electrical room, equipment	Metals	5 batteries/year	Hazardous	Store no more than 10 batteries (up to 1-year)-recycle offsite.
Spent alkaline batteries	Equipment	Metals	50 lbs/yr	Universal waste solids	Recycle or dispose offsite at a Universal Waste Destination Facility
Florescent tubes	Lighting of maintenance areas	Metals	50 lbs/yr	Universal waste solids	Recycle or dispose offsite at a Universal Waste Destination Facility
Oily rags	Maintenance wipe down of equipment, etc.	Hydrocarbons, cloth	300 lb/yr (-88 rags/yr)	Hazardous	Recycled by certified oil recycler
Chemical feed area drainage	Spillage, tank overflow, area washdown water	Water with water treatment chemicals	Minimal	May be hazardous if corrosive	Discharged to sewer if nonhazardous; shipped offsite for disposal if hazardous

The Applicant estimated that the project would generate 65 tons of non-hazardous waste per year (not including filtered cake from the Ocean-Water Purification System). All non-hazardous solid wastes will be recycled to the extent feasible, and non-recyclable wastes will be regularly transported to a local

solid waste disposal facility in accordance with applicable LORS. Management of non-hazardous liquid wastes is described in the **Soil and Water Resources** section of this Decision. Potentially contaminated wastewater from the project's drainage system will be routed through an oil/water separator to a holding tank for testing before transport to an appropriate wastewater disposal facility. (Exs. 4, §§ 5.14.4.2.1, 5.14.4.2.2, Table 5.14-3; 200, § 4.13-13.)

Hazardous wastes generated during operation will include used hydraulic fluids, oils, greases, oily filters and rags, spent selective catalytic reduction catalysts, cleaning solutions and solvents, and batteries. Hazardous waste will be stored on-site in appropriate containers for less than 90 days and then removed by a licensed transporter to an appropriate treatment, storage, or disposal (TSD) facility or Class I landfill. The evidence indicates that the project will comply with applicable LORS for handling hazardous materials spills, including good management practices to reduce hazardous spill wastes. Condition **WASTE-11** requires the project owner to report, clean up, and remediate any hazardous materials releases in accordance with applicable LORS. (Exs. 4, § 5.14.4.2.3, Table 5.14-3; 35, § 5.14.5; 200, p. 4.13-14.) Further requirements are discussed in the **Hazardous Materials Management** section of this Decision.

To ensure proper handling of operation waste streams, Condition **WASTE-9** requires the project owner to implement an Operation Waste Management Plan to identify all hazardous and non-hazardous wastes and the methods of managing the wastes consistent with regulatory requirements and the evidentiary record. (Ex. 200, p. 4.13-14.)

Filtered cake generated from the Ocean-Water Purification System must be deposited at an appropriate landfill depending on results of testing for hazardous levels of contaminants. To ensure proper disposal of filtered cake, Condition **WASTE-10** requires the project owner to perform appropriate testing to classify the waste and determine the appropriate method of disposal. (Exs. 35, § 5.14.4.4; 200, p. 4.13-13.)

Condition **WASTE-7** (hazardous waste generator identification number), *supra*, and Condition **WASTE-8** (enforcement action), *supra*, also apply to waste management during operations.

5. Potential Impacts on Waste Disposal Facilities

The project will comply with the Construction and Demolition Materials Diversion Program established by San Diego County Ordinance No. 9840, which is consistent with requirements of the California Integrated Waste Management Compliance Act.[7] Under this program, the Applicant must submit a Debris Management Plan that meets the goals of recycling at least 90 percent of inert materials and 70 percent of all other materials from demolition projects. (Ex. 35, § 5.14.2.2.) We have included a requirement in Condition **WASTE-5** for the project owner to provide a reuse/recycling plan for demolition and construction materials that meets or exceeds the waste diversion goals established by the Integrated Waste Management Compliance Act and Ordinance No. 9840. Compliance with Condition **WASTE-5** will ensure that project wastes are managed properly and that the project's potential impacts on local landfills are maintained at insignificant levels.

Applicant identified two Class III waste disposal facilities in the project vicinity that are available to receive the project's non-hazardous solid wastes: i.e., the Otay Landfill in Chula Vista and the Buttonwillow Landfill in Buttonwillow.[8] The evidence shows that there is sufficient capacity at these facilities to handle the project's construction and operation solid wastes over the life of the project. Therefore, disposal of the project's solid wastes will not significantly impact the capacity or remaining life of these facilities. (Exs. 4, § 5.14.3.1, Table 5.14-4; 200, pp. 4.13-14 – 4.13-15.)

The record contains extensive discussion regarding the removal and disposal of contaminated soil during demolition and remediation activities. According to Applicant, contaminated soil from the tank area will be sent to the Otay Landfill for use as daily cover if the amount of petroleum hydrocarbons in the soil does not exceed regulatory levels. If the soil cannot be used at the Otay Landfill, it can be recycled at TPS Technologies, a thermal treatment facility in Adelanto, to be used as road base or production of asphalt for roadways. Both the Otay Landfill and TPS have adequate capacity to accommodate the amount of soil generated by the project. (Ex. 35, § 5.14.5.)

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[7] Public Resources Code section 41780 et seq.; Title 14, California Code of Regulations, section 17387 et seq.

[8] The City of Carlsbad has contracts for waste removal services with Waste Management and Clean Harbors, which use the Otay and Buttonwillow landfills, respectively, as their primary disposal facilities. (Ex. 4, § 5.14.3.1.)

Hazardous wastes will be transported to one of two available Class I landfills: Clean Harbors Buttonwillow Landfill in Kern County and Chemical Waste Management Kettleman Hills Landfill in Kings County. The Kettleman Hills facility also accepts Class II and III waste. Evidence indicates that there is sufficient remaining capacity at these facilities to handle the project's hazardous wastes during its operating lifetime. In addition to the Class I landfills, there are dozens of commercial hazardous waste treatment and recycling facilities in California that can process project-related hazardous wastes. (Exs. 4, § 5.14.4.3.2; 35, § 5.14.5.1; 200, p. 4.13-15.)

6. Cumulative Impacts and Mitigation

The evidence shows that future development within a one-mile radius of the project site could contribute to cumulative effects on waste disposal, including the Carlsbad Seawater Desalination Project at the EPS, the I-5 North Coast Corridor expansion, multiple capital improvement projects, and the Flower Fields Area. However, although solid and hazardous wastes generated by the CECP will add to the total quantities of waste generated by new local and regional development, the CECP's waste stream is relatively low, recycling efforts will be prioritized, and sufficient disposal capacity is available. Therefore, the CECP's resulting contribution to cumulative impacts on disposal facilities will be insignificant for both hazardous and non-hazardous waste disposal. In addition, future projects in the vicinity are also required to comply with waste management LORS to decrease their waste streams, thus reducing cumulative impacts to insignificant levels. (Ex. 200, p. 4.13-15.)

7. Environmental Justice

Staff considered the minority and low-income populations in the project area in its cumulative impacts analysis. Since there are no significant adverse direct or cumulative waste management impacts, there are no environmental justice issues under this topic. (Ex. 200, p. 4.13-16.)

8. Agency and Public Comment

Intervenor CURE submitted comments on the Preliminary Staff Assessment regarding the schedule for removal of Tanks 5, 6, and 7 and verification of soil sampling by the SDCDEH's Hazardous Materials Management Division. CURE was also concerned about compliance with the Aboveground Petroleum Storage Act (APSA) and the Spill Prevention, Control and Countermeasures (SPCC)

Plan. According to SDCDEH, the Aboveground Petroleum Storage Act is a relatively new program that began implementation in the fall of 2008. Compliance with the APSA requires a Spill Prevention Control and Countermeasure (SPCC) Plan and a tank facility statement. Conditions **WASTE-1**, **2**, **3**, and **4** address issues related to the scheduling, demolition, and remediation of the tank farm area where Tanks 5, 6 and 7 are currently located. (Ex. 200, p. 4.13-22.) In addition, Conditions in the **Hazardous Materials Management** section of this Decision ensure compliance with SPCC Plan requirements.

The DTSC and the SDCDEH provided comments on their responsibilities regarding site characterization and remediation, including:

- SDCDEH Site Assessment and Mitigation Program for the soil/groundwater site assessment and Corrective Action Plan.
- SDCDEH Hazardous Materials Division for AST demolition and waste disposal.
- SDRWQCB for the removal of the aboveground storage tanks.
- SDCDEH, Hazardous Materials Management Division regulates businesses that use hazardous materials, dispose of hazardous wastes, and are responsible for the removal of hazardous waste from ASTs.
- SDCDEH's Hazardous Waste Tank Certification form must be completed prior to the removal of Tanks 5, 6, and 7. (Ex. 200, pp. 4.13-22 – 4.13-23.)

The Conditions of Certification incorporate these requirements to ensure that the project will comply with all applicable LORS.

FINDINGS OF FACT

Based on the uncontroverted evidence, the Commission makes the following findings:

1. The CECP will be built on the Tank Farm and Impoundment Basin area of the existing Encina Power Station (EPS), which includes seven large aboveground storage tanks (Tanks 1 through 7) that contain No. 6 fuel oil for EPS operations. Only Tanks 2 and 4 are currently used by EPS.

2. Construction of the CECP requires demolition of Tanks 5, 6, and 7 and use of a laydown area near the Impoundment Basins for Tanks 1 and 2.

3. Applicant's 2007 Phase I Environmental Site Assessment (ESA) confirmed that the Tank Farm presents a recognized environmental condition (REC) requiring environmental investigation and remedial action before construction can begin.

4. In November, 2007, the Applicant agreed to a Voluntary Assistance Program (VAP) with the San Diego County Department of Environmental Health (SDCDEH) Site Assessment and Mitigation Division for the demolition of Tanks 5, 6, and 7, and the removal and remediation of associated soils contaminated with hazardous materials such as petroleum hydrocarbons from fuel oil leakage.

5. The project owner will properly characterize the site, complete disposal and remediation measures in compliance with the Corrective Action Plan (CAP) developed under the VAP, and obtain approval of compliance from the appropriate regulatory agencies.

6. If additional potential contamination or hazardous substance releases are identified during assessment of the project site either before or after demolition activities, the project owner will implement appropriate characterization, disposal, and remediation measures in coordination with the SDCDEH and other appropriate regulatory agencies.

7. The CECP will generate non-hazardous and hazardous wastes during demolition, construction, and operation.

8. The project owner will obtain a hazardous waste generator identification number from the United States Environmental Protection Agency.

9. The project owner will submit an Asbestos Demolition Plan to the San Diego Air Pollution Control District for approval before any asbestos stripping or removal work can begin.

10. The project owner will recycle non-hazardous and hazardous wastes to the extent feasible and in compliance with applicable law.

11. Hazardous wastes that cannot be recycled will be transported by registered hazardous waste transporters to appropriate TSDs or Class I landfills.

12. Solid non-hazardous wastes that cannot be recycled will be deposited at Class II and III landfills in the project vicinity.

13. The Ocean-Water Purification System's filter cake will be tested according to regulatory requirements and properly transported to an appropriate disposal facility.

14. Liquid wastes will be classified for appropriate disposal and managed in accordance with the Conditions of Certification listed in the **Soil and Water Resources** section of this Decision.

15. Disposal of project wastes will not result in any significant direct, indirect, or cumulative impacts on existing waste disposal facilities.

CONCLUSIONS OF LAW

1. Implementation of the Conditions of Certification, below, and the waste management practices described in the evidentiary record will reduce potential adverse impacts to insignificant levels and ensure that project wastes are handled in an environmentally safe manner.

2. The management of project wastes will comply with all applicable laws, ordinances, regulations, and standards related to waste management as described in the evidentiary record and also identified in the pertinent portions of **Appendix A** of this Decision.

CONDITIONS OF CERTIFICATION

WASTE-1 The project owner shall ensure that the CECP site is properly characterized and remediated as necessary pursuant to the Corrective Action Plan reviewed and approved by the San Diego County Department of Environmental Health (SDCDEH). In no event shall project construction commence in areas requiring characterization and remediation until SDCDEH and the CPM have determined that all necessary remediation has been accomplished.

Verification: At least 30 days prior to remediation the project owner shall submit to the CPM for review and approval copies of all pertinent correspondence, work plans, agreements, and authorizations between CECP and SDCDEH regarding the Corrective Action Plan requirements and activities at the CECP site. At least 60 days prior to the start of site mobilization, the project owner shall provide to the CPM for review and approval written notice from SDCDEH that the CECP site has been investigated and remediated as necessary in accordance with the Correction Action Plan.

WASTE-2 Prior to removal of the aboveground storage tanks (ASTs), the project owner shall complete a SDCDEH Hazardous Waste Tank Certification form and obtain a permit from the City of Carlsbad Fire Department. Prior to demolition of the ASTs, SDCDEH and the Fire Department must acknowledge the form is complete, and provide written concurrence that the information presented is adequate to comply with

permitting requirements for removal. This information and written concurrence must be submitted to the CPM for review and approval.

Verification: At least 60 days prior to commencement of site mobilization, the project owner shall provide the form and permits to remove the ASTs to the CPM for review and approval. The project owner shall inform the CPM via the monthly compliance report, of the date when all ASTs were removed from the site.

WASTE-3 The project owner shall provide the résumé of an experienced and qualified professional engineer or professional geologist, who shall be available for consultation during site characterization (if needed), demolition, excavation, and grading activities, to the CPM for review and approval. The résumé shall show experience in remedial investigation and feasibility studies.

The professional engineer or professional geologist shall be given full authority by the project owner to oversee any earth moving activities that have the potential to disturb contaminated soil.

Verification: At least 30 days prior to the start of site mobilization, the project owner shall submit the résumé to the CPM for review and approval.

WASTE-4 If potentially contaminated soil is identified during site characterization, demolition, excavation, or grading at either the proposed site or linear facilities, as evidenced by discoloration, odor, detection by handheld instruments, or other signs, the professional engineer or professional geologist shall inspect the site, determine the need for sampling to confirm the nature and extent of contamination, and provide a written report to the project owner, authorized representatives of Department of Toxic Substances Control (DTSC), the SDCDEH, and the CPM stating the recommended course of action.

Depending on the nature and extent of contamination, the professional engineer or professional geologist shall have the authority to temporarily suspend construction activity at that location for the protection of workers or the public. If, in the opinion of the professional engineer or professional geologist, significant remediation may be required, the project owner shall contact the authorized representatives of DTSC, the SDCDEH, and the CPM for guidance and possible oversight.

Verification: The project owner shall submit any final reports filed by the professional engineer or professional geologist to the authorized representatives of DTSC, the SDCDEH, and the CPM for approval within 5 days of their receipt. The project owner shall notify the CPM within 24 hours of any orders issued to halt construction.

WASTE-5 The project owner shall prepare a Demolition and Construction Waste Management Plan for all wastes generated during demolition and construction of the facility and shall submit the plan to the CPM for review and approval. The plan may be submitted in two sections: Demolition activities and Construction activities. Both sections of the plan shall contain, at a minimum, the following:

- a description of all demolition and construction waste streams, including projections of frequency, amounts generated, and hazard classifications; and
- management methods to be used for each waste stream, including temporary on-site storage, housekeeping and best management practices to be employed, treatment methods and companies providing treatment services, waste testing methods to assure correct classification, methods of transportation, disposal requirements and sites, and recycling and waste minimization/source reduction plans.
- a reuse/recycling Debris Management Plan for demolition and construction materials that meets or exceeds the waste diversion goals established by the Integrated Waste Management Compliance Act (Pub. Resources Code, § 41780 et seq.) and San Diego County Ordinance No. 9840.

Verification: The project owner shall submit the Demolition section of the Demolition and Construction Waste Management Plan to the CPM for approval at least 30 days prior to the initiation of demolition activities at the site. The project owner shall submit the Construction section of the Demolition and Construction Waste Management Plan to the CPM for approval at least 30 days prior to the initiation of construction activities at the site.

WASTE-6 Prior to demolition of existing structures, the project owner shall complete and submit a copy of a SDCDEH Asbestos Demolition Notification Form to the CPM and the SDCDEH for approval. After receiving approval, the project owner shall remove all ACM from the site prior to demolition.

Verification: At least 60 days prior to commencement of structure demolition, the project owner shall provide the Asbestos Demolition Notification Form to the CPM for review and approval. The project owner shall inform the CPM via the monthly compliance report, of the date asbestos is removed.

WASTE-7 The project owner shall obtain a hazardous waste generator identification number from the United States Environmental Protection Agency prior to generating any hazardous waste during construction and operations.

Verification: The project owner shall keep a copy of the identification number on file at the project site and provide the number to the CPM in the next Monthly Compliance Report.

WASTE-8 Upon becoming aware of any impending waste management-related enforcement action by any local, state, or federal authority, the project owner shall notify the CPM of any such action taken or proposed to be taken against the project itself, or against any waste hauler or disposal facility or treatment operator with which the owner contracts.

Verification: The project owner shall notify the CPM in writing within 10 days of becoming aware of an impending enforcement action. The CPM shall notify the project owner of any changes that will be required in the way project-related wastes are managed.

WASTE-9 The project owner shall prepare an Operation Waste Management Plan for all wastes generated during operation of the facility and shall submit the plan to the CPM for review and approval. The plan shall contain, at a minimum, the following:

- a detailed description of all operation and maintenance waste streams, including projections of amounts to be generated, frequency of generation, and waste hazard classifications;
- management methods to be used for each waste stream, including temporary on-site storage, housekeeping and best management practices to be employed, treatment methods and companies providing treatment services, waste testing methods to assure correct classification, methods of transportation, disposal requirements and sites, and recycling and waste minimization/source reduction plans;
- all information and reports of conversations with the local Certified Unified Program Agency and the Department of Toxic Substances Control regarding any waste management requirements necessary for project activities. Copies of all required waste management permits, notices, and/or authorizations shall be included in the plan and updated as necessary;
- a detailed description of how facility wastes will be managed and any contingency plans to be employed, in the event of an unplanned closure or planned temporary facility closure; and
- a detailed description of how facility wastes will be managed and disposed upon closure of the facility.

Verification: The project owner shall submit the Operation Waste Management Plan to the CPM for approval at least 30 days prior to the start of

project operation. The project owner shall submit any required revisions to the CPM within 20 days of notification from the CPM that revisions are necessary.

The project owner shall also document in each Annual Compliance Report the actual volume of wastes generated and the waste management methods used during the year; provide a comparison of the actual waste generation and management methods used to those proposed in the original Operation Waste Management Plan; and update the Operation Waste Management Plan as necessary to address current waste generation and management practices.

WASTE- 10 The project owner shall ensure that the Ocean-Water Purification System's filter cake is tested pursuant to the requirements of California Code of Regulations, Title 22, Section 66262.10, report the findings to the CPM, and ensure that the filter cake is properly transported and deposited at an appropriate disposal facility.

Verification: The project owner shall report the results of filter cake testing to the CPM. If two consecutive tests show that the sludge is non-hazardous, the project owner may apply to the CPM to discontinue testing.

WASTE-11 The project owner shall ensure that all spills or releases of hazardous substances, materials, or waste are reported, cleaned up, and remediated as necessary, in accordance with all applicable federal, state, and local requirements.

Verification: The project owner shall document all unauthorized releases and spills of hazardous substances, materials, or wastes that occur on the project property or related pipeline and transmission corridors. The documentation shall include, at a minimum, the following information: location of release; date and time of release; reason for release; volume released; amount of contaminated soil/material generated; how release was managed and material cleaned up; if the release was reported; to whom the release was reported; release corrective action and cleanup requirements placed by regulating agencies; level of cleanup achieved and actions taken to prevent a similar release or spill; and disposition of any hazardous wastes and/or contaminated soils and materials that may have been generated by the release. Copies of the unauthorized spill documentation shall be provided to the CPM within 30 days of the date the release was discovered.

VII. 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, and other resources of critical biological interest such as wetlands and unique habitats. The evidence contained in the record describes the biological resources in the vicinity of the project site and linear alignments, assesses the potential for adverse impacts, and determines whether mitigation measures are necessary to ensure compliance with applicable laws, ordinances, regulations, and standards (LORS). (02/04/10 RT 270-72; Exs. 4; 8; 12; 35; 48; 62; 69; 122; 140; 142; 145; 200, § 4.2.)

SUMMARY AND DISCUSSION OF THE EVIDENCE

1. Setting

The CECP will be constructed on the existing Encina Power Station (EPS) site, on a location currently occupied, in part, by three fuel oil storage tanks. (Ex. 200, p. 4.2-8.) The project area is highly disturbed and/or developed, is comprised of bare ground and gravel, and provides only low quality habitat for plant and wildlife species. (Ex. 200, pp. 4.2-1, 4.2-3 - 4.2-4.) The project site does not provide habitat capable of supporting a diverse assemblage of wildlife, nor does it provide habitat suitable for special status species. (Ex. 200, pp. 4.2-4 - 4.2-5.)

The evidence shows that various biological resources surveys of the site and vicinity have occurred, including one performed by the Applicant in August 2007 which was followed by a Staff site visit in December 2007. The nearest significant natural habitat areas are the Pacific Ocean, approximately 0.3 miles to the west, and Agua Hedionda Lagoon[1], about 0.1 mile to the north and east, and on the other side of Interstate 5. (Ex. 200, pp. 4.2-4 - 4.2-5.)

Biological Resources Table 1 lists the special status species which may occur within one mile of the project site:

[1] The Agua Hedionda Lagoon is included in the North County Multiple Habitat Conservation Program and the Habitat Management Plan for Natural Communities in the City of Carlsbad. (Ex. 200, p. 4.2-1.) The effects of these plans upon the CECP are discussed in the **LAND USE** portion of this Decision.

Biological Resources Table 1
Special-Status Species Reported or Suspected to Occur within One Mile of CECP

Common Name	Scientific Name	Status
Plants		
California adolphia	*Adolphia californica*	CNPS List 2
Coast woolly-heads	*Nemacaulis denudata* var. *denudatea*	CNPS List 1B
Cliff spurge	*Euphorbia misera*	CNPS List 2; HMP
Orcutt's pincushion	*Chaenactis glabriuscula* ssp. *orcuttiana*	CNPS List 1B
South Coast saltscale	*Atriplex pacifica*	CNPS List 1B
Wart-stemmed ceanothus	*Ceanothus verrucosus*	CNPS List 2; HMP
Insects and Crustacea		
Saltmarsh skipper butterfly	*Panoquina errans*	HMP
San Diego fairy shrimp	*Branchinecta sandiegonensis*	FE; HMP
Fish		
Tidewater goby	*Eucyclogobius newberryi*	FE; CSC
Reptiles		
Southwestern pond turtle	*Emys marmorata pallida*	CSC
Birds		
American peregrine falcon	*Falco peregrinus anatum*	FD; CD, FP, HMP
Belding's savannah sparrow	*Passerculus sandwichensis beldingi*	CE; HMP
California brown pelican	*Pelecanus occidentalis californicus*	FD; CD, FP; HMP
California least tern	*Sterna antillarum browni*	FE; CE, FP; HMP
Coastal California gnatcatcher	*Polioptila californica californica*	FT; CSC; HMP
Cooper's hawk	*Accipiter cooperi*	WL; HMP
Elegant tern	*Sterna elegans*	WL; HMP
Light-footed clapper rail	*Rallus longirostris levipes*	FE; CE, FP; HMP
Osprey	*Pandion haliaetus*	WL; HMP
Western snowy plover	*Charadrius alexandrinus nivosus*	FT; CSC; HMP
White-faced ibis	*Plegadis chihi*	WL; HMP
Mammals		
Pocketed free-tailed bat	*Nyctinomops femorosaccus*	CSC

Source: (Ex. 200, p. 4.2-6.)

State Status
CE = State-listed as endangered
CT = State-listed as threatened
CD = State delisted
CSC = California species of special concern
FP = Fully protected
WL = Watch list

Federal Status
FE = Federally listed as endangered
FT = Federally listed as threatened
FD = Federally delisted

CNPS Status
CNPS List 1B = Plants rare, threatened, or endangered in California and elsewhere
CNPS List 2 = Plants rare, threatened, or endangered in California, but more common elsewhere

HMP for Natural Communities in the City of Carlsbad
HMP = covered species

Due to its biodiversity of plants and animals as well as suitable habitat for special-status species, the Agua Hedionda Lagoon is regionally significant. Habitats include open water, sand and mud substrates, rock revetment, pilings, and aquaculture grow-out floats. These support diverse infaunal, bird, and fish communities. Impingement surveys at the EPS intake structures recorded 96 taxa, demonstrating that the Lagoon is a highly productive and diverse system. Additionally, the Agua Hedionda Lagoon supports important populations of special-status species such as the southwestern pond turtle, white-faced ibis, and western snowy plover; it also provides foraging habitat for American peregrine falcon and osprey. The estuarine and marsh habitat surrounding the Lagoon provides suitable nesting habitat for special-status species such as the California least tern, elegant tern, Belding's savannah sparrow, California brown pelican, and coastal California gnatcatcher. (Ex. 200, p. 4.2-7.)

Construction activities will not directly affect the Lagoon. (Ex. 200, p. 4-2-11.) The CECP could, however, have a significant impact upon biological resources if it:

- has an adverse impact, either directly through take or indirectly through habitat modification or interruption of migration corridors, on any state or federally listed species;
- has a direct or indirect adverse effect on any sensitive natural community or conservation area identified in federal, state, or local plans, policies, or regulations;
- conflicts with applicable federal, state, or local laws, ordinances, regulations, and standards protecting biological resources. (Ex. 200, pp. 4.2-7 - 4.2-8.)

Both project construction and operation could adversely affect local flora and fauna. The evidence of record assesses the potential impacts and explains the measures which will be implemented to avoid the creation of significant adverse impacts.

2. Construction Impacts

With the exception of a portion of the water pipeline, all project components will be within the existing EPS boundary. (Ex. 200, p. 4.2-8.) The CECP site contains developed areas with disturbed habitat and ornamental landscaping. Construction activities, including equipment laydown, will require the removal of weedy vegetation and some ornamental plantings such as eucalyptus. The evidence establishes that significant impacts to native vegetation will not occur. (Ex. 200, p. 4.2-9.)

However, direct loss of small mammals, reptiles, and other less mobile species could occur, primarily from the use of construction vehicles at the site. Construction activities and increased human presence may also temporarily disrupt breeding or foraging activities of some common wildlife species. (Ex. 200, p. 4.2-10.)

The CECP site provides marginally suitable nesting habitat for a variety of common bird species. Additionally, some bird species adapted to disturbed environments could nest in equipment or other available substrate in the areas surrounding the site. Construction activities during the nesting season (March through August) could adversely affect breeding birds through direct take or indirectly through disruption or harassment. The evidence establishes that the following mitigation measures will avoid impacts to nesting birds:

- Nesting substrate for songbirds (taller plants) will be removed outside of the breeding season (September through February) before construction activities begin.
- Open areas requiring grading will be graded prior to March 1 and will be routinely inspected for nesting activities throughout construction and demolition.
- Surveys will be conducted by a qualified biologist for nesting raptors within 300 feet of the project site prior to the start of construction between January 1 and August 31. Should a raptor nest be observed within 300 feet of the CECP site, a qualified biologist will determine whether or not construction activities can potentially disturb nesting raptors and implement appropriate measures (e.g., on-site monitor, timing restriction) to adequately protect nesting raptors.
- Any nests found in or adjacent to disturbance areas will be flagged and the area immediately around the nest protected from construction equipment. The nests will be monitored and the results included in the monthly compliance reports to the Energy Commission Compliance Unit. (*Id*.)

These measures, proposed by Applicant, are incorporated by reference into Condition of Certification **BIO-6** (the Biological Resources Mitigation Implementation and Monitoring Plan or BRMIMP). Additionally, if construction work occurs between March 15 and August 31, Condition **BIO-8** will protect nesting birds and ensure compliance with the Migratory Bird Treaty Act. (*Id*.)

Construction activities will likely also result in a short-term, temporary increase in the ambient noise level which could disrupt the nesting, roosting, or foraging activities of sensitive wildlife, especially wildlife in the middle lagoon of Agua Hedionda. The evidence establishes that the following mitigation measures will

minimize impacts to sensitive species, including breeding birds, resulting from excessive construction noise:

- To avoid the riparian bird nesting season, excessively noisy construction activities will not occur between March 15 and August 31 if possible, especially during dusk and early morning hours if birds are nesting in the middle lagoon. Construction equipment will be in good working condition with properly operated and maintained mufflers.

- If construction cannot avoid the nesting season, then a qualified biologist will conduct a preconstruction survey within the CECP site and the middle lagoon of Agua Hedionda prior to ground disturbance and construction activities between March 15 and August 31. The survey will be conducted no more than two weeks prior to construction activities by a qualified biologist familiar with the identification and vocalizations for coastal California gnatcatcher and other estuarine species.

- If nesting bird species are detected, noise monitoring and mitigation will be incorporated. Should average noise levels exceed 60 dBA during the breeding season, feasible noise reduction measures will be implemented to reduce noise levels to below 60 dBA. Noise reduction measures may include locating stationary equipment away from biologically sensitive areas and/or shielding nesting sites by installing sound barriers. Once the average noise level returns to below 60 dBA, the construction activities can resume. Educational programs to enhance employee awareness will be implemented as necessary.

These measures are incorporated by reference into Condition of Certification **BIO-6** (the BRMIMP). (Ex. 200, p. 4.2-12.)

The evidence also explains that, during some periods and the start-up phase of the project, construction activities could continue 24 hours a day. Bright lighting at night can disturb the resting, foraging, or mating activities of wildlife and make wildlife more visible to predators. Night lighting can also disorient migratory birds and, if placed on tall structures, may increase the likelihood of collision.

To avoid these impacts, task-specific lighting must be used to the extent practicable, and it must be shielded and pointed toward the center of where the construction activities are occurring. Direct lighting within 200 feet of Agua Hedionda must be directed away from the Lagoon. The evidence establishes that these measures assure that the lighting does not cause significant impacts to biological resources. This mitigation is incorporated into Condition of Certification **BIO-7** (Impact Avoidance Mitigation Features). (Ex. 200, p. 4.2-13.)

Furthermore, a Designated Biologist and biological monitor(s) will be assigned to ensure avoidance and minimization of potential impacts and in order to protect biological resources. Selection of the Designated Biologist and biological monitor(s) is described in Conditions of Certification **BIO-1** (Designated Biologist Selection) and **BIO-3** (Biological Monitor Qualifications); their duties and authority are described in Conditions of Certification **BIO-2** (Designated Biologist Duties) and **BIO-4** (Designated Biologist and Biological Monitor Authority), respectively. These professionals will be responsible, in part, for developing and implementing the Worker Environmental Awareness Program (WEAP, Condition of Certification **BIO-5**), which is a mechanism for training the workers on protection of biological resources. (Ex. 200, p. 4.2-9.)

3. Operational Impacts

The evidence indicates that the Agua Hedionda Lagoon is a concentration area for resident and migratory birds because of abundant foraging opportunities and proximity to the Pacific Ocean. Operation of the CECP could cause bird collision and/or electrocution by the interconnection facilities, as well as disturbance to wildlife due to increased noise and lighting. The project could also cause impacts to aquatic resources in Agua Hedionda Lagoon from operation of the ocean water purification system and industrial wastewater discharge. (Ex. 200, p. 4.2-13.)

Bird collisions with power lines and structures generally occur when a power line or other structure transects a daily flight path. They typically happen when the structures are invisible (e.g., bare power lines or guy wires at night), deceptive (e.g., glazing and reflective glare in windows), or confusing (e.g., light refraction or reflection from mist). Collisions generally increase in low light conditions or during inclement weather or strong winds, and during panic flushes when birds are startled by a disturbance or are fleeing from danger. (Ex. 200, pp. 4.2-13 - 4.2-14.)

The project includes two 139-foot-tall, 20-foot-diameter exhaust stacks. The electrical interconnection will require nine transmission support structures, ranging in height between 67 and 106 feet. The evidence shows that structures over 500 feet tall present a greater risk to migratory songbirds than shorter structures; bird mortality is significantly lower at towers shorter than 350 feet. Because the CECP exhaust stacks will be significantly shorter than 350 feet tall and shorter than the existing 400-foot-tall EPS exhaust stack, the evidence

concludes that they will pose a relatively low collision risk to migrating birds.[2] (Ex. 200, pp. 4.2-14, 4.2-30.) The evidence further establishes that it is not likely that bird mortality from collisions would significantly reduce the population of any bird species or that the reduction within any population would impair its function within the local ecosystem. (Ex. 200, p. 4.2-14.)

Birds may also collide with the project's transmission line wires. To avoid this impact, bird flight diverters are used to make the lines more visible. Condition of Certification **BIO-7** requires that these diverters be installed on the 230-kV and 138-kV transmission lines. The evidence establishes that implementation of these measures will reduce potential impacts to birds from collision with CECP facilities to a less-than-significant level. (Ex. 200, p. 4.2-15.)

Large perching birds, including those accorded state and/or federal protection, are susceptible to transmission line electrocution. Electrocution occurs when a bird simultaneously contacts two energized phase conductors or an energized conductor and grounded hardware. Because raptors and other large perching birds often perch on tall structures that offer views of potential prey, the design characteristics of transmission towers and poles are a major factor in raptor electrocutions. (*Id.)* The evidence shows that potential impacts to wildlife resulting from electrocution by transmission lines may be mitigated by incorporating construction design recommendations provided in *Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 2006.* This mitigation measure is contained in Condition of Certification **BIO-7**. (*Id.*)

The evidence further indicates that, since the CECP site is surrounded by a variety of industrial and commercial land uses including the EPS, I-5, and the AT & SF Railroad, wildlife in the area is accustomed to elevated noise levels. The project's operational noise is therefore not expected to create significant impacts to biological resources. (*Id.*) These land uses similarly create an elevated level of ambient light. To reduce impacts from the project's glare and backscatter, the facility's lighting will be directed downward and shielded. (Ex. 200, p. 4.2-16; see Condition **VIS-4**.)

The CECP will use dry cooling technology, and thus does not require intake or outflow of ocean or lagoon water for once through cooling purposes; it will also not produce a thermal plume. The project will, however, require a maximum of 4.32 million gallons/day (mgd) of seawater for its industrial use and dilution purposes. The source of the CECP's seawater will be the existing Encina Power

[2] Proper lighting of the stacks also plays its part in avoiding avian collisions. (Ex. 200, pp. 4.2-14, 4.2-30, and Condition **VIS-4**.)

Station water discharge stream. CECP's ocean purification component of desalination will use a reverse osmosis and ion exchange purification system. Approximately 0.59 mgd (13.6 percent) will be purified into freshwater by desalination for industrial use, and the remainder will be used to dilute the brine from the desalination process to National Pollutant Discharge Elimination System (NPDES)-permitted levels before discharge into the Pacific Ocean via the existing Encina Power Station Outfall. (Exs. 48; 62; 200, pp. 4.2-9, 4.2-16.)

The power plant will maintain a minimum operational seawater intake through one service pump. This process utilizes less than .5 percent of its permitted daily withdraw allotment of seawater, which Staff's analysis characterizes as a "neglible" intake flow rate from Aqua Hedionda Lagoon of approximately 3 mgd. (Ex. 200, p. 4.2-16; see also, Ex. 142.) The evidence further indicates that, since the CECP will not withdraw water from Agua Hedionda Lagoon for project-specific uses, it will not cause impingement or entrainment impacts. (Exs. 142; 145; 200, p. 4.2-16.) All responsible regulatory agencies (the NMFS, USFWS, CDFG, and the CEC) agree in this determination. (Ex. 200, p. 4.2-16.)

The timing of the closure of ESP EPS units 4 and 5 is uncertain, as the Water Board's OTC Policy leaves open the possibility that they will continue to run after 2017 if they continue to be essential to electric system reliability, and also allows compliance with the Policy by mechanical or operational methods of reducing impacts. So long as units 4 and 5 continue to operate, CECP's use of ocean water will be from the EPS system (taking and returning water to the ocean), and will not result in any cumulative OTC or new impact related to OTC. Moreover, even if one assumes the eventual shutdown of units 4 and 5, the relatively small use of seawater taken from the OTC system would not be a significant cumulative impact to marine biology, as discussed further in this Decision under the topic of Soil and Water Resources**.**

In the event of the shutdown of units 4 and 5, we have, at Staff's suggestion (02/04/10 RT 266:24-267:6), include Condition **BIO-9** to emphasize the need for possible future joint review and coordination. If the EPS Units are in fact shut down in the future and this affects the CECP's intake water supply, the appropriate regulatory agencies will then assess the proper course of action to be taken.[3]

[3] For example, if this happens, the State Water Resources Control Board would presumably determine whether a new NPDES permit is required. (Staff Reply Brief, p. 6.)

Intervenors, including Terramar and the City of Carlsbad, challenge this approach, largely on the ground that the shutdown of Units 4 and 5 is a certain, foreseeable event. Their reasoning is essentially that the CECP will need to withdraw water from the Agua Hedionda Lagoon, thus causing impingement, entrainment, and cumulative impacts, and may conflict with the State Water Resources Control Board's recently adopted policy on Once Through Cooling (OTC).[4] (Terramar Opening Brief, pp. 7-15; City of Carlsbad's Opening Brief, pp. 2-3, 7, 28-29, 47, 72.)

This matter is fully discussed in the **Soil and Water Resources** section. For present purposes, we note that the evidence establishes that the CECP is air cooled and will not use OTC or require additional water from the Lagoon, and that the potential shutdown of EPS Units 4 and 5 is a speculative matter, which is not part of the present project. (02/24/10 RT 266:17-23; Exs. 145; 200, pp. 4.2-16 to 17, 4.2-29; Staff Opening Brief, pp. 7-8; Staff Reply Brief, pp. 3-7.) We are thus persuaded that the CECP will not create significant impacts on biological resources.

FINDINGS OF FACT

Based on the evidence, we make the following findings:

1. The CECP site and linear facility alignments are located on an existing power plant site.
2. The evidence contains an analysis of potential adverse impacts upon biological resources, including special-status species, which may potentially be affected by project construction and operation.
3. The project site does not contain suitable habitat for special status species.
4. The nearest habitat suitable for sensitive species is located in the vicinity of Agua Hedionda Lagoon.
5. The project owner will implement appropriate avoidance and mitigation measures to prevent significant adverse impacts to all sensitive species.

[4] We note that the purpose of the OTC policy is essentially to greatly reduce or end the use of ocean water for power plant cooling, thus also reducing entrainment and impingement impacts. The policy does, however, recognize that power plants using OTC are integral to electric system reliability. Therefore, before any actions are taken pursuant to this policy, the SWRCB will convene a Statewide Advisory Committee comprised of pertinent regulatory agencies to advise it on policy implementation and to ensure that the implementation schedule takes into account local area and grid reliability, including permitting constraints. (Staff Memo re: Post-Evidentiary Hearing Developments, May 27, 2010, pp. 1-2.)

6. 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.

7. 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.

8. Transmission lines will be designed to reduce the risk of avian collisions and electrocutions. Night time lighting will be designed to avoid disruption to wildlife.

9. The CECP will be air-cooled and will not use Once Through Cooling.

10. The Water Board's OTC Policy does not require the shutdown of EPS Units 4-5, but rather the reduction of OTC impacts.

11. The project's relatively small use of seawater for its desalination unit will not have a significant cumulative impact to marine biota.

12. With implementation of the mitigation measures described in the evidentiary record and incorporated into the Conditions of Certification below, as well as those in other portions of this Decision such as **VIS-4**, the CECP will not result in significant direct, indirect, or cumulative impacts to biological resources.

13. With implementation of the mitigation measures described in the evidentiary record and incorporated into the Conditions of Certification, the CECP will conform to all applicable laws, ordinances, regulations, and standards related to biological resources as identified in the pertinent portion of **Appendix A** of this Decision.

CONCLUSION OF LAW

The Commission concludes, therefore, that implementation of the Conditions of Certification will ensure the Carlsbad Energy Center Project 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 assign a Designated Biologist to the project. The project owner shall submit the résumé of the proposed Designated Biologist, with at least three references and contact information, to the compliance project manager (CPM) for approval.

The Designated Biologist must meet at least the following minimum qualifications:

1. bachelor's degree in biological sciences, zoology, botany, ecology, or a closely related field; and
2. three years of experience in field biology or current certification from a nationally recognized biological society, such as The Ecological Society of America or The Wildlife Society; and
3. at least one year of field experience with biological resources found in or near the project area.

In lieu of the above requirements, the résumé shall demonstrate to the satisfaction of the CPM that the proposed or alternate Designated Biologist has the appropriate training and background to implement effectively the mitigation measures and Conditions of Certification.

Verification: The project owner shall submit the specified information at least 90 days prior to the start of any site (or related facilities) mobilization. No site or related facility activities shall commence until an approved Designated Biologist is available to be on-site.

If a Designated Biologist needs to be replaced, the specified information of the proposed replacement must be submitted to the CPM at least 10 working days prior to the termination or release of the preceding Designated Biologist. In an emergency, the project owner shall immediately notify the CPM in order to discuss the qualifications and approval of a short-term replacement while a permanent Designated Biologist is proposed to the CPM for consideration.

Designated Biologist Duties

BIO-2 The project owner shall ensure that the Designated Biologist performs the following during any site (or related facilities) mobilization, ground disturbance, grading, construction, operation, and closure activities. The Designated Biologist may be assisted by approved biological monitor(s), but remains the contact for the project owner and CPM. The Designated Biologist shall:

1. advise the project owner's construction and operation managers on the implementation of the **Biological Resources** Conditions of Certification;
2. consult on the preparation of the Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP), to be submitted by the project owner;
3. be available to supervise, conduct, and coordinate mitigation, monitoring, and other biological resource compliance efforts, particularly in areas requiring avoidance or containing sensitive biological resources, such as wetlands and special-status species or their habitat;

4. clearly mark sensitive biological resource areas and inspect these areas at appropriate intervals for compliance with regulatory terms and conditions;
5. inspect active construction areas where animals may have become trapped prior to construction commencing each day. At the end of the day, inspect for the installation of structures that prevent entrapment or allow escape during periods of construction inactivity. Periodically inspect areas with high vehicle activity (i.e., parking lots) for animals in harm's way;
6. notify the project owner and the CPM of any non-compliance with any **Biological Resources** Condition of Certification;
7. respond directly to inquiries of the CPM regarding biological resource issues;
8. maintain written records of the tasks specified above and those included in the BRMIMP. Summaries of these records shall be submitted in the monthly compliance report and the annual report; and
9. train the biological monitors as appropriate, and ensure their familiarity with the BRMIMP, Worker Environmental Awareness Program (WEAP) training, and all permits.

Verification: The Designated Biologist shall submit in the monthly compliance report to the CPM copies of all written reports and summaries that document biological resources activities. If actions may affect biological resources during operation, a Designated Biologist shall be available for monitoring and reporting. During project operation, the Designated Biologist shall submit record summaries in the annual compliance report unless his/her duties are ceased as approved by the CPM.

Biological Monitor Qualifications

BIO-3 The project owner's CPM-approved Designated Biologist shall submit the résumé, at least three references, and contact information of the proposed biological monitor(s) to the CPM for approval. The résumé shall demonstrate, to the satisfaction of the CPM, the appropriate education and experience to accomplish the assigned biological resource tasks.

Biological monitor(s) training by the Designated Biologist shall include familiarity with the Conditions of Certification, BRMIMP, WEAP, and all permits.

Verification: The project owner shall submit the specified information to the CPM for approval at least 30 days prior to the start of any site (or related facilities) mobilization. The Designated Biologist shall submit a written statement to the CPM confirming that the individual biological monitor(s) has been trained, including the date when training was completed. If additional biological monitors

are needed during construction, the specified information shall be submitted to the CPM for approval 10 days prior to their first day of monitoring activities.

Designated Biologist and Biological Monitor Authority

BIO-4 The project owner's construction and operation manager shall act on the advice of the Designated Biologist and biological monitor(s) to ensure conformance with the **Biological Resources** Conditions of Certification.

If required by the Designated Biologist and biological monitor(s), the project owner's construction and operation manager shall halt all site mobilization, ground disturbance, grading, construction, and operation activities in areas specified by the Designated Biologist.

The Designated Biologist shall:

1. require a halt to all activities in any area when determined that there would be an unauthorized adverse impact to biological resources if the activities continued;
2. inform the project owner and the construction and operation manager when to resume activities; and
3. notify the CPM if there is a halt of any activities and advise the CPM of any corrective actions that have been taken, or will be instituted, as a result of the work stoppage.

If the Designated Biologist is unavailable for direct consultation, the lead 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 of any site mobilization, ground disturbance, grading, construction, and operation activities. The project owner shall notify the CPM of the circumstances and actions being taken to resolve the problem.

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

Worker Environmental Awareness Program

BIO-5 The project owner shall develop and implement a CPM-approved Worker Environmental Awareness Program (WEAP) in which each of its employees, as well as employees of contractors and subcontractors who work on the project site or any related facilities during site mobilization, ground disturbance, grading, construction, operation, and closure, is informed about sensitive biological resources associated with the project.

The WEAP must:

1. be developed by or in consultation with the Designated Biologist and consist of an on-site or training center presentation in which supporting written material and electronic media are made available to all participants;
2. discuss the locations and types of sensitive biological resources on the project site and adjacent areas;
3. present the reasons for protecting these resources;
4. present the meaning of various temporary and permanent habitat protection measures;
5. identify whom to contact if there are further comments and questions about the material discussed in the program; and
6. include a training acknowledgment form to be signed by each worker indicating that he/she received training and shall abide by the guidelines.

The specific program may be administered by a competent individual(s) acceptable to the Designated Biologist.

Verification: At least 60 days prior to the start of any project-related ground disturbing activities, the project owner shall provide to the CPM two copies of the proposed WEAP and all supporting written materials and electronic media prepared or reviewed by the Designated Biologist and a résumé of the person(s) administering the program.

The project owner shall provide in the monthly compliance report the number of persons who have completed the training in the prior month and a running total of all persons who have completed the training to date. At least 10 days prior to site (and related facilities) mobilization, the project owner shall submit two copies of the CPM-approved materials.

The signed training acknowledgement forms from construction shall be kept on file by the project owner 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 six months following the termination of an individual's employment.

Biological Resources Mitigation Implementation and Monitoring Plan

BIO-6 The project owner shall submit two copies of the proposed BRMIMP to the CPM (for review and approval) and to CDFG and USFWS (for review and comment), and shall implement the measures identified in the approved BRMIMP.

The BRMIMP shall be prepared in consultation with the Designated Biologist and shall identify:

1. all biological resource mitigation, monitoring, and compliance measures proposed and agreed to by the project owner;
2. all Applicant-proposed mitigation measures presented in the Application for Certification;
3. all **Biological Resource** Conditions of Certification identified as necessary to avoid or mitigate impacts;
4. all biological resource mitigation, monitoring, and compliance measures required in other state agency terms and conditions, such as those provided in the Regional Water Quality Control Board permits;
5. all biological resource mitigation, monitoring, and compliance measures required in local agency permits, such as site grading and landscaping requirements;
6. all sensitive biological resources to be impacted, avoided, or mitigated by project construction, operation, and closure;
7. all required mitigation measures for each sensitive biological resource;
8. a detailed description of measures that shall be taken to avoid or mitigate temporary disturbances from construction activities;
9. all locations on a map, at an approved scale, of sensitive biological resource areas subject to disturbance and areas requiring temporary protection and avoidance during construction;
10. aerial photographs, at an approved scale, of all areas to be disturbed during project construction activities — one set prior to any site (and related facilities) mobilization disturbance and one set subsequent to completion of project construction. Include planned timing of aerial photography and a description of why times were chosen;
11. duration for each type of monitoring and a description of monitoring methodologies and frequency;
12. performance standards to be used to help decide if/when proposed mitigation is or is not successful;
13. all performance standards and remedial measures to be implemented if performance standards are not met;
14. a preliminary discussion of biological resources related facility closure measures;
15. restoration and revegetation plan; and
16. a process for proposing plan modifications to the CPM and appropriate agencies for review and approval.

Verification: The project owner shall provide the specified document at least 60 days prior to start of any project-related ground disturbing activities.

The CPM will determine the BRMIMP's acceptability within 45 days of receipt. If there are any permits that have not yet been received when the BRMIMP is first submitted, these permits shall be submitted to the CPM, the CDFG, and USFWS within five days of their receipt, and the BRMIMP shall be revised or supplemented to reflect the permit condition within 10 days of their receipt by the project owner. Ten days prior to site (and related facilities) mobilization, the revised BRMIMP shall be resubmitted to the CPM.

The project owner shall notify the CPM no less than five working days before implementing any modifications to the approved BRMIMP to obtain CPM approval.

Any changes to the approved BRMIMP must also be approved by the CPM in consultation with CDFG, the USFWS, and appropriate agencies to ensure no conflicts exist.

Implementation of BRMIMP measures will be reported in the monthly compliance reports by the Designated Biologist (i.e., survey results, construction activities that were monitored, species observed). Within 30 days after completion of project construction, the project owner shall provide to the CPM, for review and approval: a written construction closure report identifying which items of the BRMIMP have been completed; a summary of all modifications to mitigation measures made during the project's site mobilization, ground disturbance, grading, and construction phases; and which mitigation and monitoring items are still outstanding.

Impact Avoidance Mitigation Features

BIO-7 Any time the project owner modifies or finalizes the project design, all feasible measures shall be incorporated that avoid or minimize impacts to the local biological resources. The project owner shall:

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 Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006 to reduce the likelihood of electrocutions of large birds;
3. install bird flight diverters on the overhead ground wires of proposed transmission lines (230- and 138-kV) to reduce the likelihood of bird collision with power lines; if overhead ground wires are not installed, bird flight diverters shall be placed on the conductors.
4. eliminate from landscaping plans any List A California exotic pest plants of concern as defined by the California Exotic Pest Plant Council;

5. prescribe a road sealant that is non-toxic to wildlife and plants; and
6. design, install, and maintain facility lighting to prevent side casting of light toward wildlife habitat (i.e., Agua Hedionda Lagoon); obstruction lighting shall be white flashing lights unless specifically prohibited by the FAA.

Verification: All mitigation measures and their implementation methods shall be included in the BRMIMP. Implementation of the measures shall be reported in the monthly compliance reports by the Designated Biologist. Within 30 days after completion of project construction, the project owner shall provide to the CPM, for review and approval, a written construction termination report identifying how measures have been completed.

Mitigation Management to Avoid Harassment or Harm

BIO-8 The project owner shall implement the following measures to manage its construction site (and related facilities) in a manner to avoid or minimize impacts to local biological resources:

1. install temporary fencing and provide wildlife escape ramps for construction areas that contain steep-walled holes or trenches if outside an approved, permanent exclusionary fence. The temporary fence shall be hardware cloth or similar material that is approved by USFWS and CDFG;
2. ensure that all food-related trash is disposed of in closed containers and removed at least once a week;
3. prohibit feeding of wildlife by staff and subcontractors;
4. prohibit non-security related firearms or weapons on-site;
5. prohibit pets on-site;
6. avoid work between March 1 and August 15 to avoid impacts to birds protected under the Migratory Bird Treaty Act.
   A. If this is not feasible, a survey shall be conducted for nesting birds within the project area.
   B. Should an active nest be discovered, the Designated Biologist or biological monitor shall establish an appropriate buffer zone (in which construction activities are not allowed) to avoid disturbance in the vicinity of the nest.
      i. Construction activities shall not commence until the Designated Biologist or biological monitor has determined that the nestlings have fledged or that construction activities will not affect adults or newly fledged young; OR
      ii. The Designated Biologist or biological monitor shall develop a monitoring plan that permits the activity to continue in the vicinity of the nest while monitoring

nesting activities to ensure that nesting birds are not disturbed.

7. report all inadvertent deaths of sensitive species to the biological monitor, who will notify CDFG or USFWS, as appropriate; and
8. minimize use of rodenticides and herbicides in the project area.

Verification: All mitigation measures and their implementation methods shall be included in the BRMIMP. Implementation of the measures shall be reported in the monthly compliance reports by the Designated Biologist. Within 30 days after completion of project construction, the project owner shall provide to the CPM, for review and approval, a written construction termination report identifying how biological resource measures have been completed.

Future Agency Coordination

BIO-9 In the event that EPS Units 4 and 5 (and their pumps that supply discharge water for desalination purposes by the CECP) cease to operate–and the CECP will require intake of ocean water–the project owner shall inform the appropriate resource agencies (i.e., NMFS, USFWS, and CDFG) and coordinate regarding the compliance with Clean Water Act Section 316(b), and/or the Endangered Species Act requirements, as necessary.

Verification: Annual reports of the operational status of Units 4 and 5 shall be submitted to the CPM, and planned closure of these units shall be reported to the CPM as soon as possible. No later than 30 days prior to decommissioning of Units 4 and 5, the project owner shall provide copies of pertinent records of conversation, permit applications, associated technical reports, and permits (as applicable) to the CPM to verify that federal and state agency coordination has occurred regarding compliance with Clean Water Act Section 316(b) and/or Endangered Species Act requirements, as necessary.

B. SOIL AND WATER RESOURCES

This section focuses on the soil and water resources associated with the project, including the project's potential to induce erosion and sedimentation, exacerbate flood conditions, adversely affect water supplies, and degrade water quality. The analysis also considers site contamination and any potential cumulative impacts to water quality in the vicinity of the project.

1

SUMMARY AND DISCUSSION OF THE EVIDENCE

The site is located along the shore of the Pacific Ocean in the City of Carlsbad, northern San Diego County. The power plant site would be located on the northeast portion of the existing 95-acre Encina Power Station (EPS), with the laydown and parking areas located throughout the EPS. Approximately 23 acres of the EPS would be used for the CECP, consisting of the project site, the various laydown and parking areas, and the linear features. The project would be an air-cooled, natural gas-fired combined cycle generating facility with steam power augmentation and evaporative air inlet cooling. The proposed linear features, with the exception of the recycled water supply line, would be connected to existing facilities within the site or along rights-of-way located immediately adjacent to the site. A more complete description of the project that includes the site layout, linears, and regional maps is contained in the **Project Description** section of this Decision. (Ex. 200, p. 4.9-3.)

1. Soils

In the vicinity of the CECP site, artificial fill overlies older quaternary marine and non-marine deposits. The base soil underlying the CECP site and on-site construction laydown areas is classified as Marina loamy coarse sand, which has superior drainage characteristics and slow-to-medium erosion potential.

Extensive excavation, grading, and deposition of fill occurred during the EPS construction and during various stages of upgrades and expansions. The East Tank Farm (EPS Tanks Number 5, 6, and 7), where the CECP power block would be located, was excavated to bedrock during construction of the tank farm. Geotechnical evaluations within the EPS confirm the presence of fill to a depth of at least 10 feet. This fill is expected to consist of a mixture of coarse textured soils suitable for compaction and power plant bearing loads. (Ex. 200, p. 4.9-4.)

2. Soil Contamination

The primary soil contaminant at the CECP site is No. 2 fuel oil that was used in the construction of the above-ground storage tanks. The tanks were constructed on top of an oil-impregnated sand cushion comprised of a mixture of No. 2 fuel oil and sand. The secondary soil contaminant within the basins is residual fuel oil No. 6 from previous spill cleanups during operation of the EPS.

The Applicant has agreed to enter into the Voluntary Assistance Program administered by the San Diego County Department of Environmental Health's (SDCDEH) Site Assessment and Mitigation Division for the demolition of Tanks 5, 6, and 7 and for any associated contaminated soil remediation. Under this program, SDCDEH would manage the development and implementation of the remediation work plan. (*Id*.)

3. Groundwater

The CECP site is located within the Agua Hedionda groundwater basin. The groundwater beneath the EPS is generally brackish and has been designated as having no beneficial uses. The groundwater levels fluctuate between 14 feet to 10 feet above mean sea level due to seasonal and tidal influences. Given the depth to groundwater, no contact with groundwater is expected. (*Id*.)

4. Surface Water

The CECP site is located within the Carlsbad Hydrologic Unit between the San Luis Rey River to the north and San Marcos Creek to the south. The site is situated within the Agua Hedionda Lagoon watershed, which has a total drainage area of approximately 29-square miles. Agua Hedionda Creek is the primary stream within the watershed and flows in a southwestward direction to the Agua Hedionda Lagoon and the Pacific.

Coastal waters in the vicinity of the CECP site include the Pacific Ocean, Agua Hedionda Lagoon, and Buena Vista Lagoon. The Agua Hedionda Lagoon and the Pacific Ocean are both listed on the current Clean Water Act section 303(d) list as impaired water bodies. The Agua Hedionda Lagoon is listed as impaired for indicator bacteria and sedimentation/siltation, and the Pacific Ocean at Carlsbad Beach is listed as impaired for indicator bacteria. (Ex. 200, p. 4.9-5.)

5. Project Water Supply

Two sources of industrial water supply are proposed: tertiary treated recycled water from the City of Carlsbad (City) and desalinated ocean water produced on-site.

Recycled Water provided by the City would be used for CECP industrial processes, evaporative air inlet cooling, and miscellaneous plant uses including landscape irrigation. The proposed 12-inch recycled water pipeline would extend approximately 3,700 feet to the City's recycled water line located at Avenida Encinas and Cannon Road. Once on-site, the recycled water would be stored in a 360,000-gallon raw water storage tank.

The CECP would require approximately 517 acre-feet per year (AFY) of recycled water based on continuous operation (at a 40 percent capacity factor). The Applicant estimates that 19 AFY of potable water would be required for domestic purposes and fire protection. (Exs. 4, § 5.15.3.5; 200, pp. 4.9-5, 4.9-14.)

Desalinated ocean water is proposed as an alternative water source of industrial water should recycled water not be available. An on-site ocean-water purification system would use two-stage reverse osmosis (RO) and ion exchange to produce high-quality industrial water. The intake for the ocean-water purification system would be from the existing EPS once-through cooling sea water discharge channel. Maximum intake of ocean water for purification purposes would range between 420 gallons per minute (gpm) without power augmentation and 848 gpm with power augmentation operating eight hours per day, plus additional ocean water for mixing at the outfall. The maximum intake of ocean water for CECP operation and outfall dilution would be 3,000 gpm or approximately 4.32 million gallons/day (mgd). (Exs. 35, §§ 2.3.2, 5.15.2.1; 200, pp. 4.9-6, 4.9-14.)

Potable water would be supplied by the City through the existing EPS water supply infrastructure. The Applicant proposes to use potable water for domestic and fire protection purposes.

6. Wastewater Discharge

Recycled water will be pretreated to reduce biological and physical constituents that would interfere with the reverse osmosis (RO) and demineralization process. During this process, the RO units produce a reject stream consisting of highly concentrated recycled water constituents and water treatment chemicals. The

pretreatment and RO reject streams would be discharged to the City's sanitary sewer system. The Applicant estimates the peak discharge rate for recycled wastewater to be 290 gpm with an annual volume of 187 AFY. This wastewater stream would be monitored prior to discharge and treated if necessary for compliance with the Encina Wastewater Authority (EWA) discharge limits. (Exs. 4, § 5.15.8; 200, p. 4.9-7.)

Wastewater discharged from the desalination process consists of the first-stage RO reject stream containing high concentrations of dissolved solids. Under normal operating conditions (8-hours of power augmentation), approximately 505 gpm of desalinated wastewater would be mixed with the tail water from EPS Units 4 and 5 for a combined discharge rate of 2,657 gpm. The combined wastewater stream would be discharged to the Pacific Ocean through the existing EPS discharge channel. (Exs. 4, § 5.15.3.3; 200, p. 4.9-7.)

CECP will be remotely operated from the Control Building located within the existing EPS. Sanitary wastewater from restrooms, eye wash stations, safety showers, and drinking water fountains will be discharged to the City's sanitary sewer system. Sanitary wastewater generated at the CECP site is estimated to average 12 gpm. This flow is a de minimus increase that would be well within the treatment, conveyance, and disposal capacities of the City and EWA systems. (Exs. 4, § 5.15.3.6.2; 200, p. 4.9-7.)

The CECP site's existing storm water system collects runoff and pumps the runoff through pipelines for eventual discharge to the Agua Hedionda Lagoon. The Applicant will modify that drainage system as necessary to accommodate the plant layout and to meet the requirements of federal Clean Water Act National Pollutant Discharge Elimination System (NPDES No. CAS0108758) permit requirements. (Exs. 4, § 5.15.4.1; 200, p. 4.9-7.)

Other wastewater streams from miscellaneous plant drains, evaporative coolers, and HRSG blowdown would be recycled to the raw water storage tank for reuse. Prior to reuse, this wastewater would be treated by filtration and oil/water separation. In the case of emergencies, the Applicant will discharge these wastewater streams to the City's sanitary sewer system in accordance with the EWA discharge regulations. (Exs. 4, § 5.15.3.6; 200, p. 4.9-6.)

7. Impact Analysis

a. Wind and Water Runoff and Erosion

Construction of the CECP would include demolition of the East Tank Farm, soil excavation and remediation, grading, building construction, and installation of utility connections. Water quality could be impacted through the discharge of sediment laden runoff, the migration of existing on-site pollutants, and the release of hazardous materials during construction.

Within the impoundment area of the East Tank Farm, drainage is collected for discharge to the Agua Hedionda Lagoon. Because of berm removal and power block construction, the Applicant proposes to modify the existing drainage system to direct runoff to new drain inlets. Runoff within the CECP impoundment area would continue to be collected and pumped to an aboveground mobile oil/water separator and sand media filter for pretreatment prior to discharge to the Agua Hedionda Lagoon. The Applicant also proposes additional erosion and sediment control Best Management Practices (BMPs) for trapping eroded sediments during construction. The proposed BMPs include soil binders, straw mulch, dust suppression, storm drain inlet protection, check dams, velocity dissipation, an infiltration trench, and contaminated soil management.

The Agua Hedionda Lagoon is listed as an impaired water body for indicator bacteria and sedimentation. Sampling and testing of storm water discharge from construction sites for sedimentation is required when there is a direct discharge to a receiving water body listed as impaired due to sedimentation. Within its Storm Water Management and Pollution Prevention Plan (SWMPPP), the Applicant has included a Sampling and Analysis Plan to determine whether the BMPs used during construction are effective in controlling potential construction-related pollutants from coming in contact with storm water. The Applicant proposes to sample storm water runoff at the Agua Hedionda Lagoon outfall and 300 feet downstream from the outfall. The Applicant would sample runoff for all pollutants that would cause or contribute to an exceedance of water quality objectives in the Agua Hedionda Lagoon.

In January 2007, the San Diego Regional Water Quality Control Board (SDRWQRB) approved a new San Diego County Municipal Storm Water Permit (Order R9-2007-0001, NPDES No CAS0108758). The Municipal Permit requires the implementation of storm water regulations addressing storm water pollution issues in development planning and construction associated with public and

private projects. Specifically, such projects are required to include storm water BMPs during construction and as part of a project's permanent design to reduce pollutants discharged from the project site to the maximum extent practicable.

The City's has revised its Standard Urban Storm Water Management Plan (SUSMP) and Storm Water Standards Manual (manual) to meet the 2007 Municipal Permit requirements. The revised manual incorporates the requirements of the General Construction Permit (WQO-99-08-DWQ) and the General Industrial Activity Permit (WQO-97-03-DWQ). Additionally, the City's Storm Water Management and Discharge Ordinance (Municipal Code Title 15, Chapter 15.12) requires that all new development and redevelopment projects reduce pollutants in storm water discharges in order to achieve applicable water quality objectives pursuant to the Clean Water Act and the Municipal Permit.

CECP would be classified as a Tier 3 (highest threat) project based on criteria contained in the manual. A Tier 3 Construction Storm Water Pollution Prevention Plan (SWPPP) is required to be prepared in accordance with the provisions of the General Construction Permit and the standards contained in the 2008 revision of the Storm Water Standards Manual.

The proper selection and implementation of BMPs can reduce the impact of water and wind erosion to soil and water resources to a level that is less than significant. Adherence to the procedures in an approved Tier 3 Construction SWPPP that complies with the City's 2008 Storm Water Standards would limit soil erosion and the potential migration of sediment and other contaminants from entering the Agua Hedionda Lagoon. We adopt Condition of Certification **SOIL&WATER-1** to require that a Tier 3 Construction SWPPP be prepared and implemented in accordance with the City's municipal permit (Order R9-2007-0001) and Title 15, Chapter 15.12 of the Municipal Code. Implementation of the plan will mitigate potential soil loss from erosion and the migration of soil-borne pollutants during construction of the CECP to a less than significant level. (Ex. 200, pp. 4.9-9 – 4.9-11.)

During CECP's operation, soil impacts and the potential for soil erosion would not be significant. The Applicant proposes to implement, and we require via Condition of Certification **SOIL&WATER-4**, an Industrial SWPPP in accordance with the City's municipal permit (Order R9-2007-0001) and Title 15, Chapter 15.12 of the Municipal Code. Through the preparation and implementation of the Industrial SWPPP, no significant impacts to soil and water resources from plant operation are expected. (Ex. 200, pp. 4.9-12 – 4.9-13.)

8. Construction Water Supply

The Applicant proposes to use potable water from the City as the source of water for dust control, equipment washing, soil compaction, and other short-term uses during construction. An estimated 87 acre-feet would be used for dust control, 0.10 acre-feet for equipment washing and 0.4 acre-feet for hydrostatic testing.

The use of potable water for construction activities when a water source of lower quality is available is a violation of the California Constitution, Article X, section 2, which states in part: " … that the water resources of the State be put to beneficial use to the fullest extent of which they are capable, and that the waste or unreasonable use or unreasonable method of use be prevented, and that the conservation of such waters is to be exercised with a view to the reasonable and beneficial use thereof in the interest of the people and for the public welfare." We adopt proposed Condition of Certification **SOIL&WATER-2**, to prohibit the use of potable water for any construction activity that is suitable for non-potable water use. (Ex. 200, p. 4.9-11.)

9. Surface and Groundwater Quality

Through the preparation and implementation of a Tier 3 Construction SWPPP as required by Condition of Certification **SOIL&WATER-1**, impacts to the Pacific Ocean and Agua Hedionda Lagoon from CECP construction activities are expected to be less than significant. The elevation of the CECP within the impoundment basin would be approximately 30 feet above mean sea level. Groundwater has been encountered on the EPS site at depths between 20.8 and 28.9 feet below ground surface. The Applicant does not propose to use groundwater, and groundwater would not be encountered during construction due to its depth. (Ex. 200, p. 4.9-11.)

10. Contaminated Soil Remediation

The Applicant entered into the Voluntary Assistance Program (VAP) with the SDCDEH for the demolition of Fuel Oil Tanks 5, 6, and 7 (CH2M HILL 2007d). The SDCDEH will review the post-demolition soil corrective action plan and provide confirmation of the sampling plan and closure report. SDCDEH would issue a closure letter demonstrating satisfactory implementation of the corrective action plan and associated clean-up objectives. Contaminated soil would be characterized, excavated, properly manifested, and transported off site for disposal and/or recycling. The results of the sampling and analysis would be

used to establish cleanup levels. Based on those levels, a Soil Remediation Plan would be developed pursuant to the requirements of the SDCDEH as acting lead agency. Condition of Certification **WASTE-1** prohibits the start construction in areas requiring characterization and remediation until all necessary remediation has been accomplished. (Exs. 25, Data Response 112; 200, p. 4.9-12.)

11. Flooding, Tsunamis, and Seiches

The CECP site is located in a non-shaded Zone X area (areas determined to be outside the 500-year floodplain). The general region is flat and there are no significant dams or levees in the project vicinity. The general site grading would establish a working surface for plant operation and would provide positive drainage from buildings and structures. A backup power feed would be provided to the power block area drainage sump pumps to maintain operability of the drainage pumps and limit the potential for flooding the CECP site.

The CECP site is located approximately 1,600 feet from the Pacific Ocean and about 750 feet south of Agua Hedionda Lagoon and could potentially be inundated by a tsunami or seiche. A tsunami is a seismic sea wave caused by sea-bottom deformations that are associated with earthquakes, landslides, or volcanic activity beneath the ocean floor. Local tsunamis can be caused by significant vertical displacement along offshore faults or coastal and submarine landslides. Because Southern California is oriented obliquely with major tsunami zones and the continental shelf extends a significant distance offshore, there is a low potential for catastrophic damage to the San Diego County coastline. The California Seismic Safety Commission reported in 2005 that tsunami run up heights are estimated between 0.3 feet to slightly over 3 feet, well below the CECP finished grade of 35 feet above mean sea level.

Seiches occur in enclosed water bodies as a result of ground shaking primarily due to earthquakes. According to the City of Carlsbad South Coastal Redevelopment Plan (2000), seiches are not expected to affect areas 5 to 10 feet above the mean water level in the Agua Hedionda Lagoon, well below the CECP finished grade of 35 feet above mean sea level. (Ex. 200, pp. 4.9-13 – 4.9-14.)

12. Project Water Supply and Treatment

The Applicant attempted to obtain a commitment from the City of Carlsbad to supply reclaimed water to the CECP but was not able to do so. The City's

Planning Department, in a letter dated October 24, 2007, raised concerns over the City's ability to provide a reliable recycled water supply to the CECP. In a February 2008 letter to Staff, the City clarified its position and stated that projected peak demand for recycled water would begin to exceed supply by 2009. The City further stated that demand is projected to grow through 2014 and will result in the City being unable to meet its full-recycled water delivery obligations during peak months (May-September) with its existing supply and storage infrastructure.

Though tertiary treated recycled water is the Applicant's preferred source of industrial water supply and it believes that sufficient recycled water supply is available from other producers the Applicant has not been able to obtain a long term commitment from any such source or the City's agreement to convey the water through the City's pipes. Thus, it explored and presented the alternative of desalinated ocean water, which is in plentiful supply and nearby.[1]

The EPS has a SDRWQCB Waste Discharge Requirements (WDR) Order (R9-2006-0043) for the intake and discharge of up to 857 million gallons per day (mgd) of seawater for use as once-through cooling of Units 1 through 5. The proposed ocean-water purification system would draw ocean water from the existing EPS once-through cooling water discharge channel upstream of any process wastewater discharge to the EPS discharge channel. Maximum intake of ocean water for purification purposes would range between 420 gpm without power augmentation and 848 gpm with power augmentation operating eight hours per day, plus additional ocean water for mixing at the outfall. The maximum intake of ocean water for CECP operation and outfall dilution would be 3,000 gpm or 4.32 mgd.

The Applicant has submitted a Report of Waste Discharge NPDES Application to the SDRWQCB for operation of the ocean-water purification system and subsequent discharge of 2,855 gpm to the Pacific Ocean. Approval by the SDRWQCB is required prior to operation of the CECP ocean-water purification system. The Applicant proposed submitting a copy of the approved WDR Order for discharges two weeks prior to operation of the ocean-water purification

[1] Should the Applicant succeed in obtaining a recycled water supply, we adopt Condition **SOIL&WATER-8** to require that the arrangement be under agreements with the supplier and the City. That Condition also requires proof of compliance with the applicable LORS regulating the use of recycled water, discussed in more depth in the Final Staff Analysis. (Ex. 200, pp. 4.9-14 – 4.9-15.) Compliance with those standards will assure that no significant impacts result from the use of the recycled water.

system. Staff agrees and we formalize that requirement in Condition of Certification **SOIL&WATER-4**.

Existing EPS units 1 – 5 share a common once through cooling system that draws in ocean water, circulates that water to condense steam during the generation cycle and then discharges it to the ocean (once through cooling or "OTC"). Units 1 – 3 will be shut down when CECP begins operating. While EPS units 4 and 5 will continue to operate, they will eventually be retired. (See the **Greenhouse Gases Emissions** section of this Decision for a discussion of the market, policy, and regulatory forces that are predicted to cause the units' retirement.)

While units 4 and 5 operate, CECP will draw its water from the discharge (output) part of the OTC system, using water already drawn in by EPS and circulated for cooling. CECP uses water already drawn from the ocean for cooling purposes and has no affect, positive or negative, on the impacts of drawing the water.

The City and other intervenors have contended that the Water Board's new OTC Policy will require the shutdown of EPS units 4 and 5 at the end of 2017, and that the CECP should thus be analyzed as a "stand alone" use of ocean water that will cause some (albeit comparatively minor) impingement and entrainment of marine biota. This contention is incorrect for two reasons. First, the OTC Policy does not require the shutdown of units 4 and 5 at the end of 2017. Rather, it requires the significant reduction of entrainment and impingement effects by that date. The Policy specifically provides a performance standard to meet this requirement, allowing reduction by mechanical (e.g., such as booms or screens) or performance (e.g., reduced pumping) methods. The Commission should not speculate on how the Policy requirements will be met by EPS. In addition, the OTC Policy is very clear that the 2017 date is subject to review based on the electricity reliability needs of the State, and that it may be revised to allow operation until such time as the units are no longer necessary for San Diego's electric reliability.

"Even if one assumes the shutdown of EPS units 4 and 5, there is no evidence that the small desalination unit's use of OTC water would have a significant cumulative impact. The City, in its EIR for the Carlsbad Seawater Desalination Project (CSDP), concluded that there would be no significant impact for using 304 mgd of OTC intake water for that project. CECP will use a maximum of 4.3 mgd, and the evidence indicates that this use will likewise not be cumulatively significant."

Considered on its own as many of the Intervenors suggest, and not recognizing the reduction in impingement and entrainment reductions by retiring units 1 – 3, the CECP process flows will result in an estimated total annual entrainment of 22.7 million fish larvae from Agua Hedionda Lagoon (AHL) where the existing intake for the EPS is located. This estimate is based on data collected at the EPS intake during the 2004-2005 Impingement Mortality and Entrainment Characterization Study that was reanalyzed using the flows for the CECP. Three taxa of fishes (gobies, combtooth blennies, and northern anchovies) would account for nearly 95 percent of all fish larvae entrained, with gobies representing more than 60 percent of the total. If operated 365 days of the year, the losses are estimated to represent less than 0.3 percent of the larval population of gobies and 0.2 percent of the population of combtooth blennies in the lagoon. Other fish, including anchovies, halibut, and croakers, had very low entrainment based on the Empirical Transport Model used for the analysis. The small fraction of marine organisms potentially lost due to CECP entrainment would have no effect on these populations. The most frequently entrained species are very abundant in the area of the EPS intake, AHL, and the SCB. Therefore, the actual ecological effects due to any additional entrainment from the CECP would not be significant. (Ex. 35, § 5.2.4.2.)

Neither of two identified special-status marine species would be affected by operation of the CECP desalination equipment. In the case of tidewater goby, they do not currently occur in AHL, and the species' southernmost known locality is located in Cockleburr Canyon 9.2 miles (14.8 km) north of AHL. Furthermore, no larvae were found during intensive sampling in the marine waters around the project site; therefore, tidewater goby larvae would be at no risk of entrainment during operation of the ocean-water purification system for CECP. East Pacific green turtles are wide-ranging, but even if an individual were come into proximity of the intake in the AHL, the low approach velocities resulting from intake associated with the ocean-water purification system to support CECP operation would have no effect on their susceptibility to impingement. The project's dry-cooling system design means that there will not be a thermal plume or significant intake and discharge issues that could affect special-status species or other aquatic biota during operations. (Ex. 35, § 5.2.4.3.)

The parties have widely-differing positions about the timing of the shut-down of EPS units 4 and 5. However, because the project's entrainment and impingement impacts are not significant even if EPS Units 4 and 5 are not operational, the timing of the shut-down of EPS Units 4 and 5 does not affect our conclusions about the significance of these impacts.

By analyzing and providing conditions for the use of both recycled and desalinated ocean water, we provide the Applicant with the ability to use its preferred source, if one is found, or ocean water if one cannot be found.

13. Compliance with LORS

a. Clean Water Act

CECP would satisfy the requirements of the NPDES permits with the adoption of Conditions of Certification **SOIL&WATER-1** and **-3**. These Conditions require the development and implementation of a Tier 3 Construction SWPPP (**SOIL&WATER-1**) and an Industrial SWPPP (**SOIL&WATER-3**) in accordance with the City's Storm Water Standards Manual.

b. The Resource Conservation and Recovery Act

Proper remediation of on-site soil contamination in accordance with Conditions of Certification **WASTE -1** and **-4** and the implementation of the SWPPPs that are required in Conditions of Certification **SOIL&WATER-1** and **-3**, contamination of surface and groundwater would be prevented.

c. California Constitution, Article X, Section 2

California Constitution, Article X, section 2 requires that the water resources of the state be put to beneficial use to the fullest extent possible and prohibits the waste, unreasonable use, or unreasonable method of use of water. Condition of Certification **SOIL&WATER-5** prohibits the use of potable water for any construction or operation activity that is suitable for non-potable water use. In addition, the CECP will use either recycled or desalinated water, rather than fresh or potable water, as its industrial water supply and air cooling rather than wet cooling, making the most effective use of water resources.

d. California Water Code, Section 13260

Through the establishment of waste discharge requirements by the SDRWQCB, Pacific Ocean water quality is maintained. To comply with the water quality standards established by the SDRWQCB, the Applicant has submitted a Report of Waste Discharge and a National Pollutant Discharge Elimination System (NPDES) permit application to the SDRWQCB. Operation of the ocean-water

purification system and its wastewater discharge to the Pacific Ocean cannot occur without the approval of the SDRWQCB.

e. California Water Code, Section 13523

Through compliance with Conditions of Certification **SOIL&WATER-8**, the SDRWQCB, after consulting with and receiving the recommendations from DPH, would prescribe water reclamation requirements for the production and use of recycled water for industrial purposes at the CECP.

f. California Water Code, Section 13550

Section 13550 of the California Water Code states that the use of potable water for nonpotable uses (including industrial uses) is a waste or unreasonable use of water under certain circumstances. By proposing to use either recycled water or desalinated ocean water for operation of the CECP, Applicant is ensuring that the project is consistent with this section of the water code.

g. Titles 17 and 22, California Code of Regulations

Through compliance with Conditions of Certification **SOIL&WATER-8**, the DPH would review and approve an engineering report for the transmission and use of recycled water.

h. The City of Carlsbad Municipal Code

Compliance with Chapters 13, 14, and 15 of the City's Municipal Code as proposed by the Applicant would ensure that a reliable potable water and sanitary sewer service is supplied by the City and that the City's Tier 3 requirements for storm water discharge are met.

i. California Energy Commission Integrated Energy Policy Report: Water Use And Wastewater Discharge Policy

The Energy Commission approves the use of fresh water for cooling purposes by power plants it licenses only where alternative water supply sources and alternative cooling technologies are shown to be environmentally undesirable or economically unsound. By using either recycled water or desalinated ocean water, CECP complies with this policy.
(Ex. 200, pp. 4.9-19 – 4.9-21.)

14. Cumulative Impacts

The evidence considered the contribution of the CECP and other past and proposed projects in the areas of water supply, surface water, groundwater, wastewater and storm water and found no instance in which the CECP made a substantial contribution to a significant impact. (Ex. 200, pp. 4-9-17 – 4.9-19.)

FINDINGS OF FACT

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

1. Project construction and operation has the potential to induce erosion and sedimentation, adversely affect water supplies, and degrade water quality.

2. The project will not significantly increase or decrease erosion rates with implementation of Conditions of Certification **SOIL&WATER-1** and **-3**.

3. The Conditions of Certification, below, are adequate to ensure that construction and operation of the CECP will comply with LORS and will not create significant adverse impacts to the matters addressed in the technical discipline of **Soils and Water Resources**.

4. Reclaimed water necessary for CECP's daily industrial needs is not currently available without a significant expansion of the City's wastewater treatment infrastructure.

5. If reclaimed water is unavailable, CECP will rely on an on-site, reversed osmosis treatment system to derive necessary industrial water, generated from a maximum of 4.3 mgd of seawater .

6. The CECP's reversed osmosis system will reuse water pumped for cooling purposes through the EPS OTC system that will continue to be used by EPS units 4 and 5.

7. The State Water Board's OTC Policy does not require the shutdown of ESP units 4 and 5, and the closure date for those units is indeterminate.

8. The EPS OTC system will also be used by the Carlsbad Seawater Desalination Project (CSDP), which will require 304 mgd of seawater to generate 50mgd of fresh drinking water.

9. Even assuming the future shutdown of EPS units 4 and 5, CECP's use of water from the OTC system will not result in significant direct or cumulative impacts to marine biota.

CONCLUSION OF LAW

We therefore conclude that the project will conform to all applicable laws, ordinances, regulations, and standards identified in the pertinent portion of **Appendix A** of this Decision and will not cause a significant direct, indirect or cumulative environmental impact.

CONDITIONS OF CERTIFICATION

SOIL&WATER-1: The project owner shall comply with the requirements of the San Diego County Municipal Storm Water Permit (Order R9-2007-0001, NPDES No CAS0108758) and City of Carlsbad (City) Municipal Code Title 15, Chapter 15.12. The project owner shall develop and implement a Tier 3 Construction Storm Water Pollution Prevention Plan (Construction SWPPP) for the construction of the CECP site, laydown and parking areas, and all linear facilities. The Tier 3 Construction SWPPP shall be submitted to the City for review and comment and to the CPM for approval and shall contain all of the elements required by the General Permit for Construction Activities (WQO-99-08-DQM), the Municipal Permit (Order R9-2007-0001), and the City's current Storm Water Standards Manual.

Verification: Prior to site mobilization, the project owner shall submit to the Compliance Project Manager (CPM) a copy of the Tier 3 Construction SWPPP that has been reviewed by the City and retain a copy on site.

The project owner shall submit to the CPM all copies of correspondence between the project owner and the City regarding the Tier 3 Construction SWPPP within 10 days of its receipt or submittal. This information shall include copies of the Notice of Intent and Notice of Termination submitted to the State Water Resources Control Board for enrollment under the NPDES General Permit for Construction Activities.

SOIL&WATER-2: Potable water shall not be used for any construction activity that is suitable for non-potable water use if a non-potable water source is available at the project site. Prior to site mobilization, the project owner shall submit to the CPM a Non-Potable Construction Water Use Plan (plan) for the supply and use of non-potable water in construction activities. The plan shall consider the use of ocean water and reclaimed water available at the site. The plan shall specify those construction activities that would use non-potable water and those construction activities that would use potable water.

Verification: Prior to site mobilization, the project owner shall submit to the CPM for review and approval the Non-Potable Construction Water Use Plan.

Within the Monthly Compliance Report, the project owner shall report the volume of potable and non-potable water used and the construction activities for which each was used.

SOIL&WATER-3: The project owner shall comply with the requirements of the San Diego County Municipal Storm Water Permit (Order R9-2007-0001, NPDES No CAS0108758) and City of Carlsbad (City) Municipal Code Title 15, Chapter 15.12. The project owner shall develop and implement a Storm Water Pollution Prevention Plan (Industrial SWPPP) for the operation of CECP. The industrial SWPPP shall be submitted to the City for review and comment and to the CPM for review and approval and shall be prepared in accordance with the requirements of the NPDES General Permit for Industrial Activities (WQO-97-03-DQM) and the City's Storm Water Standards Manual.

Verification: Prior to commercial operation, the project owner shall submit to the CPM a copy of the Industrial SWPPP and retain a copy on site.

The project owner shall submit to the CPM all copies of all correspondence between the project owner and the City regarding the Industrial SWPPP within 10 days of its receipt or submittal. This information shall include a copy of the Notice of Intent submitted to the State Water Resources Control Board for enrollment under the NPDES General Permit for Industrial Activity.

SOIL&WATER-4: The project owner shall submit to the San Diego Regional Water Quality Control Board (SDRWQCB) all information required by the SDRWQCB to obtain a Waste Discharge Requirements (WDR) Order for the discharge of CECP industrial wastewater to the Pacific Ocean. The project owner shall submit to the CPM all copies of correspondence between the project owner and the SDRWQCB regarding the WDR Order within 10 days of its receipt or submittal.

Verification: At least two weeks prior to the operation of the CECP ocean-water purification system, the project owner shall submit to the CPM a copy of the approved WDR Order for the discharge of CECP industrial wastewater to the Pacific Ocean.

The project owner shall submit to the CPM the annual water quality monitoring report required by the SDRWQCB in the annual compliance report. The project owner shall notify the CPM of all WDR Order violations, the actions taken or planned to bring the project back into compliance with the WDR Order, and the date compliance was reestablished.

SOIL&WATER-5: Prior to the use of potable water from the City of Carlsbad (City) for any purpose related to the construction or operation of the CECP, the project owner shall provide the CPM with copies of all permit(s) for the delivery and hookup of potable water. The project owner shall comply with the City's Municipal Code Title 14, Chapter14.08 for the supply and use of potable water. Potable water shall not be used for any construction or operation activity that is suitable for non-potable water use.

Verification: No later than 30 days prior to the connection to the City's potable water system, the project owner shall provide the CPM with copies of all permits for the delivery and hookup of potable water.

The project owner shall submit to the CPM any water quality monitoring reports required by the City in the annual compliance report. The project owner shall notify the CPM of any violations of the permit(s) and conditions, the actions taken or planned to bring the project back into compliance with the permit(s), and the date compliance was reestablished.

SOIL&WATER-6: Prior to the use of potable, recycled, or ocean water during the operation of the CECP, 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 volume of all water sources used by the CECP. The metering devices shall be operational for the life of the project, and an annual summary of daily water use by the CECP, differentiating between potable, recycled, and ocean water, shall be submitted to the CPM in the annual compliance report.

Verification: At least 60 days prior to use of any water source for CECP operation, the project owner shall submit to the CPM evidence that metering devices have been installed and are operational on all water supply pipelines serving the project. The project owner shall provide a report on the servicing, testing, and calibration of the metering devices in the annual compliance report.

The project owner shall submit a water use summary report to the CPM in the annual compliance report for the life of the project. The annual summary report shall be based on and shall distinguish recorded daily use of potable, recycled, and ocean water. The report shall include calculated monthly range, monthly average, and annual use by the project in both gallons per minute and acre-feet. After the first year and for subsequent years, this information shall also include the yearly range and yearly average potable and ocean water used by the project.

SOIL&WATER-7: Prior to connection to the City of Carlsbad's (City) sanitary sewer system, the project owner shall submit to the City all information and documentation required to satisfy City of Carlsbad Municipal Code Title 13, Chapters 13.04, 13.10, and 13.16 for the discharge of recycled and sanitary wastewater to the City's sewer system. During CECP 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 documentation required to satisfy Municipal Code Title 13, Chapters 13.04, 13.10, and 13.16 and provide the CPM a copy of the City permits for the discharge of recycled and sanitary wastewater to the City's sewer system.

During operations, the project owner shall submit to the CPM any wastewater quality monitoring reports required by the City in the annual compliance report. The project owner shall submit any notices of violation 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-8: If the project owner relies on recycled water for CECP water supply, the project owner shall provide the CPM two copies of the executed Recycled Water Purchase Agreement (agreement) with the recycled water producer and the City of Carlsbad (City) for the supply and delivery of tertiary treated recycled water to the CECP. The CECP shall not connect to the City's recycled water pipeline without the final agreement in place. The project owner shall comply with the requirements of Title 22 and Title 17 of the California Code of Regulations and section 13523 of the California Water Code.

Verification: No later than 180 days prior to the connection to the City's recycled water pipeline, the project owner shall submit two copies of the executed agreement for the long-term supply and delivery of tertiary treated recycled water to the CECP. The agreement shall specify a maximum delivery rate of 945 gpm and shall specify all terms and costs for the delivery and use of recycled water by the CECP.

No later than 60 days prior to connection to the City's recycled water pipeline, the project owner shall submit to the CPM a copy of the Engineering Report and Cross Connection inspection and approval report from the California Department of Public Health and all water reuse requirements issued by the San Diego Regional Water Quality Control Board.

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 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.

The evidence on this topic was undisputed. (02/04/10 RT 155:16-25,156:1-13, Exs. 4, § 5.3, Appendices 5.3A – 5.3F; 11; 35, § 5.3; 49, DR 126, 129-131; 117; 125; 200, § 4.3.)

SUMMARY AND DISCUSSION OF THE EVIDENCE

The term "cultural resource" is used broadly to include the several categories of resources, such as: 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) and/or the National Register of Historic Places (NRHP).[1] An archaeological resource that does not qualify as an historic resource may be considered a "unique" archaeological resource under CEQA. (*See* Pub. Res. Code, § 21083.2.) 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. (Exs. 4, § 5.3.2.1; 200, p. 4.3-1 et seq.)

Direct impacts to archaeological resources can occur as a result of surface and subsurface ground disturbance of known or unknown deposits during construction activities. Direct impacts to historic structures can occur when they are moved to make way for new construction, when vibrations or emissions from new construction impair the stability or degrade the materials of historic structures, or when new buildings are stylistically incompatible with historic

[1] Public Resources Code, section 5024.1, Title 14, California Code of Regulations, section 4852. The CRHR website can be viewed at: <http://www.parks.ca.gov/?page_id=21238> See also, the National Historical Preservation Act of 1966 (as amended), Title 16, United States Code, section 470 et seq. The NRHP website can be viewed at: <http://www.cr.nps.gov/nr/>

structures. New construction can also cause Indirect impacts to archaeological or historic resources such as soil erosion, inadvertent damage, and/or vandalism due to increased public access to the resources. (Ex. 200, p. 4.3-16.)

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. However, sensitivity for archaeological and historic resources within the CECP project area is considered low due to extensive excavation, grading, and deposition of fill that occurred during initial construction of the EPS in the 1950's. Prior to construction of EPS, the entire property was graded, leveled and filled, a stream was channelized, portions of the lagoon were dredged, and an underground water intake pipeline was built to bring water from the ocean. The existing storage tank area at the EPS site, which includes a portion of the CECP footprint, was excavated to bedrock during construction of the tanks in the 1960's and 1970's and up to 9 feet of fill was added for grading purposes. (Exs. 4, § 5.3.3.1 et seq.; 200, p.4.3-4 et seq.)

2. Methodology

The Applicant conducted a full cultural resource inventory for the CECP site and linear facility routes, including both archival research and field surveys of the area. The study area of potential effect (APE) was defined as a one-mile radius around the immediate project site and laydown areas and at least a 0.25-mile radius around the linear corridors. (Ex. 4, § 5.3.3.5.1.)

a. Archival Research

Archival research included records searches at the South Coastal Information Center of the California Historical Resources Information System (CHRIS). The CHRIS files revealed that there had been 61 previous cultural resource surveys conducted in the project area and that 35 previously recorded resources had been identified within one mile of the project area. (Exs. 4, § 5.3.3.5.1; 200, p. 4.3-11.)

Two of the previously recorded 35 cultural resources within one mile of the project site were historic, built environment resources. The other 33 resources were either prehistoric sites or isolates. None of these resources were located

within the project footprint, except Site CA-SDI-6751. However, it is likely that Site CA-SDI-6751 was previously destroyed by grading activity. Sites CA-SDI-6831 and CA-SDI-16885 are located near the CECP site but these resources do not meet the criteria for nomination to either the NRHP or CRHR and, in any event, they will not be affected by project construction. There is no evidence that the project will have any effect on the other previously recorded archaeological resources that are located outside the CECP project boundaries. (Exs. 4, §§ 5.3.3.5.1, 5.3.4; 200, p. 4.3-11).

In addition to the CHRIS records searches, Applicant's consultants conducted literature searches at several libraries and five historical societies, the City of Carlsbad Planning Department, and the San Diego County's Local Register of Historical Resources to determine the location of any historic resources listed by local city and county ordinances that might be impacted by the CECP. (Exs. 4, § 5.3.3.5.6, Appendix 5.3B; 200, p. 4.3-11.)

The Historic Property Data File for San Diego County contains a list of historic resources more than 45 years old and identifies two historic resources of interest within the project APE—the Carlsbad Santa Fe Depot and a residence at 519 Chinquapin Avenue. The Carlsbad Santa Fe Depot, located at 400 Carlsbad Village Drive about one mile north of the project site, is listed on the NRHP but there is no evidence that construction of the CECP will affect the Depot. The residence at 519 Chinquapin Avenue is located approximately one block from the CECP site boundaries. It was evaluated through the federal Section 106 process and was determined not eligible for the NRHP although it has not been evaluated for local listing or for listing on the CRHR. (Exs. 4, § 5.3.3.5.6, Appendix 5.3B; 200, pp. 4.3-11 – 4.3-13.)

b. Field Surveys

Applicant's archaeologists conducted pedestrian surveys of the entire APE, including the site, laydown areas, the reclaimed water pipeline alignment, the proposed 230-kV switchyard site, and the 230-kV transmission interconnection corridor. No archaeological resources were observed. Due to previous ground disturbance from industrial activity in the area, the archaeologists believe that any remaining cultural resources have already been destroyed. (Exs. 4, § 5.3.3.5.3; 200, pp. 4.3-12 – 4.3-13.)

In addition, Applicant's consultants performed an architectural reconnaissance field survey to assess the project's potential impacts on the historic built

environment. The architectural study area included a parcel containing Fuel Tanks 5, 6, and 7, the Cannon Substation, and a segment of the former Atchison, Topeka, and Santa Fe Railway's "Surfline," now owned by the North San Diego County Transit District. (Exs. 4, § 5.3.3.5.4, Appendix 5.3B; 200, pp. 4.3-13 – 4.3-14.)

Tanks 5, 6, and 7 are situated in deep containment pits with sloped concrete walls, primarily sitting on asphalt and loose gravel. Since the tanks are less than 50 years old and are of common design for tanks of this kind, they are not historically significant and their removal during project construction will not constitute a significant impact. The Cannon Substation, located southeast of Tanks 4, 5, and 6, is less than 50 years old, of common design, and is not considered historically significant. A segment of the "Surfline" Railroad runs through the EPS site. Although the "Surfline" was built circa 1882, it does not meet criteria for listing in the NRHP, the CRHR, or the San Diego County Register of Historical Resources because it has been degraded over time by use and community growth along the line. There is no evidence that the "Surfline" will be physically impacted by construction of the CECP. (Exs. 4, § 5.3.3.5.4; 200, pp. 4.3-13 – 4.3-14, 4.3-17 – 4.3-19.)

Finally, the EPS itself, a power plant constructed post-World War II to meet growing electricity demand, does not represent a unique power plant of that era and is therefore not considered a significant historic resource eligible for listing in the NRHP or the CRHR. (Ex. 4, § 5.3.3.5.4.)

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. The NAHC's records did not identify the presence of traditional resource sites or sacred lands in the project area. (Ex. 4, § 5.3.3.5.5.) In June 2007, Applicant sent letters describing the CECP to Native American groups and individuals identified by the NAHC as interested in monitoring development projects but none of the letter recipients filed any responses. (*Id*., Appendix 5.3A) In December 2007, Staff sent similar letters to Native American groups and received a response from the San Luis Rey Band of Mission Indians, requesting the opportunity to monitor the project's ground disturbance activities in accordance with applicable law and NAHC Guidelines. (Ex. 200, pp. 4.3-14 – 4.3-15.)

To ensure that qualified Native American monitors will have access to observe ground disturbance at the CECP site, Condition of Certification **CUL-3** requires the project owner to include Native American participation in the Cultural Resources Monitoring and Mitigation Plan. Condition **CUL-6** requires the project owner to obtain Native American monitors from the NAHC to observe ground disturbance, including tank removal and soil remediation, in areas where excavations may extend into native soils.

4. Potential Impacts and Mitigation

As discussed above, no significant historic structures either on or near the project site, laydown area, or transmission line route will be directly or indirectly affected by the project. (Exs. 4, § 5.3.4; 200, pp. 4.3-18 – 4.3-19.)

Ground disturbance during construction at the site, along the linear corridors, and at the laydown areas could result in direct or indirect impacts to unknown archaeological resources buried in native soils beneath the artificial fill material. 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.[2] If any newly found archaeological resources are eligible for the CRHR, direct impacts from construction could materially impair the resources. (Ex. 200, pp. 4.3-17 – 4.3-18.)

Conditions **CUL-1** through **CUL-8** 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 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.

[2] According to Staff, the past ecology of the area would have been attractive to Native Americans, and the geology would have contributed to the burial of prehistoric deposits. Therefore, the Conditions require that a qualified archaeologist coordinate with the Geotechnical Investigation required by the **Facility Design** Conditions and examine the cores of any geotechnical borings to determine whether any cultural material can be identified. (Ex. 200, p. 4.3-18.)

5. Cumulative Impacts

The evidentiary record indicates that potential cumulative impacts to cultural resources due to construction of the CECP are not significant. The Conditions of Certification, below, are intended to mitigate any impacts to cultural resources related to CECP's construction activities. Other future project proponents in the CECP area must also mitigate impacts to as-yet-undiscovered subsurface archaeological deposits. As a result, any incremental effect of the CECP in conjunction with other projects will not be cumulatively considerable. (Ex. 200, p. 4.3-20.)

FINDINGS OF FACT

Based on the uncontroverted evidence, the Commission makes the following findings:

1. Applicant's consultants conducted archival research and pedestrian surveys of the Area of Potential Affect (APE), which included a one-mile radius around the immediate project site and laydown areas and at least a 0.25-mile radius around the linear corridors.

2. Archival research at the South Coastal Information Center of the California Historical Resources Information System (CHRIS) revealed that three archaeological or historic resources were recorded within the APE; however, it is likely that Site CA-SDI-6751 was previously destroyed by grading activity and Sites CA-SDI-6831 and CA-SDI-16885 do not meet the criteria for nomination to either the NRHP or CRHR and, in any event, they will not be affected by project construction.

3. The Historic Property Data File for San Diego County identified two historic resources of interest within the APE—the Carlsbad Santa Fe Depot, which is listed on the National Registry of Historic Places (NRHP), and a residence at 519 Chinquapin Avenue, which is not eligible for the NRHP; however there is no evidence that construction of the CECP will affect either the Depot or the residence.

4. Pedestrian surveys revealed additional structures that could be eligible for listing as historic resources on the NRHP or on the California Registry of Historic Resources (CRHR), including EPS Fuel Tanks 5, 6, and 7, the Cannon Substation, and a segment of the former Atchison, Topeka, and Santa Fe Railway's "Surfline; however, none of these structures were found eligible for listing.

5. The Native American Heritage Commission has not recorded any sacred Native American properties within the project vicinity; however, the San Luis Rey Band of Mission Indians has requested the opportunity to monitor ground disturbance activities in accordance with applicable law and NAHC Guidelines.

6. The potential for impacts to unknown cultural resources may not be discovered until subsurface soils are exposed during excavation and construction.

7. The project owner will implement a Cultural Resources Monitoring and Mitigation Plan 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 periodic Cultural Resources Report.

8. There is no evidence that the CECP's incremental effect on cultural resources in conjunction with other projects in the area will be cumulatively considerable.

CONCLUSIONS OF LAW

1. The Commission therefore concludes that implementation of the Conditions of Certification, below, will ensure that the project conforms with all applicable laws, ordinances, regulations, and standards relating to cultural resources as set forth in the evidentiary record and also listed in pertinent portions of **Appendix A** of this Decision.
2. Implementation of the mitigation measures described in the evidentiary record and contained in the Conditions of Certification, below, will ensure that any direct, indirect, or cumulative adverse impacts to cultural resources resulting from project-related activities will be insignificant.

CONDITIONS OF CERTIFICATION

CUL-1 Prior to the start of ground disturbance,[3] including tank removal and soil remediation, 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

[3] "Ground disturbance" includes "preconstruction site mobilization"; "construction ground disturbance"; and "construction grading, boring and trenching," as defined in the General Conditions for this project.

needed, to assist in monitoring, mitigation, and curation activities. The project owner shall ensure that the CRS makes recommendations regarding the eligibility for listing in the California Register of Historical Resources (CRHR) of any cultural resources that are newly discovered or that may be affected in an unanticipated manner (discovery). No ground disturbance, including tank removal and soil remediation, shall occur prior to CPM approval of the CRS, unless specifically approved by the CPM. Approval of a CRS may be denied or revoked for non-compliance on this project.

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, resources mitigation and field experience in California.
3. At least one year of experience in a decision-making capacity on cultural resources projects in California and the appropriate training and experience to knowledgably make recommendations regarding the significance of cultural resources.

The resumes of the CRS and alternate CRS shall include the names and telephone numbers of contacts familiar with the work of the CRS/alternate CRS on referenced projects and demonstrate to the satisfaction of the CPM that the CRS has the appropriate education and experience to accomplish the cultural resource tasks that must be addressed during ground disturbance, including tank removal and soil remediation. After all ground disturbance is completed and the CRS has fulfilled all responsibilities specified in these cultural resources conditions, the project owner may discharge the CRS, if the CPM approves. With the discharge of the CRS, these cultural resources conditions no longer apply to the activities of this power plant.

CULTURAL RESOURCES 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's 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.

4. CRMs assigned to monitor during tank removal and soil remediation shall hold an appropriate hazardous waste operations training certificate(s).

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:

1. At least 45 days prior to the start of ground disturbance, including tank removal and soil remediation, the project owner shall submit the resume for the CRS, and alternate(s) if desired, to the CPM for review and approval.

2. At least 10 days prior to a termination or release of the CRS, or within 10 days after the resignation of a CRS, the project owner shall submit the resume of the proposed new CRS to the CPM for review and approval. At the same time, the project owner shall also provide to the approved new CRS the AFC and all cultural documents, field notes, photographs, and other cultural materials generated by the project.

3. At least 20 days prior to ground disturbance, including tank removal and soil remediation, the CRS shall provide a letter naming anticipated CRMs for the project and stating that the identified CRMs meet the minimum qualifications for cultural resources monitoring required by this Condition. CRMs possessing current hazardous waste operations certificates shall be identified. If additional CRMs are obtained during the project, the CRS shall provide additional letters to the CPM identifying the CRMs and attesting to the qualifications of the CRMs, at least five days prior to the CRMs beginning on-site duties.

4. At least 10 days prior to beginning tasks, the resume(s) of any additional technical specialists shall be provided to the CPM for review and approval.
5. At least 10 days prior to the start of ground disturbance, including tank removal and soil remediation, 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 ground disturbance, including tank removal and soil remediation, if the CRS has not previously worked on the project, the project owner shall provide the CRS with copies of the Application for Certification (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, all linear facilities, access roads and laydown areas. Maps shall include the appropriate U.S. Geological Survey quadrangles and a map at an appropriate scale (e.g., 1:2000 or 1 inch = 200 feet') 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.

The CRS and CRM shall coordinate their oversight of ground disturbance with the Geotechnical Investigation required by the **Facility Design** Conditions of Certification.

No ground disturbance, including tank removal and soil remediation, shall occur prior to CPM approval of maps and drawings, unless specifically approved by the CPM.

If construction of the project should 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, including tank removal and soil remediation is completed.

The project owner shall notify the CRS and CPM of any changes to the scheduling of the construction phases.

Verification:

1. At least 40 days prior to the start of ground disturbance, including tank removal and soil remediation, 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.

2. If there are changes to any project-related footprint, revised maps and drawings shall be provided at least 15 days prior to start of ground disturbance, including tank removal and soil remediation, for those changes.
3. If project construction is phased, if not previously provided, the project owner shall submit the subject maps and drawings 15 days prior to each phase.
4. On a weekly basis during ground disturbance, including tank removal and soil remediation, a current schedule of anticipated project activity shall be provided to the CRS and CPM by letter, email, or fax.
5. Within 5 days of identifying changes, the project owner shall provide written notice of any changes to scheduling of construction phase.

CUL-3 Prior to the start of ground disturbance, including tank removal and soil remediation, 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 ground disturbance, including tank removal and soil remediation, shall occur prior to CPM approval of the CRMMP, unless specifically approved by the CPM.

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

1. A 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 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. Identification of the person(s) expected to perform each of the tasks, his or her responsibilities, and the reporting relationships between project construction management and the mitigation and monitoring team.
4. A description of the manner in which Native American observers or monitors will be included, the procedures to be used to select them, their roles and responsibilities, and provisions to comply with NAHC Guidelines.
5. A statement that all cultural resources encountered shall be recorded on a Department of Parks and Recreation (DPR) form 523 and mapped and photographed. In addition, all archaeological materials retained as a result of the archaeological investigations (survey, testing, data recovery) shall be curated in accordance with the California State Historical Resources Commission's *Guidelines for the Curation of Archaeological Collections*, into a retrievable storage collection in a public repository or museum.
6. 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.
7. A statement that the CRS has access to equipment and supplies necessary for site mapping, photography, and recovery of any cultural resources materials that are encountered during construction and cannot be treated prescriptively.
8. A description of the contents and format of the Cultural Resources Report (CRR), which shall be prepared according to ARMR guidelines.

Verification:

1. At least 30 days prior to the start of ground disturbance, including tank removal and soil remediation, the project owner shall submit the subject CRMMP to the CPM for review and approval. Ground disturbance, including tank removal and soil remediation, may not commence until the CRMMP is approved, unless specifically approved by the CPM.
2. At least 30 days prior to the start of ground disturbance, including tank removal and soil remediation, 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, Department of Parks and Recreation (DPR) 523 forms, and additional research reports not previously submitted to the California Historical Resources Information System (CHRIS) and the State Historic Preservation Officer (SHPO) shall be included as an appendix to the CRR.

If the 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:

1. Within 90 days after completion of ground disturbance (including landscaping), the project owner shall submit the CRR to the CPM for review and approval. If any reports have previously been sent to the CHRIS, then receipt letters from the CHRIS or other verification of receipt shall be included in an appendix.
2. Within 10 days after CPM approval, the project owner shall provide documentation to the CPM confirming that copies of the CRR have been provided to the SHPO, the CHRIS, and the curating institution, if archaeological materials were collected.
3. Within 30 days after requesting a suspension of construction activities, the project owner shall submit a draft CRR to the CPM for review and approval.

CUL-5 Prior to and for the duration of ground disturbance, including tank removal and soil remediation, 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 may be discontinued when ground disturbance, including tank removal and soil remediation, is completed or suspended, but shall be resumed when ground disturbance, such as landscaping, resumes. The training shall include:

1. A discussion of applicable laws and penalties under the law;
2. Samples or visuals of artifacts that might be found in the project vicinity;
3. Instruction that the CRS, alternate CRS, and CRMs have the authority to halt construction in the area of a discovery to an extent sufficient to

ensure that the resource is protected from further impacts, as determined by the CRS;

4. Instruction that employees are to halt work on their own in the vicinity of a potential cultural resources discovery and shall contact their supervisor and the CRS or CRM, and that redirection of work would be determined by the construction supervisor and the CRS;
5. An informational brochure that identifies reporting procedures in the event of a discovery;
6. An acknowledgement form signed by each worker indicating that he/she has received the training; and
7. A sticker that shall be placed on hard hats indicating that environmental training has been completed.

No ground disturbance, including tank removal and soil remediation, 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 ground disturbance, including tank removal and soil remediation, the CRS shall provide the training program draft text and graphics and the informational brochure to the CPM for review and approval, and the CPM will provide to the project owner a WEAP Training Acknowledgement form for each WEAP-trained worker to sign.

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 full time all ground disturbance of native soils at the project site, along linear facilities and roads, and at parking and other ancillary areas, including wetlands mitigation areas, to ensure there are no impacts to undiscovered resources and to ensure that known resources are not impacted in an unanticipated manner.

Full-time archaeological monitoring for this project shall be the archaeological monitoring of all earth-moving activities on the project site and laydown areas, including tank removal and soil remediation, for as long as the activities are ongoing. Full-time archaeological monitoring shall require at least one monitor where machines are actively disturbing native soils. If an excavation area or areas are 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 believes that the current level of monitoring is not appropriate in certain locations, a letter or e-mail detailing the justification

for changing the level of monitoring shall be provided to the CPM for review and approval prior to any change in the level of monitoring.

If future geotechnical core borings are conducted for the project, they shall be monitored and the boring cores examined by a geoarchaeologist or qualified archaeologist for the presence of cultural material. If cultural material is identified, that information shall be reported to the CPM within 24 hours. Whether or not cultural material is identified, the results of the core examinations shall be provided in a report to the CPM.

In the event that the CRS determines that the current level of monitoring is not appropriate in certain locations, a letter or e-mail detailing the justification for changing the level of monitoring shall be provided to the CPM for review and approval prior to any change in the level of monitoring.

The research design in the CRMMP shall govern the collection, treatment, retention/disposal, and curation of any archaeological materials encountered.

On forms provided 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 Monthly Compliance Report (MCR). If there are no monitoring activities, the summary report shall specify why monitoring has been suspended.

The CRS, at his or her discretion, or at the request of the CPM, may informally discuss cultural resources monitoring and mitigation activities with Energy Commission technical staff.

Cultural resources monitoring activities are the responsibility of the CRS. Any interference with monitoring activities, removal of a monitor from duties assigned by the CRS, or direction to a monitor to relocate monitoring activities by anyone other than the CRS shall be considered non-compliance with these Conditions.

Upon becoming aware of any incidents of non-compliance with the Conditions and/or applicable LORS, the CRS and/or the project owner shall notify the CPM by telephone or e-mail within 24 hours. The CRS shall also recommend corrective action to resolve the problem or achieve compliance with the Conditions. When the issue is resolved, the CRS shall write a report describing the issue, the resolution of the issue, and the effectiveness of the resolution measures. This report shall be provided in the next MCR for the review of the CPM.

The project owner shall obtain a Native American monitor to monitor ground disturbance in any areas where Native American artifacts are discovered in native soils. 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. If efforts to obtain the services of a qualified Native American monitor are unsuccessful, the project owner shall immediately inform the CPM. The CPM will either identify potential monitors or will allow ground disturbance, including tank removal and soil remediation to proceed without a Native American monitor.

Verification:

At least 30 days prior to the start of ground disturbance, including tank removal and soil remediation, 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 more than 50 years of age were discovered" to the CPM as an e-mail or in some other form acceptable to the CPM. The statement shall also include information based on the twice daily observations of soils by the archaeological monitor and indicate the likelihood of disturbing native soils. 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.

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.

If geotechnical core borings are conducted and cultural material is identified by a geoarchaeologist or archaeologist, the CPM shall be notified within 24 hours. Within 30 days after the examination of the core borings is completed, the CRS shall provide a copy of the results of the core examinations in a report to the CPM.

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, including tank removal and soil remediation, shall be accomplished under the direction of the construction supervisor in consultation with the CRS.

In the event cultural resources more than 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 a.m. on Friday and 8:00 a.m. on Sunday morning, including a description of the discovery (or changes in character or attributes), the action taken (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:

1. At least 30 days prior to the start of ground disturbance, including tank removal and soil remediation, the project owner shall provide the CPM and CRS with a letter confirming that the CRS, alternate CRS, and CRMs have the authority to halt construction activities in the vicinity of a cultural resources discovery, and that the project owner shall ensure that the CRS notifies the CPM within 24 hours of a discovery, or by Monday morning if the cultural resources discovery occurs between 8:00 a.m. on Friday and 8:00 a.m. on Sunday morning.
2. Completed DPR form 523s shall be submitted to the CPM for review and approval no later than 24 hours following the notification of the CPM, or 48 hours following the completion of data recordation/recovery, whichever is more appropriate for the subject cultural resource, as determined by the CRS.

CUL-8 If fill soils must be acquired from a non-commercial borrow site or disposed of to a non-commercial disposal site, unless less-than-five-year-old surveys of these sites for archaeological resources are documented to and approved by the CPM, the CRS shall survey the borrow and/or disposal site(s) for cultural resources and record on DPR 523 forms any that are identified. When the survey is completed, the CRS shall convey the results and recommendations for further action to the project owner and the CPM, who will determine what, if any, further action is required. If the CPM determines that significant archaeological resources that cannot be avoided are present at the borrow site, all these conditions of certification shall apply. The CRS shall report on the methods and results of these surveys in the CRR.

Verification:

As soon as the project owner knows that a non-commercial borrow site and/or disposal site will be used, he/she shall notify the CRS and CPM and provide documentation of previous archaeological survey, if any, dating within the past five years, for CPM approval.

In the absence of documentation of recent archaeological survey, at least 30 days prior to any soil borrow or disposal activities on the non-commercial borrow and/or disposal sites, the CRS shall survey the site/s for archaeological resources. The CRS shall notify the project owner and the CPM of the results of the cultural resources survey, with recommendations, if any, for further action.

D. GEOLOGICAL AND PALEONTOLOGICAL RESOURCES

This topic summarizes the project's potential exposure to geologic hazards as well as its potential impacts on geologic, mineralogic, and paleontologic resources.

The evidence evaluates whether the project site is located in an area where geologic hazards, such as faulting and seismicity, liquefaction, dynamic compaction, hydrocompaction, subsidence, expansive soils, landslides, tsunamis, or seiches, could damage project structures or injure occupants of the facility. The evidence also discusses whether project construction or operation could potentially result in adverse impacts on geologic or mineralogic resources in the area. Finally, the evidence examines whether paleontologic resources, such as fossilized remains or trace remnants of prehistoric plants or animals, could be present at the site and, if so, whether the project's potential impacts on these resources will be adequately mitigated.

The evidence on this topic was undisputed. (02/04/10 RT 155:16-25,156:1-13, Exs. 4, §§ 5.4, 5.8, Appendices 5.4A, 5.8A; 35, §§ 5.4, 5.8; 128; 139; 200, § 5.2.)

SUMMARY AND DISCUSSION OF THE EVIDENCE

1. Site Description

The project site and linear facilities are located inland of the Pacific Ocean on a coastal plain at the edge of the Peninsular Ranges Geomorphic Province of South California. The coastal area has undergone several episodes of marine inundation and subsequent marine regression over the past 54 million years resulting in the deposition of a thick sequence of marine and non-marine sedimentary rocks on the uplifted and eroded high-relief basement terrain. Accelerated fluvial erosion during periods of heavy rainfall, coupled with the lowering of the base sea level during the quaternary, has resulted in the rolling hills, mesas, and deeply increased valley present in the area. (Ex. 4, §§ 5.4.3.1, 5.4.3.2.)

Evidence indicates that the original ground elevation on the 23-acre site was at least 40 feet above mean sea level (amsl). The peninsula on which the project will be located is an elevated plateau and the margins drop off relatively steeply

into a lagoon on three sides. The slope to the west from existing Encina Power Plant structures has a more gradual drop towards the Pacific Ocean. (Ex. 200, p. 5.2-4.)

The soils at the project site consist of sandy sediments of the Santiago Formation and artificial fill, which has been used over the years for grading the site. The fill overlies older quaternary marine and non-marine (Paralic) deposits, which overlie the Esocene-aged Santiago Formation basal unit. According to Staff, depths from ground surface to the Quaternary paralic deposits/Eocene Santiago Formation contact are best expressed in terms of elevation relative to sea level. However, there is no conclusive information in the record regarding the depth of the Santiago Formation at the site due to inconsistent data submitted by the Applicant. As discussed below, the **Facility Design** Conditions of Certification require a site-specific geotechnical investigation to provide accurate data on the depth of the Santiago Formation beneath the project site. (Exs. 4, §§ 5.4.3.2, 5.4.3.3; 200, 5.2-7.)

Generally, the Santiago Formation consists of up to three separate light-colored, poorly bedded, poorly indurated, medium to coarse-grained arkosic sandstone units deposited in a marine environment. The basal unit contains the coarsest sand with local conglomerates, the central unit is composed predominantly of medium-grained sand, and the upper unit is coarse-grained. Interbeds of siltstone and claystone deposited in a lagoonal setting are common. Evidence indicates that fine-grained materials are prone to landsliding. Clayey sand beds, which occur within the region, affect soil plasticity fines and increase susceptibility to ground shaking or other geologic hazards. (Ex. 200, pp. 5.2-5 – 5.2-7, **Geo-Paleo Table 2**.)

2. Geologic Hazards

Due to the sedimentary deposits and stratigraphy of geologic units in the project vicinity, ground shaking, settlement, and expansive clays represent the main geologic hazards at the site. These potential hazards can be effectively mitigated by incorporating appropriate engineering and facility design features as required by Conditions of Certification **GEN-1, GEN-5,** and **CIVIL-1** in the **Facility Design** section of this Decision. (Ex. 200, p. 5.2-13.)

Appendix G of the CEQA Guidelines provides a checklist for evaluating whether a project site could expose persons or structures to geologic hazards based on

site-specific conditions.[1] The current version of the California Building Standards Code (CBSC) provides geotechnical and geologic investigation and design standards, which engineers must follow when designing a facility subject to geologic hazards.[2] (Ex. 200, pp. 5.2-12 – 5.2-12.)

Applicant did not provide a site-specific geotechnical investigation for the CECP's 23-acre site. Rather, Applicant submitted the geotechnical report previously conducted for the adjacent Desalinization Project. (Ex. 4, Appendix 5.4A.) The report described borings located near the site boundaries, which revealed fill materials composed of sand and gravel to depths of three to nine feet and groundwater depths of three to five feet. However, the evidence did not include subsurface information such as fill depth, compaction, or groundwater depth beneath the 23-acre project site. Further, the soil profile for the site was assumed to be Type D, but this assumption cannot be confirmed until a site-specific geotechnical report has been conducted. Therefore, to ensure that the project is properly designed to withstand regional geologic hazards, the soil profile including subsurface information and the depth of the Santiago Foundation beneath the project footprint, must be investigated before project design can be finalized. **Facility Design** Conditions **GEN-1, GEN-5,** and **CIVIL-1** require the project owner to perform a site-specific geotechnical investigation consistent with the requirements of the CBSC prior to final design approval. (Exs. 4, § 5.4.3.2; 200, pp. 5.2-7 – 5.2-8, 5.2-17.)

a. Faulting and Seismicity

The evidence describes the risks of active faulting and seismicity in the project area, which is designated by the CBSC as Seismic Zone 4, the most active seismic classification. (Exs. 200, pp. 5.2-8 – 5.2-10, Geo-Paleo Table 3; 4, § 5.4.3.4.)

Several northwest-striking active and potentially active faults are present in the project area and throughout the Peninsular Ranges Geomorphic Province. These active faults are listed in the *Fault Activity Map of California and Adjacent Areas with Locations and Ages of Recent Volcanic Eruptions* and summarized in Staff's **Geology and Paleontology Tables 3 and 4**.[3] However, no active faults cross the boundary of new construction at the CECP site and therefore, the site

[1] Title 14, California Code of Regulations, Section 15000, Appendix G, Section VI.

[2] Title 24, California Code of Regulations

[3] See also the California Historical Online Database maintained by the California Geological Survey at: *www.consrv.ca.gov/cgs/rghm/quakes/historical*

not located in an area designated by the Alquist-Priolo Special Studies Zone Act.[4] (Exs. 4, § 5.4.3.4, Figure 5.4-2; 200, pp. 5.2-8 – 5.2-10, Geo-Paleo Tables 3 and 4, 5.2-15.)

The evidence provides a thorough review of historic seismic activity within 80 miles of the site. Only one earthquake of Magnitude 5.5 or greater has occurred on active faults within 30 miles of the site although a total of 34 have taken place within 80 miles. The fault trace of the Rose Canyon Fault Zone is the closest major active strike-slip fault located offshore approximately two miles southwest of the site, which represents an estimated maximum magnitude earthquake event of 7.2 based on state-of-the-art modeling calculations.[5] The other active fault within 20 miles of the plant site is the Newport-Inglewood Fault Zone, which is a northwestward continuation to the Rose Canyon Structures and represents an estimated maximum magnitude earthquake event of 7.1. The next closest active right-lateral strike-slip faults are the Coronado Bank Fault, located approximately 20 miles offshore to the southwest, and the Elsinore Fault, located 25 miles to the northeast, which has an estimated maximum credible earthquake magnitude of 7.6. (Exs. 4, § 5.4.3.4, Figure 5.4-2; 200, pp. 5.2-8 – 5.2-12, 5.2-15 – 5.2-16.)

Facility Design Conditions **GEN-1**, **GEN-5**, and **CIVIL-1** address the design requirements for strong ground shaking consistent with the Seismic Hazards Mapping Act and the CBSC. Proper design in accordance with the **Facility Design** Conditions, as well as with recommendations presented in the site-specific, design-level geotechnical investigation, should adequately mitigate seismic hazards to current standards of practice and ensure that project structures are designed with adequate strength to resist the effects of Design Earthquake Ground Motion as defined by the CBSC. (Ex. 200, p. 5.2-17.)

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[4] Public Resources Code section 2621 et seq. This statute requires disclosure to potential buyers of existing real estate and a 50-foot setback for new occupied buildings if active faults cross the property boundary. Since the project site and linear alignments are not located within a designated Alquist-Priolo Earthquake Fault Zone, the set-back requirement does not apply. (Ex. 200, p. 5.2-16.)

[5] EQFAULT Version 3.00, a computer program for the deterministic estimation of peak site acceleration using three-dimensional articulated planar elements (faults), was used to model seismogenic sources. The site latitude and longitude inputs were 33.1417 degrees and -116.3335 degrees, respectively. (Ex. 200, p. 5.2-8.)

b. Liquefaction

Liquefaction is a condition in which a saturated cohesionless soil may lose shear strength because of a sudden increase in pore water pressure caused by an earthquake. Since groundwater depth at the CECP site is not known, the analysis of potential liquefaction effects cannot be performed until completion of the site-specific geotechnical investigation. Staff reviewed data from the Desalinization Project geotechnical report, which indicated that soils were dense to very dense at or above the groundwater table at borings conducted near the CECP site. Dense soils are unlikely to liquefy during an earthquake. Therefore, Staff believes that liquefaction potential would be minimal at the CECP site because adjacent soils are dense. To ensure that potential liquefaction damage at the CECP site is properly analyzed, the project owner must include a site-specific liquefaction analysis in the geotechnical investigation required by **Facility Design** Conditions **GEN-1, GEN-5,** and **CIVIL-1**. Ex. 200, p. 5.2-17.)

c. Other Geologic Hazards

The evidence also addresses potential hazards from lateral spreading, dynamic compaction, hydrocompaction, subsidence, expansive soils, landslide or mass wasting, flooding, tsunamis, and volcanic hazards. Based on data from the Desalinization Project geotechnical report, the likelihood of such geologic hazards to occur at the project site is considered low.[6] (Ex. 200, pp. 5.2-17 – 5.2-19.) However, the presumed low risk of these geologic hazards at the site must be confirmed in the project-specific geotechnical investigation. Implementation of **Facility Design** Conditions **GEN-1, GEN-5** and **CIVIL-1**, will ensure that potential impacts related to these phenomena are reduced to insignificant levels.

3. Geologic, Mineralogic, and Paleontologic Resources

No viable geologic or mineralogic resources are known to exist within three miles of the CECP site or linear routes, although several PCC-grade aggregate pits are present within seven miles of the site. Mesozoic age metamorphic rocks, which are not present in the site vicinity, are mined to produce the aggregate. There is

[6] Regarding flooding, the Federal Emergency Management Agency (FEMA) has identified the CECP site and linear alignments as lying within Unshaded Zone X, i.e., areas determined to be outside the 500-year flood plain. Regarding landslides, the site is located within Landslide Susceptibility Area 2, an area marginally susceptible to landsliding. Compliance with **Facility Design** Condition **GEN-4** will ensure that any landslide potential is mitigated to insignificant levels. (Exs. 200, p. 5.2-19; 4, § 5.4.3.5.4.)

evidence of historic gold mining within 15 miles of the site and current gemstone mining within 25 miles. However, given the industrialized nature of the site and the lack of metamorphic rocks suitable as a source of gold or gemstones, there would be very low potential for this site to have economically valuable industrial mineral deposits. (Ex. 200, p. 5.2-20.)

Both Applicant and Staff independently reviewed paleontologic records archived by the San Diego Natural History Museum (SDNHM), San Bernardino County Museum, and the Natural History Museum of Los Angeles County, as well as the online records database maintained by the University of California, Museum of Paleontology. Although many paleontologic sites are documented within three miles of the site, there are no records documenting paleontologic finds on the CECP site or along the project's linear alignments. (Exs. 4, § 5.8, Appendix 5.8A; 200, pp. 5.2-20 – 5.2-21.)

Pleistocene age paralic deposits, which represent soils mapped at the surface of the CECP site and the linear routes, are generally considered to have a high paleontological sensitivity. However, all fossils in the SDNHM collection from terrace sediments in the area were recovered from units on older wave-cut benches at higher elevations inland from the site, so the potential for project activities to impact significant paleontologic resources at the site is considered low. Surface and sub-surface fill materials are assigned a zero sensitivity rating and have no paleontologic potential because any fossils that may be discovered have been disturbed and cannot provide useful scientific information. (Ex. 200, p. 5.2-21.)

By contrast, the Eocene age Santiago Formation, which has been mapped in the floor of the current tank farm is considered highly sensitive. Fossil remains have been documented at the nearby Carlsbad State Beach, so the potential to impact paleontologic resources near the beach area would be high. The nearest documented fossil locality is approximately 500 to 750 feet south of the ocean-water pipeline intake and discharge locations. Any excavations for these pipelines, in particular, would likely have a high potential to impact paleontologic resources. (Ex. 200, pp. 5.2-21 – 5.2-22.)

Conditions **PAL-1** through **PAL-7** will require the project owner to implement several mitigation measures to reduce potential impacts to unknown subsurface resources during construction-related excavations. The mitigation measures include a worker education program in conjunction with the monitoring of earthwork activities by a qualified professional paleontologist. Earthwork will be halted whenever potential fossils or other paleontologic resources are recognized

by either the paleontologist or the workers. In addition, the project owner must submit a Paleontological Monitoring and Mitigation Plan for approval prior to the start of excavation.

4. Cumulative Impacts

Cumulative impacts correspond to a project's potential incremental effect, together with other closely related past, present, and reasonably foreseeable future projects whose impacts on geologic, mineralogic, and paleontologic resources may compound or increase the incremental effect of the project on such resources. (Ex. 200, p. 5.2-23.)

Engineering design consistent with the requirements of the CBSC will ensure that the project is constructed to adequately withstand any potential geologic hazards in the project vicinity. Since there are no known geologic or mineralogic resources in the project area, the project will not result in a significant direct, indirect, or cumulative impact on such resources. (Ex. 200, p. 5.2-23.)

As discussed above, significant paleontologic resources have been identified within close proximity to the project site and linear alignments but the likelihood of encountering paleontologic resources during project construction is low. Any potential impacts to paleontologic resources, either at the site where sensitivity is minimal or near ocean-water pipelines where sensitivity is high, will be mitigated to insignificant levels under Conditions **PAL-1** through **PAL-7**. Since project construction is not likely to impact or disturb valuable paleontologic resources at the site or along linear alignments, there is no evidence that project activities will result in cumulative impacts on regional paleontologic resources. (Ex. 200, pp. 5.2-23 – 5.2-24.)

5. Agency and Public Comments

There were no comments on this topic from regulatory agencies or the public.

FINDINGS OF FACT

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

1. The project site and linear facilities are located on a coastal plain adjacent to the Pacific Ocean at the edge of the Peninsular Ranges Geomorphic Province of South California.

2. Several northwest-striking active and potentially active faults are present in the project area and throughout the Peninsular Ranges Geomorphic Province.

3. Since no active faults are known to cross the boundary of new construction at the project site, the project is not subject to the set-back requirements mandated by the Alquist-Priolo Special Studies Zone Act.

4. The project site is located within Seismic Zone 4, which is the most active seismic designation under the California Building Standards Code (CBSC).

5. The primary geologic hazards that could affect the project include intense levels of earthquake-related ground shaking and settlement due to expansive clays.

6. The evidence contains a geotechnical evaluation prepared for the adjacent Desalination Project but it does not include site-specific information for the CECP footprint at the site as required by the California Building Standards Code.

7. Based on the Desalination Project geotechnical report, Applicant and Staff assumed that the soil profile at the site was Type D but this assumption cannot be confirmed until a site-specific geotechnical report has been conducted.

8. Conditions **GEN-1, GEN-4, GEN-5,** and **CIVIL-1** of the **Facility Design** section of this Decision require the project owner to conduct a site-specific geotechnical investigation, which confirms the soil profile, including composition and depth of fill materials as well as subsurface information such as groundwater depth and the depth of the Santiago Foundation beneath the project footprint, before project design can be finalized.

9. Conditions **GEN-1, GEN-4, GEN-5,** and **CIVIL-1** of the **Facility Design** section of this Decision require the project owner to design the project to current engineering standards to ensure that potential geologic hazards to the project will be adequately mitigated.

10. The evidence indicates that liquefaction, lateral spreading, dynamic compaction, hydrocompaction, landslides, flooding, tsunamis, and seiches pose low or negligible project risks but this assumption must be confirmed by the site-specific geotechnical investigation referenced above in Findings 7, 8, and 9.

11. Project construction will conform to the most recently adopted version of the California Building Code, including its seismic requirements for the project locality, based on the results of the required geotechnical investigation.

12. Geologic hazards to the project, including those from seismic events, would be low, but must be addressed in the geotechnical report provided consistent with the most recently adopted version of the California Building Code.

13. Compliance with the seismic requirements of the California Building Code effectively mitigates the danger to project structures from seismic ground shaking.

14. There is no evidence of existing or potential geologic or mineralogic resources at the project site or along the linear alignments.

15. Although many paleontologic sites are documented within three miles of the site, there are no records documenting paleontologic finds on the CECP site or along the project's linear alignments.

16. Since the ground surface at the site is disturbed, the surface fill material is unlikely to contain significant paleontologic resources within their natural context and is assigned a zero paleontologic sensitivity rating.

17. Fossil remains have been documented within 500 to 750 feet south of the existing EPS ocean-water pipeline intake and discharge location and, thus, any excavations for these pipelines have a high potential to impact paleontologic resources.

18. To mitigate any potential impacts to newly discovered paleontologic resources during excavation and construction, the project owner will implement a Paleontological Monitoring and Mitigation Plan, including a Worker Environmental Awareness Program, and employ an on-site Paleontologic Resource Specialist with authority to halt construction activities when paleontologic resources are identified.

19. There is no evidence that project construction or operation will result in cumulative impacts to geologic, mineralogic, or paleontologic resources.

CONCLUSIONS OF LAW

1. The Conditions of Certification included in the **Facility Design** section of this Decision and those listed below ensure that project activities will not cause significant adverse direct, indirect, or cumulative impacts to geologic, mineralogic, or paleontologic resources.

2. Compliance with the Conditions of Certification specified below and the **Facility Design** Conditions of Certification **GEN-1**, **GEN-4**, **GEN-5**, and **CIVIL-1** will ensure that the CECP conforms to all applicable laws,

ordinances, regulations, and standards related to geologic, mineralogic, and paleontologic resources as described in the evidentiary record and also identified in Appendix A of this Decision**.**

CONDITIONS OF CERTIFICATION

General Conditions of Certification with respect to engineering geology are included in Conditions of Certification **GEN-1, GEN-4**, **GEN-5,** and **CIVIL-1** in the **Facility Design** section. The Paleontologic Conditions of Certification are included in **PAL-1** through **PAL-7,** below.

PAL-1 The project owner shall provide the Compliance Project Manager (CPM) with the résumé 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 (PRR), the project owner shall obtain CPM approval of the replacement PRS. The project owner shall keep résumés on file for qualified Paleontological Resource Monitors (PRMs). If a PRM is replaced, the résumé of the replacement PRM shall also be provided to the CPM.

The PRS résumé shall include the names and phone numbers of references. The résumé 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 or the most current version available. The experience of the PRS shall include the following:

1. Institutional affiliations, appropriate credentials, and college degree;
2. Ability to recognize and collect fossils in the field;
3. Local geological and biostratigraphic expertise;
4. Proficiency in identifying vertebrate and invertebrate fossils; and
5. At least three years of paleontological resource mitigation and field experience in California and at least one year of experience leading paleontological resource mitigation and field activities.

The project owner shall ensure that the PRS obtains qualified paleontological resource monitors to monitor as they deem necessary

on the project. The PRMs shall have the equivalent of the following qualifications:

- BS or BA degree in geology or paleontology and one year of experience monitoring in California; or
- AS or AA in geology, paleontology, or biology and four years' experience monitoring in California; or
- Enrollment in upper division classes pursuing a degree in the fields of geology or paleontology and two years of monitoring experience in California.

Verification: (1) At least 60 days prior to the start of ground disturbance, the project owner shall submit a résumé and statement of availability of its designated PRS for on-site work.

(2) At least 20 days prior to ground disturbance, the PRS or project owner shall provide a letter with résumés naming anticipated monitors for the project, stating that the identified monitors meet the minimum qualifications for paleontological resource monitoring required by the condition. If additional monitors are obtained during the project, the PRS shall provide additional letters and résumés to the CPM. The letter shall be provided to the CPM no later than one week prior to the monitor's beginning on-site duties.

(3) Prior to the termination or release of a PRS, the project owner shall submit the résumé of the proposed new PRS to the CPM for review and approval.

PAL-2 The project owner shall provide to the PRS and the CPM, for approval, maps and drawings showing the footprint of the power plant, construction lay down areas, and all related facilities. Maps shall identify all areas of the project where ground disturbance is anticipated. If the PRS requests enlargements or strip maps for linear facility routes, the project owner shall provide copies to the PRS and CPM. The site grading plan and plan and profile drawings for the utility lines would be acceptable for this purpose. The plan drawings should show the location, depth, and extent of all ground disturbances and be at a scale between 1 inch = 40 feet and 1 inch = 100 feet range. If the footprint of the project or its linear facilities change, the project owner shall provide maps and drawings reflecting those changes to the PRS and CPM.

If construction of the project proceeds in phases, maps and drawings may be submitted prior to the start of each phase. A letter identifying the proposed schedule of each project phase shall be provided to the PRS and CPM. Before work commences on affected phases, the project owner shall notify the PRS and CPM of any construction phase scheduling changes.

At a minimum, the project owner shall ensure that the PRS or PRM consults weekly with the project superintendent or construction field

manager to confirm area(s) to be worked the following week, and until ground disturbance is completed.

Verification: (1) At least 30 days prior to the start of ground disturbance, the project owner shall provide the maps and drawings to the PRS and CPM.

(2) If there are changes to the footprint of the project, revised maps and drawings shall be provided to the PRS and CPM at least 15 days prior to the start of ground disturbance.

(3) If there are changes to the scheduling of the construction phases, the project owner shall submit a letter to the CPM within 5 days of identifying the changes.

PAL-3 The project owner shall ensure that the PRS prepares, and the project owner submits to the CPM for review and approval, a Paleontological Resources Monitoring and Mitigation Plan (PRMMP) to identify general and specific measures to minimize potential impacts to significant paleontological resources. Approval of the PRMMP by the CPM shall occur prior to any ground disturbance. The PRMMP shall function as the formal guide for monitoring, collecting, and sampling activities, and may be modified with CPM approval. This document shall be used as the basis of discussion when on-site decisions or changes are proposed. Copies of the PRMMP shall reside with the PRS, each monitor, the project owner's on-site manager, and the CPM.

The PRMMP shall be developed in accordance with the guidelines of the Society of Vertebrate Paleontology (SVP, 1995) and shall include, but not be limited, to the following:

1. Assurance that the performance and sequence of project-related tasks, such as any literature searches, pre-construction surveys, worker environmental training, fieldwork, flagging or staking, construction monitoring, mapping and data recovery, fossil preparation and collection, identification and inventory, preparation of final reports, and transmittal of materials for curation will be performed according to PRMMP procedures;
2. Identification of the person(s) expected to assist with each of the tasks identified within the PRMMP and the Conditions of Certification;
3. A thorough discussion of the anticipated geologic units expected to be encountered, the location and depth of the units relative to the project when known, and the known sensitivity of those units based on the occurrence of fossils either in that unit or in correlative units;
4. An explanation of why, how, and how much sampling is expected to take place and in what units. Include descriptions of different sampling procedures that shall be used for fine-grained and coarse-grained units;

5. A discussion of the locations of where the monitoring of project construction activities is deemed necessary, and a proposed plan for monitoring and sampling;
6. A discussion of procedures to be followed in the event of a significant fossil discovery, halting construction, resuming construction, and how notifications will be performed;
7. A discussion of equipment and supplies necessary for collection of fossil materials and any specialized equipment needed to prepare, remove, load, transport, and analyze large-sized fossils or extensive fossil deposits;
8. Procedures for inventory, preparation, and delivery for curation into a retrievable storage collection in a public repository or museum, which meet the Society of Vertebrate Paleontology's standards and requirements for the curation of paleontological resources;
9. Identification of the institution that has agreed to receive data and fossil materials collected, requirements or specifications for materials delivered for curation, and how they will be met, and the name and phone number of the contact person at the institution; and
10. A copy of the **Paleontological** Conditions of Certification.

Verification: At least 30 days prior to ground disturbance, the project owner shall provide a copy of the PRMMP to the CPM. The PRMMP shall include an affidavit of authorship by the PRS, and acceptance of the PRMMP by the project owner evidenced by a signature.

PAL-4 Prior to ground disturbance and for the duration of construction activities involving ground disturbance, the project owner and the PRS shall prepare and conduct weekly CPM-approved training for the following workers: project managers, construction supervisors, foremen and general workers involved with or who operate ground-disturbing equipment or tools. Workers shall not excavate in sensitive units prior to receiving CPM-approved worker training. Worker training shall consist of 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 other areas of interest or concern. No ground disturbance shall occur prior to CPM approval of the Worker Environmental Awareness Program (WEAP), unless specifically approved by the CPM.

The WEAP shall address the possibility of encountering paleontological resources in the field, the sensitivity and importance of

these resources, and legal obligations to preserve and protect those resources.

The training shall include:

1. A discussion of applicable laws and penalties under the law;
2. Good quality photographs or physical examples of vertebrate fossils for project sites containing units of high paleontologic sensitivity;
3. Information that the PRS or PRM has the authority to halt or redirect construction in the event of a discovery or unanticipated impact to a paleontological resource;
4. Instruction that employees are to halt or redirect work in the vicinity of a find and to contact their supervisor and the PRS or PRM;
5. An informational brochure that identifies reporting procedures in the event of a discovery;
6. A WEAP certification of completion form signed by each worker indicating that he/she has received the training; and
7. A sticker that shall be placed on hard hats indicating that environmental training has been completed.

Verification: (1) At least 30 days prior to ground disturbance, the project owner shall submit the proposed WEAP, including the brochure, with the set of reporting procedures for workers to follow.

(2) At least 30 days prior to ground disturbance, the project owner shall submit the script and final video to the CPM for approval if the project owner is planning to use a video for interim training.

(3) If the owner requests an alternate paleontological trainer, the résumé and qualifications of the trainer shall be submitted to the CPM for review and approval prior to installation of an alternate trainer. Alternate trainers shall not conduct training prior to CPM authorization.

(4) In the monthly compliance report (MCR, the project owner shall provide copies of the WEAP certification of completion forms with the names of those trained and the trainer or type of training (in-person or video) offered that month. The MCR shall also include a running total of all persons who have completed the training to date.

PAL-5 The project owner shall ensure that the PRS and PRM(s) monitor consistent with the PRMMP all construction-related grading, excavation, trenching, and augering in areas where potential fossil-bearing materials have been identified, both at the site and along any constructed linear facilities associated with the project. In the event that the PRS determines full-time monitoring is not necessary in locations that were identified as potentially fossil-bearing in the

PRMMP, the project owner shall notify and seek the concurrence of the CPM.

The project owner shall ensure that the PRS and PRM(s) have the authority to halt or redirect construction if paleontological resources are encountered. The project owner shall ensure that there is no interference with monitoring activities unless directed by the PRS. Monitoring activities shall be conducted as follows:

1. Any change of monitoring from the accepted schedule in the PRMMP shall be proposed in a letter or email from the PRS and the project owner to the CPM prior to the change in monitoring and will be included in the monthly compliance report. The letter or email shall include the justification for the change in monitoring and be submitted to the CPM for review and approval.
2. The project owner shall ensure that the PRM(s) keep a daily monitoring log of paleontological resource activities. The PRS may informally discuss paleontological resource monitoring and mitigation activities with the CPM at any time.
3. The project owner shall ensure that the PRS notifies the CPM within 24 hours of the occurrence of any incidents of non-compliance with any paleontological resources Conditions of Certification. The PRS shall recommend corrective action to resolve the issues or achieve compliance with the Conditions of Certification.
4. For any significant paleontological resources encountered, either the project owner or the PRS shall notify the CPM within 24 hours, or Monday morning in the case of a weekend event where construction has been halted because of a paleontological find.

The project owner shall ensure that the PRS prepares a summary of monitoring and other paleontological activities placed in the monthly compliance reports. The summary will include the name(s) of PRS or PRM(s) active during the month, general descriptions of training and monitored construction activities, and general locations of excavations, grading, and other activities. A section of the report shall include the geologic units or subunits encountered, descriptions of samplings within each unit, and a list of identified fossils. A final section of the report will address any issues or concerns about the project relating to paleontologic monitoring, including any incidents of non-compliance or any changes to the monitoring plan that have been approved by the CPM. If no monitoring took place during the month, the report shall include an explanation in the summary as to why monitoring was not conducted.

Verification: The project owner shall ensure that the PRS submits the summary of monitoring and paleontological activities in the MCR. When feasible,

the CPM shall be notified 10 days in advance of any proposed changes in monitoring different from the plan identified in the PRMMP. If there is any unforeseen change in monitoring, the notice shall be given as soon as possible prior to implementation of the change.

PAL-6 The project owner, through the designated PRS, shall ensure that all components of the PRMMP are adequately performed including collection of fossil materials, preparation of fossil materials for analysis, analysis of fossils, identification and inventory of fossils, the preparation of fossils for curation, and the delivery for curation of all significant paleontological resource materials encountered and collected during project construction.

Verification: The project owner shall maintain in his/her compliance file copies of signed contracts or agreements with the designated PRS and other qualified research specialists. The project owner shall maintain these files for a period of three years after project completion and approval of the CPM-approved paleontological resource report (see **PAL-7**). The project owner shall be responsible for paying any curation fees charged by the museum for fossils collected and curated as a result of paleontological mitigation. A copy of the letter of transmittal submitting the fossils to the curating institution shall be provided to the CPM.

PAL-7 The project owner shall ensure preparation of a Paleontological Resources Report (PRR) by the designated PRS. The PRR shall be prepared following completion of the ground-disturbing activities. The PRR shall include an analysis of the collected fossil materials and related information, and submit it to the CPM for review and approval.

The report shall include, but is not limited to, a description and inventory of recovered fossil materials; a map showing the location of paleontological resources encountered; determinations of sensitivity and significance; and a statement by the PRS that project impacts to paleontological resources have been mitigated below the level of significance.

Verification: Within 90 days after completion of ground-disturbing activities, including landscaping, the project owner shall submit the PRR under confidential cover to the CPM.

Certification of Completion
Worker Environmental Awareness Program
Carlsbad Energy Center Project (07-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, paleontological, and biological resources for all personnel (that is, construction supervisors, crews, and plant operators) working on site or at related facilities. By signing below, the participant indicates that he/she understands and shall abide by the guidelines set forth in the program materials. Include this completed form in the Monthly Compliance Report.

No.	Employee Name	Title/Company	Signature
1.			
2.			
3.			
4.			
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25.			

Cultural Trainer: _____ Signature:_____ Date: ___/___/____
PaleoTrainer: _____ Signature:_____ Date: ___/___/____
Biological Trainer: _____ ___Signature:_____ Date:___/___/_____

VIII. LOCAL IMPACT ASSESSMENT

The effect of a power plant project on the local area depends upon the nature of the community and the extent of the associated impacts. Technical topics discussed in this portion of the Decision consider issues of local concern including **Land Use, Noise, Socioeconomics, Traffic and Transportation, and Visual Resources.**

A. LAND USE

The land use analysis focuses on two main issues: (1) whether the project is consistent with local land use plans, ordinances, and policies; and (2) whether the project is compatible with existing and planned uses. The evidence and the conclusions to be drawn from the evidence were disputed by many of the parties.

In October, 2011, following the conclusion of the Carlsbad AFC Committee's evidentiary hearings, release of the May, 2011 Presiding Member's Proposed Decision, and remand of the matter by the full Energy Commission to the Committee for further hearings the City of Carlsbad amended its land use regulations and standards. The May, 2011 PMPD, found the CECP consistent with the City's then applicable LORS. Following consideration of the City's LORS as amended in October, 2011 we find CECP is no longer consistent with the City's land use LORS. The CECP's compliance with the pre- and post-amendment LORS (labeled **Pre-Amendment** and **Post-Amendment**) are discussed in detail below. Pursuant to the Warren-Alquist Act, we find that it is appropriate to override the City LORS and approve the CECP, as we discuss in depth in the **Override Findings** section of this Decision (see p. 9-1, below).

In May, 2011, following the conclusion of two rounds of evidentiary hearings, the Carlsbad AFC Committee published its Presiding Member's Proposed Decision, which found the CECP consistent with all local LORS, including the City of Carlsbad's various land use regulations. The PMPD was presented for adoption to the full Energy Commission in June, 2011. Rather than take final action on the PMPD, however, the Energy Commission remanded the matter back to the Committee for the taking of additional evidence on several enumerated topics. In October, 2011, the City of Carlsbad amended its land use regulations and standards. Following consideration of the amended City LORS, we find that the CECP is no longer consistent with the City's land use LORS. In distinguishing between the City's standards as they existed at the filing of the AFC through most of the review period and the standards after the October, 2011

amendments, we use the terms **"Pre-Amendment"** and **"Post-Amendment"**. Although we find CECP inconsistent with City land use LORS, we further find, pursuant to the Warren-Alquist Act, that it is appropriate to override the City LORS and approve the CECP. Our findings and rationale for overriding is discussed in depth in the **Override Findings** section of this Decision (see p. 9-1 et seq., below).

SUMMARY AND DISCUSSION OF THE EVIDENCE

According to CEQA Guidelines (Cal. Code Regs., tit. 14, §§ 15000 et seq., Appen. G, §§ II, IX, XVII), 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 (FMMP) 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;
- 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; or
- 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.

1. The Site

The proposed Carlsbad Energy Center Project (CECP) is described in detail in the **Project Description** section of this Decision. It will occupy 23 acres of an approximately 30 acre portion of the Encina Power Station (EPS) site in the City

of Carlsbad. The site is presently occupied by oil storage tanks formerly used as part of the EPS. Those tanks will be removed and any necessary soil remediation completed during construction of CECP.

Land uses surrounding the proposed CECP site (within the EPS) consist of:

- industrial facilities associated with the EPS to the west, south, and southwest;
- AT&SF/North County Transit District (NCTD) Rail Corridor to the west;
- Middle Agua Hedionda Lagoon to the north; and
- I-5 transportation corridor directly to the east. I-5 is an Eligible State Scenic Highway, and is considered a Community Scenic Corridor by the City of Carlsbad.

Land uses surrounding the EPS include:

- Middle and Outer Agua Hedionda Lagoon to the north and northeast, respectively;
- Carlsbad Boulevard directly to the west, which is considered a Community Scenic Corridor pursuant to the Carlsbad General Plan;
- Carlsbad State Beach located west of Carlsbad Boulevard;
- Single-family residences to southwest, located west of Carlsbad Boulevard;
- The I-5 transportation corridor to the east;
- The Carlsbad Aqua Farm located adjacent to the Outer Lagoon's southern shore;
- Hubbs Sea World Research Institute and fish hatchery, located on the north side of the Outer Lagoon;
- Car Country Park, located on Paseo Del Norte, to the south and adjacent to the west side of I-5. This small greenbelt is privately owned and operated;
- Cannon Boulevard to the south; and
- Single-family residences on the south side of Cannon Boulevard (Terramar Assn.).

In addition, the following land uses occur within one mile of the project site:

- Recreational Facilities: There are five City parks or facilities, one State Beach, and one private park within approximately one mile of the CECP site. Magnolia Athletic Field is located on Highland Drive, to the north of the site. Cannon Park is located on Carlsbad Boulevard and Cannon Road, south and west of the CECP site. It features basketball courts, picnic tables,

barbeque, toy lot play area, and a softball back stop. Chase Field and Brierly Field are both located north of the CECP site, just west of I- 5 and adjacent to Chestnut Avenue. Holiday Park is also north of the CECP site and located off Chestnut Avenue, adjacent to the east side of I-5.

- Educational Facilities: Valley Middle School, Jefferson Elementary School, Magnolia Elementary School (which also houses Carlsbad Seaside Academy, a public home school program), Pine Elementary School, and Carlsbad Village Academy (an alternative public high school) – are all located within one mile of the CECP site. Additionally, there is one private religious school (Saint Patrick's) north of the CECP site on Tamarack Avenue and one private for-profit alternative High School (La Palma High School) also north of the CECP site on Harding Street within the one-mile radius.
- Religious Facilities: There are five churches located within one mile of the CECP site. Included are First Baptist Church of Carlsbad, Saint Patrick's Catholic Church, the North Coast Christian Fellowship, Carlsbad Community Church, and the Carlsbad Religious Science Church, all located north of the CECP site.

(Ex. 200, pp. 4.5-6 – 4.5-7.)

2. Potential Impacts

a. Conversion of Farmland

According to “Important Farmlands” maps provided by the Farm Land Mapping and Monitoring Program (FMMP) of the California Department of Conservation (DOC) maps, the proposed project site and all associated facilities are located on land defined as “Urban and Built-up Land”. Urban and Built-up Land is defined by the DOC as: “land occupied by structures with a building density of at least one unit to 1.5 acres, or approximately six structures to a 10-acre parcel. This land is used for residential, industrial, commercial, construction, institutional, public administration, railroad and other transportation yards, cemeteries, airports, golf courses, sanitary landfills, sewage treatment, water control structures, and other developed purposes.”

There are lands designated as Prime, Unique, and of Statewide Importance within a one-mile radius of the CECP site, all located east of the I-5 transportation corridor. The construction and operation of the CECP is not expected to impact or prevent agricultural activities on those neighboring agricultural lands.

The proposed project site and related facilities are not subject to an Agricultural Land Conservation (Williamson Act) contract. (Ex. 200, pp. 4.5-5, 4.5-9.)

No evidence was presented to establish that construction and operation of the CECP will adversely affect any agricultural lands designated as Prime, Unique, or of Statewide Importance. The project site is not so designated and is not under Williamson Act contract. We therefore conclude that the CECP will not cause any significant impacts to farmlands.

b. Division of an Existing Community

The CECP is proposed on private property within the boundaries of an existing power plant facility which has been in this location since the mid 1950's. The site is located between two major transportation corridors—I-5 and the railroad. Access will be taken from existing rights-of-way. Being contained within the existing industrial site, the project will not physically disrupt or divide an existing community. (Ex. 200, pp. 4.5-9, 4.5-10.)

c. Conflict with Habitat or Conservation Plan

As we discuss in depth in the **Biological Resources** section of this Decision, the CECP will not result in significant impacts to special status species or sensitive habitat. As such, the project is consistent with the North County Multiple Habitat Conservation Plan (MHCP) and the Carlsbad Habitat Management Plan (HMP) for Natural Communities, which are generally protective of special-status species and identified conservation areas (e.g., Agua Hedionda Lagoon). (Ex. 200, p. 4.5-10.)

3. Consistency with California Coastal Act.

The CECP site is within in the Coastal Zone and therefore subject to the Coastal Act (Public Resources Code § 30000 et. seq.). Although the City of Carlsbad has a certified Local Coastal Program (LCP), the proposed CECP site (and the entire Agua Hedionda Land Use Plan area) is within the retained jurisdiction of the Coastal Commission. The Coastal Commission's permitting authority is in turn subject to the Energy Commission's jurisdiction over power plants. (Pub. Resources Code, §§ 25500, 30600.)

Were the Coastal Commission to exercise its permitting authority, it would review the project against the policies of the City of Carlsbad's LCP, general plan, and

zoning ordinance as well as the Coastal Act. The Energy Commission, when exercising its jurisdiction, conducts a similar analysis and solicits and considers the views of the agencies that would otherwise have jurisdiction over a proposed project, such as the Coastal Commission. In October, 2007, the Coastal Commission informed the Energy Commission by letter that, due to workload and resource constraints, it would not be supplying a detailed report on the conformance of this and other Coastal Zone projects before the Commission. It did note, however, that CECP is proposing to end the environmentally destructive use of seawater for once-through cooling and instead employ dry cooling technology, which the Coastal Commission has strongly supported during past power plant reviews. (Ex. 195, pp. 1 – 2.)

The City of Carlsbad and some of the other parties assert that we cannot decide this matter until the Coastal Commission provides a formal report to us as described in Public Resources Code section 30413(d). (City Opening Brief pp. 2, 83 – 88; Terramar Opening Brief p. 36; Simpson Opening Brief p. 13.) That requirement, however, applies to proceedings under Public Resources Code section 25510 regarding Notices of Intention. This proceeding is instead an Application for Certification under Public Resources Code section 25519 et. seq. Pursuant to Public Resources Code section 30413(e) Coastal Commission participation in Energy Commission siting proceedings other than Notices of Intention is discretionary. Even were the Coastal Commission to provide its advice, the Energy Commission is charged with making its independent determination regarding project compliance with the Coastal Act and other LORS. We need not wait for a Coastal Commission report before adopting this decision.

The City also argues that a 1990 Coastal Commission analysis of a previous project proposal on the EPS site supports the City's conclusions that the CECP is not consistent with the Coastal Act. That proposal, subsequently withdrawn, was located to the west of the railroad tracks, in a more visually exposed area closer to the shoreline than the CECP, which is proposed to the east of the tracks. That proposed project would continue to use once through cooling, raising significant concerns about biological impacts. (Ex. 418.) We find the 1990 proposal is sufficiently different in location and other factors that the 1990 report has no dispositive value in our analysis of the CECP.

The CECP would be located on the same property as the existing EPS power plant, and all of its associated infrastructure would be on-site at the existing EPS. Public Resources Code section 30101 defines "Coastal-dependent development

or use" as "any development or use which requires a site on, or adjacent to, the sea to be able to function at all." While the CECP would not use ocean water for once-through cooling locating the CECP at the existing EPS site (which is a coastal dependent use) facilitates its proposed ocean-water purification system for supplying water to its air-cooled cooling system. Locating the CECP and its associated facilities/features on-site at the EPS allows the CECP to utilize the plant's infrastructure (natural gas supply lines and electricity transmission lines), thereby avoiding off-site construction of new linear facilities. Constructing the CECP on this site would avoid the need to develop in areas of Carlsbad unaccustomed or unsuited to this type of industrial development. In addition, by shutting down existing EPS Units 1, 2, and 3, the proposed CECP would enhance the marine environment by reducing the use of seawater for once-through cooling.

Coastal-Dependent Development

Public Resources Code section 30255 provides: "Coastal-dependent developments shall have priority over other developments on or near the shore line. Except as provided elsewhere in this division, coastal-dependent developments shall not be sited in a wetland. When appropriate, coastal related developments should be accommodated within reasonable proximity to the coastal-dependent uses they support."

The CECP is located at the existing EPS, which is a "coastal dependent use" pursuant to the Coastal Act, inasmuch as it uses once-through cooling technology. Coastal dependent uses are encouraged to expand "within existing sites and shall be permitted reasonable long-term growth where consistent with this division." (Pub. Resources Code, § 30260.) Even though the existing EPS steam boiler Units 1, 2, and 3 would be retired upon successful commercial operation of the new CECP generating units, the remaining EPS Units 4 and 5 would continue operating. The EPS remains a coastal dependent facility. In addition, because the City of Carlsbad is unable to supply reclaimed water (Exs. 193; 200, p. 4.9-14) to the project for cooling and other industrial purposes, it is necessary that CECP use its proposed ocean-water purification system. Thus, the proposed project (CECP generating units 6 and 7) is both an expansion of a coastal dependent use and a coastal-dependent use in its own right. (Ex. 200, pp. 4.5-10 – 4.5-13.)

Coastal-Dependent Industrial Facilities

Public Resources Code section 30260 provides, in part: "Coastal-dependent industrial facilities shall be encouraged to locate or expand within existing sites

and shall be permitted reasonable long-term growth where consistent with this division. . .”

The CECP, proposed inside the existing boundaries of the EPS site, is consistent with the Coastal Act policy that prefers on-site expansion of existing power plants to development of new power plants in undeveloped areas of the Coastal Zone. The EPS property is zoned for public utility use and has been previously developed in its entirety for industrial uses. Construction of the CECP on the site of an existing industrial property with access to existing power infrastructure, and with limited adjacent sensitive uses, has greater relative merit to development of a power plant at an alternative site. Therefore, the CECP is consistent with Section 30260 of the Coastal Act.

Environmentally Sensitive Habitat Areas

Public Resources Code section 30240 (b) provides: “Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas.”

The Agua Hedionda lagoon is adjacent to the CECP site, and there are several recreational resources within one mile of the CECP site. The **Biological Resources** section of this Decision provides a detailed analysis the CECP’s compliance with this Coastal Act requirement. The **Visual Resources** section addresses the CECP’s visual impacts on surrounding land uses (including recreational resources), and how the proposed CECP would comply with this section of the Coastal Act.

From a land use perspective, construction and operation of the CECP would not significantly impact environmentally sensitive habitat areas and parks, including the Agua Hedionda Lagoon and the recreational facilities surrounding the EPS site, because the CECP would be entirely within the fenced perimeter of the EPS, which is an existing power plant facility.

Public Access Policies

Public Resources Code section 30211 provides: “Development shall not interfere with the public’s right of access to the sea where acquired through the use or legislative authorization, including, but not limited to, the use of dry sand and rocky coastal beaches to the first line of terrestrial vegetation.”

The Coastal Act section 30212 (a) provides: “Public access from the nearest public roadway to the shoreline and along the coast shall be provided in new development projects except where (1) it is inconsistent with public safety, military security needs, or the protection of fragile coastal resources; (2) adequate access exists nearby; or (3) agriculture would be adversely affected...”

Here, Carlsbad Boulevard, which is between EPS and the Beach, already provides adequate access to the sea. As CECP will occupy a portion of the long-standing EPS industrial facility, whose fence lines will not change in a way to deny access to the shoreline, the proposed project is consistent with Coastal Act access policies.

Coastal Rail Trail Project

The California Coastal Rail Trail (CRT) is intended to provide a multi-modal (i.e. walking/day hiking, in-line skating, road bicycling, running etc) transportation route that is separated from the roadway and will run adjacent to the active tracks of the Los Angeles–San Diego rail corridor used by Amtrak, Metrolink, and Coaster commuter trains. According to the City of Carlsbad, the CRT was envisioned to run 44 miles within existing railroad right-of-way from Oceanside to the train depot in downtown San Diego. Sections of the CRT have been completed in Carlsbad. However, the North County Transit District (NCTD) has now clarified that it will not support a trail in its right-of-way, possibly due to liability and plans to install an additional track. Consideration and funding of the trail began in the early 1990s. The City of Carlsbad, acting as the lead for cities in which the trail would be located, approved the trail project in 2001. The CRT has an overall section width of 18 feet to 21 feet and a paved trail width of 12 feet with shoulders on either side. The trail also has street lights and is bordered by fencing. In the City of Carlsbad, the goal is to locate the trail separate from the roadway. However, in some cases the trail has been built as an on-street, Class II bike path. The trail was envisioned by the City of Carlsbad on the east side of the railroad tracks for several reasons: 1) train stations are on the east side in Carlsbad; 2) the trail is intended to share the Agua Hedionda Lagoon bridge with the Vista Carlsbad Interceptor Sewer Project, which is located on the east side; and 3) the trail alignment was selected to avoid environmental impacts. According to the City, the west side railroad tracks in some areas of Carlsbad would have environmental impacts. (Ex. 200, pp. 4.5-14 – 4.5-15.)

Originally, the CRT was planned within the NCTD Rail Corridor through the EPS property. Upon understanding that the trail would need to be located out of the NCTD right-of-way, the City of Carlsbad had discussions with the Applicant

regarding alternative CRT alignments through and along the EPS property. Alignments considered include: one currently being discussed along the west side of I-5; and an alignment on the opposite, west side of the proposed CECP, still on the Applicant's property, east of the railroad tracks, and within a sewer easement the City has on the EPS property. According to the City of Carlsbad, the Applicant has not looked favorably on the western alignment because of security concerns that would occur where the CRT would intersect the existing gated crossing that provides access across the railroad tracks and to the EPS property on the west side of the railroad. The City of Carlsbad, in conditioning the Precise Development Plan (PDP) approval for the EPS, required the Applicant to dedicate an easement for the CRT in a location within the boundaries of the PDP that is mutually acceptable to the City and Cabrillo Power or its successor in interest. (Ex. 200, p. 4.5-15.)

The Warren-Alquist Act contains a similar requirement that the Energy Commission require the establishment of an area for public use as a condition of certification of a facility proposed in the Coastal Zone as follows:

> "When a facility is proposed to be located in the Coastal Zone or any other area with recreational, scenic, or historic value, the [Energy] Commission shall require, as a condition of certification of any facility contained in the application, that an area be established for public use, as determined by the Commission. Lands within such area shall be acquired and maintained by the applicant and shall be available for public access and use, subject to restrictions required for security and public safety. The applicant may dedicate such public use zone to any local agency agreeing to operate or maintain it for the benefit of the public. If no local agency agrees to operate or maintain the public use zone for the benefit of the public, the applicant may dedicate such zone to the state. The [Energy] Commission shall also require that any facility to be located along the coast or shoreline of any major body of water be set back from the shoreline to permit reasonable public use and to protect scenic and aesthetic values." (Pub. Resources Code, § 25529.)

In March 2008, Staff conducted a field review and met with representatives from the City of Carlsbad and the Applicant to determine where opportunities for public use exist and how to best provide such an area within the community. Based upon selection criteria described in the Final Staff Analysis, Staff recommends, and we adopt, Condition of Certification **LAND-1** which requires agreement upon and dedication of a suitable trail location between the project owner and City; if they can not agree an independent appraiser will set the amount of a financial

contribution from the project owner to the City for the purpose of establishing a trail segment. (Exs. 111; 113; 200, pp. 4.5-16 – 4.5-17.)

4. Consistency with Local Land Use LORS

The CECP site is within in the incorporated City of Carlsbad and subject to its land use LORS. The City's land use regulations are complex. In addition to the state-mandated General Plan and the zoning ordinance, an optional "specific plan" applies to the project area. The list does not end there, however. We now discuss each layer from the General Plan down in order to make sense of this policy and regulatory puzzle and separate out the regulatory standards we must apply to the CECP.

General Plan

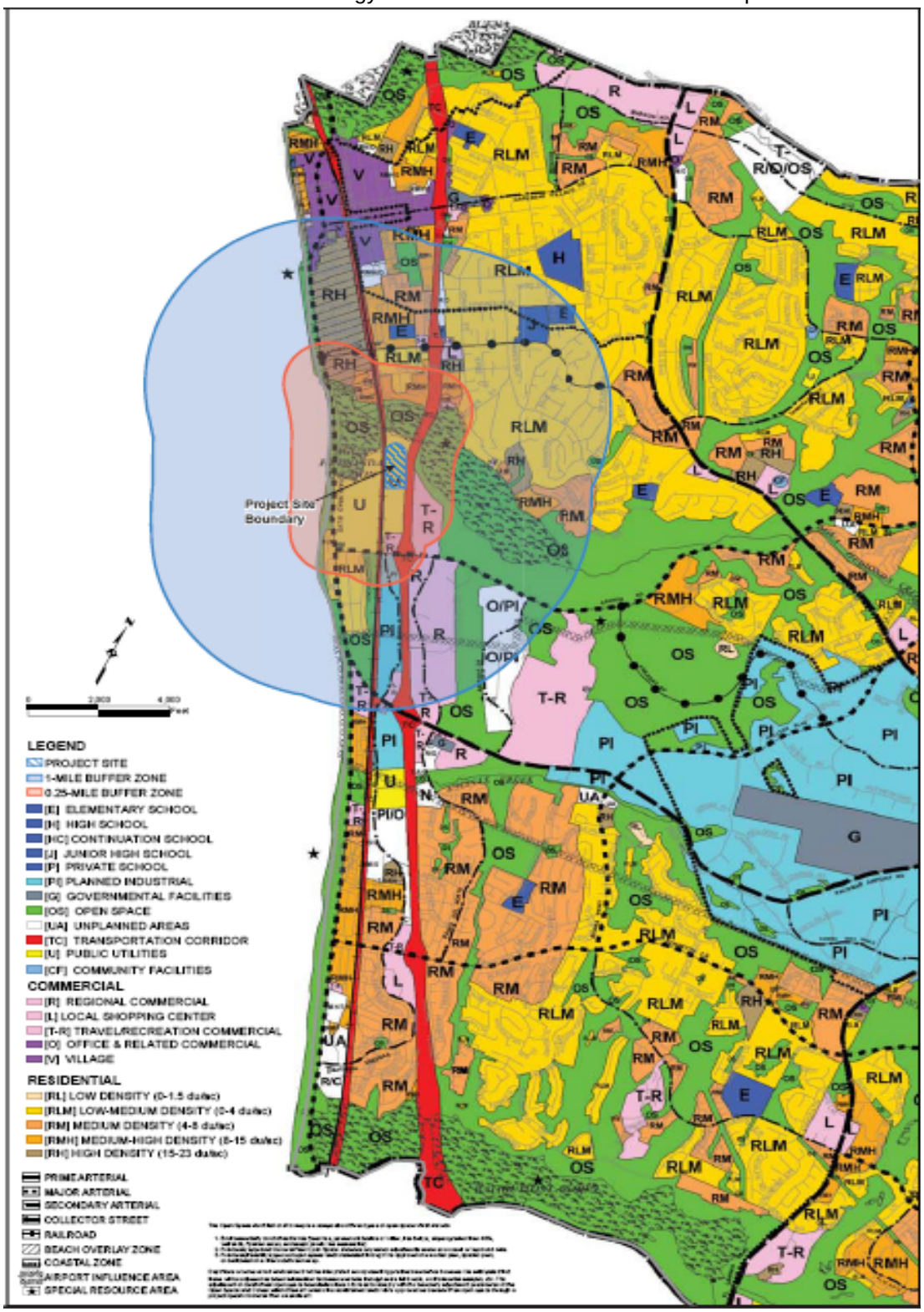
The CECP site, along with the larger EPS site that contains it, are designated Public Utilities (PU) under the City's General Plan. Pre-Amendment, the Land Use Element of the General Plan described the "generation of electrical energy" as one of several "public or quasi-public functions" permitted with a change of zone and a Precise Development Plan. (Ex. 410, Carlsbad General Plan, Land Use Element, p. 20.)

Post-Amendment, the generation of electricity is no longer a "primary" function allowed in the Public Utilities designated areas unless it is "located outside the Coastal Zone" and "conducted by a government entity or by a company and such use is authorized or approved by the California Public Utilities Commission."

Land Use Figure 1 depicts General Plan designations of the project site and surrounding areas.

Land Use – Figure 1

Carlsbad Energy Center – General Plan Land Use Map



Source: Ex. 200, FSA, p. 325.

Encina Specific Plan (SP 144)

SP 144 includes 680 acres of land that encompass the entire Encina Power Station (EPS) site and the adjacent beach, all water areas of the Agua Hedionda Lagoon, and most properties on either side of I-5 between Cannon Road and the lagoon. At the time of the specific plan's adoption in 1971, all of these lands were owned by San Diego Gas and Electric. Following its adoption, SP 144 was amended several times to permit the development and expansion of the EPS. Most recently, in 2006, the Carlsbad City Council approved SP 144(H), which permitted the development of the City of Carlsbad Seawater Desalination Plant Project.

This requirement that approval of a specific project be amended into the specific plan is unique among the specific plans that the Committee has encountered. We understand the function of specific plans to implement General Plans and set out area-specific development standards. See Government Code §65450 et. seq. To a limited degree, SP 144 does set out development standards, though largely by reference to the zoning code provisions, other City plans, and any Precise Development Plans for sites within the specific plan area. In other words, it catalogs already existing requirements.

The October, 2011 amendments added statements to the effect that the EPS was not allowed by the amended General Plan and zoning standards and removed specific language relating to the height limitations on power generating facilities.[1] (City of Carlsbad Ordinance No. CS-160, adopted October 11, 2011.)

Carlsbad Local Coastal Program/Agua Hedionda Land Use Plan

In May 1982, the Carlsbad City Council adopted the Agua Hedionda Land Use Plan (AHLUP), a certified segment of the City's Local Coastal Program (LCP) that applies to the Agua Hedionda Lagoon area and all of the SP 144 area. The California Coastal Commission, not the City, issues coastal development permits within the AHLUP area. The City does, however, review projects in the coastal zone for consistency with the requirements of the LCP, but requires project

[1] "The heights of future power generating buildings and transmission line tower structures shall be of heights and of a configuration similar to existing facilities. All storage tanks shall be screened from view. No other structure or building shall exceed thirty five (35') feet in height unless a specific plan is approved at a public hearing." (SP-144, paragraph III. 5.)

The existing EPS structures are approximately 190 feet high for the boiler/turbine building and 400 feet for the stack. Proposed CECP heights are approximately 88 feet for the two HRSGs, 76 feet for the two air intakes, and 139 feet for the two stacks, well below the EPS heights and well within the limit established by SP-144. (Ex. 200, Visual Resources-Figure 2.)

proponent/developers to apply to the California Coastal Commission to obtain a coastal development permit for their projects. The AHLUP contains eight different sections, which contain policies affecting the EPS site. The enumerated policies are similar to those in the General Plan. This plan has not had any substantial revisions since its adoption 25 years ago. (Ex. 200, pp. 4.5-2 – 4.5-3.)

South Carlsbad Coastal Redevelopment Project Area Plan

In September 1997, the City formed the South Carlsbad Coastal Redevelopment Area and adopted the associated redevelopment plan. “The underlying intent of the redevelopment plan was to convert the industrial land west of the railroad tracks (where the current plant is located) to another, more appropriate land use that would provide greater benefit to the community and would eliminate the possibility of an intensification of industrial applications at that site. At that time, the thought was that a replacement facility, located on the eastern portion of the site, would be more aesthetically and geographically desirable than any retrofit to the existing power plant facility.” (Ex. 401, May 1, 2008 letter to M. Monasmith, p. 14.)

One of the plan's Goals is to "[f]acilitate the redevelopment of the Encina Power Generating Facility to a physically smaller, more efficient power generating plant.” Prior to approval of project like the CECP, a finding that the project will serve an “extraordinary public purpose” is required. (Ex. 407, Ordinance No. NS-779, pp. 2 - 4.)

Zoning

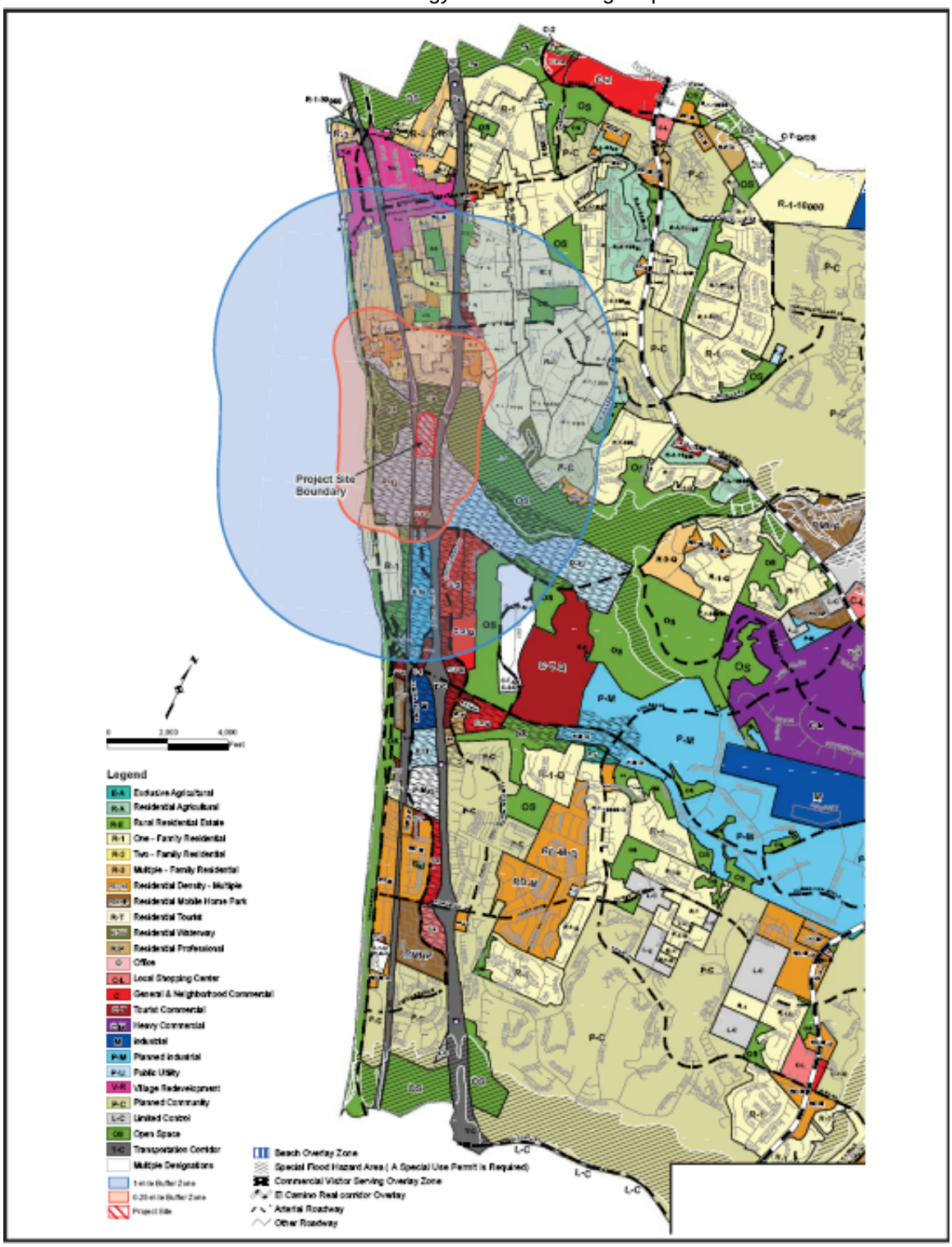
The proposed CECP site is zoned PU under the City’s zoning ordinance. Pre-Amendment, the “generation and transmission of electrical energy” was listed as a permitted use in the Public Utility zone, subject to approval of a Precise Development Plan. (Ex. 411, Carlsbad Municipal Code §21.36.020, Table A.)

Post-Amendment, electrical generation at the proposed project site, which lies within the Coastal Zone, is permitted only as an accessory use and limited to less than 50 Megawatts and must be conducted by “a government entity or by a company and such use is authorized or approved by the California Public Utilities Commission.” (City of Carlsbad Ordinance No. CS-158, adopted October 11, 2011.)

Land Use Figure 2 maps the Zoning designations of the project site and surrounding areas.

Land Use – Figure 2

Carlsbad Energy Center – Zoning Map



Source: Ex. 200, FSA, p. 326.

Encina Power Station Precise Development Plan (PDP 00-02)

As described by City staff in May, 2008, the PDP "divides the EPS into planning areas with general development standards for each. It elaborates on parking requirements and provides basic aesthetic and landscaping requirements. The PDP also contains an inventory of existing uses and facilities at the power station and provides general review and approval criteria for any future improvements." (Ex. 401, May 1, 2008 letter to M. Monasmith, p. 11.)

As described in City ordinance a PDP "may include provisions for any accessory use necessary to conduct any permitted use." (Carlsbad Municipal Code §21.36.030.) A PDP is processed under the same procedures applicable to a zone change. (*Id*, §21.36.040.) The final PDP, once signed by the City Manager, serves as the "official site layout plan for the property," to be submitted with any building permit applications. (*Id*, §21.36.100.) In addition:

> The City Council may impose such conditions on the Applicant and the plan as are determined necessary and consistent with the provisions of this chapter, the general plan and any specific plans that include provisions for, but are not limited to, the following:
>
> (1) Setbacks, yards and open space;
>
> (2) Special height and bulk of building regulations;
>
> (3) Fences and walls;
>
> (4) Regulation of signs;
>
> (5) Landscaping;
>
> (6) Special grading restrictions;
>
> (7) Requiring street dedication and improvements (or posting of bonds);
>
> (8) Requiring public improvements either on or off the subject site that are needed to service the proposed development;
>
> (9) Time period within which the project or any phases of the project shall be completed;
>
> (10) Regulation of points of ingress and egress;
>
> (11) Parking; and
>
> (12) Regulation of the type, quality, distribution and use of reclaimed water, or reclaimed wastewater.
>
> *(Id*, § 21.36.050.)

Discussion

The City's land use regulations have been described as "nesting dolls"[2] and "extremely convoluted."[3] We agree. Fortunately, much of the complication and overlap is in the nature of procedural, not substantive, requirements. In exercising our exclusive permitting jurisdiction, we apply the substantive requirements of state and local jurisdictions but according to the procedures set forth in the Warren-Alquist Act and Commission regulations, not the procedures of the state or local agency.

The Applicant suggests that the City's October, 2011 amendments we summarize above constitute impermissible "spot" zoning, not adopted for the orderly development of the community but rather to prevent the development of a specific project—the CECP. To our knowledge, however, the Applicant has not challenged the City's amendments on that or any other grounds and we will not attempt to adjudicate the validity of the amendments here. For purposes of this Decision we accept the amendments as lawful actions of the City.

a. Is CECP a Public Utility?

One of the issues raised by several parties, including the City of Carlsbad, is whether the word "Public" in the Pre-Amendment General Plan and zoning designations "Public Utility" includes a privately owned facility such as the CECP. The City of Carlsbad asserts that the phrase applies only to generating facilities owned by a public utility such as SDG&E.

Under the Pre-Amendment General Plan and zoning, we agree with the Applicant and Staff that "public utility" has a broader meaning than that advanced by the City. We should examine the function of the CECP not its ownership. The electricity it generates will be distributed by the same electric grid used by regulated utilities to distribute power from their utility owned generators to their customers.

Practical considerations aside, Carlsbad Municipal Code section 21.36.010, the preamble to the list of permitted uses in the "Public Utility" zone, indicates:

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[2] By Staff land use witness, Negar Vahidi. (2/1/10 RT, 176:13, 177:17-20.)

[3] By no less an authority than the City's Municipal Projects Manager Joe Garuba in a May 1, 2008, letter to Staff Project Manager Mike Monasmith (Ex. 401) characterizing "the land use regulations and their application for the proposed CECP site."

> "The intent and purpose of the P-U zone is to provide for certain public utility and related uses subject to a precise development plan procedure…"

Further, the General Plan speaks in terms of "public or quasi-public functions." Whether or not CECP is a public utility in its own right, it is certainly a "related use" performing a "quasi-public" function. Nor do we find it relevant, as some parties assert, that CECP does not have a contract to sell its generated power to a public utility or other electricity consumer. As we discuss in the **Greenhouse Gas** section of this Decision, CECP will operate at significantly greater efficiency than nearly all of the other generators in its region. (See Greenhouse Gas Table 3.) Loading orders favor the dispatch of the most efficient generation. CECP's relative efficiency will give it a favorable position under the Loading Orders and its generating capacity will not sit idle.

Absent the October, 2011, amendments, then we would find that CECP is a "public utility" as that term is used in the City's General Plan and zoning ordinance[4]. CECP would therefore permitted on the project site subject to the approval of the equivalent of a Precise Development Plan. (Carlsbad Municipal Code, § 21.36.010.) The analysis required in consideration of a Precise Development Plan approval includes a finding of consistency with the General Plan, which includes consistency with the list of allowed uses, and consistency with the various policies contained in the general plan, both present here.[5]

By way of the October, 2011, amendments, however, the City has narrowed the definition of permitted electricity generation uses in the Public Utility general plan designation and Public Utility zone to those of less than 50 MW (in the Coastal Zone) conducted by "a government entity or by a company and such use is authorized or approved by the California Public Utilities Commission." CECP, at approximately 540 MW, exceeds the size limit, will not be operated by a

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[4] Power of Vision (POV PMPD Comments, p. 2) and the City (Carlsbad PMPD Comments, p. 125) argue that the Commission is bound by a determination in the Chula Vista case (07-AFC-4) that a merchant power plant does not constitute a public use. In that case, the Decision interpreted a zoning code provision requiring that permitted uses be "maintained by public or publicly controlled agencies." Here the City's plans and ordinances are silent regarding ownership or control. We decline to read such a requirement into those documents.

[5] In this regard, we consider the PDP as the functional equivalent of a conditional use permit, a quasi-adjudicative, rather than a legislative decision. While legislative decisions, such as a change of zoning or general plan amendment, are left to the local agency, even when the Energy Commission has jurisdiction, quasi-adjudicative decisions are made by the Energy Commission in place of the local agency.

government entity, and has not been approved, at this point, by the Public Utilities Commission.[6]

b. General Plan Consistency

Among the findings that must be made in approving a PDP-equivalent permit for CECP is a finding of consistency with the Carlsbad General Plan. The City does not believe that finding can be made, citing various general plan policies that it believes are not satisfied by CECP. (Ex. 433, pp. Donnell-9 – Donnell-12.) Staff and the Applicant, on the other hand, point to the inclusion of "generation of electrical energy" among the allowed uses in the PU General Plan designation applied to the CECP site and appear to assume that the designation excuses us from looking beyond it to the policies in the General Plan narrative. (Exs. 147, p. 1; 200, p. 4.5-21.) That assumption is incorrect.

General plans are, by their nature, somewhat self-contradictory. Goals and policies often conflict with each other; one policy cannot be completely achieved except by failing to achieve another. For example, affordable housing may require high densities that frustrate open space and aesthetic goals. In testing for general plan consistency, the plan goals and policies must be read together, not individually or selectively.

We find neither the Staff and Applicant's focus only on the "public utility" land use designation nor the City's reading of the various general plan policies it cites, many quite general, without apparent regard to a balancing of competing interests, persuasive. As shown throughout this Decision, CECP is designed and conditioned to provide a reliable source of electricity to support the integration of renewable energy into the San Diego region and reliability of the local power grid, all without significant unmitigated environmental impact. Our analysis recognizes the goals of protecting the nearby lagoon and other aesthetic considerations. CECP's scale is significantly reduced from the existing EPS Project and it is located away from the coastline in an area confined by the railroad and I-5. On balance, then, we would find that the CECP is consistent with the Pre-Amendment General Plan land use designation and policies.

Post-Amendment, with the narrowed definition of allowed uses we can no longer find that CECP is consistent with City General Plan's Public Utilities land use designation. It is inconsistent to the extent that the Applicant is not "a government

[6] The City regulations do not define the form of approval by the CPUC that they expect. For example would approval of Power Purchase Agreement with a regulated utility suffice?

entity" or the use "authorized or approved by the California Public Utilities Commission."

c. Conformance with Development Standards

The City's planning process relies heavily on project specific determinations of many development standards normally set forth in local zoning ordinances, such as height limits, setbacks, and lot coverage limits. The evidence presented at the hearings was devoid of any specific discussion of development standards and whether the CECP complied with them. In response to our request that the parties' briefs specifically identify applicable standards, we were told of only a handful. Following our own review of the applicable LORS, we find the following standards to be applicable:

Structure Height. The Agua Hedionda Land Use Plan calls for a height limit of 35 feet. (Ex. 412, p. 17, § 1.9.) CECP heights exceeding that limitation will be approximately 88 feet for the two HRSGs, 76 feet for the two air intakes, 74 to 100 feet for the nine new transmission poles, and 139 feet for the two stacks, (Ex. 200, Visual Resources-Figure 2.)[7]

Land coverage and setback requirements. Carlsbad Municipal Code section 21.36.060, applicable to the Public Utility zone, specifies a minimum lot area of 7,500 square feet, easily attained by CECP at 23 acres, or approximately 1 Million square feet.

Carlsbad Municipal Code section 21.36.070 specifies that "[a]ll buildings and structures, including accessory buildings and structures, shall cover no more than fifty percent of the area of the lot." The CECP has no enclosed space and therefore no buildings. Assuming that the power generating equipment is a "structure," the lot coverage requirement is satisfied as the power generator units occupy approximately 7 acres of the 23-acre CECP project site. (Ex. 35, Figure 2.1-1, Applicant's PMPD Comments, pp. 6 – 7.)

Regarding setbacks, no specific standards exist. Rather, as is the case for many such standards, they are left to be set at the time of project approval, guided by general direction to "create an attractive and pleasant environment in the project area." (City Opening Brief, p. 90.) In this Decision we have extensively reviewed

[7] The City cites a height limitation applicable to the Planned Industrial zone, alleging it to be most appropriate for this type of facility. (City Opening Brief, p. 90.) That is not the applicable zone, however, and it is unnecessary to search for a standard by analogy when one is directly applicable via SP-144.

the project's relation to its perimeter, especially in the **Visual Resources** and **Worker Safety and Fire Protection** sections. We find the proposed setbacks appropriate and adequate.

d. Extraordinary public purpose

As we describe above, the South Carlsbad Coastal Redevelopment Project Area Plan requires that an extraordinary public purpose be found for a power plant on the proposed project site. The City argues that those benefits must be City-centric rather than regional. While we agree that a measure of local benefits is desirable, regional and even statewide benefits are appropriately considered.

The City argues that "the CECP would not serve an extraordinary public purpose because it (1) intensifies current industrial use of the property; (2) does not provide for a public use; (3) does not provide a plan for demolition of the existing power plant that will fall into disuse; and (4) does not provide for future redevelopment of the site as required by California redevelopment law." (City Opening Brief, pp. 60 – 61.)

Staff asserts that:

> "CECP will replace aging and inefficient infrastructure—the once-through-cooling (OTC) boiler facilities of units 1-3 (which will be decommissioned when CECP goes on line—contrary to the City's claim) and, to some degree, the use of units 4-5 (which would remain for the time being). Units 1-3 were built in the 1950s and are quite inefficient. They must be kept running at a low level, burning gas and pumping ocean water, so they can be ramped up to provide emergency backup for the system on the few occasions for which they are needed. CECP will provide a newer, more efficient, fast-ramping facility that need not be kept running to be available on short notice. It will not use OTC, thus avoiding its attendant biological damage. It will generate energy more efficiently, with fewer emissions (of both criteria pollutants and greenhouse gases) per megawatt hour, making the electric generating system more efficient and less damaging to the environment. Its power will be consumed in accordance with the laws of physics, which means at the nearest load—the City of San Diego and such places as the City itself. It will increase electricity reliability for the City and the San Diego region as a whole. Its fast ramping capability will allow it to integrate renewable power from wind and solar sources much more effectively than the older units it replaces, a benefit to the

> environment consistent with state and federal energy policy. Ultimately, it would be part of the overall infrastructure necessary for the closure of the EPS facilities which rely on OTC. It would thereby facilitate the State Water Board's newly adopted policy for such power plants, which can only be closed when modern replacement generation is ready." (Staff's Opening Brief, p. 7 – 8.)

In preparing the PMPD, the Carlsbad AFC Committee found the purposes described by Staff compelling but was not yet convinced that they rose to the "extraordinary" level. The Committee requested further evidence and proposals regarding the potential for speeding the removal of the existing plant's massive boiler/turbine building and 400-foot stack when they are no longer needed to support the electricity system. During the May 19 and 20, 2011, re-opened Evidentiary Hearings and PMPD Comment Hearing, the question of whether CECP affords extraordinary public purpose was revisited. Following the hearings and private discussions with the City of Carlsbad, the Applicant proposed Conditions **LAND-2** and **LAND-3** providing for the planning, permitting, and financing of the removal of Units 1 – 5 once they are no longer needed to support the electricity system. A Demolition, Removal, and Remediation Plan (DRRP) would be presented by January 1, 2016, followed by a cost study one year later. Applications for required demolition permits would be submitted by July 11, 2016. The City, though it did not find extraordinary purpose in the proposal, supported the new conditions. Both conditions were incorporated into the PMPD with the addition of an annual reporting requirement.

As originally proposed, Conditions **LAND-2** and **LAND-3** required that the CECP developer finance and conduct the removal of the EPS equipment and buildings whether or not redevelopment of the site was ready to commence. If there are delays in the approval of redevelopment plans or market conditions are not conducive, the CECP project would have to bear those costs, estimated at $100 Million or greater. The Applicant asserts that the additional costs would make it difficult or impossible to finance the construction of the power plant or to competitively bid into PPA auctions. (Ex. 199G, pp. 4 – 9.) The City agrees that the demolition costs are more appropriately placed upon the redevelopment project than on the CECP. (12/12/11 RT 226.) We agree that the power plant project should be responsible for the costs of the studies leading to and the permitting of the demolition of the EPS facilities, a reasonable and feasible attempt to address the extraordinary public purpose requirement, but that the redevelopment project(s) on the EPS site should finance the demolition. As an additional refinement of the conditions, as the black start equipment is located

outside of the EPS power block building, demolition of the other EPS facilities need not wait for it to be retired. (12/12/11 RT 259.) Conditions **LAND-2** and **LAND-3** are modified accordingly.

On May 19, 2011, SDG&E announced its intention to enter into Power Purchase Agreements (PPAs) with three separate power plant projects (Escondido Energy Center, Pio Pico Energy Center and Quail Brush Power) proposed in San Diego area, totaling approximately 450 MW. It applied for approval of the PPAs from the California Public Utilities Commission.[8]

The City and other intervenors argue, in various ways, that the proposed award of PPAs indicates that CECP is no longer necessary in any way, certainly not enough to justify placing it on the coast. They argue that the existing Encina units, with the impending once through cooling (OTC) rule forcing the shut down of their cooling system by 2017 combined with this loss of a market for their power, will retire of their own accord, without help from the construction and operation of CECP. Thus, in their opinion, approving CECP would serve no purpose, and certainly not an extraordinary purpose.

Underpinning the intervenors' argument, however, are several significant assumptions, none of which are particularly certain at this point. The recently adopted OTC rules, of which we also take official notice, do not require that the EPS generators cease to operate; it is possible for an OTC operator to reconfigure or add technological improvements to its OTC system such that it may continue to operate. The rules also allow for the extension of existing OTC uses past the stated deadlines if a generator's continued operation is necessary for the protection of the grid.

A further assumption of suspect value is that EPS' owner will, once the generating equipment is retired, quickly move to remove it. It could just as easily

[8] The City requests that we take official notice of the Application Of San Diego Gas & Electric Company (U 902 E) For Authority To Enter Into Purchase Power Tolling Agreements With Escondido Energy Center, Pio Pico Energy Center And Quail Brush Power, and Prepared Direct Testimony Of San Diego Gas & Electric Company In Support Of Application For Authority To Enter Into Purchase Power Agreements With Escondido Energy Center, Pio Pico Energy Center And Quail Brush Power Project, filed May 19, 2011. We take official notice of those documents for the limited purpose of recognizing that SDG&E proposes to enter into the contracts. We do not take notice of the documents for the broader purposes proposed by the City, such as providing testimony on the effects on the electricity system from operation of those units and the "need" for CECP. The question of the need for CECP was further explored during a December 12, 2011 Committee Hearing, during which the parties presented and cross-examined experts on the issue but not any representatives of SDG&E.

sit in place for many years while the owner decides what to do next. **LAND-2** and **LAND-3** force the timely planning and permitting of EPS' demolition so that, when a viable means for financing demolition surfaces, the permitting process need not delay that work.

The two larger PPA candidate power plants do not have their Energy Commission permits or approved PPAs. In the case of Pio Pico an Application for Certification is pending before this Commission and a Preliminary Staff Assessment has been published. Quail Bush is in the discovery process. The Escondido project was approved by the Escondido Planning Commission in June, 2011 but is awaiting, along with the other two, approval of its PPA. Even possession of construction permit and PPA, is no guarantee that a project will be financed and constructed.

In sum, intervenors' arguments that there is no need[9] for the CECP are not convincing. The shutdown of Units 1 – 5 and the construction and operation of the three plants with which SDG&E has PPA's are far from certain. Additional generation in the area is needed beyond those PPA projects, a portion of which must be in the Encina subarea. If this plant is constructed and operated, it will provide at least some of that additional capacity, including the subarea need, as well as reduce reliance on generation units using once-through cooling. These factors, in combination with the benefits provided by **LAND-2** and **LAND-3**, as well as the project benefits support a finding that a substantial public purpose would be served by the CECP. The change in timing of the demolition of EPS—from as soon as the retirement of the units is approved by the CPUC and CAISO to when a viable redevelopment project is available to provide the financing—convinces us that the public purpose would not rise to the "extraordinary" level required in the Redevelopment Area Plan. In the **Override Findings** section of this Decision, we determine it is appropriate to override this potential conflict with the Redevelopment Area Plan.

5. Consistency with Subdivision Map Act

A Certificate of Compliance issued by the City of Carlsbad on October 29, 2001 (Ex. 12, Attachment LU-1A), demonstrates the CECP site is in compliance with the Subdivision Map Act. (Ex. 200, pp. 4.5-19 – 4.5-20.)

[9] This issue is discussed in greater depth in the **Override Findings** section of this Decision.

6. Land Use Compatibility

Land use compatibility refers to the physical compatibility of planned and existing land uses. Administrative or conditional use permitting requirements and project reviews under CEQA are in place to evaluate the compatibility of projects that are not a permitted use or that have elements that may adversely impact public safety, the environment, or that could interfere with or unduly restrict existing and/or future permitted uses. As noted in the discussions, development of the proposed project and its associated features/facilities are compatible with existing surrounding land uses. In addition, the CECP would be located between two major transportation corridors, the NCTD Rail Corridor and I-5. The CECP represents an overall “modernization and repowering” program at the EPS. EPS Tanks 5, 6, and 7 would be demolished, and once CECP is operational, EPS Units 1, 2, and 3 would be retired. Therefore, the proposed project would not result in any physical land use incompatibilities with existing surrounding land uses.

Sensitive Receptors

A proposed siting location may be considered inappropriate if a new source of pollution or hazard is located within close proximity to a sensitive receptor. Sensitive receptor sites are those locations 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, those who are ill or immune-compromised, and the elderly are generally considered more at risk from environmental pollutants. There are sensitive receptors (such as schools) within a one-mile radius of the proposed CECP. However, none of these sensitive receptors are in close proximity (i.e., within 0.25 miles) to the proposed project site.

Given the existing permitted uses surrounding the proposed project, the proposed project is not an incompatible land use with the surrounding and nearby uses, including sensitive receptors.

The **Air Quality**, **Hazardous Materials Management**, **Noise**, **Public Health**, **Traffic and Transportation**, and **Visual Resources** sections provide detailed analyses and any necessary mitigation for CECP-related noise, dust, public health hazards or nuisance, and adverse traffic or visual impacts on surrounding sensitive receptors. (Ex. 200, pp. 4.5-33 – 4.5-34.)

7. Potential Environmental Impacts Arising from Conditions **LAND-2** and **LAND-3**

Conditions **LAND-2** and **LAND-3**, added to this project near the end our review, would lead to the eventual removal of existing facilities and redevelopment of the westerly portion of the Encina Power Station site between the railroad tracks and Carlsbad Blvd. We therefore discuss the potential impacts of those activities, albeit at a lower level of detail and recognizing that the City of Carlsbad, not the Energy Commission, will not be the agency approving those activities.

Air Quality. Potential air quality impacts may arise from the use of construction equipment both in the demolition of the existing facilities and construction of replacement uses. Those impacts would be similar to those for the construction of CECP and can be mitigated by the application of requirements similar to those contained in the **Air Quality** Conditions **AQ-SC3** and **AQ-SC4** for fugitive dust control, and **AQ-SC5** for off-road diesel fueled engine emission control. In addition, if Tier 4 compliant off-road engines are then available, their use should be required in place of the Tier 3 engines required by our Condition of **AQ-SC5**. Similarly, we recommend that the City requiring the use of new low emitting on-road heavy haul trucks to reduce diesel emissions from the waste/recycle material haul trips.

Operational impacts from the replacement uses are speculative at this time but are likely to be lower than those of the Encina power plant; the application of City and air district development standards to the new uses should mitigate any impacts to insignificant levels. (Ex. 229, pp. 15 – 16.)

Biological Resources. While the Encina site is currently an facility devoid of any biological resources, demolition and construction activities could, if not properly conducted and controlled, impact sensitive species in the nearly Agua Hedionda Lagoon. Measures similar to those required of the CECP, including noise limits during the nesting season (March 15 to August 15) and the use of best management practices to avoid diversion of harmful materials to sensitive habitat, would reduce any impacts to insignificant levels. (Ex. 229, pp. 16 – 17.)

Cultural Resources. No specific cultural resources have been identified as likely to be affected by the demolition and redevelopment of the site. The potential for impact exists, however, especially if demolition activities extend beyond the 3 to 9 meters of fill-soil that the Encina project was built upon. Mitigation measures

similar to those contained in Conditions **CUL-1** through **CUL-8**, should mitigate any such impacts to insignificant levels. (Ex. 229, pp. 17 – 18.)

Hazardous Materials. Hazardous materials may be present on the Encina site and in the buildings and equipment to be demolished and removed. Assessment and review of the materials present, their likely effects, and adoption of proper protocols to prevent spills or releases, will mitigate any potential impacts to insignificant levels. (Ex. 229, pp. 18 – 19.)

Noise. Demolition activities can create noise impacts to the community. Proper application of mitigation measures similar to those proposed for the construction and operation of the CECP would mitigate any potential impacts to insignificant levels. (Ex. 229, pp. 20 – 21.)

Public Health. Preparation of a screening level health assessment will determine whether any specific mitigation measures are necessary to reduce impacts from exposure to the chemicals released by the demolition activities. (Ex. 229, pp. 21 – 22.)

Soil and Water Resources. Until specific development plans are provided, the exact nature of potential impacts can not be determined. General concerns are the conveyance of sediments into the Agua Hedionda Lagoon and stormwater discharges in general and avoiding the use of potable water for demolition and construction activities such as dust control. Compliance with the City's Standard Urban Stormwater Management Plan, Storm Water Standards Manual and Storm Water Management and Discharge Ordinance is required. A Tier 3 Construction Storm Water Pollution Prevention Plan may also be required. Those requirements should be sufficient to reduce any potential impacts to insignificant levels. (Ex. 229, pp. 22 – 25.)

Traffic. Application of mitigation measures such as the following, will reduce any potential impacts from the addition of demolition traffic to the area's streets to insignificant levels.

> An appropriate demolition traffic control plan and implementation program should be which addresses the following issues:
>
> - timing of heavy equipment and building debris removal deliveries
> - redirecting construction traffic with a flag person
> - signing, lighting, and traffic control device placement if required

- need for demolition work hours and arrival/departure times outside peak traffic periods
- access for emergency vehicles to the project site
- temporary closure of travel lanes
- specification of demolition-related haul routes
- identification of safety procedures for all those exiting and entering the site access gate

Prior to demolition of the 400 foot EPS exhaust stack, work with the FAA to notify all pilots using the McClellan-Palomar Airport and airspace of the pending changes.

Following completion of demolition, repair any damage to roadways affected by demolition activity along with the primary roadways identified in the traffic control plan for construction traffic to the road's pre-project construction condition.

Comply with Caltrans and other relevant jurisdictions' limitations on vehicle sizes and weights. Obtain necessary transportation permits from Caltrans and all relevant jurisdictions for roadway use.

(Ex. 229, pp. 22 – 25.)

Visual Resources. Demolition of the 400 foot exhaust stack and 200 foot tall power block enclosure will have a positive effect on the visual environment. No significant impacts are expected. (Ex. 229, p. 26.)

Waste Management. Demolition of the EPS will produce a variety of mixed nonhazardous wastes, such as soil, wood, metal, concrete, wires, etc. Nonhazardous waste can be recycled where practical and non-recyclable waste will be deposited in a Class III landfill. The hazardous waste generated will most likely consist of used oils, chemicals, universal wastes, solvents, and universal waste materials containing mercury, lead, cadmium, copper, and other substances hazardous to human and environmental health. Application of mitigation measures similar to those contained in the **Waste Management** Conditions in this Decision will mitigate any potential impacts to insignificant levels. (Ex. 229, pp. 26 – 28.)

Worker Safety/Fire Protection. Potential impacts due to worker exposure to hazardous materials, noise, and accidental injury are similar to those for the construction of CECP and can be mitigated to insignificant levels by compliance

with Cal/OSHA regulations and other measures similar to those required in the **Worker Safety** Conditions contained in this Decision. (Ex. 229, pp. 28 – 29.)

8. Cumulative Impacts

A project may result in a significant adverse cumulative impact where its effects are cumulatively considerable. "Cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects. (Cal. Code Regs., tit. 14, § 15065(a)(3).)

There are several large-scale planned and approved projects in the immediate vicinity of the proposed CECP, some of which would be located at the EPS.

Projects of note are:

- Carlsbad Seawater Desalination Plant – proposed by the City of Carlsbad to be located at the EPS, immediately south of the Agua Hedionda Lagoon, to occupy an approximately four-acre parcel in the area currently containing the existing EPS Fuel Oil Tank #3. This project is a 50-million gallon per day seawater desalination facility that includes pipelines, pumps, and other appurtenant and ancillary water and support facilities to produce and distribute potable water;
- Vista/Carlsbad Interceptor Sewer Project – proposed by the City of Carlsbad to be located at the EPS. The project would be located in the NCTD Railroad Corridor from Olive Avenue south across Agua Hedionda Lagoon to the Agua Hedionda Lift Station then would proceed south to the Encina Water Pollution Control Facility. This project includes the construction of approximately 500 linear feet of sewer pipeline;
- Agua Hedionda Lift Station Project – proposed by the City of Carlsbad to be located on the south shore of Agua Hedionda Lagoon adjacent to the east side of the NCTD Rail Corridor and possibly within the boundary of the proposed CECP. This project includes the upgrade and replacement of existing city pumps/infrastructure;
- Interstate 5 North Coast Corridor Project – This 26-mile project is proposed by Caltrans and includes adding highway lanes and operational improvements on I-5 through the northern San Diego region. All of the lane widening alternatives would encroach onto the proposed CECP site. Caltrans is in the process of preparing an environmental assessment for this project.

- Coastal Rail Trail – The goal of the Coastal Rail Trail (CRT) is to provide a multi-modal transportation route that is separated from the roadway. The CRT was envisioned to be 44 miles within the railroad right-of-way from Oceanside to the train depot in downtown San Diego. Sections of the CRT have been completed, including in the City of Carlsbad. The North County Transit District (NCTD) has indicated that it would not support a trail in the railroad right-of-way, possibly due to liability and plans to install an additional track. The City of Carlsbad has considered alignments through the EPS, but outside of the NCTD right-of-way. In addition, the City has considered alignments avoiding the EPS site. The CRT route location has not been finalized in the area of the EPS; and
- Los Angeles to San Diego (LOSSAN) Double-Tracking Project - Improvements along the AT&SF Railroad San Diego coastal portion of the LOSSAN corridor include double-tracking of main line and bridges, curve realignment and the addition of crossovers to increase capacity and enhance reliability of the railroad corridor for freight rail service. According to the City, current state budget constraints jeopardize double-tracking expansion plans. Currently, only 28 miles of the corridor within San Diego County consists of double track. The San Diego segment of the corridor is predominantly used for freight service. The "CP Carl to CP Double Track" portion of the project would add 1.9 miles of double track and replace a single-track bridge with a double-track bridge, resulting in 3.1 miles of continuous double track in the City of Carlsbad. Projects are in various stages of development from preliminary engineering and environmental review to pre-final design. All projects would be under construction by December 31, 2013, if funded. The Final Programmatic EIR/EIS for the project has been published, but the Record of Decision has not been issued.

The area in the immediate vicinity of the proposed CECP site is dominated by similar industrial and utility development. The CECP is a similar land use type to adjacent uses. In addition, it would not encroach onto lands outside of the existing EPS. (Ex. 200, pp. 4.5-34 – 4.5-36.)

The proposed project would not make a significant contribution to regional impacts related to new development and growth. The project is planned to serve the existing and anticipated electrical needs of the growing population in the project area by connecting to the existing electric system and other utility infrastructure. The land use effects of the proposed project in combination with past, present, and reasonably foreseeable projects in the area would not be cumulatively considerable. Therefore, cumulative land use impacts of the proposed CECP would be less than significant.

FINDINGS OF FACT

Based on the evidence, the Commission makes the following findings:

1. The CECP will not convert Prime Farmland or Farmland of Statewide Importance to non-agricultural use.

2. The CECP will not conflict with existing zoning for agricultural use or a Williamson Act contract. The project is not subject to a Williamson Act contract.

3. The CECP will not involve other changes in the existing environment, which would result in the conversion of Farmland to non-agricultural uses.

4. The CECP, a repurposing of an existing industrial use, will not physically divide or disrupt an established community.

5. The CECP is not consistent with the Carlsbad General Plan. It is not an allowed use under the Public Utilities land use designation.

6. The CECP is not consistent with the Encina Specific Plan to the extent that the Specific Plan restates the allowed uses from the General Plan and Zoning Ordinance and its few specific development standards. The Specific Plan's requirement that the plan be amended to account for new development, alike in function to a conditional use permit, is satisfied by this Commission's decision on the AFC.

7. The CECP is not consistent with the Agua Hedionda Land Use Plan's 35 foot height limitation.

8. With the imposition of Conditions **LAND-2** and **LAND-3** requiring the planning and permitting (by the CECP project owner) and financing (by the redeveloper) of the eventual removal and redevelopment of the existing EPS power plant, the CECP serves a substantial, though not an extraordinary public purpose, as required under, the South Carlsbad Coastal Redevelopment Area Plan. The Redevelopment Plan's intent is described as replacing the existing EPS power plant, located to the west of the rail corridor with a plant to the east of the corridor, further from the shoreline. The CECP furthers a Plan Goal to "[f]acilitate the redevelopment of the Encina Power Generating Facility to a physically smaller, more efficient power generating plant."

9. The CECP is not consistent with the PU zoning applied to the CECP site, which prohibits power plants of 50 MW or greater. The CECP would generate approximately 540 MW. This Commission approval serves as the

equivalent of a Precise Development Plan approval as required in the PU zone.

10. Prior to the City's adoption of amendments to its General Plan, Zoning Ordinance, Encina Specific Plan (SP 144), and Encina Power Station Precise Development Plan (PDP 00-02) in September and October, 2011, the CECP complied with the policies requirements and standards of each of those plans.

11. It is unnecessary and futile to consult with the City of Carlsbad regarding the above inconsistencies with City General Plan, zoning and other provisions (Pub. Resources Code, § 25523(d)(1)) because the City recently amended them in order to create the inconsistencies and prevent the development of this project, thereby indicating its unwillingness to allow the project.

12. The CECP is compatible with surrounding land uses and will not result in any unmitigated public health or other environmental impacts to sensitive receptors.

13. With implementation of Conditions of Certification **LAND-1, LAND-2** and **LAND-3**, the CECP's contribution to cumulative impacts of existing and proposed projects will not be cumulatively considerable.

CONCLUSIONS OF LAW

1. With implementation of the mitigation measures specified in this Decision, and in the Conditions of Certification below, we conclude that construction and operation of the Carlsbad Energy Center Project will not result in significant direct, indirect, or cumulative land use impacts except that significant direct impacts will occur with regard to the project's inconsistencies with the City of Carlsbad's General Plan Public Utilities land use designation, Zoning Code, Encina Specific Plan, Agua Hedionda Land Use Plan's height limitation, and the South Carlsbad Coastal Redevelopment Area Plan as described in Findings 5 through 9, above.

2. The record contains an adequate analysis of the land use laws, ordinances, regulations, and standards that are relevant to the project and establishes that the project will not create any unmitigated, significantly adverse land use effects as defined under the California Environmental Quality Act except that significant direct impacts will occur with regard to the project's inconsistencies with the City of Carlsbad's General Plan Public Utilities land use designation, Zoning Code, Encina Specific Plan, Agua Hedionda Land Use Plan's height limitation, and the South Carlsbad Coastal Redevelopment Area Plan as described in Findings 5 through 9, above.

3. The project will be designed, constructed, and operated in conformance with the applicable land use laws, ordinances, regulations, and standards identified in the evidentiary record and listed in the pertinent portion of **Appendix A** of this Decision with the exception of the project's inconsistencies with the City of Carlsbad's General Plan Public Utilities land use designation, Zoning Code, Encina Specific Plan, Agua Hedionda Land Use Plan's height limitation, and the South Carlsbad Coastal Redevelopment Area Plan as described in Findings 5 through 9, above.

CONDITIONS OF CERTIFICATION

LAND-1 The project owner shall dedicate an easement for the Coastal Rail Trail within the boundaries of the overall Encina Power Station Precise Development Plan area in a location mutually agreed upon with the City of Carlsbad located west of the north/south AT&SF/North County Transit District Rail Corridor within 180 days from the start of construction.

If the project owner and the City of Carlsbad cannot reach agreement on the location of the easement (for example due to public safety and security reasons) the project owner shall provide funds to the City of Carlsbad for use in the development of the Coastal Rail Trail within the City of Carlsbad. The project owner shall provide funding to the City of Carlsbad for development of the Coastal Rail Trail as approved by the Compliance Project Manager (CPM) within 180 days of the start of construction. The amount and payment of funds will be determined by an independent appraisal of property within the boundaries of the Encina Power Station that would have been provided for a Coastal Rail Trail easement. The project owner shall select an appraiser for approval by the CPM and pay all costs associated with the appraisal.

Verification: The project owner shall provide proof of easement dedication or appraisal and payment to the City of Carlsbad within 180 days of the start of construction.

LAND-2 On or before January 1, 2016, the project owner shall prepare and submit a Demolition, Removal, and Remediation Plan (DRRP) to the CPM, the City of Carlsbad, and the Carlsbad Redevelopment Agency. The DRRP shall propose the process, schedule, and legal requirements for the demolition, removal, and remediation of the Encina Power Station (Units 1 through 5), associated structures, the black start unit and the exhaust stack. As part of completion of the DRRP, project owner shall consult with the California Energy Commission, the California Coastal Commission, the City of Carlsbad, the Carlsbad Redevelopment Agency, the San Diego Regional Water Quality Control Board, the San Diego Air Pollution

Control Board, and the California Independent System Operator to ensure the DRRP best reflects the procedural and substantive requirements that will apply to the site.

On or before January 1, 2017, project owner shall prepare and submit to the CPM, the City of Carlsbad, and the Carlsbad Redevelopment Agency, a study of the estimated costs associated with implementing the DRRP.

Project owner shall demonstrate, to the CPM's satisfaction, fiscal capability to implement the DRRP prior to commencement of demolition activities. Such demonstration could be accomplished by submittal of a financial plan, deposit of funds into a dedicated account, or any combination thereof.

Verification: On or before January 1, 2016, project owner shall provide the DRRP to the CPM for review and approval and to the City of Carlsbad, the Carlsbad Redevelopment Agency, and the California Coastal Commission for review and comment. The City of Carlsbad and the Carlsbad Redevelopment Agency shall provide comments on the DRRP to the CPM and project owner within 60 days or a date mutually agreeable to project owner and the City of Carlsbad and the Carlsbad Redevelopment Agency.

On or before January 1, 2016, project owner shall submit to the CPM evidence that the redevelopment process with the Carlsbad Redevelopment Agency for redeveloping the Encina Power Station site has begun or shall submit to the CPM evidence of a later mutually agreed upon date by project owner and the Carlsbad Redevelopment Agency to begin the redevelopment process.

On or before January 1, 2017, project owner shall submit the results of the study on estimated costs of implementing the DRRP to CPM for review and approval and to the City of Carlsbad and the Carlsbad Redevelopment Agency for review and comment. The City of Carlsbad and the Carlsbad Redevelopment Agency shall provide comments on cost estimate to the CPM and project owner within 60 days or a date mutually agreeable to the project owner and the City of Carlsbad and the Carlsbad Redevelopment Agency.

The project owner shall report to the CPM on June 30, 2012 and every June 30 thereafter until notified by the CPM that reports are no longer required, as to the progress made toward satisfaction of this Condition and Condition **LAND-3**. The reports shall include all relevant information, including an assessment of the factors which continue to require that any or all of Units 1 through 5 and the black start unit remain operational.

LAND-3 On or before January 1, 2017, project owner shall submit applications for required permits and approvals for demolition, removal, and remediation of the Encina Power Station Units 1 through 5, associated structures, the black start unit and the exhaust stack.

Upon the commencement of commissioning activities of the project, project owner shall request permission from the California Public Utilities Commission (CPUC) and California Independent System Operator to permanently shutdown Units 1 through 5 and the black start unit. The request shall be resubmitted annually thereafter until permission is granted.

Project owner shall seek partners to complete redevelopment of the Encina Power Station according to the Demolition, Removal, and Remediation Plan (DRRP) approved by the CPM pursuant to **LAND-2**. Upon the permanent retirement of Units 1 through 5 at Encina Power Station, Project Owner shall actively pursue fiscally viable redevelopment of the Encina Power Station. Such pursuit could include selling or transferring the land and facilities to a developing entity or entering into a joint venture with one or more developers. The project owner is not expected to commence demolition and remediation of the Encina Power Station absent a viable and funded redevelopment plan that includes future uses of the site that provide the revenue or funds necessary to pay or secure financing for the costs of demolition and remediation.

Verification: Project Owner shall report to CPM on annual basis the status of the redevelopment efforts at the Encina Power Station. Within 60 days of receiving the report, the CPM shall schedule and hold a public workshop to present the report and solicit public comments and questions

B. TRAFFIC AND TRANSPORTATION

This section addresses the extent to which the CECP will affect the local transportation network. The record contains an analysis of: (1) the roads and routings that are proposed to be used for construction and operation; (2) potential traffic-related problems associated with the use of those routes; (3) the anticipated encroachment upon public rights-of-way during the construction of the project and associated facilities; (4) the frequency of trips and probable routes associated with the delivery of hazardous materials; and (5) the potential effect of project operations on local airport flight traffic.

Project impacts were evaluated according to Appendix G of the California Environmental Quality Act (CEQA) Guidelines. As more fully discussed below, we have considered whether CECP will:

- Conflict with adopted polices, plans, or programs;
- Cause a substantial increase in traffic when compared with the existing traffic load and capacity of the street system;
- Exceed, either individually or cumulatively, a level of service (LOS) standard established by the county congestion management agency for designated roads or highways;
- Substantially increase hazards due to a design feature or incompatible uses; or
- Result in inadequate parking capacity or a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks or in inadequate emergency access. (CEQA Guidelines, Appendix G.)

In addition, we have reviewed the CECP's ability to comply with applicable federal, state, and local laws, ordinances, regulations, and standards (LORS) related to traffic and transportation.

The evidence was undisputed. (02/03/10 RT 430-433; 02/04/10 RT 22, 94, 117, 126-127, 135-138, 176-180; Exs. 4, § 5.12; 12, § 5.12; 24, DR 57; 25, DR 98-103; 35, § 5. 12; 69, p. 25; 115 [Ex. A-4], 135; 183; 200 § 4-10.)

SUMMARY AND DISCUSSION OF THE EVIDENCE

The CECP site is located north of the intersection of Carlsbad Boulevard and Cannon Road within the Encina Power Station (EPS). The site is surrounded to

the north by the Agua Hedionda Lagoon, to the east by Interstate 5 (I-5), to the south by Cannon Road and the San Diego Gas & Electric (SDG&E) Cannon Substation, and to the west by the north/south transept of the Atchison, Topeka and Santa Fe (AT&SF) Railway/North County Transit District (NCTD) Rail Corridor and Carlsbad Boulevard. Primary site access to the CECP site would be through the EPS main gate at Carlsbad Boulevard. (Exs. 4, § 5.12.3; 200, p. 4.10-2.)

The key roadways in the area include:

- **Interstate 5.** I-5 is a major north-south freeway that extends from the Mexican Border to the Canadian border, going through California, Oregon, and Washington states. Access to the CECP site from I-5 is provided via the Cannon Road exit. In the site vicinity, I-5 has four lanes in each direction. According to traffic counts published by the California Department of Transportation (Caltrans) for the I-5 segment near the CECP site, I-5 carried approximately 206,000 average daily vehicle trips in 2006. Truck traffic accounts for approximately 4.8 percent of all trips on I-5 near Cannon Road.

- **Cannon Road.** Cannon Road is an east-west roadway that connects the CECP site to I-5. It is an undivided arterial that has two lanes in each direction. Cannon Road is directly south of the CECP site and it provides access to the site from I-5. According to the City of Carlsbad General Plan, Cannon Road is classified as a major arterial, which typically limits access to adjacent properties, but enables circulation within the City and provides connections to regional roadways and freeways. The San Diego Northern Railway (SDNR) tracks run north/south at a signalized crossing on Cannon Road just west of Avenida Encinas.

- **Carlsbad Boulevard.** Carlsbad Boulevard is a north-south roadway that connects the CECP site to Cannon Road to the south and Tamarack Avenue to the north. It is a divided arterial with two lanes in each direction. According to the City of Carlsbad General Plan, Carlsbad Boulevard is considered a major arterial. (Exs. 4, § 5.12.3.1, Figure 5-12.3; 200, pp. 4.10-3 – 4.10-4.)

1. Existing Levels of Service

The Applicant provided an analysis of area roadways and intersections in the CECP vicinity by using the six levels of service (LOS) identified in the Caltrans *Highway Capacity Manual* (*HCM*) to quantify existing baseline traffic conditions. The LOS describes and quantifies the congestion level on a roadway/intersection using factors such as speed, travel time, and delay, with a range from LOS A for the best operating conditions to LOS F for the worst. (Ex. 200, p. 4.10-4.)

The City of Carlsbad uses the LOS criteria to assess the performance and capacity of its street and highway system. According to Carlsbad's Citywide Facilities and Improvements Plan, no roadways in the project area may fall below LOS D during peak hours (6:30 a.m. to 8:30 a.m. and 3:30 p.m. to 5:30 p.m.) or LOS C during off-peak hours. (Ex. 200, p. 4.10-4.)

The Applicant's roadway study area included the following roadway segments:

- Cannon Road between I-5 southbound ramps and Avenida Encinas
- Cannon Road between Avenida Encinas and Carlsbad Boulevard
- Carlsbad Boulevard between Cannon Road and the project site

Energy Commission staff's **Traffic and Transportation Table 4**, replicated below, summarizes the 2007 daily traffic volumes and volume/capacity (V/C) ratios for these specified roadway segments, assuming a daily capacity of LOS E to determine the LOS along these roadway segments. As shown in Staff's **Traffic and Transportation 4**, the study area roadway segments currently operate at LOS C or better.

Staff's Traffic and Transportation Table 4
2007 Daily Traffic Volumes and Volume/Capacity Ratios for Roadway Segments

Roadway Segment	Street Classification	Lanes	Capacity (LOS E)	Volume (2007 Estimates)	V/C	LOS
Cannon Rd (I-5 SB Ramps & Avenida Encinas)	Major Arterial	4	30,000	13,600	0.45	A
Cannon Rd (Avenida Encinas & Carlsbad Blvd)	Major Arterial	4	30,000	7,950	0.27	A
Carlsbad Blvd (Cannon Rd & CECP)	Major Arterial	4	30,000	23,600	0.79	C

Source: Exs. 4, § 5.12.3.2.1, Tables 5.12-3, 5.12-4; 200, p. 4.10-5.

The study area also included the following signalized intersections:

- I-5 northbound ramps/Cannon Road;
- I-5 southbound ramps/Cannon Road;
- Avenida Encinas/Cannon Road; and
- Carlsbad Boulevard/Cannon Road.

No intersections east of I-5 were analyzed since it was assumed that project-related traffic would typically access the project site using Cannon Road from I-5 northbound and southbound ramps to Avenida Encinas or Carlsbad Boulevard. Staff's **Traffic and Transportation Table 5**, replicated below, summarizes the results of the morning and afternoon peak-hour LOS analysis for study area intersections in 2007. All study area intersections were operating at LOS C or better in the morning and afternoon peak hours.

Staff's Traffic and Transportation Table 5
2007 Intersection Level of Service Summary

Intersection	AM Peak Hour		PM Peak Hour	
	Delay (sec)	LOS	Delay (sec)	LOS
I-5 northbound ramps/Cannon Rd	10.6	B	11.2	B
I-5 southbound ramps/Cannon Rd	16.7	B	13.8	B
Avenida Encinas/Cannon Rd*	15.3	B*	14.7	B*
Carlsbad Blvd/Cannon Rd	16.6	B	27.8	C

Source: Exs. 4, § 5.12.3.2.2, Table 5.12-6, Figure 5.12-4; 200, p. 4.10-6.

*Analysis scenario without accounting for trains. The NCTD rail lines run north-south, just west of Avenida Encinas. With trains clearing the rail crossing within a few seconds (average speed of 60 mph) and the guard gates going up to their initial position within less than a minute, the delays at the Avenida Encinas and Cannon Road intersection are not anticipated to be significant.

According to the Applicant, the City's traffic engineers indicated that LOS C is the significance threshold during non-peak periods and LOS D is the significance threshold during peak periods. Where additional project traffic would cause a change in traffic flow greater than the significance thresholds, the Applicant would be required to provide mitigation to reduce project-related traffic to an acceptable LOS. (Ex. 4, § 5.12.4.1.)

2. Construction Impacts and Mitigation

a. Traffic Congestion

Construction of the CECP will add traffic to local roadways. During the 15-month construction period, the number of daily construction workers in an average month (Month 7) and in a peak month (Month 13) is estimated at 291 and 357, respectively. The number of average and peak daily truck deliveries is estimated at 16 and 28, respectively. The peak construction period is considered the worst-case scenario with the highest total of daily trips and thus, the Month 13 daily trip estimates were used to determine potential traffic impacts. For this analysis, both construction vehicles and worker trips were converted to passenger car equivalent (PCE) trips in accordance with the *HCM* guidelines. (Exs. 4, § 5.12.4.2 et seq; 200, p. 4.10-9.) Staff's **Traffic and Transportation Table 6**, replicated below, shows the estimated total construction vehicle trips that could occur during the peak construction period.

Staff's Traffic and Transportation Table 6
Estimated Average and Peak Hour Trip Generation Peak Construction Period

	Average Daily Trips	A.M. Peak Hour			P.M. Peak Hour		
		In	Out	Total	In	Out	Total
Total Construction Traffic in PCE	**695**[1]	**333**	**8**	**341**	**0**	**325**	**325**

Source: Ex. 200, p. 4.10-9.
[1]Total Average Daily Trips includes off-peak construction related trips.

Based on construction vehicle trip calculations presented in Staff's **Traffic and Transportation Table 6**, above, Staff was able to identify potential impacts of construction vehicle trips on current LOS for area roadways and intersections. Staff's **Traffic and Transportation Table 7**, replicated below, compares existing V/C ratios and LOS with anticipated construction V/C ratios and LOS on roadway segments that may be affected by CECP traffic. As shown, the Carlsbad Boulevard segment near the CECP site currently operates at LOS C and would be diminished to LOS D with the addition of construction vehicle trips. All other intersections near the CECP would continue to operate at an LOS A. (Ex. 200, p. 4.10-9.)

Staff's Traffic and Transportation Table 7
Current Roadway Levels of Service and Levels Anticipated with Project

Roadway Segment	Capacity (veh/day)	Current			Construction Traffic	With Project		
		Volume	V/C	LOS		Volume	V/C	LOS
Cannon Rd (I-5 SB ramps & Avenida Encinas)	30,000	13,600	0.45	A	Construction workers: 650 (roundtrip) Truck Deliveries: 46 (roundtrip) PCE= 2.5	14,296	0.48	A
Cannon Rd (Avenida Encinas & Carlsbad Blvd)	30,000	7,950	0.27	A	Construction workers: 650 (roundtrip)	8,600	0.28	A
Carlsbad Blvd (Cannon Rd & CECP)	30,000	23,600	0.79	C	Construction workers: 650 (roundtrip)	24,250	0.81	**D**

Source: Exs. 4, § 5.124.2.3, Table 5.12-9; 200, p. 4.10-9.)
V/C: volume/capaCity; LOS: levels of service.

Staff's **Traffic and Transportation Table 8**, replicated below, shows the current LOS and anticipated LOS with CECP construction traffic at critical intersections. Although construction vehicle trips will increase delay time, all intersections near the CECP will continue to operate at current LOS even with the addition of CECP construction vehicle traffic. (Ex. 200, p. 4.10-10.)

Staff's Traffic and Transportation Table 8
Current Intersection Levels of Service and Levels Anticipated with Project

Intersection	Current				With Project			
	AM		PM		AM		PM	
	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
I-5 northbound ramps/Cannon Rd	10.6	B	11.2	B	14.1	B	14.7	B
I-5 southbound ramps/Cannon Rd	16.7	B	13.8	B	16.8	B	10.1	B
Avenida Encinas/ Cannon Rd	15.3	B*	14.7	B*	14.0	B*	19.7	B*
Carlsbad Blvd/Cannon Rd	16.6	B	27.8	C	16.7	B	34.0	C

Source: Exs. 4, § 5.12.4.2.4; 200, 4.10-10.
*Analysis scenario without accounting for trains.

As shown in Staff's **Traffic and Transportation Tables 7** and **8**, construction traffic will not reduce the LOS at any study area intersections nor impact LOS on most of the project area roadways except for Carlsbad Boulevard between Cannon Road and the CECP site, which will decrease from existing LOS C to LOS D. To ensure that the decreased LOS does not create a significant traffic impact, Condition of Certification **TRANS-1** requires the project owner to provide a Traffic Control Plan designed to mitigate the LOS impact along this project roadway segment. (Ex. 200, p. 4.10-10.)

b. Traffic Safety

Construction-related traffic is not expected to result in safety impacts to the general public because it will not be routed through residential areas. The railroad crossing on Cannon Road near the site could potentially create a traffic safety hazard but it is signalized with safety crossing arms visible to drivers. The primary CECP access for workers will be the EPS front gate at Carlsbad Boulevard, which has adequate visibility in both directions from the gate and a posted speed limit of 35 miles per hour. Site access for truck deliveries will be Avenida Encinas at Cannon Road to avoid the railroad crossing. Therefore, the evidence indicates that traffic hazards at the site entries will be insignificant. To ensure that traffic is monitored appropriately, the project owner's Traffic Construction Plan required by Condition **TRANS-1** must include flagging and the covering of open trenches to minimize hazards from possible traffic backup as construction workers enter and exit the plant during peak periods. (Exs. 4, § 5.12.3.2.2; 200, p. 4.10-13.)

An internal road crosses the rail line between the main part of the EPS and the eastern part of the site and is protected by a drop guard and flashing cross buck. However, since the internal rail crossing represents a potential safety hazard to site pedestrians, construction workers, and oversize construction vehicles, Condition **TRANS-4** requires the project owner to provide a crossing safety plan for all phases of project construction. (Ex. 200, p. 4.10-13.)

The potential for damage to roads by heavy construction vehicles and equipment within the project area will be mitigated by Condition **TRANS-5**, which requires the project owner to ensure that any road damaged by project construction will be restored to its original condition to ensure that any damage to local roadways will not create a safety hazard to motorists. (Ex. 200, p. 4.10-14.)

The use of oversized construction vehicles on public roadways could potentially create a traffic safety hazard by limiting drivers' views and/or by obstructing traffic

flow. Condition **TRANS-6** requires all CECP-related oversized construction vehicles on public roadways to comply with Caltrans and other relevant jurisdictional restrictions on vehicle sizes and weights. Condition **TRANS-8** requires the project owner to ensure compliance with Caltrans and all other relevant jurisdictional requirements for any encroachment into public rights-of-way during construction and requires that all necessary encroachment permits be obtained from Caltrans and all relevant jurisdictions. (Exs. 4, § 5.12.3.3; 200, pp. 4.10-14 – 4.10-15.)

The **Hazardous Materials Management** section in this Decision addresses potential safety issues concerning the transport of CECP-related hazardous materials and the designated routes for licensed hazmat transporters. Emergency, response vehicles will use Cannon Road to Avenida Encinas to access the project site. Access for emergency vehicles during construction will be provided under the Construction Traffic Control Plan required by Condition **TRANS-1**. After the plant becomes operational, space for emergency vehicles to turn around within the site will be the same as the current access within the EPS. The **Worker Safety and Fire Protection** section of this Decision addresses emergency services serving the facility. (Ex. 200, p. 4.10-14.)

c. Parking

Parking for construction workers will be located within the existing EPS site west of the railroad tracks. Condition **TRANS-7** requires the project owner to provide a parking and staging plan for all phases of construction to ensure that all project-related parking occurs onsite or in designated off-site parking areas. (Ex. 200, p. 4.10-14.)

3. Operation Impacts and Mitigation

a. Employee and Truck Traffic

CECP operations will only require an average of 12 truck trips and a maximum of 32 truck trips per month to provide chemicals for the reverse osmosis water treatment facility. No increase in permanent employee commuter traffic currently serving the EPS is expected. Consequently, the operations and maintenance traffic associated with the project is considered insignificant when added to major movements on local freeways and roadways. Further, there is no evidence that CECP operations will have any impact on study area roadways or intersection LOS. Therefore, no operations-related mitigation measures are required. (Ex. 200, p. 4.10-14.)

b. San Diego County Congestion Management Plan (CMP)

The San Diego Association of Governments (SANDAG), as the designated Congestion Management Agency for the San Diego region, must develop, adopt, and regularly update the CMP. The 2006 CMP roadway system consists of 704 route miles, including 323 route miles of state freeways, 283 route miles of state highways, and 98 miles of CMP principal arterial roadways. However, none of the roadways potentially affected by CECP traffic are considered CMP roadways and therefore, no impacts to the CMP are expected to occur. (Ex. 200, pp. 4.10-10 – 4.10-11.)

c. Airports

The closest airport to the CECP site is the McClellan-Palomar Airport located approximately 2.5 miles to the east. Aircraft using the existing flight pattern for the airport regularly fly over the existing EPS/future CECP site. The area above or near the EPS/CECP site is considered a potentially hazardous area because of conflicts between aircraft entering downwind from the northwest and those departing to the west, northwest, and turning right (crossing to the downwind leg) to enter downwind or leave the pattern. There is also concern about reduced visibility when the marine layer sinks and aircraft must fly at lower and higher altitudes to avoid the marine layer. The marine layer was a major factor in the Duchess/Mooney plane collision near the airport in 2002. (Ex. 200, p. 4.10-11.)

The evidence indicates that operations at the McClellan-Palomar Airport are expected to increase and that air traffic will continue to fly directly over the EPS/CECP site. The recommended pattern altitude is 1,500 feet above ground level (AGL) for small aircraft and 2,000 feet AGL for large aircraft. Airspace above the EPS/CECP site is located within a Visual Flight Rule (VFR) Flyway Zone, which parallels the Pacific Ocean coastline from the cities of Oceanside to Del Mar. The published altitude within this Flyway Zone is 6,500 feet and below. In addition, small aircraft pulling banner ads along coastline beaches and aircraft patrolling road traffic conditions along I-5 regularly fly within the coastline Flyway Zone at altitudes below 1,500 feet and directly over the EPS/CECP site. To illustrate flight activity in the area, the evidence shows that the Federal Aviation Administration (FAA) recorded 126 overflights and 49 near-overflights at the EPS/CECP site during the month of June 2008. (Ex. 200, pp. 4.10-7, 4.10-11.)

Staff conducted a plume velocity analysis to assess the turbulence resulting from air plume velocities from the CECP's gas turbine/heat recovery steam generators and cooling tower exhaust stacks. The analysis assumed worst-case

meteorological conditions (cool temperatures and calm winds), when the maximum upward plume velocity would be generated. Staff's **Traffic and Transportation Table 9**, replicated below, shows the average plume velocity speed in meters per second (m/s) for both the gas turbine and cooling tower plumes AGL. (Ex. 200, pp. 4.10-12, 4.10-27 et seq., Appendix TT-1.)

Traffic and Transportation Table 9
Plume Average Velocity Engine and Radiator Predicted Plume Velocities

	Gas Turbine Average Plume Velocity (m/s)	Air Cooler Average Plume Velocity (m/s)
Height (ft) AGL	**61°F**	**59°F**
300	8.16	6.49
400	6.71	6.29
500	5.96	5.97
600	5.47	5.67
700	5.11	5.41
800	4.83	5.18
900	4.60	4.99
1,000	4.42	4.82
1,100	4.26	4.67
1,200	4.12	4.54
1,300	3.99	4.42
1,400	3.88	4.31
1,500	3.79	4.22
1,600	3.70	4.13
1,700	3.62	4.04
1,800	3.54	3.97
1,900	3.47	3.90
2,000	3.41	3.83

Source: Ex. 200, p. 4.10-27 et seq., APPENDIX TT-1.

For purposes of this analysis, a vertical velocity of 4.3 m/s plume average velocity was considered the critical velocity of concern to light aircraft. The gas turbine plume velocity drops below 4.3 m/s at approximately 1,070 feet AGL, at which height the gas turbine plume diameter is calculated at 299 feet. The CECP cooling tower average plume velocity drops below 4.3 m/s at approximately 1,410 feet AGL, and the plume diameter is calculated to be over 1,500 feet at 1,410 feet AGL. As a result, adverse impacts could potentially occur to low-flying aircraft due to project-related turbulence in the airspace above the site. (Ex. 200, pp. 4.10-12, 4.10-27 et seq., Appendix TT-1.)

According to Staff, however, plume velocities above the site can be avoided by aircraft observing the recommended pattern altitudes of 1,500 AGL for small aircraft and 2,000 feet AGL for larger aircraft. The evidence indicates that air

traffic over the CECP site is not congested and surrounding airspace does not contain any restricted areas. (Ex. 200, p. 4.10-13.)

To ensure that plumes associated with CECP operation do not impact aviation activities, Condition **TRANS-3** requires the project owner to consult with the FAA to update all applicable airspace charts to indicate that project plume hazards could exist and to notify all pilots using the McClellan-Palomar Airport to avoid direct overflight of the airspace above the CECP site. (Ex. 200, p. 4.10-12.)

FAA regulations require the project owner to notify the FAA if the height or outward or upward slope of a proposed new structure is more than 200 feet AGL at the site. Condition **TRANS-2** ensures that the project owner will provide an approved FAA Form 7460-1 regarding project height and obtain the FAA's Determination of No Hazard to Navigable Airspace. (Ex. 200, p. 4.10-12.)

4. Cumulative Impacts

According to CEQA, a project may result in a significant adverse cumulative impact where its effects are cumulatively considerable.[1] *Cumulatively considerable* is interpreted to mean that the incremental effects of an individual project are significant when viewed in connection with the effects of (1) past projects; (2) other current projects; and (3) probable future projects. (Ex. 200, p. 4.10-15.)

A number of projects that are proposed for development within the CECP vicinity could contribute to cumulative traffic effects, including:

- Flower Fields Project;
- I-5 Widening Project;
- Carlsbad Seawater Desalination Plant Project;
- City of Carlsbad Capital Improvement Program;
- Los Angeles to San Diego (LOSSAN) Double-Tracking Project; and
- Coastal Rail Trail.

The above-listed projects will likely result in increased traffic in the CECP area, primarily in the form of construction-related traffic. If CECP construction coincides with another project's construction period, cumulative impacts could result from temporary lane closures and traffic congestion. In addition, traffic associated with

[1] Title 14, Cal. Code Regs, section 15130.

future residential and commercial development in the area would also contribute to congestion on the affected roadways. However, each of the proposed projects must conduct impact analyses, implement mitigation, and conform with applicable plans, policies, and regulations in order to obtain permit approval similar to the measures required for the CECP. (Exs. 4 § 5, 12; 200, p. 4.10-16.)

Conditions **TRANS-1** through **TRANS-8** ensure that any potentially significant traffic impacts associated with CECP construction are reduced to insignificant levels so that the CECP's cumulative contribution to traffic impacts will also be reduced to insignificance. (Ex. 200, p. 4.10-16.)

5. Public Comments

Responses to comments submitted by Caltrans and the City of Carlsbad regarding cumulative impacts, encroachment, and parking were presented in the Staff Assessment and incorporated into this Decision. (Ex. 200, pp. 4.10-18 – 4.10-19.)

FINDINGS OF FACT

1. Construction of the CECP will add traffic to local roadways during the construction period.

2. Construction traffic will not reduce the Level of Service (LOS) at any area intersection nor impact LOS on area roadways except for Carlsbad Boulevard between Cannon Road and the CECP site, which will temporarily decrease from existing LOS C to LOS D.

3. The project owner will provide a Traffic Control Plan to mitigate any LOS impacts in the project area.

4. The Traffic Control Plan will ensure that the CECP does not significantly degrade the LOS on local streets or roadways.

5. The Traffic Control Plan will ensure the implementation of project-related traffic safety measures for the general public as well as for construction workers and drivers of construction-related vehicles.

6. The project owner will provide a Railroad Crossing Safety Plan for all phases of project construction.

7. The project owner will provide a Parking and Staging Plan for all phases of construction to ensure that all project-related parking remains on-site or in designated off-site parking areas.

8. The project owner will comply with Caltrans and all other relevant jurisdictional requirements for any encroachment into public rights-of-way during construction.

9. The project owner will comply with Caltrans and all other relevant jurisdictional requirements for oversized vehicles.

10. The is no evidence that CECP traffic will result in adverse impacts on designated Congestion Management Plan roadways in San Diego County.

11. The project owner will repair any damage to roadways affected by construction activity.

12. There is no evidence that CECP operations will have any impact on study area roadways or intersection LOS.

13. The McClellan-Palomar Airport is located approximately 2.5 miles to the east of the CECP site.

14. Aircraft connected with the McClellan-Palomar Airport routinely fly over the existing EPS/proposed CECP site.

15. Adverse impacts could potentially occur to low-flying aircraft from turbulence caused by plume velocities in the airspace above the site; however, plume velocities above the site can be avoided by aircraft observing the recommended pattern altitudes of 1,500 AGL for small aircraft and 2,000 feet AGL for larger aircraft.

16. The project owner will consult with the Federal Aviation Administration (FAA) to ensure that a Notice to Airmen (NOTAM) is provided to pilots to avoid flying over the CECP site and to update all airspace charts to indicate that project plume hazards could exist.

17. There is no evidence that the CECP will result in long-term significant direct, indirect, or cumulative traffic and transportation impacts.

CONCLUSIONS OF LAW

1. The Carlsbad Energy Center Project, as mitigated, will comply with all applicable laws, ordinances, regulations, and standards as indicated in the

evidentiary record and listed in pertinent portions of Appendix A in this Decision.

2. The Carlsbad Energy Center Project will not result in a significant adverse traffic impact on the local and regional road/highway network.

CONDITIONS OF CERTIFICATION

TRANS-1 The project owner shall consult with the City of Carlsbad and prepare and submit to the Compliance Project Manager (CPM) for approval a Construction Traffic Control Plan and Implementation Program which addresses the following issues:

- timing of heavy equipment and building materials deliveries;
- redirecting construction traffic with a flag person;
- signing, lighting, and traffic control device placement if required;
- need for construction work hours and arrival/departure times outside peak traffic periods;
- assurance of access for emergency vehicles to the project site;
- temporary closure of travel lanes;
- access to adjacent residential and commercial property during the construction of all pipelines;
- specification of construction-related haul routes; and
- identification of safety procedures for exiting and entering the site access gate.

Verification: At least 30 days prior to site mobilization, the project owner shall provide to the CPM a copy of the above-referenced documents and proof of implementation.

TRANS-2 The project owner shall submit to the FAA Form 7460-1, Notice of Proposed Construction or Alteration, regarding the Carlsbad Energy Center Project (CECP) stack and shall secure a Determination of No Hazard to Navigable Airspace. The stacks shall have all lighting and marking required by the FAA so that the stacks do not create a hazard to air navigation.

Verification: At least 30 days prior to the start of construction, the project owner shall provide copies of the approved FAA Form 7460-1 and copies of the FAA Determination of No Hazard to Navigable Airspace to the CPM and the City of Carlsbad Planning Department. The project owner shall also provide pictures of the CECP stack after the lighting and marking have been completed.

TRANS-3 Prior to start-up and testing activities of the plant and all related facilities, the project owner shall consult with the FAA to notify all pilots using the McClellan-Palomar Airport and airspace above the CECP of potential air hazards. These requirements shall include, but not be limited to the project owner's working with the FAA in issuing a Notice To Airmen (NOTAM) of the identified air hazard and updating the Terminal Area Chart and all other FAA-approved airspace charts used by pilots that include the CECP site to indicate that pilots should avoid direct overflight of the site.

Verification: At least 60 days prior to start of project operation, the project owner shall submit to the CPM for review and approval a letter from the FAA showing compliance with these measures plus copies of the NOTAM and the updated Terminal Area Chart.

TRANS-4 Prior to construction of the plant and all related facilities, the project owner shall develop a Crossing Safety Plan for all phases of project construction to address foot traffic as well as construction-related vehicle crossing and the transport of heavy/oversize loads over the internal rail crossing.

Verification: At least 60 days prior to start of site mobilization, the project owner shall submit the plan to the CPM for review and approval.

TRANS-5 Following completion of project construction, the project owner shall repair any damage to roadways caused by construction activity along with the primary roadways identified in the traffic control plan for construction traffic to the road's pre-project construction condition. Prior to the start of construction, the project owner shall photograph, videotape, or digitally record images of the roadways that will be affected by pipeline construction and heavy construction traffic. The project owner shall provide the CPM and the City of Carlsbad with a copy of the images for the roadway segments under its jurisdiction. Also prior to start of construction, the project owner shall notify the City about the schedule for project construction. The purpose of this notification is to postpone any planned roadway resurfacing and/or improvement projects until after the project construction has taken place and to coordinate construction-related activities associated with other projects.

Verification: Within 30 days after completion of the redevelopment project, the project owner shall meet with the CPM and the City of Carlsbad to determine and receive approval for the actions necessary and schedule to complete the repair of identified sections of public roadways to original or as near-original condition as possible. Following completion of any regional road improvements, the project owner shall provide to the CPM a letter from the City of Carlsbad if work occurred within its jurisdictional public right-of-way stating its satisfaction with the road improvements.

Overweight and Oversize Vehicles

TRANS-6 The project owner shall comply with Caltrans and other relevant jurisdictions limitations on vehicle sizes and weights. In addition, the project owner shall obtain necessary transportation permits from Caltrans and all relevant jurisdictions for roadway use.

Verification: In the Monthly Compliance Reports, the project owner shall submit copies of any permits received during that reporting period. In addition, the project owner shall retain copies of these permits and supporting documentation in its compliance file for at least six months after the start of commercial operation.

TRANS-7 During construction of the plant and all related facilities, the project owner shall develop a Parking and Staging Plan for all phases of project construction to enforce a policy that all project-related parking occurs on site or in designated off-site parking areas.

Verification: At least 60 days prior to start of site mobilization, the project owner shall submit the plan to the City of Carlsbad and other jurisdictions affected by site selection, such as the City and/or County of San Diego, for review and comment and to the CPM for review and approval.

Encroachment Permits

TRANS-8 The project owner shall comply with limitations for encroachment into public rights-of-way imposed by Caltrans and other relevant jurisdictions and shall obtain necessary encroachment permits from Caltrans and all relevant jurisdictions.

Verification: In Monthly Compliance Reports, the project owner shall submit copies of permits received during the reporting period. In addition, the project owner shall retain copies of these permits and supporting documentation in its compliance file for at least six months after the start of commercial operation.

C. SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE

The evidence for this topic includes the demographic characteristics of population centers near the project site. This information serves two purposes. First, it forms the basis for an environmental justice screening analysis to determine whether the project will result in disproportionate impacts upon minority and/or low-income populations and, if so, whether mitigation is required. Second, it allows us to evaluate whether the project will induce population growth and the demand for housing, as well as whether project activities will cause impacts upon local schools or recreational, medical, police, and fire protection services. The evidence also examines the project's economic attributes such as local expenditures, property and sales tax revenues, and school impact fees.[1] (2/1/10 RT 267-78; Exs. 4; 8; 12; 19; 24; 25; 32; 35; 69; 141; 149; 158; 186; 200, § 4.8.)

SUMMARY AND DISCUSSION OF THE EVIDENCE

The evidence considers the simultaneous construction of both the Carlsbad Energy Center Project's (CECP) generating units and San Diego Gas and Electric's (SDG & E) new 230-kV switchyard. (Ex. 200, pp. 4.8-1, 4.8-7.) San Diego County, encompassing the San Diego-Carlsbad-San Marcos Metropolitan Statistical Area (MSA), is the pertinent analytic frame of reference for socioeconomic purposes. (Ex. 200, p. 4.8-2.)

Environmental Justice. The purpose of an environmental justice screening analysis is to determine whether low-income or minority populations exist within the area potentially affected by the project. The evidence establishes that Staff conducted such an analysis according to the protocols contained in the U.S. Environmental Protection Agency's document entitled "Final Guidance for Incorporating Environmental Justice Concerns in EPA's NEPA Compliance Analyses" (April 1998). Staff also reviewed census block data within one and six mile radii of the CECP site to identify potential minority or low-income populations. The evidence shows that the project will not disproportionately impact these populations. (Ex. 200, pp. 4.8-2 - 4.8-3.)

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[1] Opponents, such as the City of Carlsbad, contend under various subject matter topics, including **SOCIOECONOMICS**, that the project is inconsistent with various land use ordinances and plans such as those of the Carlsbad Housing and Redevelopment Commission. We discuss these contentions in the **LAND USE** portion of this Decision.

Socioeconomic Impacts. Appendix G of the California Environmental Quality Act Guidelines indicates that a project may have a significant effect upon socioeconomic concerns if it:

- Induces substantial population growth, either directly or indirectly.
- Displaces substantial numbers of people or existing housing, or both, necessitating the construction of replacement housing elsewhere.
- Adversely affects acceptable levels of service for fire and police protection, schools, parks and recreation, and other public facilities. (Ex. 200, p. 4.8-3.)

The evidence establishes that Applicant used the Impact Analysis for Planning Model (IMPLAN) to assess the project's direct, indirect, and induced impacts.[2] Staff reviewed the modeling results, and also considered other reliable data. (Ex. 200, p. 4.8-4.)

The evidence shows that the existence and extent of socioeconomic impacts essentially depend upon whether a project will cause a large influx of non-resident workers and dependents into an area. Such an influx could lead to unforeseen growth, or strain the capacities of local public services. In the present case, the permanent employees (up to 14) required to operate the CECP will be transfers from the shutdown of the existing Encina Power Station's (EPS) Units 1, 2, and 3. Consequently, the project will not cause an influx of new permanent workers or any noticeable impact upon local housing or public services and facilities. (Ex. 200, pp. 4.8-6 - 4.8-8.)

At its peak construction month (month nineteen of a twenty-five month period), the CECP will require 357 workers. (Ex. 200, p. 4.8-7.) The evidence shows that 79,600 construction workers reside within the MSA. (Ex. 200, p. 4.8-5.)

Table 1 shows the availability of workers and the project's demands upon the labor force.

[2] A project can cause direct impacts by providing permanent jobs and wages, or causing an increase in population or a demand for new housing and recreational facilities. Construction of a project creates indirect impacts through temporary jobs and wages, as well as sales of required supplies. Additionally, a project can induce impacts to an area through spending on food, housing, and other consumer goods. (Ex. 200, p. 4.8-4.)

Socioeconomics Table 1
Available Labor by Skill in San Diego-Carlsbad-San Marcos Metropolitan Statistical Area (MSA), 2004 Through 2014

Craft	Annual Average Employment, 2004	Average Annual Employment, 2014	Maximum Needed per Month by Carlsbad Energy Center**
Boiler Makers	150	170	24
Carpenters	20,750	23,620	32
Cement Masons	2,350	2,770	5
Contractor Staff	NAV*	NAV	52
Electricians	6,000	6,690	40
Insulation Workers	420	420	20
Ironworkers	6,300	7,600	34
Laborers	13,140	13,520	46
Millwrights	NAV	NAV	18
Operating Engineers	3,630	4,200	38
Painters	8,100	8,980	5
Pipefitters	6,660	7,630	42
Plant and System Operators	1,480	1,670	54
Plasterers	1,030	1,090	5
Sheetmetal Workers	2,520	2,830	12
Sprinkler Fitters	6,600	7,630	8
Surveyors	700	830	6
Teamsters (Truck Drivers, Heavy and Tractor-Trailer	6,690	8,050	28
Contractor Staff	NAV	NAV	52

Source: Exhibit 200, p. 4.8-6.
* Not Available (NAV)
** Includes commissioning and operation phases.

The evidence further shows that construction workers will likely commute to the CECP daily or perhaps on a weekly basis. (*Id*.) Since a large number of workers are available within the MSA, the project will not create a new population influx into the area, and thus it will not create additional demands for housing, schools, parks, or medical, police, or fire protection services. (Exs. 35, pp. 5-23 - 5-26; 200, pp. 4.8-7 - 4.8-10.)

Economic Effects. The evidence establishes that the CECP will create the economic effects shown on **Table 2**. These arise from project-related taxes, fees, payroll, and construction and maintenance expenditures. (Ex. 200, pp. 4.8-10 - 4.8-11.)

Socioeconomics Table 2
Summary of Economic Effects

Taxes	
Estimated annual property taxes	$3,564,610–$4,583,070 per year
State and local sales taxes	
Single-phase construction	$1,468,420
Project enhancements and refinements	$232,500
State and local sales taxes: Operation	$348,750 per year
Gas franchise fees	$2.4 million per year
Capital Cost	
Total capital costs	$350–$450 million
Construction payroll	
Single-phased construction	$54.6 million
Project enhancements and refinements	$4.042 million
Construction materials and supplies	
Single-phased construction	$30 million
Project enhancements and refinements	$3 million
Operation and maintenance budget	$4.5 million per year
Estimated Secondary Income	
Construction; single-phased	$21,039,080
Project enhancements and refinements	$3,116,340
Operation	$1,678,250 per year
Estimated Payroll	
Single-phased construction	$4.042 million
Project enhancements and refinements	$53.9 million
Operation; single-phased construction	No new payroll; workers transferring

Source: Exhibit 200, p. 4.8-19, Table 3.

The evidence characterizes these economic effects as "benefits." (Ex. 200, p. 4.8-12.) Since the CECP will provide a new economic influx into the area, without a corresponding demand for public services, we agree.

Cumulative Impacts. For present purposes, cumulative impacts can occur when a project's construction schedule overlaps with that of other projects. This could create a demand for workers that could not be met by local labor. The increased demand for labor could lead to an influx of non-local workers and their dependents, resulting in demands for additional housing, schools, parks and recreation, law enforcement, fire, and medical services.

The evidence indicates that the City of Carlsbad has received applications for seven proposed projects. These projects could be under construction during all or a portion of the time the CECP is being built. They consist of a desalination plant on the same site as the CECP, Interstate Five North Coast Corridor Improvement Project, and five public utilities upgrades. The evidence further shows that only the Carlsbad desalination plant would compete for the same

workers as the CECP. (Ex. 200, p. 4.8-11.) Even with this potential overlap, however, the evidence establishes that the large available workforce is sufficient to accommodate the demands of multiple projects, including the three SDG&E proposed PPA projects (Pio Pico, Quail Brush, and Escondidio repowering). (Ex. 200, p. 4.8-12.)

FINDINGS OF FACT

Based on the evidence of record, we make the following findings:

1. We have considered environmental justice factors in our analysis of the evidence.

2. The project will not create disproportionate impacts on minority and/or low income populations, nor does it cause significant adverse socioeconomic impacts to any population in the project vicinity.

3. A large, skilled labor pool is available in San Diego County and the San Diego-Carlsbad-San Marcos Metropolitan Statistical Area.

4. The CECP will draw primarily upon the local work force from nearby counties for construction and operation.

5. The project will not cause an influx of a significant number of construction or operation workers into the local area.

6. There is an adequate supply of hotels/motels and rental properties within the project vicinity to accommodate workers who stay in the area temporarily during the week and commute to their homes on the weekend.

7. The project will not result in significant adverse effects on local employment, housing, schools, public utilities, parks and recreation, law enforcement, or emergency services.

8. The project will have a construction payroll of approximately $54.6 million.

9. The CECP will result in local direct construction expenditures of approximately $30 million, and annual local direct operational expenditures of about $4.5 million.

10. The project will generate annual property tax revenues of approximately $3.5 – $4.5 million.

11. Project construction will generate state and local sales tax revenue.

12. When operational, the CECP will provide about $350,000 a year in state and local sales taxes.

13. The anticipated construction and operation payrolls, the local purchases of materials and supplies, and the sales and property tax revenues generated by the project will have a beneficial impact on the San Diego County economy.

14. Neither the construction nor the operation of the CECP will create an additional demand for housing or public services.

15. The available workforce is sufficient to accommodate the labor demands of the CECP and other reasonably foreseeable projects.

CONCLUSIONS OF LAW

1. The evidence of record contains an adequate analysis of potential socioeconomic effects in accordance with federal and state guidelines on environmental justice, and establishes that the project will not create any disproportionate adverse effects on minority or low-income populations.

2. Because no significant adverse socioeconomic impacts will occur as a result of construction and operation of the CECP, no Conditions of Certification are required for this topic.

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 of the project to sensitive receptors combine to determine whether project noise will cause significant adverse impacts. In some cases, vibration may be produced as a result of construction activities such as blasting or pile driving; these activities have the potential to cause structural damage and annoyance. (Ex. 200, p. 4.6-1.) The evidence is summarized below and evaluates whether noise and vibration produced during project construction and operation will be mitigated sufficiently to comply with applicable law and avoid the creation of significant impacts. (2/2/10 RT 175-76; 2/4/10 RT 238-64; Exs. 4; 8; 24; 35; 69; 119; 120; 148; 157; 200, § 4.6.)

SUMMARY AND DISCUSSION OF THE EVIDENCE

The Carlsbad Energy Center Project (CECP) will be constructed on 23 acres of the existing 95 acre Encina Power Station (EPS) site. The project is bounded to the north by the Agua Hedionda Lagoon, to the east by Interstate 5 (I-5) and agricultural land, and to the west by the AT&SF Railroad tracks, the EPS, Carlsbad Boulevard, and the Pacific Ocean. Residential neighborhoods lie to the north and south. (Ex. 200, p. 4.6-4.) Ambient noise in the vicinity is primarily from I-5 traffic. The nearest sensitive receptors are residences to the north of the Agua Hedionda Lagoon, about one-third mile from the project site. (*Id*.)

Federal and State laws regulate worker noise exposure. (Ex. 200, pp. 4.6-1 - 4.6-2.) The Noise Element of the City of Carlsbad's General Plan discourages new residential development where the existing ambient noise level exceeds 60 dBA CNEL. The City's Noise Guidelines Manual contains a section that sets community noise exposure limits at 60 dBA CNEL for noise that impacts any residence, school, library, church, hospital, or nursing home. The Municipal Code limits disturbing or offensive construction noise to the hours between 7:00 a.m. and sunset on weekdays, and 8:00 a.m. and sunset on Saturdays. It prohibits such noise on Sundays and specified holidays. (Ex. 200, pp. 4.6-2 - 4.6-3.)

CEQA Guidelines set forth characteristics 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., Appen. G, Section XI.) In accordance with this standard, the Commission uses the significance threshold of 5 dBA when project-related noise emissions exceed existing ambient noise levels at the nearest sensitive receptor. We believe that an increase in background noise levels of up to 5 dBA in a residential setting is insignificant and that an increase of more than 10 dBA is clearly significant. An increase of between 5 dBA 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, pp. 4.6-3 - 4.6-4.)

Factors considered in determining the significance of an adverse impact include: (1) the resulting noise level; (2) the duration and frequency of the noise; (3) the number of people affected; (4) the land use designation of the affected receptor sites; and (5) public concern/controversy over noise levels. Noise due to construction activities is usually considered insignificant in terms of CEQA compliance if the construction activity is temporary, the use of heavy equipment and noisy activities is limited to day time hours, and industry-standard abatement measures are employed. (Ex. 200, p. 4.6-4.)

The evidence consists, in part, of an ambient noise survey conducted by Applicant on July 23 through 25, 2007. This survey established a baseline for comparison of predicted project noise to existing ambient levels. It monitored existing noise levels at the following locations:

1. Measuring Location M1: West of the West Hotel and Restaurant, near the AT&SF rail line, approximately 2,400 feet south of the center of the CECP site and near the San Diego Gas & Electric switchyard. Short-term monitoring showed that ambient noise consisted chiefly of traffic on I-5, with some noise from the switchyard and intermittent rail traffic.
2. Measuring Location M2: In front of a residence at 5120 El Arbol Drive, part of a residential neighborhood approximately 3,100 feet south of the center of the site. Short-term monitoring showed ambient noise levels as low as 40 dBA at night, due mainly to traffic on I-5. Day time noise was from freeway and rail traffic, and from aircraft overflights.
3. Measuring Location M3: In front of the residence at 5022 Tiera Del Oro Drive, approximately 3,100 feet south of the center of the site. Short-term monitoring showed ambient noise consisting chiefly of surf noise and intermittent traffic. Day time noise included traffic and aircraft overflights.
4. Measuring Location M4: On a bluff above the ocean, just north of Tiera Del Oro and approximately 2,800 feet southwest of the center of the site. Short-term monitoring showed noise due to surf and traffic on Carlsbad Boulevard, with some aircraft overflights.

5. Measuring Location M5: On a bluff above the Hubs-SeaWorld facility and on a residential property line, approximately 2,400 feet northwest of the center of the project site. Long-term (25-hour) monitoring showed noise due to traffic on Carlsbad Boulevard and I-5, as well as rail traffic and surf noise.

6. Measuring Location M6: In the cul-de-sac of Olive Avenue, adjacent to the railroad tracks and approximately 2,500 feet northwest of the center of the site. Short-term monitoring showed noise levels from traffic; this site is shielded from I-5 by apartment buildings and a sound wall.

7. Measuring Location M7: On a bluff at the end of Harbor Drive, overlooking the Agua Hedionda Lagoon and I-5, approximately 1,750 feet north northwest of the center of the project site. This represents the residential receptor nearest the site. Short-term noise monitoring showed a noise regime dominated by traffic on I-5.[1] (Ex. 200, p. 4.6-5.)

Table 1 shows the existing measured ambient noise levels:

Noise Table 1
Summary of Measured Ambient Noise Levels

Measurement Location	Measured Noise Levels, dBA		
	L_{eq} – Daytime	L_{eq} – Nighttime	L_{90} – Nighttime
M1: West Hotel and Restaurant	65	52	47
M2: 5120 El Arbol Drive	58	58	36
M3: 5022 Tierra Del Oro Drive	57	47	45
M4: North of Tierra Del Oro	62	—	—
M5: Above Hubs-SeaWorld	56[1]	55[2]	47[3]
M6: Olive Avenue	54	39	35
M7: End of Harbor Drive[4]	—	56	52

Source: Ex. 200, p. 4.6-6.
[1] Staff calculations of average of 15 daytime hours
[2] Staff calculations of average of 9 nighttime hours
[3] Staff calculations of average of 4 consecutive quietest hours of the nighttime
[4]Represents nearest sensitive receptor

The evidence further shows the effects the project's short-term construction activities and its long-term operation will have upon ambient levels.

[1] A degree of confusion over the nearest measuring location occurred during the hearings. Staff's witness clarified that M7 is the nearest sensitive noise receptor. (2/2/10 RT 175-76.)

1. Construction

Construction noise is a temporary event, in this case expected to occur over a period of about 25 months. The City of Carlsbad's Municipal Code exempts all construction and demolition noise from numerical limits, but restricts it to certain hours of the day. The Code requires that noisy` work be performed only between the hours of 7:00 a.m. to sunset on weekdays, between 8:00 a.m. to sunset on Saturdays, and that such work not be performed on Sundays.[2] (Ex. 200, pp. 4.6-6, 4.6-15.)

The evidence establishes that construction noise typically varies continually with time, and is most appropriately measured by, and compared to, the L_{eq} (energy average) metric. Aggregate construction noise is predicted to reach levels as high as 58 dBA L_{eq} at the residence at M7 (the nearest sensitive noise receptor) and 55 dBA at the M5 residential property line. This equates to an increase of 3 dBA during both day time and night time at M5, and an increase of 4 dBA during the night time at M7. (Ex. 200, p. 4.6-7.) The evidence also shows that these projected levels are conservative, and that actual noise levels will likely be lower. (2/4/10 RT 247; Exs. 148, p. 1; 200, p. 4.6-7.)

Pile driving will be required. Noise from this activity is projected to reach 70 dBA at M5 and 73 dBA at M7 (the nearest residential receptor). Adding pile driving noise to the day time ambient levels could thus produce increases of 19 dBA and 16 dBA, respectively. Even though this activity will be performed only during the day time and be temporary and short-term, it could nevertheless create an annoyance to nearby residences. (Ex. 200, p. 4.6-8.)

Typically, the loudest noise encountered during construction of a project using a steam turbine is caused by steam blows. Steam blows are used to expunge debris from piping and tubing. High pressure steam blows, if unsilenced, can typically produce noise levels as high as 129 dBA at a distance of 50 feet; this would amount to roughly 95 dBA at M5 and 98 dBA at M7. Unsilenced steam blows could be disturbing at the nearest noise-sensitive receptors, depending on the frequency, duration, and noise intensity of venting.

With a silencer installed on the steam blow piping, noise levels are commonly attenuated to 89 dBA at 50 feet. This would result in noise levels of about 55 dBA at M5 and 58 dBA at M7. A quieter steam blow process, referred to as *low*

[2] In its Opening Brief (p. 144), the City proposes prohibiting construction activities on Saturdays as well as Sundays.

pressure steam blow and marketed under names such as QuietBlow™ or Silentsteam™, has become popular. This method utilizes lower pressure steam over a continuous period of about 36 hours. Resulting noise levels would reach about 86 dBA at 50 feet, or approximately 52 dBA at M5 and 55 dBA at M7. (Ex. 200, pp. 4.6-8 – 4.6-9, 4.6-17.)

We have adopted several Conditions of Certification to ensure that the project's temporary construction noise levels are reduced to the levels practicable. Conditions **NOISE-1** and **NOISE 2** establish a complaint and notification process to resolve issues arising from excessive construction noise. Condition **NOISE-6** generally limits construction to the periods specified in the City's Municipal Code. Condition **NOISE-7** requires the use of a silencer for steam blows. The evidence establishes that these measures will result in project construction noise which varies from "barely noticeable" to "tolerable." (Ex. 200, pp. 4.6-7 – 4.6-8.)

The evidence also establishes that vibration will not cause perceptible off-site impacts. Additionally, to protect construction workers from injury due to excessive noise, Condition **NOISE-3** requires the project owner to implement a noise control program consistent with OSHA and Cal/OSHA requirements. (Ex. 200, p. 4.6-8.) Finally, construction of the linear facilities including the natural gas, water, and wastewater pipelines will occur within the boundaries of the EPS. Impacts from these activities will thus be similar to those of power plant construction. (Ex. 200, p. 4.6-7.)

We thus conclude that construction noise impacts at affected sensitive noise receptors will be less than significant.

2. Operations

The noise emanating from a power plant is unique. It is generally broadband, steady state in nature. This noise contributes to, and becomes part of, the background noise level when most intermittent noises cease. (Ex. 200, p. 4.6-10.) The project's primary new noise sources include the gas turbine generators, gas turbine air inlets, heat recovery steam generators and their exhaust stacks, fin-fan cooler fans, electrical transformers, fuel gas compressors and metering equipment, and various pumps and fans. (Ex. 200, p. 4.6-9.)

The evidence identifies various mitigation measures which will be used to reduce operational noise, including the use of metal acoustical gas turbine enclosures and the location of the project in a depression. (*Id.*) In addition, exhaust stack

silencers, additional equipment enclosures, and dirt berms may be used to further reduce operational noise. (Ex. 200, pp. 4.6-9 – 4.6-10, 4.6-17.)

The City of Carlsbad's Noise Ordinance Guidelines Manual sets a noise limit for residential land uses of 60 dBA CNEL. For a steady, continuous noise source such as the CECP, this is equivalent to 53 dBA L_{eq}. (Ex. 200, p. 4.6-10.) The results of Applicant's operational noise modeling are shown on **Table 2**:

NOISE Table 2
Plant Operating Noise

Receptor	LORS	LORS Limit	Projected Noise Level
M1— West Hotel and Restaurant	City of Carlsbad Noise Guidelines Manual	60 dBA CNEL (equivalent to 53 dBA L_{eq})	52 dBA L_{eq}
M2— 5120 El Arbol Drive			47 dBA L_{eq}
M5— Residential property line above Hubs SeaWorld			51 dBA L_{eq}
M7— Nearest residence at end of Harbor Drive			51 dBA L_{eq}

Source: Ex. 200, p. 4.6-10.

Therefore, based on current modeling, the CECP's operational noise impacts will be below permissible levels. To ensure this is the case, Condition **NOISE-4** restricts actual operational noise to a level of 51 dBA L_{eq} at M7, the nearest sensitive receptor. (*Id.*)

The evidence further shows that the CECP is intended to operate primarily as an intermediate duty facility, running chiefly on summer afternoons. Nevertheless, in performing its analysis, Staff compared the project's predicted operational noise levels to existing night time ambient noise levels. This approach adds a degree of conservatism to the analysis, since night time noise levels are generally lower than day time levels and nearby receptors are most likely to notice increases in ambient levels. (2/4/10 RT 247:12-24; Ex. 200, p. 4.6-11.) These results appear on **Table 3**:

NOISE Table 3
Power Plant Operational Noise Impacts at Nearest Sensitive Receptor

Receptor	Power Plant Noise Level, dBA L_{eq}	Nighttime Ambient Background Level, dBA L_{90}	Cumulative Noise Level, dBA	Change from Ambient Background Level
M5	51	47	52	+5
M7	51	56	57	+1

Source: Ex. 200, p. 4.6-11.

Thus, the project may cause minimal night time increases over existing ambient levels at the nearest sensitive receptors.[3] The evidence characterizes the 1 dBA L_{eq} increase at M7 as "inaudible" and the 5 dBA Leq increase at M5 as "noticeable but likely not annoying." (*Id.*)

Intervenors, including Terramar and Power of Vision (PoV), introduced testimony and questioned the analyses of record on various points. Essentially, these parties are concerned about the project's potential effect upon individuals sensitive to noise, the effect of weather and cloud cover on noise levels, the reflection of project noise levels off sound walls which may be constructed as part of the potential widening of I-5, and the transport of noise over the Lagoon and the resultant noise levels experienced. (See, e.g., 2/4/10 RT 240:9 – 242:20, 252:2-4, 255:3-8, 256:15-16; PoV Opening Brief, p. 15; Terramar Witness List, pp. 3, 29-33, 47-48; Terramar Opening Brief, pp. 16-19.)

We have weighed the community's concerns and have concluded that they are adequately addressed by the credible expert testimony of record. The testimony explains that, even though the perception of noise is a subjective factor, the noise complaint resolution process in Conditions **NOISE-1** and **NOISE-2** is designed to address legitimate complaints. (2/4/10 RT 252:5-11; Exs. 148; 200, p. 4.6-7.)

The evidence further shows that reflections and weather can affect the level of noise perceived. The expert testimony is, however, uniform in establishing that these factors will not lead to an excessive noise level from the power plant since that level is effectively capped at 51 dBA L_{eq} by Condition **NOISE-4**. (2/4/10 RT 246:1-21, 252:12-253:20, 254:4-13, 256:15-22, 257:5-15; Ex. 148.) To ensure that community noise concerns are adequately addressed, Staff's witness

[3] Intervenor Terramar questioned why metering location M6 (with a lower ambient noise level) was not used for comparison purposes. Staff's witness explained that the monitoring data for M6 was only for a period of ten minutes, and that since M5 is very close to M6 and had 25 hours of monitoring data, it was chosen as an appropriate comparison point. (2/4/10 RT 248.)

suggested adding an additional monitoring location as part of Condition **NOISE-4** (2/4/10 RT 254:14-19.) Applicant agreed that performing a noise survey at location M2, the nearest residential receptor south of the site, would be appropriate. (2/4/10 RT 258-60.) We believe this addition should adequately address concerns voiced by members of the public, including Intervenor Terramar, and have revised Condition **NOISE-4** accordingly. The evidence also indicates that this condition will assure that tonal noises do not cause annoyances. (Ex. 200, p. 4.6-12.)

3. Cumulative Impacts

In the present context, cumulative impacts are two or more individual impacts that, when considered together, are significant or that compound or increase other environmental impacts.

Intervenors PoV, Terramar, and the City of Carlsbad each contend that the cumulative impacts analysis of record regarding noise is flawed, in part, because it fails to address impacts from the potential future widening of I-5 and other reasonably foreseeable projects such as the Carlsbad/Vista Sewer Upgrade Project and the decommissioning of EPS Units 4 and 5. (See, e.g., PoV Opening Brief, p. 15; Terramar Opening Brief, pp. 16-18; City's Opening Brief, pp. 45-48.)

The evidence indicates that the Applicant identified several projects in the vicinity of the CECP. The evidence shows that the one most likely to pose a potential for cumulative noise impacts is the Carlsbad Seawater Desalination Plant, located at the existing Encina Power Station, along the southern edge of the Agua Hedionda Lagoon. (2/4/10 RT 261: 5-13; Staff Reply Brief, p. 10.) The Desalination Plant, at a predicted 35 dBA CNEL (28 dBA L_{eq}), will not contribute significantly to ambient noise levels, and it is therefore highly unlikely that the two projects could create a significant cumulative noise impact.

The evidence further explains that other identified projects have not progressed sufficiently to enable the performance of meaningful cumulative impacts analyses. (2/4/10 RT 261; Ex. 200, pp. 4.6-12 – 4.6-13.) For example, the noise impact, if any, from the possible future widening of I-5 is speculative and impossible to discern at the present time. The evidence indicates that the project is as much as 10 years in the future, making the estimation of traffic levels, traffic speeds, and vehicle noise emissions very inexact. Moreover, the project is still at the planning and environmental analysis stage, so there is no certainty about what kind of mitigation for noise may accompany it, nor how effective that

mitigation might be. For example, if (and we cannot know this) the project does incorporate a sound wall for noise mitigation, it is impossible to know, without specifications (location, materials, height, etc.) how that would affect traffic sounds, an effect which is itself impossible to meaningfully estimate for an impact so far in the future. (See, e.g., 2/4/10 RT 255-257.) Uncontroverted evidence further establishes that any future shutdown of EPS Units 4 and 5, as well as the construction of the Coastal Rail Trail, are also imprecise potential events which currently defy meaningful analysis. Other projects appear similarly uncertain. (Ex.146; Applicant's Opening Brief, p. 5.) The evidence thus shows that no cumulative noise impact will result from the CECP in combination with other non-speculative projects. (Ex. 200, p. 4.6-13.)

We therefore conclude that the evidence adequately addresses potential cumulative noise impacts.

FINDINGS OF FACT

Based on the evidence, we make the following findings.

1. The nearest sensitive noise receptor is that designated as monitoring location M7 in the evidence of record.

2. Monitoring location M2 is located in the Terramar neighborhood, to the south of the project site.

3. Construction and operation of the Carlsbad Energy Center Project will not significantly increase long-term noise levels above existing ambient levels in the surrounding community.

4. Construction noise levels are temporary and transitory in nature and will be mitigated to the extent feasible by sound reduction devices, limiting construction to day time hours in accordance with local noise control LORS, and providing a notice and complaint process to the public.

5. Traditional high pressure steam blows could result in excessive levels of noise.

6. Additional mitigation, such as that identified in the evidence of record and adherence to Condition of Certification **NOISE-7**, will assure that noise from steam blow activities is reduced to below a level of significance.

7. Mitigation as identified in the evidence of record, and adherence to Conditions of Certification **NOISE-6** and **NOISE-7**, assure that noise from construction activities is reduced to below a level of significance.

8. The project owner will implement measures to protect workers from injury due to excessive noise levels during both construction and operation.

9. The Carlsbad Energy Center Project will not create ground or air borne vibrations which will cause significant off-site impacts.

10. Implementation of the Conditions of Certification, below, ensures that project-related noise emissions will not cause significant adverse impacts to the closest noise receptors.

11. The Carlsbad Energy Center Project is intended to operate as an intermediate duty facility, running chiefly on summer afternoons.

12 Even if operated during night time, the CECP will add only minimal additional noise to the existing ambient levels at the nearest sensitive receptors.

13. The desalinization plant is the only non-speculative, identifiable project in the vicinity which could cause a cumulative noise impact in concert with the Carlsbad Energy Center Project. Its predicted noise levels are low relative to those of the proposed project. When combined, the noise of the desalinization plant and the proposed project will not result in significant levels of noise.

14. The noise from the Carlsbad Energy Center Project will not create, or contribute to the creation of, a significant adverse cumulative impact.

CONCLUSIONS OF LAW

1. The Commission concludes that implementation of the following Conditions of Certification ensure that the Carlsbad Energy Center Project will comply with the applicable laws, ordinances, regulations, and standards on noise and vibration as set forth in the pertinent portion of **Appendix A** of this Decision.

2. The project will not cause significant indirect, direct, or cumulative adverse noise impacts.

CONDITIONS OF CERTIFICATION

NOISE-1 At least 15 days prior to the start of ground disturbance, the project owner shall notify all residents within one mile of the site to the north and northeast and one-half mile of the site in all other directions, by mail or other effective means, of the commencement of project construction. At the same time, the project owner shall establish a telephone number for use by the public to report any undesirable noise conditions associated with the construction and operation of the project and include that telephone number in the above notice. If the telephone is not staffed 24 hours per day, the project owner shall include an automatic answering feature, with date and time stamp recording, to answer calls when the phone is unattended. This telephone number shall be posted at the project site during construction in a manner visible to passersby. This telephone number shall be maintained until the project has been operational for at least one year.

Verification: Prior to ground disturbance, the project owner shall transmit to the Compliance Project Manager (CPM) a statement, signed by the project owner's project manager, stating that the above notification has been performed, describing the method of that notification, verifying that the telephone number has been established and posted at the site, and giving that telephone number.

NOISE COMPLAINT PROCESS

NOISE-2 Throughout the construction and operation of the CECP, the project owner shall document, investigate, evaluate, and attempt to resolve all project-related noise complaints. The project owner or authorized agent shall:

- Use the Noise Complaint Resolution Form (below), or a functionally equivalent procedure acceptable to the CPM, to document and respond to each noise complaint;
- Attempt to contact the person(s) making the noise complaint within 24 hours;
- Conduct an investigation to determine the source of noise related to the complaint;
- Take all feasible measures to reduce the noise at its source if the noise is project related; and
- Submit a report documenting the complaint and the actions taken. The report shall include: a complaint summary, including final results of noise reduction efforts and, if obtainable, a signed statement by the complainant stating that the noise problem is resolved to the complainant's satisfaction.

Verification: Within five days of receiving a noise complaint, the project owner shall file a copy of the Noise Complaint Resolution Form with the CPM documenting the resolution of the complaint. If mitigation is required to resolve a complaint and the complaint is not resolved within a three-day period, the project owner shall submit an updated Noise Complaint Resolution Form when the mitigation is implemented.

NOISE-3 The project owner shall submit to the CPM for review and approval a noise control program and a statement, signed by the project owner's project manager, verifying that the noise control program will be implemented throughout construction of the project. The noise control program shall be used to reduce employee exposure to high noise levels during construction and also to comply with applicable OSHA and Cal/OSHA standards.

Verification: At least 30 days prior to the start of ground disturbance, the project owner shall submit to the CPM the noise control program and the project owner's project manager's signed statement. The project owner shall make the program available to Cal/OSHA upon request.

NOISE RESTRICTIONS

NOISE-4 The project design and implementation shall include appropriate noise mitigation measures adequate to ensure that operation of the project will not cause noise levels due solely to plant operation to exceed an average of 53 dBA L_{eq} measured at monitoring locations M2 or M7. 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.

The measurement of power plant noise for the purposes of demonstrating compliance with this Condition of Certification may alternatively be made at a location, acceptable to the CPM, closer to the plant (e.g., 400 feet from the plant boundary) and this measured level then mathematically extrapolated to determine the plant noise contribution at the affected residence. The character of the plant noise shall be evaluated at the affected residential locations to determine the presence of pure tones or other dominant sources of plant noise.

A. When the project first achieves a sustained output of 80 percent or greater of rated capacity, the project owner shall conduct community noise surveys at monitoring locations M2 and M7 or at closer locations acceptable to the CPM. These surveys shall be performed during power plant operation and shall also include measurement of one-third octave band sound pressure levels to determine whether new pure-tone noise components have been caused by the project.

B. If the results from the noise surveys indicate that the power plant average noise level (L_{eq}) at M2 or M7 exceeds the above value, mitigation measures shall be implemented to reduce noise to a level of compliance with this limit.

C. If the results from the noise surveys indicate that pure tones are present, mitigation measures shall be implemented to eliminate the pure tones.

Verification: The surveys shall take place within 30 days of the project's first achieving a sustained output of 80 percent or greater of rated capacity. Within 15 days after completing the surveys, the project owner shall submit a summary report of the surveys to the CPM. Included in the report shall be a description of any additional mitigation measures necessary to achieve compliance with the above-listed noise limit and a schedule, subject to CPM approval, for implementing these measures. When these measures are in place, the project owner shall repeat the noise survey(s).

Within 15 days of completion of the new survey(s), the project owner shall submit to the CPM a summary report of the new noise survey(s), performed as described above and showing compliance with this condition.

NOISE-5 Following the project's first achieving a sustained output of 80 percent or greater of rated capacity, the project owner shall conduct an occupational noise survey to identify the noise hazardous areas in the facility.

The survey shall be conducted by a qualified person in accordance with the provisions of Title 8, California Code of Regulations sections 5095–5099 and Title 29, Code of Federal Regulations section 1910.95. The survey results shall be used to determine the magnitude of employee noise exposure.

The project owner shall prepare a report of the survey results and, if necessary, identify proposed mitigation measures that will be employed to comply with the applicable California and federal regulations.

Verification: Within 30 days after completing the survey, the project owner shall submit the noise survey report to the CPM. The project owner shall make the report available to OSHA and Cal/OSHA upon request.

CONSTRUCTION TIME RESTRICTIONS

NOISE-6 Noisy construction work relating to any project features shall be restricted to the times of day delineated below:

Weekdays	7:00 a.m. to sunset
Saturdays	8:00 a.m. to sunset

Haul trucks and other engine-powered equipment shall be equipped with mufflers that meet all applicable regulations. Haul trucks shall be operated in accordance with posted speed limits. Truck engine exhaust brake use shall be limited to emergencies.

For purposes of this condition, “noisy construction work” is defined as steam blows and any other project-related work that draws a legitimate noise complaint. A legitimate noise complaint refers to a noise caused by the construction of the CECP project, as opposed to another source, as verified by the CPM. A legitimate complaint constitutes either: a violation by the project of any noise Condition of Certification which is documented by another individual or entity affected by such noise; or a minimum of three complaints over a 24-hour period that are confirmed by the CPM, the project owner, or any local or state agency that would, but for the exclusive jurisdiction of the Energy Commission, otherwise have the responsibility for investigating noise complaints or enforcing noise mitigation.

Verification: Prior to ground disturbance, the project owner shall transmit to the CPM a statement acknowledging that the above restrictions will be observed throughout the construction of the project.

STEAM BLOW RESTRICTIONS

NOISE-7 The project owner shall equip high pressure steam blow piping with a temporary silencer that quiets the noise of steam blows to no greater than 89 dBA measured at a distance of 50 feet.

Verification: At least 15 days prior to the first steam blow, the project owner shall submit to the CPM drawings or other information describing the temporary steam blow silencer and the noise levels expected.

NOISE COMPLAINT RESOLUTION FORM

Carlsbad Energy Center Project
(07-AFC-6)

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).

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 to determine whether the project has the potential to cause substantial degradation to existing views of the site and its surroundings. (Cal. Code Regs., tit. 14 § 15382 and Appendix G, Part I.) More particularly, CEQA requires us to evaluate whether the project would substantially:

- adversely affect a scenic vista;
- damage scenic resources including, but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway;
- degrade the existing visual character or quality of the site and its surroundings; or
- create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

We performed this evaluation and also considered the Carlsbad Energy Center Project's compliance with the applicable laws, ordinances, regulations, and standards (LORS) identified in **Visual Resources Table 1**.

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VISUAL RESOURCES - Table 1
Laws, Ordinances, Regulations, and Standards (LORS)

Applicable LORS	Description
Federal	
	The project does not involve federal lands or any federal laws related to visual resources.
State	
California Coastal Act of 1976, Section 30251 – Scenic and Visual Qualities	The scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance. Permitted development shall be sited and designed to protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural land forms, to be visually compatible with the character of surrounding areas, and, where feasible, to restore and enhance visual quality in visually degraded areas. New development in highly scenic areas such as those designated in the California Coastline Preservation and Recreation Plan prepared by the state Department of Parks and Recreation and by local government shall be subordinate to the character of its setting.
California Streets and Highways Code, Sections 260 through 263 – Scenic Highways	Ensures the protection of highway corridors that reflect the State's natural scenic beauty.
Local	
City of Carlsbad General Plan, 1994 as amended	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.
Land Use Element - Implementation Policy C.7	Provides specific site development criteria, includes size, height and location of buildings and the character amount of landscaping and screening, greenbelts and pathways. Requires screening of all storage, assembly, and equipment areas completely from view.
Circulation/Scenic Highways Element - Implementation Policy C.2	Provides the Carlsbad Scenic Corridor Guidelines, designated corridors and streets.
City of Carlsbad Specific Plan 144, adopted 2006	Provides development standards including landscaping and exterior lighting for the Agua Hedionda Lagoon and the Encina Power Station property.

Local (cont.)	
Agua Hedionda Local Coastal Program - Land Use Plan, adopted 1982.	Identifies land uses and standards by which development will be evaluated within the Coastal Zone. Identifies uses and provides standards adopted by the City of Carlsbad and the California Coastal Act 1976. Although the Implementation Plan was adopted by the City in 1982, authority to issue coastal permits under the plan remains with the State Commission.
Encina Power Plant Precise Development Plan, adopted 2006	Provides specific development standards for the Encina Power Station property including architecture, building materials, landscaping and grading.

(Ex. 200, pp. 4.12- 2 – 4.12-4.)

SUMMARY AND DISCUSSION OF THE EVIDENCE

1. Project Setting and Site Characteristics

The proposed Carlsbad Energy Center Project (CECP) would be built within the incorporated City of Carlsbad, California. The project site is situated within the Encina Power Station (EPS) property on the southern edge of the Agua Hedionda Lagoon, a highly scenic 400-acre lagoon that, with the adjoining Pacific Ocean, dominates the project viewshed and views in its vicinity.

The regional landscape setting is defined by the Pacific Ocean, situated less than one-third-mile to the west. From there the beach and a narrow coastal plain give way to rolling low-elevation hills that rise eastward, dominated by residential development with a high proportion of tree canopy that provides an attractive and unifying visual element. Substantial areas of agricultural open space are also visible on these hills throughout the project viewshed. The Agua Hedionda Lagoon is one of three major tidal lagoons within the City of Carlsbad. These lagoons are highly distinctive and dominant features of the City's landscape. Farther to the east, peaks and ridges of the San Marcos and Merriam Mountains rise to over 1,500 feet. In the far distance to the east, peaks of the Peninsular Range within the Cleveland National Forest define the horizon, reaching heights of 5,000 feet or more.

Land uses in the immediate vicinity of the project site are dominated by intensively-used, scenically-sensitive recreational destinations, including the adjacent lagoon and associated facilities, and Carlsbad State Beach. Highway I-5, an eligible State Scenic Highway, and Carlsbad Boulevard, a locally designated scenic corridor, bound the EPS site to the east and west respectively; and a rail line carrying Amtrak and Coaster regional commuter trains bounds the CECP site to the west. In addition, other designated local scenic roadways and adjoining residences have prominent views to the site over the lagoon.

In general scenic quality of the project viewshed is comparatively high, distinguished by views of the Agua Hedionda Lagoon, the Pacific Ocean, substantial areas of agricultural open space, and predominantly residential development with a relatively high degree of visual intactness and unity.

(Ex. 200, pp 4.12-4 – 4.12-5.)

Visual Resources Figure 1 - view of the project site, depicts views from within the proposed Carlsbad Energy Center Project site. (Ex. 1, Figure 5.13-4.)

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VISUAL RESOURCES - FIGURE 1
Carlsbad Energy Center Project - Views of the Project Site

1. Panorama from top of turbine building looking north

2. Internal road on project site looking southeast

3. Internal road on project site looking northwest

CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMETAL PROTECTION DIVISION, NOVEMBER 2009
SOURCE: AFC Figure 5.13-4

NOVEMBER 2009

VISUAL RESOURCES

The proposed CECP site comprises the northeastern portion of the present Encina Power Station (EPS) property, located immediately south of the Agua Hedionda middle and outer lagoons, east of the railroad line that bisects the EPS property, and west of U.S. Interstate 5 (I-5).

The proposed power plant would occupy the current site of three of four existing (unused) oil storage tanks which sit roughly 24 feet below surrounding grade. In addition, the proposed site is currently bordered to the north and east by an earthen berm roughly 10 to 15 feet above surrounding grade, which is planted with Eucalyptus and other screening vegetation reaching 45 feet or more in height on the north and east. The tanks extend minimally above surrounding grade due to their below-grade siting, and are effectively screened by the surrounding earthen berm and landscaping.

The remainder of the existing EPS property consists of the EPS generation facility, whose 200-foot tall main building enclosure, and 400-foot-tall exhaust stack are the tallest structure in the City and a prominent regional landmark. Other major visual features on the EPS property include three fuel oil storage tanks (EPS west tank farm) located northeast of the EPS generation building. The west tank farm is comprised of EPS Tanks 1-3. The west tank farm is sited at grade and overlooks the outer lagoon shoreline. Its tanks are prominently visible to motorists and pedestrians using Carlsbad Boulevard. The area surrounding the two northernmost western tanks (EPS Tanks 1 and 2) will be used as the project's construction laydown sites "D" and "E." The southernmost western tank (EPS Tank 3) is the site location for the proposed Carlsbad Seawater Desalination Plant (CSDP). (Ex. 200, pp 4.12- 4 – 4.12-6.)

Four series of highly prominent 138-kV and 230-kV single-pole transmission towers and accompanying lines are visible east of the EPS generation building and cross I-5 from west to east, contributing an additional element of industrial character to the site that is especially dominant from the freeway.

Base elevation of the existing CECP site is roughly 31 feet. The proposed base elevation of the CECP would be approximately the same. Consequently, approximately 24 feet of the proposed power plant would be below surrounding grade, and up to 39 feet would be below the top of the existing earth berm adjoining I-5, leaving 100 feet of the plant stacks above the top of the existing earth berm (as seen from I-5), and 49 feet of the HRSGs exposed above the berm. (Ex. 200, p. 4.12-6.)

2. Project Features

The primary project features that will be introduced into the visual landscape include:

- Two 139-foot tall exhaust stacks;
- Two 88-foot tall HRSGs (heat recovery steam generators);
- Two 76-foot tall CTG (combustions turbine generator) inlet air housings;
- Nine transmission poles ranging from 74 to 100 feet tall;
- Two 22-foot tall air cooling units; and
- One 56-foot tall 230-kV switchyard.

(Ex. 200, p. 4.12-6.)

3. Project Impacts and Mitigation

To determine whether there is a potentially significant visual resources impact generated by a project, the project is reviewed using the 2006 CEQA Guidelines Appendix G Environmental Checklist pertaining to "Aesthetics." The checklist questions include the following:

A. Would the project have a substantial adverse effect on a scenic vista?

B. Would the project substantially damage scenic resources, including, but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway?

C. Would the project substantially degrade the existing visual character or quality of the site and its surroundings?

D. Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

The review compares the existing visible physical environmental setting with the anticipated visual change introduced by the proposed project to the view, from fixed vantage points called "Key Observation Points" (KOPs). KOPs are selected to be representative of the most characteristic and most critical viewing groups and locations from which the project would be seen. The likelihood of a visual impact exceeding Criterion C of the CEQA Guidelines, above, is determined in this study by two fundamental factors: the susceptibility of the setting to impact as a result of its existing characteristics (reflected in its current level of visual quality, the potential visibility of the project, and the sensitivity to scenic values of

its viewers); and the degree of visual change anticipated as a result of the project. These two factors are summarized respectively as *visual sensitivity* (of the setting), and *visual change* (due to the project) in the discussions below. Briefly, KOPs with high sensitivity (due to outstanding scenic quality, high levels of viewer concern, etc.) that experience high levels of visual change from a project are more likely to experience adverse impacts. (Ex. 200, p. 4.12-7.)

Staff also reviews federal, state, and local LORS and their policies or guidelines for aesthetics or preservation and protection of sensitive visual resources that may be applicable to the project site and surrounding area. These LORS include local government land use planning documents (e.g., General Plan, zoning ordinance).

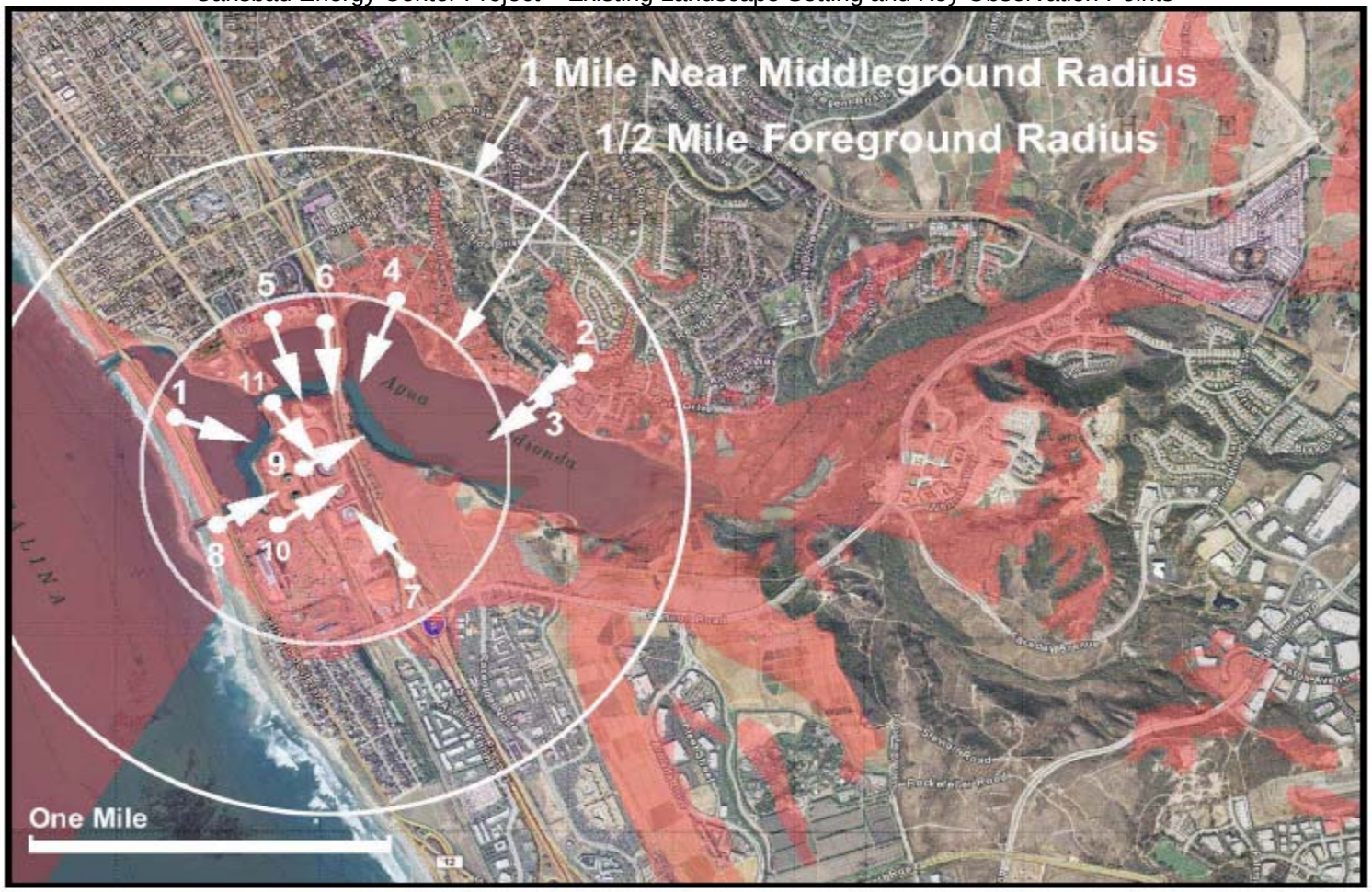
Visual Resources Figure 2, below, shows the locations of the nine KOPs used in this analysis:

- KOP 1 – view from Carlsbad Boulevard looking southeast;
- KOP 2 – view from Pannonia Trail at Capri Park;
- KOP 3 – view from end of Cove Drive;
- KOP 4 – view from end of Hoover Street;
- KOP 5 – view from end of Harbor Drive;
- KOP 6 – view from southbound U.S. Interstate 5 at Agua Hedionda Lagoon;
- KOP 7 – view from northbound U.S. Interstate 5 north of Cannon Road;
- KOP 8 – view from Carlsbad Blvd. looking east from Encina Power Station outfall;
- KOP 9 – view from the Burlington Northern Santa Fe rail corridor looking east;
- KOP 10 – view from EPS site, looking east to CECP site; and
- KOP 11 – view from railroad right-of-way, looking south to CECP site.

Visual Resources - Figure 2

Carlsbad Energy Center Project – Existing Landscape Setting and Key Observation Points

NOVEMBER 2009



VISUAL RESOURCES

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

SOURCE: WK Figure 3

These KOPs are depicted in the context of the overall project viewshed or area of potential visual effect (the area within which the project could potentially be seen), mapped in red color. Also shown are the one-half-mile foreground distance zone, and a one-mile radius near-middleground distance zone. Outside of this one-mile zone the visible portions of the proposed project would be largely unnoticed by the casual observer.

Our analysis of the project's effect on each KOP is presented under Operation Impacts and Mitigation. **Visual Resources Figures 2 – 14** are reproduced from the FSA, Exhibit 200, following page 4.12-54.

a. Construction Impacts

Approximately 10 acres of the EPS property would be used as lay-down and parking areas for construction of the power plant and switchyard. The proposed main staging location, in the northernmost portion of the proposed CECP site, is currently well-screened by the surrounding earth berm and tall, dense tree plantings. According to the Applicant, these trees would be unaffected by proposed construction activities. If this were the case, impacts from that staging location would not be anticipated. (Ex. 200, p. 4.12-9.)

However, to address the potential impact caused by the presence of unsightly construction equipment around EPS storage Tanks 1 and 2, which could be seen by viewers on and around Carlsbad Boulevard and Carlsbad State Beach, we adopt Condition of Certification **VIS-3**, which provides for screening of construction staging sites near Tanks 1 and 2. Specifically, the project owner would:

- Install additional landscape screening, including tall tree and shrub plantings, on the northern and western boundaries of staging sites D and E (near fuel oil tanks #1 and #2) at the earliest feasible time, during early stages of project construction; and
- install temporary, dark-colored opaque fencing surrounding the staging areas to provide screening in the short term, as landscape screening matures.

Trenching for cut-and-cover construction of a proposed 3,700 foot-long reclaimed water line on Cannon Road from Avenida Encinas would create a temporary visual disturbance along Cannon Road. These disturbances would be phased, and would last for a period of three weeks. Given the temporary short-term effect, the visual impact would be less than significant.

Gas lines would be constructed underground between the EPS property and the CECP site using the railroad right-of-way. There is no evidence that visual impacts would occur from this activity.

Other major project construction activities would be largely screened from off-site viewpoints by the existing earth berms and landscape screening surrounding the CECP site. An exception to this would be along the railroad right-of-way, where equipment and material access, and construction of tall spoil berms would create prominent visual disruptions for the period of construction, as seen primarily by passenger train viewers. However, considering the moderate existing visual quality of this railroad track segment, the fleeting nature of views within it, the relatively limited number of affected viewers, and the temporary nature of impacts, these effects are considered to be less than significant. (Ex. 200, p. 4.12-10.)

Project construction lighting would occur between 7:00 p.m. and 7:00 a.m. for up to 25 months. Some construction activities may take place 24 hours a day, seven days a week. To the extent possible, night construction lighting would be pointed toward the center of the site. With the effective implementation of the Applicant's proposed light trespass mitigation measures as described in the AFC, the project's construction-related lighting impacts are anticipated to be less than significant. (Ex. 200, p. 4.12-23.)

b. Operation Impacts

The Applicant and Staff selected eleven KOPS. The project's visual impact from those KOPs is analyzed in light of two factors, referred to as *visual sensitivity* (of the setting), and *visual change* (due to the project) in the discussions below. KOPs with high sensitivity (due to outstanding scenic quality, high levels of viewer concern, etc.) that experience high levels of visual change from a project are more likely to experience adverse impacts. (Ex. 200, p. 4.12-11.)

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Visual Resources – Figures 3A and 3B

Carlsbad Energy Center Project – KOP 1 Carlsbad Boulevard

KOP 1- Existing View from Carlsbad Boulevard at Agua Hedionda Lagoon looking southeast

KOP 1- Visual Simulation of Proposed Project

CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMETAL PROTECTION DIVISION, NOVEMBER 2009
SOURCE: PEAR Figure 5.13-6

KOP 1 – View from Carlsbad Boulevard Looking Southeast

Visual Resources Figure 3A and 3B, above, depicts the view from Carlsbad Boulevard, looking southeast towards the project site, which would be seen by recreational viewers on Carlsbad State Beach, recreation-oriented pedestrians and bicyclists on the walkway west of Carlsbad Boulevard, and southbound motorists on Carlsbad Boulevard.

Visual Sensitivity

Motorists on Carlsbad Boulevard have spectacular views of the ocean and lagoon. This roadway is a designated scenic "Community Theme Corridor" in the City of Carlsbad General Plan Circulation Element. Motorists' attention tends to be drawn most strongly to the ocean rather than eastward toward the project site, but scenic views eastward to the lagoon are also prominent and striking, drawing viewers' attention toward the site.

Existing visual quality in the vicinity, characterized by highly scenic views of both the ocean and lagoon, is high. Viewer concern is also considered high due to the scenic designation of the road corridor. Viewer exposure to the project site, which occupies the visual foreground of the roadway to the east, is moderate because intervening terrain and vegetation of the EPS site, and the screening vegetation on the northern portion of the CECP site, strongly filter views of the site. The number of viewers, both motorists and beach visitors, is very high.

Carlsbad State Beach is a very heavily used public beach located roughly one-fourth-mile west of the project site. Viewers on the beach are strongly drawn to the sea, and views of the proposed CECP site from the beach are filtered and partially screened by the higher intervening terrain of Carlsbad Boulevard and its adjoining seawall, which block views of the site as seen from the lower-elevation beach.

In addition to beach visitors, however, very high numbers of pedestrians, joggers, and bicyclists utilize the public walkway adjoining the seawall separating Carlsbad Boulevard from the beach. While viewer exposure is moderately low from the beach, it is high from the road and sidewalk. Given the high recreational value and use of this area, viewer concern is considered high. Visual quality is high.

Overall, sensitivity of the Carlsbad Boulevard/Carlsbad Beach viewshed is thus considered high.

Visual Change

As depicted in **Visual Resources Figure 3B**, the project would be clearly seen from this segment of the viewshed. The project would introduce contrasting elements of vertical and rectilinear form and line, light and contrastive coloring in relation to the dark visual foreground of tree canopy, resulting in a moderate level of contrast.

Overall visual dominance of the project would remain visually subordinate to the much larger and taller EPS structure. The vertical form and line of stacks and HRSGs would silhouette against the sky above the tree canopy to a degree, increasing dominance and attracting attention to a moderate degree.

The project would not block high quality or scenic views from key viewpoints in this general area.

Due to the moderate level of contrast, subordinate visual dominance, and weak view blockage, overall visual change due to structures would be low to moderate.

Impact Significance – In the context of the setting's high visual sensitivity, the low to moderate level of project visual change would remain a less-than-significant visual impact.

Mitigation- Reduction of the structure's color contrast would be an important factor in reducing overall project contrast and dominance from this and other KOPs. We adopt Condition of Certification **VIS-1**, painting of all project structures to ensure the lowest feasible color contrast in the short term. In this instance, a darker color more closely matching the color value of the surrounding foreground tree canopy would reduce color and overall contrast.

Additional screening of the facility with in-fill perimeter landscape plantings would further reduce project line and form contrast in the long term. We thus adopt Condition of Certification **VIS-2**, Perimeter Landscape Screening and Replacement Planting.

The recommended planting of landscaping along the northern edge of the tank sites would provide substantial visual improvement to the beach and Carlsbad Boulevard viewsheds. We therefore adopt Condition of Certification **VIS-3**, Screening of Staging Sites D and E, as discussed under Construction Impacts, above.

After the completion of construction, the former recommended tree screening of the tank sites would help partially screen the proposed Carlsbad Seawater Desalination Project, which is to be constructed where the third fuel oil tank (EPS Tank 3) is located.

Residual Impact Significance After Mitigation: With implementation of these measures, overall project visual change within this portion of the viewshed could be reduced to a low level, a less-than-significant level of impact, in the long term.

(Ex. 200, pp. 4.12-10 – 4.12-12.)

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Visual Resources – Figures 4A and 4B
Carlsbad Energy Center Project – KOP 2 Pannonia

KOP 2 - Existing View from Pannonia Trail at Capri Park looking southwest

KOP 2- Visual Simulation of Proposed Project

CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMETAL PROTECTION DIVISION, NOVEMBER 2009
SOURCE: PEAR Figure 5.13-7

KOP 2 – View from Pannonia Trail at Capri Park

Visual Resources Figure 4A and 4B, above, depicts the view from Pannonia Trail at Capri Park at approximately three-fourth-miles distance from the project site. This view is typical of elevated views from residences on the north side of the lagoon with unobstructed views of the project site.

Visual Sensitivity

Residents in general are considered to have potentially high levels of viewer concern due to the long periods of viewing time, typically high levels of concern for their place of residence, and concern with potential effects on property values. Those residents most likely to experience visual impact would be a limited number of viewers north of the lagoon whose views of the site are not obstructed by other homes, terrain, or trees. These views are from predominantly elevated positions on the hillsides facing the site, within a foreground (one-half-mile) or near-middle-ground (up to one- mile) radius of the project site. Visual exposure to the project site is considered moderate, mediated by limited viewer numbers, distance from the project site, and screening at the site. Existing visual quality for potentially affected residential viewers depends on location and the presence of scenic views, but for the most part is moderately high, since those with views of the site are also those with views of the lagoon and ocean.

Overall visual sensitivity of this viewer group is thus moderate to high.

Visual Change

As depicted in **Visual Resources Figure 4B**, the vertical and rectilinear form and line of the power plant would contrast with the irregular silhouette of the foreground tree canopy, as would the marked color contrast of the project as shown. The project contrast in general would be accentuated further by silhouetting against the sky. Overall, visual contrast at these distances would be moderate.

Visual dominance would be moderate. Although dominance is amplified by the sky-lining and form contrast previously described, which would draw viewers' attention to the project, the project would also be visually subordinate to the much larger and more prominent EPS within the same view. The new CECP features however would increase the portion of the view exhibiting industrial character.

Overall, visual change would be moderate.

Impact Significance – In the context of moderate to high overall viewer sensitivity, project impacts could potentially be significant from viewpoints such as KOP 2.

Mitigation- We adopt Condition of Certification **VIS-1**, requiring painting of all project structures to ensure the lowest feasible color contrast in the short term. This should include painting of HRSGs, turbine inlet filters, and other features below 88 feet in height in a dark color and value to match the surrounding tree canopy; and painting of exhaust stacks of a color and value to blend with the sky. We also adopt Condition of Certification **VIS-2,** which requires additional perimeter landscape screening, and replacement planting to enhance screening of tall project features in the long term. In this case, in-fill planting of trees, and additional tall tree screening extending farther south on the eastern berm along I-5 would be important in achieving long term screening from views in this portion of the lagoon.

Residual Impact Significance After Mitigation - With lowered color contrast, and with greater tree screening over time, both through increased height of existing screening and with in-fill from new, tall tree plantings, project contrast could be lowered to a low-to-moderate level, particularly in the long term. With those measures, impacts would be reduced to a less than significant level as the landscaping matures. (Ex. 200, pp. 4.12-12 – 4.12-14.)

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Visual Resources – Figures 5A and 5B

Carlsbad Energy Center Project – KOP 3 Cove Drive

KOP 3- Existing View from end of Cove Drive looking southwest

KOP 3- Visual Simulation of Proposed Project

CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMETAL PROTECTION DIVISION, NOVEMBER 2009
SOURCE: PEAR Figure 5.13-3

KOP 3 – View from end of Cove Drive

Visual Resources Figure 5A and 5B, above, depicts the view from the end of Cove Drive. This view, from a public access area on the northern shore of the inner lagoon just west of Bristol Cove approximately .6-miles from the site, would be seen by recreational viewers along the northern shoreline of the inner lagoon.

Visual Sensitivity

Agua Hedionda Lagoon is the site of various recreational activities including boating, swimming, hiking, bicycling, fishing, picnicking and sight-seeing. Various public and private parks and facilities provide recreational destinations with foreground views over the lagoon and toward the project site. These include a pocket park at Harbor Drive, boat ramps at Harrison Street, Adams Street and Bayshore Drive, a large number of private boat ramps in Bristol Cove along adjoining Cove and Marina Drives, and various formal and informal beaches and trails along the northern shore of the lagoon. The North Coast YMCA Aquatic Park provides access to the middle lagoon, the only portion of the lagoon in which swimming is allowed, and directly faces the project site at a distance of roughly 500 feet. Adams and Park Drives, overlooking the northern lagoon shoreline, provide continuous, scenic views for motorists, joggers and bicyclists and are a designated Scenic Corridor under the City General Plan. The lagoon is also the site of the Agua Hedionda Discovery Center, a nature study center located at its eastern end. In effect, then, the entire northern shoreline and vicinity of the outer, middle, and inner lagoon represent a high sensitivity viewpoint for recreational viewers. Viewer concern, viewer exposure, and existing visual quality for this group of viewers and viewpoints are all high. Overall viewer sensitivity is thus high.

Visual Change

As depicted in **Visual Resources Figure 5B**, the project would introduce elements of vertical and rectilinear form and line contrast, silhouetted against the backdrop of the sky. It would also present light, contrastive coloring in relation to the dark visual foreground of tree canopy, resulting in a moderate level of contrast.

The project would attract viewers' attention due to its contrastive, vertical form and industrial character. It would remain visually subordinate to the larger existing EPS facility within the same view, but would also compound the

industrial character of this segment of the view, and increase the portion of the view with industrial character.

The project would not block scenic views from vantage points in this general area, but vertical features would intrude into the sky and alter the existing silhouette of tree canopy.

Overall visual change would thus be moderate.

Impact Significance – In the context of high viewer sensitivity in the lagoon viewshed, visual impacts could potentially be significant.

Mitigation- Condition of Certification **VIS-1** requires painting of all project structures to ensure the lowest feasible color contrast in the short term. In this instance, a darker tan or green color more closely matching the color value of the surrounding foreground tree canopy would reduce color and overall contrast; or, alternatively, dark-colored HRSGs, and light-colored stacks to reduce contrast against the sky. Condition of Certification **VIS-2** provides additional perimeter landscape screening, and replacement planting to enhance screening of tall project features in the long term. In this case, additional tall tree screening extending farther south on the eastern berm along I-5 would be important in achieving long-term screening from views in this portion of the lagoon.

Residual Impact Significance After Mitigation - With implementation of these Conditions of Certification, impacts would be reduced to a less than significant level as the landscaping matures. (Ex. 200, pp. 4.12-14 – 4.12-15.)

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Visual Resources – Figures 6A and 6B

Carlsbad Energy Center Project – KOP 4 Hoover Street

KOP 4- Existing View from end of Hoover Street looking southwest

KOP 4- Visual Simulation of Proposed Project

CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMETAL PROTECTION DIVISION, NOVEMBER 2009
SOURCE: PEAR Figure 5.13-9

KOP 4 – View from end of Hoover Street

Visual Resources Figure 6A and 6B present a view from the end of Hoover Street. This is a readily accessible public access point near the shoreline recreation trail on the lagoon shore, approximately .4-miles from the project site. Like KOP 3, it is typical of recreational views from the lagoon shore, at a somewhat closer distance to the project site.

Visual Sensitivity

As under KOP 3, viewer concern, viewer exposure, and existing visual quality for this group of viewers and viewpoints are all high. Overall viewer sensitivity is thus high.

Visual Change

Because of the particular angle of this view, the project appears well-screened by the tall existing Eucalyptus canopy on the berm bordering I-5. This existing Eucalyptus screening nearly equals the height of the proposed CECP structures and, especially from views farther west on the lagoon such as this, effectively screens the greater part of the project. As the viewer moves closer to the site at lagoon level, the effectiveness of the foreground screening increases due to the effect of viewing angles.

Form, line, and overall contrast of the protruding stacks in this view are weak. However, from vantage points on the water farther to the south, the structures would not be screened by the tall canopy, and overall form, line and color contrast could be moderate.

View blockage would not occur from this KOP.

Overall visual change would thus range from weak to moderate, depending upon the exact location of viewing (on the shore, in the water), angle of view and presence of tall Eucalyptus canopy to screen the structures.

Impact Significance – Impacts in this portion of the viewshed would thus range from less than significant, as in the view depicted in **Visual Resources Figure 6B**, to potentially significant in areas farther south or to the east not screened by tall tree canopy.

Mitigation- We adopt Condition of Certification **VIS-1**, requiring painting of all project structures to ensure the lowest feasible color contrast in the short term. We have also adopted Condition of Certification **VIS-2**, requiring additional perimeter landscape screening and replacement planting to enhance screening of tall project features in the long term. In this case, additional tall tree screening extending farther south on the eastern berm along I-5 would be important in achieving long term screening from views in this portion of the lagoon.

Residual Impact Significance After Mitigation - With implementation of these Conditions of Certification, impacts throughout this portion of the near inner lagoon viewshed would be reduced to less than significant levels in the long term with tree canopy maturity.

(Ex. 200, pp. 4.12-15 – 4.12-16.)

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Visual Resources – Figures 7A and 7B

Carlsbad Energy Center Project – KOP 5 Harbor Drive

KOP 5- Existing View from Harbor Drive looking south

KOP 5- Visual Simulation of Proposed Project

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

SOURCE: PEAR Figure 5.13-10

KOP 5 – View from end of Harbor Drive

Visual Resources Figure 7A and 7B depicts a view from the end of Harbor Drive, looking south from a distance of approximately .3-miles. This view, from a public vista point on the north shore of the middle lagoon, looking directly to the site, would be seen by recreational viewers in and around the middle lagoon. The middle lagoon is the only area in which swimming is permitted. The North Coast YMCA Aquatic Park can be seen in the foreground to the right.

Visual Sensitivity

As under KOP 3, viewer concern, viewer exposure, and existing visual quality for this group of viewers and viewpoints are all high. Overall viewer sensitivity is thus high.

Visual Change

As depicted in **Visual Resources Figure 7B**, from this viewing angle the existing berm and tall Eucalyptus canopy provides nearly complete screening of the project. The 139-foot stacks would protrude slightly above the tree canopy. Because the existing tree screening on the north part of the site is particularly dense and tall, screening in the middle lagoon viewshed is substantial and project contrast is thus low.

No view blockage by the project would take place from this location.

Overall Visual Change – Overall visual change from foreground viewpoints in the middle lagoon would be low.

Impact Significance – No adverse impacts within the middle lagoon viewshed are anticipated. Thus, no mitigation is needed.

Views from Residential Receptors South of the Site

South of the project site, views by residents south of Cannon Road and west of Carlsbad Boulevard are almost entirely blocked by intervening structures, including a landscaped masonry wall on the north side of Cannon Road, between the railroad track and Cannon Park. Thus, no KOPs were selected in this area.

(Ex. 200, pp. 4.12-16 – 4.12-17.)

Visual Resources – Figures 8A and 8B

Carlsbad Energy Center Project – KOP 6 I-5 Southbound

KOP 6- Existing View from southbound Interstate 5 looking south

KOP 6- Visual Simulation of Proposed Project

CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMETAL PROTECTION DIVISION, NOVEMBER 2009
SOURCE: PSAR Figure 5.13-11

KOP 6 – View from southbound U.S. Interstate 5 at Agua Hedionda Lagoon

Visual Resource Figure 8A and 8B depicts a view from southbound I-5 at Agua Hedionda Lagoon. KOP 6 is representative of views of southbound motorists at a foreground distance from the project site as they cross the lagoon.

Visual Sensitivity

I-5 separates the middle and inner lagoons. This segment of highway has highly scenic views toward both the lagoon and ocean. This portion of I-5 has been identified as a 'third priority' scenic route in the San Diego County General Plan Scenic Highway Element, and as a designated "Community Scenic Corridor" in the City of Carlsbad General Plan Circulation Element. The plans demonstrate recognition of special scenic value accorded views along this portion of the highway by the County and City.

The northern earthen berm of the CECP site, and its tall Eucalyptus trees, are prominent in this view, as depicted in **Visual Resource Figure 8B**. Existing visual quality for southbound motorists in the foreground vicinity of the project site is thus moderately high.

The estimated number of average daily vehicle trips on I-5 by the EPS property is 206,000. Although duration of visual exposure to the project site is brief, the number of viewers is very high, and many commuters are likely to pass the site twice a day, daily. Viewer exposure to the project site, due to substantial screening by the existing earth berm and tall trees adjoining the highway, is considered moderate. Motorists along this highway segment have a moderately high viewer concern.

Overall viewer sensitivity for southbound motorists on I-5 is thus considered to be moderate to high.

Visual Change

As depicted in **Visual Resources Figure 9B**, from this viewing angle the existing berm and trees would almost completely screen the project. A slight degree of color contrast would make the project visible beneath the tree canopy. Overall, contrast would be low.

The project would not attract attention from this KOP and visual dominance would be low.

The project would not block views from this KOP.

Overall visual change would be low.

Impact Significance – Given the low level of visual change from this viewpoint, we find no significant impacts to visual resources. No mitigation is needed.

(Ex. 200, pp. 4.12-17 – 4.12-18.)

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Visual Resources – Figures 9A and 9B

Carlsbad Energy Center Project – KOP 7 I-5 Northbound

KOP 7- Existing View from northbound Interstate 5 looking northwest

KOP 7- Visual Simulation of Proposed Project

CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMETAL PROTECTION DIVISION, NOVEMBER 2009
SOURCE: PEAR Figure 5.13-12

KOP 7 – View from northbound U.S. I-5 north of Cannon Road

Visual Resources Figures 9A and 9B depict a view from northbound I-5 north of Cannon Road. The existing transmission lines are visually dominant and lower the visual quality of the scene. North of this point, however, visual intrusions from the industrial features of the EPS are not evident, and potential visual prominence of the project increases.

Visual Sensitivity

Existing visual quality for northbound motorists is moderate due to an absence of the ocean or lagoon views that distinguish the view of southbound motorists, as well as the presence of EPS transmission lines crossing the highway. The intrusion of transmission lines and prominence of the freeway itself are partly off-set by the vividness of the landscaped earth berms and high tree canopy west of the highway, which also screen the industrial EPS features. As discussed under KOP 6, visual exposure to the project would be moderate, and viewer concern is moderately high due to special designations of the highway. Overall viewer sensitivity for northbound motorists on I-5 in this segment is considered to be moderate.

Visual Change

Views of the project stacks and HRSGs would be seen primarily from the segment of I-5 not screened by tall Eucalyptus on the earth berm. As motorists travel northward screening from the Eucalyptus becomes more complete. As illustrated in **Figure 9B**, the light-colored, vertical and rectilinear forms of the CECP stacks, HRSGs, and new transmission lines west of the generation units would be partially screened by the existing landscaped berm and associated tall tree screening, contrasting to a moderate degree with the existing setting. The prominence of the power plant would increase considerably as motorists pass by the site.

Visually prominent project features, particularly the exhaust stacks, HRSGs, new 230-kV switchyard east of the railroad tracks, and new transmission towers west of the new CECP generation Units 6 and 7, would be visually subordinate to the taller, closer existing transmission towers and lines near Cannon Road; they would become co-dominant at their nearest and most visually prominent points north of the transmission right-of-way as motorists pass the site. The impression on passing viewers would be relatively strong, but also brief.

Blockage of scenic views would not occur. Taller project features would intrude into views of the sky to a moderate degree. Overall, visual change would be moderate.

Impact Significance – In the context of moderate overall visual sensitivity, project impacts would be less-than-significant for northbound motorists in the foreground vicinity to the site.

Mitigation – We adopt Condition of Certification **VIS-1**, requiring painting of all project structures to ensure the lowest feasible color contrast in the short term. We have also adopted Condition of Certification **VIS-2**, which provides for additional perimeter landscape screening and replacement planting to enhance screening of tall project features in the long term. In this segment of I-5, additional tall tree screening extending farther south on the eastern berm along the highway would be most important in achieving more effective long-term screening from views along the highway, and to replace trees lost to old age over the long term.

Residual Impact Significance After Mitigation - With lowered color contrast, and with greater tree screening over time, both through increased height of existing screening and with in-fill from new, tall tree plantings, project contrast could be lowered to a low-to-moderate level, particularly in the long term. With those measures, visual impacts could be neutral or possibly even beneficial in the long term.

(Ex. 200, pp. 4.12-18 – 4.12-19.)

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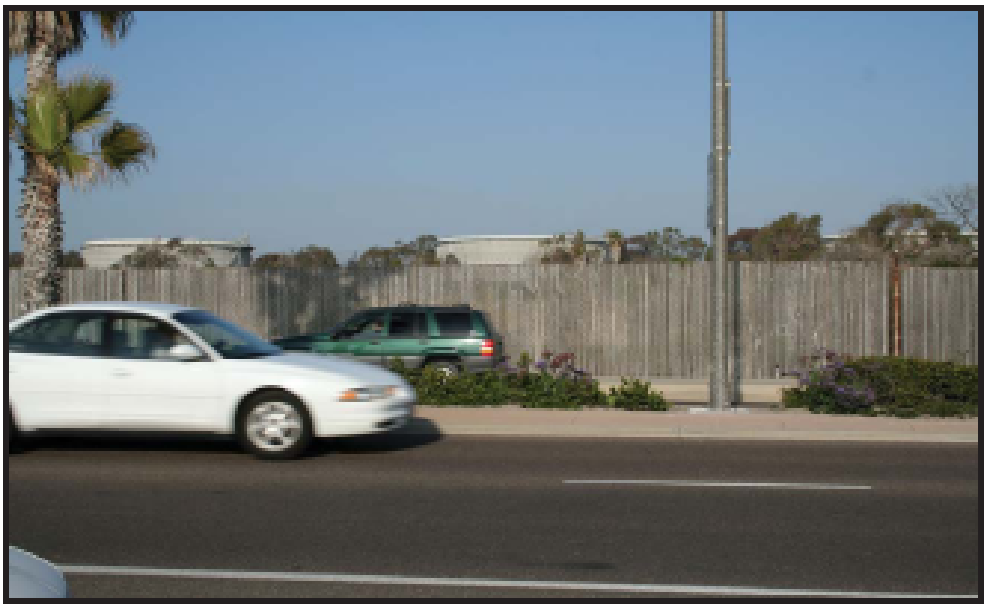
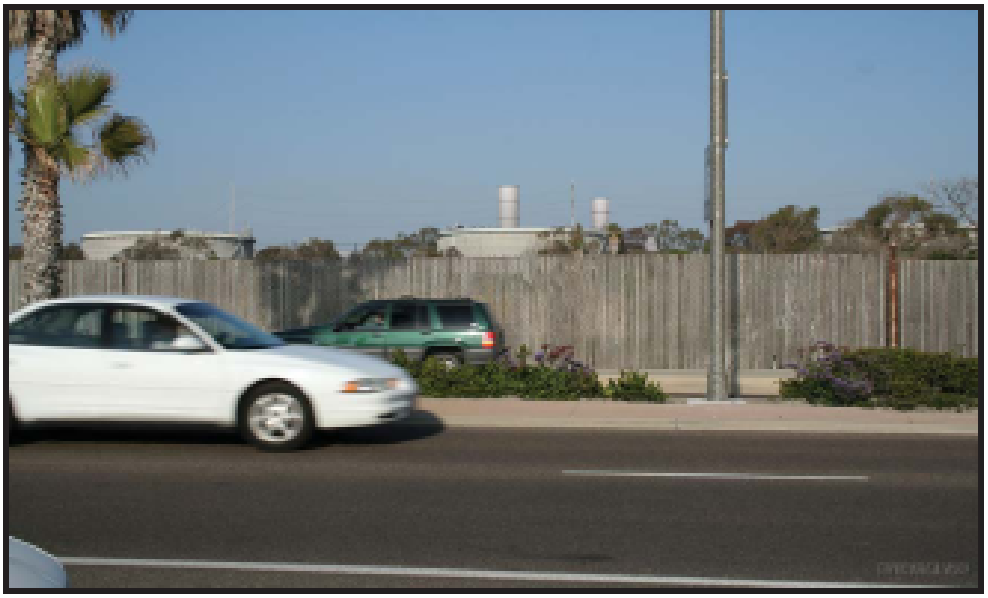
Visual Resources – Figures 10A and 10B

Carlsbad Energy Center Project – KOP 8 Carlsbad Blvd Looking East from Encina Power Station Outfall

KOP 8- Existing View from Carlsbad Boulevard at the Encina Power Station outfall



KOP 8- Visual Simulation of Proposed Project



CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION, NOVEMBER 2009
SOURCE: PEAR Revised Figure DR 111

KOP 8 – View: Carlsbad Boulevard looking east from Encina Power Station outfall

Visual Resources Figure 10A and 10B depict the view of motorists, pedestrians and beach-goers on Carlsbad Boulevard, looking east near the existing power station's outfall from the pedestrian walkway. This KOP was requested by the City of Carlsbad to depict the anticipated level of visibility of the project from viewpoints farther south on Carlsbad Boulevard and Carlsbad Beach.

Visual Sensitivity

The same discussion as under KOP 1 applies generally to this KOP, located roughly one-half-mile to the south on Carlsbad Boulevard. As under KOP 1, viewer exposure, viewer concern and visual quality from this KOP are all high. Overall, sensitivity of this viewshed is thus considered high.

Visual Change

As depicted in **Visual Resources Figure 10B**, contrast of the project from this viewpoint would be moderate. While most of the project would be screened by existing tree canopy, upper portions of the exhaust stacks would be visible, creating a moderate degree of form and line contrast from the nearest viewing locations on Carlsbad Boulevard. In the worst case, if the stacks presented strong color contrast with the sky, contrast would be increased and could reach moderately strong levels from the nearest viewing locations.

Project structures would remain subordinate to existing EPS features.

No views would be blocked from this KOP. The stacks would intrude into the sky to a small degree, but highly scenic views to the ocean to the west would strongly draw viewers' attention away from the site.

With moderately strong contrast, subordinate visual dominance, and weak view blockage, overall visual change due to structures could be moderate from the nearest viewpoints on Carlsbad Boulevard directly west of the site.

Impact Significance – In the context of the setting's high visual sensitivity, moderate project visual change could represent a potentially significant visual impact.

Mitigation - Reduction of the structure's color contrast would be an important factor in reducing overall project contrast and dominance from this and other KOPs. We adopt Condition of Certification **VIS-1**, requiring painting of all project structures to ensure the lowest feasible color contrast in the short term. In this case, stacks should be of a light-colored, low-reflectivity value to blend with the sky in order to minimize potential contrast.

Residual Impact Significance After Mitigation - With lowered color contrast, project contrast would be reduced to a low-to-moderate level. With that measure, impacts would be reduced to a less than significant level. (Ex. 200, pp. 4.12-19 – 4.12-20.)

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Visual Resources – Figures 11A and 11B

Carlsbad Energy Center Project – KOP 9 View from Burlington Northern Santa Fe Rail Corridor

KOP 9- Existing View from Train (Approximate)

KOP 9- Visual Simulation of Proposed Project with Landscaping

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

SOURCE: PEAR Revised Figure DR 65-5b

KOP 9 – View from Burlington Northern Santa Fe Rail Corridor looking east

Visual Resources Figure 11A and **11B** depicts a simulated view from a passenger train looking directly east, adjacent to the project site, and would be seen by viewers on the regional 'Coaster' commuter rail service and on Amtrak, both of which pass the site several times daily.

Visual Sensitivity

A portion of the Burlington Northern Santa Fe (BNSF) North County Transit District Rail Corridor (formerly Atchison Topeka and Santa Fe) directly abuts the CECP site to the east, separating the site from the remaining EPS property. Passenger train service through the corridor is provided by the San Diego Coast Express Rail or "Coaster," and Amtrak. Five thousand rail passengers per weekday travel between San Diego and Oceanside past the proposed site.

The rail corridor is identified as one of four categories of scenic corridors established under Goal C.2 of the Scenic Roadways portion of the City's General Plan Circulation Element. Goal C.11 calls for improvement of the visual quality of the corridor adjacent to this rail line. Consequently, viewer concern is considered to be high. Viewer exposure is low-to-moderate: even absent specific mitigation, proposed intervening earth berms would conceal a large portion, though not all, of the power plant. In addition, viewer exposure is very brief, lasting only a few seconds, and applies only to passengers with views facing eastward. However, the number of viewers is relatively high, and viewer exposure occurs repeatedly, often on a daily basis.

Visual quality of the railroad line is characterized by the quality of views of the corridor seen from the rail line. Existing visual quality in this specific segment of the rail corridor is moderate: a visual foreground consisting mainly of raised earthen berms with substantial tree screening filtering views of the adjoining industrial facilities, particularly on the west side of the EPS, but intermittently on both sides. The lagoon and ocean are not visible from this rail segment.

Overall sensitivity of this KOP is thus considered moderate, reflecting the modest existing visual quality and very brief viewer exposure.

The BNSF right-of-way abutting the CECP western boundary is also part of an approved regional, multi-jurisdictional Coastal Rail Trail (CRT), which has not yet been constructed in the CECP vicinity. The CRT is a multi-use, Class I and Class II bicycle trail that has been partially constructed in other portions of its

alignment and is to be located primarily within the railroad right-of-way in the segment adjoining the CECP. As part of a multi-jurisdictional memorandum of understanding, the City of Carlsbad is planning a trail segment that would stretch between Tamarack Avenue and the Poinsettia Coaster station and include a pedestrian bridge over Agua Hedionda Lagoon. Potential effects on future CRT viewers are discussed below under Cumulative Impacts.

Visual Change

As depicted in **Visual Resources Figure 11B**, visual contrast from the rectilinear and vertical forms of the stacks, HRSGs, and new transmission poles would be strong, increasing the industrial character of this rail segment, but would also be very brief. The additional height of new engineered earthen berms on this boundary would also add to that contrast. The project would come into view as passengers approached Cannon Road from the south, or the edge of the lagoon from the north, and appear prominent for a period of a few seconds

For passengers with views eastward, the project would be dominant in view for a few seconds. The project would intrude into eastward views of the sky briefly. Taking into consideration the brevity of visual exposure, visual change would be moderate.

Impact Significance – In the context of moderate overall viewer sensitivity, project impacts would be less than significant for train passengers in the foreground vicinity to the site.

Mitigation - Although impacts from this KOP would be less than significant, our adoption of Condition of Certification **VIS-1**, requiring painting of all project structures to ensure the lowest feasible color contrast in the short term and Condition of Certification **VIS-2**, requiring additional landscape screening on the new western earth berm adjoining the railroad track, as simulated in **Figure 11B**, will ensure that impacts are minimized.

Residual Impact Significance After Mitigation - With lowered color contrast, and with greater tree and shrub screening over time, project contrast would be lowered to a moderate-to-low level, particularly in the long term. With those measures, particularly considering the brief exposure of passengers to these views, impacts would be reduced to a less than significant level.

(Ex. 200, pp. 4.12-21 – 4.12-22.)

Overall Project Operation Impacts on Existing Visual Resources

Project operation impacts from all identified KOPs on the existing visual character and quality of the setting would be less than significant with implementation of the Conditions of Certification we adopt herein.

Linears

Overhead Transmission Lines - The nine proposed new transmission towers and associated power lines would all be located to the west of the CECP site and connect and terminate at the existing EPS power plant immediately to the west. Four new 84-foot poles would be located near the railroad right-of-way and would be visible in the foreground to passing train passengers. They would also be visible from Highway I-5 to the east, and would be partially screened by the existing berm and landscaping. The potential impacts to visual resources caused by these facilities are discussed above.

Pipelines – If reclaimed water (as opposed to desalinated seawater) becomes CECP's industrial water source, a proposed 3,700-foot long reclaimed water line on Cannon Road from Avenida Encinas could create a temporary visual disturbance along Cannon Road. No long-term visual impacts would occur as a result of this pipeline; temporary impacts from pipeline construction are discussed above, under Construction Impacts. Gas lines would be constructed underground between the EPS property and the CECP site using the railroad right-of-way. No visual impacts are anticipated.

(Ex. 200, p. 4.12-23.)

Visible Water Vapor Plumes

The proposed project would be cooled by use of air-cooled condensers. Therefore, no visible water vapor plumes would be emitted from the plant cooling system. Staff conducted visible plume modeling of HRSGs using the CSVP model and concluded that, due to higher than normal exhaust temperatures proposed by the Applicant, anticipated visible plume occurrences would be negligible—approximately one plume-hour/year. (*Id.*)

Light or Glare

The proposed project during operation has the potential to introduce light off-site to surrounding properties, and up-lighting to the nighttime sky. If bright exterior lights were not hooded, and lights not directed onsite they could introduce significant light or glare to the vicinity.

Project construction lighting would occur between 7:00 p.m. and 7:00 a.m. for up to 25 months. Some construction activities may take place 24 hours a day, seven days a week.

Currently, night lighting on the Encina Power Station (EPS) property is primarily from the existing generation building and exhaust stack, and pole-mounted area lighting. According to the AFC Project Description, night lighting would be directed downward and would be down-shielded or capped to reduce glare and light trespass. Where lighting is not required for normal operation, safety or security, switches or motion detectors would be provided to allow these areas to remain dark except as needed. To the extent possible, night construction lighting would be pointed toward the center of the site. Task-specific lighting would be used to the extent practical. FAA aviation strobe lighting could be required on the taller project structures.

With the effective implementation of the Applicant's proposed light trespass mitigation measures as described in the AFC, the project's construction and operation-related lighting impacts in the context of the existing lighting are anticipated to be less than significant. With adequate screening and shielding, proposed new lighting, including aviation strobe lighting, would remain subordinate to the similar existing lighting at the larger, adjacent EPS. Staff recommends Condition of Certification **VIS-4** to ensure full compliance and verification of night lighting measures.

(Ex. 200, pp. 4.12-23 – 4.12-24.)

4. Cumulative Impacts and mitigation

A cumulative impact refers to a proposed project's incremental effect together with other closely related past, present, and reasonably foreseeable future projects whose impacts may compound or increase the incremental effect of the proposed project. (14 Cal. Code of Regs., § 15355.) Cumulative impacts occur when more than one project exists or is planned to be completed or constructed

in the same area at the same time. That is, any one project, by itself, may not cause a significant visual impact, but the combination of the new project with all existing or planned projects in the area may have a significant cumulative impact, in other words the impact of the new project is cumulatively considerable.

A finding of a significant cumulative impact would depend on the degree to which: (1) the viewshed is altered; (2) view of a scenic resource is impaired; or (3) visual quality is diminished. Below we discuss the project's potential, in combination with other existing or known, planned projects, to have a cumulatively considerable impact to visual resources.

Carlsbad Seawater Desalination Project

The proposed Carlsbad Seawater Desalination Project consists of a 50- million-gallon-per-day (56,000 acre-feet per year) seawater desalination plant and associated water delivery pipelines, to be constructed at the Encina Power Station. The desalination project is to be constructed on the site of EPS fuel oil storage Tank 3.

Our adoption of Staff-recommended Condition of Certification **VIS-3**, Screening of Construction Staging Sites D and E, ensures that landscape screening would be in place at the completion of construction of the CECP, providing replacement screening of the desalination plant. This would replace the existing oil tanks with landscaping, representing a beneficial impact in both the short- and long-term.

Future Non-Industrial Uses of Decommissioned EPS Site

Although the time frame is not known, it is assumed that at some point in the future, the remaining generation Units (4 and 5) within the EPS generation facility not decommissioned under the CECP, will also be decommissioned, in accordance with long-range City of Carlsbad plans and in keeping with CEC's policy of displacing generation from aging plants, particularly those using once-through cooling. At that time, the City envisions re-zoning the entire site to non-industrial uses. Consequently, the City opposes the CECP proposal, and has expressed concern over the potential for the CECP to cause foreseeable future visual impacts due to incompatibility of its industrial character with adjacent future land uses (Exs. 400 – 434). The concern is that if the CECP were visually prominent from the EPS site, then future non-industrial uses, including recreational and visitor-serving uses, would be adversely affected by the industrial character of these views.
(Ex. 200, pp. 4.12-24 – 4.12-25.)

Visual Resources Figures 12A and 12B (KOP 10) depicts the view of CECP site looking east from the eastern portion of the existing EPS site.

Visual Resources – Figures 12A and 12B

Carlsbad Energy Center Project – KOP 10 View to CECP from EPS Looking East

KOP 10- Existing View from Encina Power Plant Site

KOP 10- Visual Simulation of Proposed Project

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

SOURCE: PEAR Figure DR 67c

This KOP represents views toward the CECP site from a nearby area of the existing EPS site west of the railroad tracks, and simulates a typical close-range view of the CECP under a future scenario in which public uses would occur on the EPS current site.

As depicted in **Figure 12B**, the CECP site would be highly filtered from these viewpoints, for a combination of reasons:

- Existing tall Eucalyptus trees on the eastern boundary of the EPS site, west of the railroad tracks, currently provide substantial screening sufficient to strongly filter the CECP;
- Additional berm and landscape screening on the eastern boundary of the EPS site, of the kind visible in this photograph, could easily be included in any future land use plan for the EPS in order to augment or fill in any unscreened portions of the boundary between the two sites, such that visibility of the CECP could be minimized.

Intervenors City of Carlsbad, Carlsbad Redevelopment Agency, Terramar and Power of Vision contend that, in light of the potential for future removal of EPS and conversion of the property to non-industrial uses, CECP will contribute to a cumulative visual impact because it will, in effect, prolong the industrial use of the site.

Intervenors' argument fails to take into account the fact that removal of EPS is not imminent or even planned. State policy calls for the eventual elimination of OTC projects such as EPS; that policy, however, is not directed at such projects' visual impacts but rather at the environmental effects, primarily biological, of OTC. The eventual shutdown of EPS will not necessarily result in its removal from the landscape. The evidence shows that units 4 and 5 of EPS may operate for many more years. The California Independent System Operator (CAISO) has made clear that those units are necessary to maintain local reliability until sufficient generation and transmission is built to provide reliable service to the San Diego reliability area, or "load pocket." (Staff reply brief at 3). Moreover, as Staff points out, to the extent that CECP contributes to the eventual closure of units 4 and 5, or that such closure is foreseeable, CECP's contribution to such closure is a *positive* environmental consequence, not subject to the requirements of CEQA analysis. (Staff Reply Brief at 4.)

Given the availability of the above-described mitigation measures, the cumulative impact on future views of the CECP as seen from the EPS site would be less than significant, from a specifically visual perspective.

(Ex. 200, p. 4.12-25.)

Coastal Rail Trail

The Coastal Rail Trail (CRT) is an approved regional project that would eventually create a Class I and Class II bicycle trail and a walking trail from San Diego to Oceanside primarily within the railroad right-of-way. Portions of the project have been completed, and a planned portion of the 7.2 mile trail involves use of the BNSF rail corridor next to the CECP site. The precise trail alignment in this segment has not yet been determined. Please see the **Land Use** section of this Decision for more specific analysis on the CRT.

Visual Resources Figure 13A and **13B (KOP 11)** depicts the CECP as it would appear to users of the proposed Coastal Rail Trail, looking south approximately 500 feet from the project site assuming that the trail were to be located within the existing railroad right-of-way.

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Visual Resources – Figures 13A and 13B

Carlsbad Energy Center Project – KOP 11 CECP from Coastal Rail Trail Looking South

KOP 11- Existing View from Proposed Coastal Rail Trail

KOP 11- Visual Simulation of Proposed Project

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

SOURCE: PEAR Figure DR 68-6

From the trail, visual change would progress from moderate to strong levels as one approached the power plant. However, as trail users approached the power plant, screening of the earthen berm would also become increasingly effective. With implementation of Condition of Certification **VIS-2** and project owner-proposed landscape plantings on the north- and west-facing berms, overall impacts of the project to trail users would be less than significant, declining over time with landscape maturity.

(Ex. 200, pp. 4.12-25 – 4.12-26.)

North Coast Interstate 5 HOV/Managed Lanes Project

The North Coast Interstate 5 HOV/Managed Lanes Project or I-5 Widening Project is being proposed by the California Department of Transportation (Caltrans) and includes the portion of I-5 that borders the east side of the Encina Power Station property and the CECP site. Preliminary engineering and environmental studies have been underway for several years. The evidence shows that construction in the CECP vicinity will begin a minimum of 10 years following initial project commencement. (Ex. 200, p. 4.12-26.)

Caltrans staff has prepared four alternatives for the I-5 Widening Project and provided preliminary layout information for these four in the immediate CECP site vicinity. Caltrans staff have emphasized that these alternatives are not final. Energy Commission staff reviewed the four preliminary alternatives for the I-5 Widening Project. We agree with Staff's conclusions as follows:

- The four alternatives as depicted would all require complete removal of the earthen berm and associated tall tree landscaping currently occupying the eastern boundary of the CECP site;
- Removal of the earthen berm and associated landscaping would eliminate visual screening along the eastern edge of the proposed CECP site and the existing Encina Power Station from I-5, and from sensitive viewpoints to the north and east of the project site, including viewpoints within the inner Agua Hedionda Lagoon;
- At its tallest point, the CECP would be approximately 100 feet in height above the surrounding grade, visible at close proximity to passing motorists. The remaining Encina Power Station property, which includes a generation building and stack, switchyard, transmission poles, and other ancillary above-grade features, would become visible within the KOP 2, 3, 4, 6, and 7 view sheds; and

- The impact on visual quality of this segment of I-5 from the loss of the existing berm and trees, and the resulting exposure of the EPS and the proposed CECP as seen by south-bound motorists on I-5 is potentially substantial. Although proposed elevated lanes at the center median of I-5 could partially screen views of the CECP as seen from the lagoon and points east, this structure would not replace the existing landscaping, which currently provides screening of up to 60 feet above surrounding grade (including both berm and tree canopy).

The cumulative visual effect introduced by the proposed CECP in combination with the I-5 Widening Project would thus nullify the less-than-significant visual impact discussed in this Decision for KOPs 2, 3, 4 (north shore of lagoon), and 6 and 7 (Highway I-5), since that determination was dependent upon the presence of the existing berm, existing landscape screening, and planting of additional in-fill landscape screening. Absent mitigation, it currently appears that a significant cumulative visual impact could occur in the absence of modification to either the I-5 Widening Project alternatives, the CECP, or both.

In addition, the cumulative effects resulting from a removal of the existing berm and trees, and the exposure of the CECP and EPS power plants would not, absent mitigation, conform to California Coastal Act Policy 30251 which states:

> *"permitted development shall be sited and designed to protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural land forms, to be visually compatible with the character of surrounding areas, and, where feasible, to restore and enhance visual quality in visually degraded areas."*

It would also not be consistent with the City of Carlsbad Scenic Roadways Goal A which is to... "preserve and enhance the visual …characteristics of the local community through sensitive planning and design of transportation and utility corridors," and the City's Scenic Roadway Policy C.2 which identifies this portion of I-5 as a "Community Scenic Corridor."

Intervenors City of Carlsbad, Carlsbad Redevelopment Agency, Terramar and Power of Vision agree that the significant impacts described above would occur, but contend that with the widening of I-5, the space necessary for screening will be eliminated and that effective mitigation will therefore be impossible. City argues further that Condition of Certification **VIS-5** constitutes impermissible "deferred mitigation" because it leaves determination of final mitigation details until the configuration of the widening project is known. None of the Intervenors, however, presented credible evidence to support these contentions.

The evidence shows that Staff and Caltrans conducted in-the-field measurements of available buffer zones in relation to Caltrans' proposed I-5 widening right-of-way line, and found that there would be sufficient room for a landscaped berm of similar or greater width to the existing berm, within the proposed buffer zone. Where the existing berm is 45 feet wide adjacent to proposed Unit 6, available buffer zone is up to 75 feet; where the existing berm is approximately 50 feet wide adjacent to proposed Unit 7, available buffer zone is up to 90 feet. We therefore find that there would in fact be more than sufficient buffer zone within the CECP site to construct a new landscaped berm, similar or greater in size to the existing berm, located west of the existing berm and the proposed future Caltrans right-of-way.

Applicant provided testimony in accord, with visual simulations depicting buffer space and "fast-growing evergreen trees" with an "understory of shrubs" for landscaping, screening the site. (2/2/10 RT pp. 251-257.)

We conclude that the construction of such a new landscaped earth berm within the buffer zone called for under Conditions **VIS-5** and **Worker Safety-7** would be capable of providing comparable visual screening in the long term, even if the existing berm were to be removed.

In order to address potential cumulative impacts of the I-5 Widening Project, we adopt Condition of Certification **VIS-5**, Cumulative Impact Buffer Zone, Coordination with Caltrans, and Mitigation Plan. While details of this mitigation cannot be determined until the final configuration of the I-5 Widening Project is known, the condition we adopt is a performance standard requiring that an effective mitigation scheme be implemented. This is not impermissible deferral of required analysis, as City contends. The environmental analysis has been done and potentially significant impacts found. "The use of performance standards is acceptable where the formulation of precise means of mitigating impacts is truly infeasible or impractical at the time of project approval. In such cases, the approving agency should commit itself to eventually working out such measures as can be feasibly devised, but should treat the impacts in question as being significant at the time of project approval." *Sacramento Old City Association v. City Council of Sacramento* (1991) 229 Cal. App. 3d 1011, 1028-1029.

Under Condition of Certification **VIS-5**, the Applicant shall be required to maintain a buffer zone immediately west of I-5, between the existing NRG fence line and existing east tank farm perimeter road, in order to maintain existing visual screening; accommodate future I-5 widening as necessary; and incorporate

future visual screening and hazard protection features needed to fully address potential cumulative impacts that could be caused by the proposed I-5 widening.

(Ex. 200, pp. 4.12-26 – 4.12-29.)

Other Potential Nearby Development Sites

In its letter of October 24, 2007, described in the FSA, (Ex. 200, p. 4.12-46, CEC Docket No. 42299), the City of Carlsbad expressed concern about potential project visual incompatibility with an undeveloped parcel located directly east of I-5 designated for Travel/Recreation Commercial use under the City General Plan.

In the absence of the proposed Caltrans I-5 Widening Project, discussed below, the proposed CECP would not be visually prominent in views from the referenced site, and would thus be compatible with its designated use, due to screening effects of the existing earth berm and landscape screening.

With the proposed I-5 Widening Project, the existing earth berm and tall landscape screening could be removed, exposing the CECP and EPS sites to view from the parcel of concern. However, proposed elevated lanes near the center median of the I-5 project under all alternatives would partially, and possibly substantially screen the CECP and EPS projects from views from the adjoining parcel. Visual impacts to this now-undeveloped parcel from the I-5 project are thus likely to obscure potential visual impacts of the CECP.

(Ex. 200, p. 4.12-29.)

Sewer Interceptor and Lift Station Projects

The City of Carlsbad has proposed a Sewer Interceptor project requiring condemnation and use of a 20-foot wide right-of-way running north-south at the western boundary of the CECP site. The City has also proposed construction of a lift station connected with this project that would occupy a portion of the northwest corner of the CECP site. Based on plans provided by the City, the proposed sewer right-of-way would encroach on approximately one third of the area proposed by the Applicant for use as a spoil berm. At a minimum, the design of the proposed berm would need to be modified, and in the worst case the berm could be precluded.

From a purely visual perspective, elimination of the proposed spoil berm on the western boundary of the CECP would result in greater visual exposure of the CECP as seen by passengers on Amtrak and Coaster trains as they pass the CECP site. This increased exposure would represent a somewhat more adverse visual effect on those passengers. However, as discussed elsewhere in this Decision, the existing visual quality of this segment of the railroad right-of-way is relatively low due to the industrial nature of the surrounding EPS site, and the surrounding, engineered side slopes. In addition, the exposure of train passengers to views of the CECP in this segment would be very brief. In this context, adverse impacts to viewers with or without the proposed western spoil berm and landscaping would be less-than-significant.

As depicted in City Plans, the proposed lift station could conflict with some landscape screening measures described in Condition of Certification **VIS-2**, and result in removal of some existing tree screening. Construction of the lift station would result in minimal canopy loss and additional visibility of the CECP as seen from the middle lagoon. The northernmost existing tree canopy prominent in the view from KOP 5 would not be affected. Resulting impacts to sensitive viewers in the middle lagoon would thus be below the level of significance.

The lift station would have adverse effects on the view of passing train passengers. As discussed above, these views would be very brief, and in the context of the existing, compromised visual quality of the EPS/CECP site as seen from passing trains, impacts would be less than significant. Nevertheless, in order to address potential cumulative impacts connected with the lift station project, Condition of Certification **VIS-2** calls for replacement of any trees removed due to that project on the CECP site, as feasible.

(Ex. 200, pp. 4.12-29 – 4.12-30.)

LOSSAN (San Diego – Los Angeles – San Luis Obispo)

The LOSSAN rail corridor improvements project would entail double-tracking of the rail line adjoining the CECP site to the west at some time in the future. Site-specific and time-certain information on this project is not available at this time, nor is there any evidence that double-tracking project that would entail substantial visual impacts in or near the CECP. Double-tracking could require widening of the existing railroad bridge over the Agua Hedionda lagoon and ROW through the EPS. This change, therefore, is not anticipated to result in

substantial adverse cumulative impacts in relation to the CECP. (Ex. 200, p. 4.12-30.)

5. Compliance with LORS

Visual Resources Table 1 above identifies and summarizes the requirements of the applicable LORS. The evidence establishes that, as mitigated, the project will comply with LORS. (Ex. 200, pp. 4.12-31 – 4.12-34.)

6. Public and Agency Comments

Numerous non-party agencies and members of the public submitted oral and written comments throughout the proceedings. Those comments are contained within the docket in this proceeding. With respect to the project's visual impacts, many commenters voiced concern that that project would perpetuate the current industrial use of the site, persisting even if EPS were removed. These commenters wish to hasten the conversion of the site to non-industrial uses, presumably by ceasing its industrial uses and adding no new industrial facilities. This concern was well represented by the Intervenors, and we have addressed it in our discussion above. We have also carefully considered all other comments pertaining to visual impacts and that consideration is reflected in the findings and conclusions set forth herein.

FINDINGS OF FACT

Based on the evidence of record, we find and conclude as follows:

1. The Carlsbad Energy Center Project, a natural gas-fired, combined-cycle, electrical generating facility, will be located within the Encina Power Station (EPS) property on the southern edge of the Agua Hedionda Lagoon, a 400-acre lagoon that adjoins the Pacific Ocean in the City of Carlsbad, California.

2. For the purposes of the Commission's visual analysis pursuant to CEQA and the Warren-Alquist Act, the baseline against which project impacts are evaluated consists of the existing viewscape, including the existing Encina Power Station power plant and an adjacent tank farm, Interstate 5, the BNSF railway and other man-made and natural features described in this Decision.

3. The evidence contains an evaluation of 11 key observation points (KOPs) and the project's potential to have light or glare impacts. Based on this

evaluation we find that impacts to visual resources caused by the project will be less than significant.

4. The proposed project site's viewshed is within several scenic vistas and scenic resources.

5. Conditions of Certification set forth in this Decision will ensure that the project's impacts to visual resources will be reduced to below the level of significance.

6. Visible vapor plumes, if any, will occur about one hour per year and therefore insignificant.

7. Construction of the project (facility and transmission lines) and laydown and parking areas will result in temporary visual disturbance but no long-term visual impacts.

8. The project will have lighting for construction and operation of the facility and has the potential to introduce glare. Conditions of Certification **VIS-1** and **VIS-2** have been adopted to reduce lighting impacts to surrounding uses during construction and operation of the project. Condition of Certification **VIS-3** has been adopted to reduce glare and minimize the visual intrusion of the project.

9. The potential CALTRANS I-5 widening project is proposed to occur several years in the future, and may encroach in some measure on the CECP site, creating a potential cumulative visual impact.

10. The evidence, including CALTRANS planning documents and measurements by Staff using those documents, establishes that the I-5 widening project will leave sufficient room for a buffer that can include a new landscaped berm to mitigate visual impacts of the project.

11. Assuming the CALTRANS I-5 widening proceeds as planned, the mitigation provided in Condition of Certification **VIS-5** requires the applicant to create a berm with a visual buffer, working cooperatively with CALTRANS when that project is built; such mitigation sufficiently reduces the potential cumulative impact of that future project to one that is less than significant.

12 Potential cumulative visual impacts caused by the Carlsbad Energy Center Project can be mitigated to below the level of significance.

13 Implementation of the Conditions of Certification will ensure that the project's visual impacts are less than significant.

14. The Carlsbad energy Center Project will be consistent with all applicable visual laws, ordinances, regulations, and standards relating to visual resources identified in the pertinent portion of Appendix A of this Decision.

CONCLUSIONS OF LAW

1. With implementation of the Conditions of Certification, the project will meet all applicable LORS relating to visual resources which are contained in **Appendix A** of this Decision.
2. Construction and operation of the Carlsbad Energy Center Project will not cause any unmitigatable significant direct, indirect, or cumulative visual impacts.

CONDITIONS OF CERTIFICATION

Surface Treatment of Project Structures and Buildings

VIS-1 The project owner shall treat the surfaces of all project structures and buildings visible to the public such that: a) their colors minimize visual intrusion and contrast by blending with the landscape; b) their colors and finishes do not create excessive glare; and c) their colors and finishes are consistent with local policies and ordinances. The transmission line conductors shall be non-specular and non-reflective, and the insulators shall be non-reflective and non-refractive.

Surface color treatment shall include painting of HRSGs, turbine inlet filters, and other features below 88 feet in height in a dark color and value to match the surrounding tree canopy; and painting of exhaust stacks of a light color and value to blend with the sky.

The project owner shall submit for CPM review and approval, a specific surface treatment plan that will satisfy these requirements. The treatment plan shall include:

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; the transmission line towers and/or poles; and fencing, specifying the color(s) and finish proposed for each. Colors must be identified by vendor, name, and number; or according to a universal designation system;

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 treatment proposed for use on project structures, including

structures treated during manufacture, from Key Observation Points 2 and 5 (locations shown on Visual Resources Figure 1 of the Staff Assessment);

e. A specific schedule for completion of the treatment; and

f. A procedure to ensure proper treatment maintenance for the life of the project.

The project owner shall not specify to the vendors the treatment of any buildings or structures treated during manufacture, or perform the final treatment on any buildings or structures treated in the field, until the project owner receives notification of approval of the treatment plan by the CPM. Subsequent modifications to the treatment plan are prohibited without CPM approval.

Verification: At least 90 days prior to specifying to the vendor the colors and finishes of the first structures or buildings that are surface treated during manufacture, the project owner shall submit the proposed treatment plan to the CPM for review and approval and simultaneously to the [specify local jurisdiction] for review and comment.

If the CPM determines that the plan requires revision, the project owner shall provide to the CPM a plan with the specified revision(s) for review and approval by the CPM before any treatment is applied. Any modifications to the treatment plan must be submitted to the CPM for review and approval.

Prior to the start of commercial operation, the project owner shall notify the CPM that surface treatment of all listed structures and buildings has been completed and they are ready for inspection and shall submit one set of electronic color photographs from the same key observation points identified in (d) above.

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.

Additional Perimeter Landscape Screening

VIS-2 The project owner shall provide landscaping that reduces the visibility of the power plant structures in accordance with local policies and ordinances and with findings and recommendations of Applicant Data Responses DR70-1, DR106 and DR107. Trees and other vegetation consisting of informal groupings of tall, fast-growing evergreen shrubs and trees shall be strategically placed along the eastern, western, and northern facility boundaries as called for in the above-referenced data responses, consistent with transmission line safety requirements. The objective shall be to create landscape screening of sufficient density and height to screen the power plant structures to the greatest feasible extent in the shortest feasible time; and to provide timely replacement

for aging or diseased tree specimens on site in order to avoid future loss of existing visual screening. The design approach shall include both fast-growing tall shrubs to provide quick screening, and tall evergreen trees similar to those existing on site, to provide an ultimate overall canopy height comparable to that existing atop the CECP site earth berms.

In addition, the project owner shall, in coordination with the City of Carlsbad, prepare and submit supplemental, modified landscape plans to provide for replacement tree planting as needed, to the greatest feasible extent, in the future event of loss of existing tree screening due to City of Carlsbad sewer and/or lift station projects. Such supplemental landscape plans shall also provide the plan components described in items a through d, below, and be subject to the same verification procedures.

The project owner shall submit to the CPM for review and approval and simultaneously to the City of Carlsbad for review and comment a landscaping plan whose proper implementation will satisfy these requirements. The plan shall include:

a. A detailed landscape, grading, and irrigation plan, at a reasonable scale. The plan shall demonstrate how the requirements stated above shall be met. The plan shall provide a detailed installation schedule demonstrating installation of as much of the landscaping as early in the construction process as is feasible in coordination with project construction;

b. A list (prepared by a qualified professional arborist familiar with local growing conditions) of proposed species, specifying installation sizes, growth rates, expected time to maturity, expected size at five years and at maturity, spacing, number, availability, and a discussion of the suitability of the plants for the site conditions and mitigation objectives, with the objective of providing the widest possible range of species from which to choose;

c. Maintenance procedures, including any needed irrigation and a plan for routine annual or semi-annual debris removal for the life of the project;

d. A procedure for monitoring for and replacement of unsuccessful plantings for the life of the project; and

e. One set of 11”x17” color photo-simulations of the proposed landscaping at five years and 20 years after planting, as viewed from adjoining segments of I-5.

The plan shall not be implemented until the project owner receives final approval from the CPM.

Verification: The landscaping plan shall be submitted to the CPM for review and approval and simultaneously to the City of Carlsbad for review and comment at least 90 days prior to installation.

If the CPM determines that the plan requires revision, the project owner shall provide to the CPM and simultaneously to the City of Carlsbad a revised plan for review and approval by the CPM.

The planting must occur during the first optimal planting season following site mobilization. The project owner shall simultaneously notify the CPM and the City of Carlsbad within seven days after completing installation of the landscaping, that the landscaping is ready for inspection.

The project owner shall report landscape maintenance activities, including replacement of dead or dying vegetation, for the previous year of operation in each Annual Compliance Report. The City of Carlsbad, with the concurrence of the CPM, shall have authority to require replacement planting of dead or dying vegetation through the life of the project

Landscape Screening of Construction Staging Sites D and E

VIS-3 The project owner shall provide landscaping that reduces the visibility of construction staging activities, equipment and materials at proposed Staging Sites 'D' and 'E' of the EPS site (near EPS fuel tanks 1 and 2) as seen from Carlsbad Boulevard and other public viewpoints, and that complies with local policies and ordinances. Trees and other vegetation consisting of informal groupings of fast-growing evergreens shall be strategically placed along the northern and western boundaries of the staging sites as appropriate, of sufficient density and height provide the greatest feasible screening within the shortest feasible time. Planting of the landscape screening shall be implemented as soon after start of project construction as feasible, in order to maximize growing time and screening of staging activities during the construction period.

If necessary to provide visual screening of staging activities, equipment and materials in the short term, the project owner shall provide temporary dark-colored, opaque fencing to provide visual screening until landscape screening described above has achieved sufficient maturity to provide visual screening.

The project owner shall submit to the CPM for review and approval, and simultaneously to the City of Carlsbad for review and comment a landscaping plan whose proper implementation will satisfy these requirements. The plan shall include:

a. A detailed landscape, grading, and irrigation plan, at a reasonable scale. The plan shall demonstrate how the requirements stated above shall be met. The plan shall provide a detailed installation schedule demonstrating installation of as much of the landscaping

as early in the construction process as is feasible in coordination with project construction.

b. A list (prepared by a qualified professional arborist familiar with local growing conditions) of proposed species, specifying installation sizes, growth rates, expected time to maturity, expected size at five years and at maturity, spacing, number, availability, and a discussion of the suitability of the plants for the site conditions and mitigation objectives, with the objective of providing the widest possible range of species from which to choose;

c. Maintenance procedures, including any needed irrigation and a plan for routine annual or semi-annual debris removal for the life of the project;

d. A procedure for monitoring for and replacement of unsuccessful plantings for the life of the project; and

e. One set of 11”x17” color photo-simulations of the proposed landscaping at five years and 20 years after planting, as viewed from Key Observation Point 1 (location shown on Visual Resources Figure 3 of the Staff Assessment).

The plan shall not be implemented until the project owner receives final approval from the CPM.

Verification: The landscaping plan shall be submitted to the CPM for review and approval and simultaneously to the City of Carlsbad for review and comment at least 90 days prior to installation.

If the CPM determines that the plan requires revision, the project owner shall provide to the CPM and simultaneously to the City of Carlsbad a revised plan for review and approval by the CPM.

The planting must occur during the first optimal planting season following site mobilization. The project owner shall simultaneously notify the CPM and the City of Carlsbad within seven days after completing installation of the landscaping, that the landscaping is ready for inspection.

The project owner shall report landscape maintenance activities, including replacement of dead or dying vegetation, for the previous year of operation in each Annual Compliance Report.

Temporary and Permanent Exterior Lighting

VIS-4 To the extent feasible, consistent with safety and security considerations, the project owner shall design and install all permanent exterior lighting such that: a) lamps and reflectors are not visible from beyond the project site, including any off-site security buffer areas; b) lighting does not cause excessive reflected glare; c) direct lighting does not illuminate the nighttime sky; d) illumination of the project and

its immediate vicinity is minimized; and e) the plan complies with local policies and ordinances.

The project owner shall submit to the CPM for review and approval and simultaneously to the City of Carlsbad for review and comment a lighting mitigation plan that includes the following:

a. Location and direction of light fixtures shall take the lighting mitigation requirements into account;

b. Lighting design shall consider setbacks of project features from the site boundary to aid in satisfying the lighting mitigation requirements;

c. Lighting shall incorporate fixture hoods/shielding, with light directed downward or toward the area to be illuminated;

d. Light fixtures that are visible from beyond the project boundary shall have cutoff angles that are sufficient to prevent lamps and reflectors from being visible beyond the project boundary, except where necessary for security;

e. All lighting shall be of minimum necessary brightness consistent with operational safety and security;

f. 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; and

g. In order to conform with Condition of Certification **BIO-7**, FAA-required exhaust stack lighting shall be white strobe-type lighting.

Verification: At least 90 days prior to ordering any permanent exterior lighting, the project owner shall contact the CPM to discuss the documentation required in the lighting mitigation plan.

At least 60 days prior to ordering any permanent exterior lighting, the project owner shall submit to the CPM for review and approval and simultaneously to the City of Carlsbad for review and comment a lighting mitigation plan.

If the CPM determines that the plan requires revision, the project owner shall provide to the CPM a revised plan for review and approval by the CPM.

The project owner shall not order any exterior lighting until receiving CPM approval of the lighting mitigation plan.

Prior to commercial operation, the project owner shall notify the CPM that the lighting has been completed and is ready for inspection. If, after inspection, the CPM notifies the project owner that modifications to the lighting are needed, within 30 days of receiving that notification the project owner shall implement the modifications and notify the CPM that the modifications have been completed and are ready for inspection.

Within 48 hours of receiving a lighting complaint, the project owner shall provide the CPM with a complaint resolution form report as specified in the **Compliance General Conditions** including a proposal to resolve the complaint, and a schedule for implementation. The project owner shall notify the CPM within 48 hours after completing implementation of the proposal. A copy of the complaint resolution form report shall be submitted to the CPM within 30 days.

Cumulative Impact Buffer Zone, Coordination with Caltrans, and Mitigation Plan

VIS-5 In order to address potential cumulative visual impacts resulting from I-5 widening, the Applicant shall maintain a permanent buffer zone, including the existing vegetative visual screening, on the eastern portion of the CECP site, between the existing NRG fence line and storage tank perimeter road. This measure shall be coordinated with Conditions of Certification **LAND-1** and **HAZ-8**. The existing landscape screening within the buffer zone shall be maintained and enhanced per Condition of Certification **VIS-2** after start of project construction. The buffer zone shall be kept available to maintain existing visual screening, accommodate future possible I-5 widening to the extent necessary, and to accommodate both future hazard protection features and visual screening.

In addition, the Applicant shall work with Caltrans to develop a Mitigation Plan for accommodating the widening project while maintaining visual screening of the CECP to acceptable levels. This plan could include complete or partial avoidance of the CECP site, complete or partial berm retention or replacement, complete or partial retention of existing landscape screening, and replacement screening as needed. The objective of the plan shall be to accommodate the I-5 widening within the designated buffer zone to the extent that encroachment is unavoidable, while providing needed hazard protection and acceptable levels of visual screening of the power plant.

If construction of a new landscaped berm west of the existing berm and proposed future Caltrans right-of-way is determined to be the most feasible measure to address potential cumulative impacts of the I-5 Widening Project, then design and construction of the new berm shall be implemented at the earliest feasible time, in order to maximize growing time for trees planted on the new berm. Landscaping of a replacement berm shall include installation of large-container (24-inch box or larger, as needed), fast-growing evergreen trees in sufficient density to provide comparable or better visual screening of the CECP site than currently exists, within the shortest feasible period. Trees shall be selected and located so as to achieve substantial screening within a period of five years from start of project operation.

The plan shall, at a minimum, include the following components:

a. a record of discussions, meetings and planning activities conducted with Caltrans;

b. the conclusions of these coordination activities;

c. a detailed Mitigation Plan providing plans, elevations, cross-sections or other details, including a detailed list of plants and container size, sufficient to fully convey how the objectives of effective visual screening of the CECP are to be achieved; and

d. a proposed construction schedule.

Verification: At the earliest feasible time, Applicant shall coordinate with Caltrans to discuss specific hazard and visual mitigation strategies. Following publication of the I-5 Widening DEIS, Applicant shall work with Caltrans to devise a specific Cumulative Impact Mitigation Plan for accommodating hazard protection and visual screening.

Following coordination and plan development with Caltrans, the project owner shall submit a draft of the Cumulative Impact Mitigation Plan to the City of Carlsbad for review and comment and to the CPM for review and approval. The project owner shall submit any required revisions within 30 days of notification by the CPM. The project owner shall not implement the plan until receiving approval from the CPM. After receiving approval, the project owner shall commence implementation of the Mitigation Plan at the earliest feasible opportunity, and shall commence implementation not later than 180 days after plan approval. The project owner shall notify the CPM within seven days after implementing the approved plan that the plan is ready for inspection. Planting must be completed and approved by the CPM prior to start of project operation.

IX. OVERRIDE FINDINGS

In the **Land Use** section (p. 8.1-1, et seq.) of this Decision, we find that the Carlsbad Energy Center Project fails to comply with several City of Carlsbad land use laws, ordinances, regulations and standards (LORS) and as a consequence also has significant direct unmitigated environmental impacts. Despite those findings, we approve the project for the reasons discussed below.

The Warren-Alquist Act specifies findings that must be made before approving a project that does not comply with state or local LORS:

> "The commission may not certify a facility contained in the application when it finds, pursuant to subdivision (d) of Section 25523, that the facility does not conform with any applicable state, local, or regional standards, ordinances, or laws, unless the commission determines that the facility is required for public convenience and necessity and that there are not more prudent and feasible means of achieving 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. The commission may not make a finding in conflict with applicable federal law or regulation. The basis for these findings shall be reduced to writing and submitted as part of the record pursuant to Section 25523."
>
> (Pub. Resources Code § 25525.)

The California Environmental Quality Act (CEQA) prohibits a public agency from approving a project it finds to have one or more significant effects on the environment unless both of the following occur:

> "(a) The public agency makes one or more of the following findings with respect to each significant effect:
>
> (1) Changes or alterations have been required in, or incorporated into, the project which mitigate or avoid the significant effects on the environment.
>
> (2) Those changes or alterations are within the responsibility and jurisdiction of another public agency and have been, or can and should be, adopted by that other agency.
>
> (3) Specific economic, legal, social, technological, or other considerations, including considerations for the provision of employment opportunities for highly trained workers, make

infeasible the mitigation measures or alternatives identified in the environmental impact report.

(b) With respect to significant effects which were subject to a finding under paragraph (3) of subdivision (a), the public agency finds that specific overriding economic, legal, social, technological, or other benefits of the project outweigh the significant effects on the environment."

(Pub. Resources Code § 21081.)

1. Project LORS Inconsistencies

In the **Land Use** section of this Decision, we discuss in greater detail our findings that CECP will not comply with local LORS in the following ways:

- The CECP is not consistent with the Carlsbad General Plan. It is not an allowed use under the Public Utilities land use designation that applies to the project site.
- The CECP is not consistent with the Encina Specific Plan to the extent that the Specific Plan restates the allowed uses from the General Plan and Zoning Ordinance and its few specific development standards.
- The CECP is not consistent with the Agua Hedionda Land Use Plan's 35 foot height limitation.
- With the imposition of Conditions **LAND-2** and **LAND-3** requiring the planning and permitting (by the CECP project owner) and financing (by the redeveloper) of the eventual removal and redevelopment of the existing EPS power plant, the CECP serves a substantial, though not an extraordinary public purpose, as required under, the South Carlsbad Coastal Redevelopment Area Plan.
- The CECP is not consistent with the PU zoning applied to the CECP site, which prohibits power plants of 50 MW or greater. The CECP would generate approximately 540 MW. This Commission approval serves as the equivalent of a Precise Development Plan approval.

2. Significant Environmental Impacts

The CEQA Guidelines define inconsistency with local land use regulations and standards as a significant environmental impact. Therefore, the LORS inconsistencies described above also constitute a significant land use impact.

The impact arises from the failure of the project to conform to the City's regulatory requirements. Our analysis of potential areas of incompatibility of this

project with the environment and its neighbors, such as significant traffic, public health, noise, visual and other impacts, has found no actual incompatibilities.

3. Project Benefits

The CECP, if constructed and operated as set forth in this Decision, will provide the following benefits:

- Providing 540 MW net (558 MW gross), of generation in a subarea of the San Diego load area for which the California Independent System Operator has identified a need. We discuss this "need" in greater depth below following this recitation of project benefits.
- Eliminating or greatly reducing use of once thru cooling (OTC) technology. State policy discourages the use of OTC for power plants as OTC, with its intake and discharge of ocean water, destroys significant amounts of marine biota. Existing OTC cooled plants are required to submit plans to eliminate or vastly reduce their OTC flows by 2017 for the Carlsbad area. The existing Encina plant has filed such a plan. (Ex. 394.) By facilitating the earliest possible retirement of the OTC system, approval of the CECP will further this important state policy.
- Reducing the effects of climate change from green house gas (GHG) emissions. Scientific studies quantify the negative impacts of global climate change to California's and the world's population, environment, food supplies, flora and fauna, coastal regions, and public health. In order to reduce the impact, California's Renewable Portfolio Standard specifies that retail sellers of electricity serve 20 percent of their load with renewable energy by 2014 and 33 percent of their load by the end of 2020. (Pub. Util. Code, § 399.11 et seq.) Producing electricity from renewable resources improves local air quality and public health, reduces global warming emissions[1], diversifies our energy supply, improves energy security, enhances economic development and creates jobs. (2009 CEC Integrated Energy Policy Report, page 231.)

  CECP, while not itself a source of renewable energy, facilitates the integration of renewable energy into the electricity system by providing 540 MW of backup generation to even out fluctuations in renewable generation due to factors such as changes in wind velocity and solar shading by passing clouds.

[1] The California Air Resources Board (CARB) estimates that the environmental benefits resulting from a 33 percent renewable energy goal in 2020 include GHG reductions from California's electricity sector of at least 21 million metric tons of carbon dioxide equivalent (MMTCO2E) in 2020, making renewable energy development one of California's largest GHG emission reduction strategies. (Final Supplement to the AB 32 Scoping Plan Functional Equivalent Document, p. 9.)

In addition to assisting the state in meeting its ambitious GHG reduction targets, CECP will operate more efficiently than older, less efficient generating units that might be called upon to fulfill that role, thereby reducing overall electricity system greenhouse gas emissions and fuel use. By supporting the integration of renewable energy generation, which uses little or no fossil fuels, and by increasing the efficiency of the natural gas fired generating fleet, CECP will reduce California's dependence on fossil fuels.

- Facilitating the redevelopment of the Encina power plant site. The existing Encina power plant contains five generating units. They are housed together in the 200-foot tall power block structure and share the 400-foot tall exhaust stack that the City of Carlsbad and its residents would like to see removed from the shoreline. Units 1 – 3 must be retired when CECP begins operation as their retirement creates many of CECP's air emission offset credits necessary for it to operate. Encina Units 4 and 5, however, may continue to be required for local reliability and capacity needs until additional generation beyond that provided by CECP is constructed. The power block building and exhaust stack cannot be removed until all five units are retired. While not enabling the immediate shut down of all five units and the tear down of Encina's structures, the additional local generation provided by CECP will hasten the arrival of that day. The replacement generators will be placed on the portion of the site that is furthest from the shoreline, approximately 30 feet below grade.

  Similarly, conditions **LAND-2** and **LAND-3**, which require that the project owner commence planning and preparation for the removal of the Encina structures and redevelopment of the site, will increase the likelihood that those activities can begin as soon as the shutdown of the final units is authorized and funding for the demolition activities is obtained.

- Reusing existing infrastructure (fuel lines, transmission lines, water sources). By placing the CECP on the existing Encina site, the existing natural gas fuel connections, transmission lines, and water source for cooling can be reused[2], avoiding disruption and potential impacts from the construction and operation of new infrastructure to serve a previously undeveloped site.

- Creating local and regional economic benefits. CECP will provide construction jobs for an average and peak workforce of 237 and 357, respectively, and approximately 14 jobs during operations. Most of those jobs will require highly trained workers. (Exs. 199G, p. 24; 200, pp. 4.8-5, 4.8-7.)

  Construction and operation of CECP will add to the economy a $53.9 million construction payroll over 25 months. Sales and use taxes during

[2] The water source, now used for OTC would feed a reverse osmosis process that produces purified water for a closed loop cooling system.

construction are estimated at $1.7 million and $348,750 annual during operations. An estimated $4.5 million would be spent annually for local operations and maintenance. Property taxes are estimated at $3,564,610–$4,583,070 per year. (Ex. 200, p. 4.8-10.)

- Additional indirect economic benefits, such as employment in local service industry jobs and induced employment, will result from these expenditures associated with the construction and operation of CECP.

4. Need for the project

The Energy Commission does not generally consider the level of need for a project. Rather, it reviews proposals submitted for environmental impacts and compliance with LORS. Other regulatory agencies and market forces then determine whether an approved project will go forward. Only if the market decides that it is likely that a project will be able to generate sufficient revenue from sales of its electricity to cover its costs of construction capital and operating expenses, (fuel, wages, etc.) will a project be built. As a practical matter in these times, that assurance comes in the form of a power purchase agreement (PPA). Without a PPA, a project is unlikely to be constructed.

In cases such as this where we must consider whether to override instances of LORS inconsistency or significant unmitigated CEQA impacts, need is one of the factors to be considered. It informs both the LORS override question of whether "the facility is required for public convenience and necessity and that there are not more prudent and feasible means of achieving public convenience and necessity" and the CEQA balancing of "specific overriding economic, legal, social, technological, or other benefits of the project" against its "significant effects on the environment." (Pub. Resources Code §§ 25525, 21081.)

The California Independent System Operator is responsible for the safe and reliable operation of the electricity system in most of California, including the San Diego area. California ISO, Commission Staff, and the State Water Board have been working to study the implications of implementing the State's OTC policy which requires power plants using ocean water for cooling to either cease using that water or redesign their cooling intake systems to reduce impacts upon marine species. The Encina project is the sole remaining power plant in San Diego which uses OTC and is subject to the requirements to shut down or redesign its cooling system. (12/12/11 RT 52 – 53.)

One function of the OTC study is to estimate the amount of generation necessary to replace the Encina plant if were to shut down to comply with the OTC policy.

This is called the Local Capacity Requirement (LCR) in the testimony. Because part of Encina's function is to facilitate the integration of renewable generation into the system, the estimate varies according to the amount and location of renewables that are brought on line. For Encina's closure, the requirement in 2021 is estimated as 231 to 950 MW. The estimates assume the operation of the three PPAs proposed for approval by SDG&E; those PPA projects will reduce the the LCR to the estimated levels but additional generation, such as CECP, will be required. (Ex. 199U; Ex. 230 [unpaginated] Jaske Testimony, A.6.; 12/12/11 RT 50, 118.)

In addition to the LCR requirements, California ISO and Staff identified a subarea reliability requirement for the Encina subarea. At least 20 MW of generation is necessary in the Encina subarea, perhaps as much as 50 MW when the Carlsbad Desalination Project comes on line. The need is currently met by the Encina plant. It can only be met by a generator that connects in the subarea, though the possibility of upgrading transmission lines to address the problem exists. (Ex. 230 [unpaginated] Jaske Testimony, A.6.)

5. Comparison of Project Alternatives

As discussed in the **Alternatives** section, the three San Diego Gas & Electric PPA candidates (Pio Pico, Quail Brush and Escondido) are not capable of meeting the local need identified by the California ISO for the simple reason that they are outside of the Encina subarea. They do help provide capacity in the larger region and, when combined with CECP may help advance the retirement of Encina Units 4 and 5 and thereby the complete shutdown of Encina. A combination of some or all of the PPA projects and CECP would best satisfy the system capacity and reliability needs for the San Diego region and Encina subarea.

It has been suggested that the need for generation in the Encina subarea might be satisfied instead by an upgrade one or more transmission lines to address the subarea's reliability needs. That, however, is an uncertain solution, is said to cost more than $1 million, adds no new generation to the San Diego region, and fails to take advantage of the existing infrastructure facilities at the Encina site. (2/12/11 RT 93 – 94.)

6. Site Characteristics

The CECP project will be constructed on a 23-acre portion of the 95-acre Encina

Power Station in the City of Carlsbad. The generating equipment will be partially recessed into existing berms which currently house oil storage tanks. The site is between a railroad corridor and the I-5 freeway.

7. Discussion

The conflict here is between the City's desire to change the historic use of the entire Encina site from power generation to tourist commercial and residential and the Applicant's desire to continue the power generation use on the inland portion of the site, leaving the ocean frontage, separated from the inland portion by a railroad corridor, for redevelopment for other uses. The City clearly opposes this project and recently amended its regulations to create the inconsistencies that are the subject of these overrides.

Aside from the inconsistency with the recently revised LORS, we find no significant, unmitigable environmental impacts that indicate an actual incompatibility between CECP and its surroundings. The effect of construction of CECP and the tear down and redevelopment of the remainder of the Encina site will be to substitute a modern, efficient, much less prominent power plant for the bulky less efficient plant of 1950's vintage. There will be a time of overlap, of course, as the old plant cannot be retired until the new plant, perhaps with augmentation from other plants, is able to take up its generation role in meeting the electricity demand in the San Diego region, including the subarea in which Carlsbad is located.. The market forces that will allow that result are beyond our control and not entirely predictable, especially as to the speed of the transition. All we can do is set in motion the forces that will encourage and facilitate the transition. Those include:

a. The requirement that the Applicant undertake the planning and permitting for the removal and redevelopment of Encina and request the earliest possible permission to retire units 4 & 5; and

b. In CECP, a substitute power source that will, either by itself or in combination with other new generation, allow units 4 and 5 to retire.

We are mindful that the Encina plant has existed since the 1950's. Though many desire that there be no power plant in the vicinity, the new plant will be a significant improvement over the old. We find great value in reusing existing power plant sites rather than creating new sites, with new impacts upon communities. Similarly, continuing to use existing fuel supply and transmission line infrastructure minimizes impacts and disruptions. Due to a lack of available recycled water, CECP remains dependent on the ocean for cooling water, though

not the once-through cooling method state policy disfavors, but desalination similar to the nearby project the City has approved and plans to purchase potable water from.

The City's desire to change the use of the site from industrial to commercial and residential would be more compelling if the Encina plant hadn't already been there for so many years. It is there, though, and likely predates many of its neighbors. Given the existing infrastructure and other industrial land uses in the vicinity which the City has recently approved (e.g., Poseidon desalination facility), we do not find it prudent to abandon the site. The Encina plant can be replaced with a more efficient generation facility, freeing the portion of the site closest to the shoreline for redevelopment to an alternative use.

The electricity system has a lot of moving parts--consumers (load), power plants (generation), and a complicated system of power lines and switches (transmission) connecting generation to load. The City and other opponents and even Commission staff characterize the present state of the evidence as not entirely certain as to the actual amount of generation that will ultimately be required. The opponents ask that we withhold a decision until there is more certainty about the need for CECP's generation. Staff, while acknowledging the uncertainly, recommends that we go forward and approve the project so that it is ready to go forward if and when the need for its services is confirmed.

We find it prudent to go forward at this time. The projections now available indicate that additional generation is necessary in the San Diego region and the Encina subarea. The nature of the system planning is that there will always be some degree of uncertainty, to which producers and consumers will adjust. Approving the project will set in motion the planning for the removal and redevelopment of Encina. It is more prudent to reuse this existing site, releasing a substantial portion for development for other purposes, than to cause similar capacity to be created elsewhere.

Based upon the evidence and arguments, we find that the CECP is required for public convenience and necessity and that there are no more prudent and feasible means of achieving such public convenience and necessity. We further find that overriding considerations warrant the approval of the project as mitigated through the Conditions of Certification we adopt herein.

FINDINGS OF FACT

Based on the evidence and the conclusions drawn above and in other sections of this Decision, we make the following findings and conclusions:

1. The proposed project will not comply with the City of Carlsbad's land use regulations and standards as follows:

   a. The CECP is not consistent with the Carlsbad General Plan. It is not an allowed use under the Public Utilities land use designation.

   b. The CECP is not consistent with the Encina Specific Plan to the extent that the Specific Plan restates the allowed uses from the General Plan and Zoning Ordinance and its few specific development standards. The Specific Plan's requirement that the plan be amended to account for new development, alike in function to a conditional use permit, is satisfied by this Commission's decision on the AFC.

   c. The CECP is not consistent with the Agua Hedionda Land Use Plan's 35 foot height limitation.

   d. With the imposition of Conditions **LAND-2** and **LAND-3** requiring the planning and permitting (by the CECP project owner) and financing (by the redeveloper) of the eventual removal and redevelopment of the existing EPS power plant, the CECP serves a substantial, though not an extraordinary public purpose, as required under, the South Carlsbad Coastal Redevelopment Area Plan. The Redevelopment Plan's intent is described as replacing the existing EPS power plant, located to the west of the rail corridor with a plant to the east of the corridor, further from the shoreline. The CECP furthers that intention and a Plan Goal to "[f]acilitate the redevelopment of the Encina Power Generating Facility to a physically smaller, more efficient power generating plant."

   e. The CECP is not consistent with the PU zoning applied to the CECP site, which prohibits power plants of 50 MW or greater. The CECP would generate approximately 540 MW.

2. The proposed project will have the following environmental impact which cannot be mitigated to insignificant levels:

   Land use impacts due to the inconsistencies with City of Carlsbad land use regulations and standards described above.

3. The project inconsistencies described above, with the exception of the failure to provide "extraordinary purpose" under the Redevelopment Area Plan, result from recent amendments to the City's plans and ordinances, enacted at least in part to prevent approval of the CECP. Until those amendments were enacted, the CECP was consistent with the City's plans and ordinances.

4. This Decision will result in mitigation of all direct project impacts for CECP, except to **Land Use** as noted above, and imposes all feasible mitigation measures to reduce all other significant direct impacts of the project below a level of significance.

5. The project will provide the following benefits:

   a. Provide 540 MW net (558 MW gross), of generation in a subarea of the San Diego load area for which the California Independent System Operator has identified a need.

   b. Further the goals of the State's Once Through Cooling Policies by facilitating the closure of the Encina Power Station.

   c. Reduce the effects of climate change by supporting the integration of renewable energy resources into the electricity system and reducing, on average, the greenhouse gas emissions of the generating system.

   d. Facilitate the redevelopment of the ocean front portion of the Encina power plant site and replace the existing generator with modern, efficient, less obtrusive generating units, placed below grade on the portion of the site that is furthest from the shoreline

   e. Reduce California's dependence on fossil fuels.

   f. Reuse existing infrastructure for fuel delivery and transmission.

   g. Boost the economy due to the purchase of major equipment, payroll, and supplies, and increased sales tax revenue. Additional indirect economic benefits, such as indirect employment, and induced employment, will result from these expenditures as well.

   h. Provide construction jobs for an average and peak workforce of 237 and 357, respectively, and approximately 140 jobs during operations. Most of those jobs will require highly trained workers.

6. The CECP is in the vicinity of existing development including Interstate 5, a railway corridor, and existing electricity infrastructure including natural gas supply and major transmission lines.

CONCLUSIONS OF LAW

1. The CECP facility is required for public convenience and necessity. There are not more prudent and feasible means of achieving public convenience and necessity

2. The CECP benefits outweigh the significant direct and cumulative impacts identified above.

3. It is appropriate to approve the CECP despite its remaining significant environmental impacts.

4. Therefore, this decision overrides the remaining LORS inconsistencies and significant unavoidable impacts that may result from this project, even with the implementation of the required mitigation measures described in this Decision.

Appendix A: *Laws, Ordinances, Regulations, and Standards*

Appendix B: *Exhibit List*

Appendix C: *Proof of Service List*

APPENDICES

AIR QUALITY

Applicable LORS	Description
Federal	
40 Code of Federal Regulations (CFR) 52	Nonattainment New Source Review (NSR) requires a permit and requires Best Available Control Technology (BACT) and Offsets. Permitting and enforcement are delegated to SDAPCD. Prevention of Significant Deterioration (PSD) requires major sources or major modifications to major sources to obtain permits for attainment pollutants. The CECP is a modification of an existing major source and thus the trigger levels are 40 tons per year of NOx or VOC or SOx, 15 tons per year of PM10, or 100 tons per year of CO.
40 CFR 60 Subpart KKKK	New Source Performance Standard for Stationary Combustion Turbines: 15 parts per million (ppm) NOx at 15 percent O_2 and fuel sulfur limit of 0.060 lb SOx per million Btu heat input. BACT would be more restrictive.
40 CFR 60 Subpart IIII	New Source Performance Standard for Stationary Compression Ignition Internal Combustion Engines. Establishes emission standards for compression ignition internal combustion engines, including emergency fire water pump engines.
40 CFR Part 70	Title V: Federal permit. Title V permit application is required within one year of start of operation. Permitting and enforcement are delegated to SDAPCD.
40 CFR Part 72	Acid Rain Program. Requires permit and obtaining sulfur oxides credits. Permitting and enforcement are delegated to SDAPCD.
State	
Health and Safety Code (HSC) Section 40910-40930	Permitting of source needs to be consistent with Air Resource Board (ARB) approved Clean Air Plans.
HSC Section 41700	Restricts emissions that would cause nuisance or injury.
California Code of Regulations (CCR) Section 93115	Airborne Toxics Control Measure for Stationary Compression Ignition Engines. Limits the types of fuels allowed, establishes maximum emission rates, establishes recordkeeping requirements.

Applicable LORS	Description
Local – San Diego Air Pollution Control District (SDAPCD) Rule and Regulations	
Regulation II – Permits	This regulation sets forth the regulatory framework of the application for and issuance of construction and operation permits for new, altered and existing equipment. Included in these requirements are the federally delegated requirements for New Source Review, Title V Permits, and the Acid Rain Program. Regulation II Rule 20.1 and 20.3 establishes the pre-construction review requirements for new, modified or relocated facilities, in conformance with the federal New Source Review regulation to ensure that these facilities do not interfere with progress in attainment of the national ambient air quality standards and that future economic growth in the San Diego County is not unnecessarily restricted. This regulation establishes Best Available Control Technology (BACT) and emission offset requirements.
Regulation IV – Prohibitions	This regulation sets forth the restrictions for visible emissions, odor nuisance, fugitive dust, various air emissions, and fuel contaminants. This regulation also specifies additional performance standards for stationary gas turbines and other internal combustion engines. However, for this project these provisions are less strict than the new source rule requirements of Regulation II.

Applicable LORS	Description
Regulation X – National Standards of Performance (NSPS) for New Stationary Sources	Regulation X incorporates provisions of 40 CFR Part 60, Chapter I, and is applicable to all new, modified, or reconstructed sources of air pollution. Sections of this federal regulation apply to stationary gas turbines (40 CFR Part 60 Subpart KKKK) and emergency fire pump engines (40 CFR Part 60 Subpart IIII) as described above in the Federal LORS description. Subpart KKKK establish limits of NO_2 and SO_2 emissions from the facility as well as monitoring and test method requirements. Subpart IIII establishes emission standards for compression ignition internal combustion engines. SDAPCD is delegated enforcement authority for these NSPS through their authority to issue and enforce the Title V permit for this existing Title V source.
Regulation XI – National Emission Standards for Hazardous Air Pollutants	Regulation XI adopts federal standards for hazardous air pollutants (40 CFR Section 63) by reference. No such standards presently exist that would apply to the project.
Regulation XII – Toxic Air Contaminants – New Source Review	Regulation XII, Rule 1200, establishes the pre-construction review requirements for new, modified or relocated sources of toxic air contaminants, including requirements for Toxics Best Available Control Technology (T-BACT) if the incremental project risk exceeds rule triggers.
Regulation XIV – Title V Operating Permits	Regulation XIV, Rule 1401 defines the permit application and issuance as well as compliance requirements associated with the Title V federal permit program. Any new source which qualifies as a Title V facility must obtain a Title V permit within twelve months of starting operation. Regulation II, Rule 1412 defines the requirements for the Acid Rain Program, including the requirement for a subject facility to obtain emission allowances for SOx emissions as well as monitoring SOx, NOx, and carbon dioxide (CO_2) emissions from the facility.

ALTERNATIVES

Applicable LORS	Description
State	
California Environmental Quality Act (CEQA)	The Energy Commission is required by agency regulations to examine the "feasibility of available site and facility alternatives to the applicant's proposal which substantially lessen the significant adverse impacts of the proposal on the environment." (Cal. Code Regs., tit. 20, § 1765). The "Guidelines for Implementation of the California Environmental Quality Act," Title 14, California Code of Regulations, section 15126.6(a), requires an evaluation of the comparative merits of "a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project." In addition, the analysis must address the "no project" alternative. (Cal. Code Regs., tit. 14, § 15126.6, subd. (e).) The analysis should identify and compare the impacts of the various alternatives, but analysis of alternatives need not be in as much detail as the analysis of the proposed project. The range of alternatives is governed by the "rule of reason," which requires consideration only of those alternatives necessary to permit informed decision making and public participation. CEQA states that an environmental document does not have to consider an alternative if its effect cannot be reasonably ascertained and if its implementation is remote and speculative. (Cal. Code Regs., tit. 14, § 15126.6, subd. (f)(3).) However, if the range of alternatives is defined too narrowly, the analysis may be inadequate. (City of Santee v. County of San Diego (4th District 1989) 214 Cal. App.3d 1438.)
WARREN-ALQUIST ACT	The Warren-Alquist Act provides clarification as to when it may not be reasonable to require an applicant to analyze alternative sites for a project. An alternative site analysis is not required as part of an AFC when a *natural gas-fired thermal power plant* is (1) proposed for development at an existing industrial site, and (2) "the project has a strong relationship to the existing industrial site and therefore it is reasonable not to analyze alternative sites for the project." [Pub, Res. Code § 25540.6, subd. (b).]

BIOLOGICAL RESOURCES

Applicable LORS	Description
Federal	
Clean Water Act of 1977 (Title 33, United States Code, sections 1251–1376, and Code of Federal Regulations, part 30, Section 330.5(a)(26))	Prohibits 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.
Endangered Species Act (Title 16, United States Code, sections 1531 et seq.; Title 50, Code of Federal Regulations, part 17.1 et seq.)	Designates and provides for the protection of threatened and endangered plant and animal species and their critical habitat. The administering agency is USFWS.
Migratory Bird Treaty Act (Title 16, United States Code, sections 703–711)	Prohibits the take or possession of any migratory nongame bird (or any part of such migratory nongame bird), including nests with viable eggs. The administering agency is USFWS.
State	
California Endangered Species Act (Fish and Game Code, sections 2050 et seq.)	Protects California's rare, threatened, and endangered species. The administering agency is CDFG.
California Code of Regulations (Title 14, sections 670.2 and 670.5)	Lists the plants and animals that are classified as rare, threatened, or endangered in California. The administering agency is CDFG.
Fully Protected Species (Fish and Game Code, sections 3511, 4700, 5050, and 5515)	Designates certain species as fully protected and prohibits take of such species. The administering agency is CDFG.
Native Plant Protection Act (Fish and Game Code, section 1900 et seq.)	Designates rare, threatened, and endangered plants in California and prohibits the taking of listed plants. The administering agency is CDFG.
Nest or Eggs (Fish and Game Code, section 3503)	Prohibits take, possession, or needless destruction of the nest or eggs of any bird. The administering agency is CDFG.
Birds of Prey (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. The administering agency is CDFG.

Applicable LORS	Description
Migratory Birds (Fish and Game Code, section 3513)	Prohibits take or possession of any migratory nongame bird as designated in the Migratory Bird Treaty Act or any part of such migratory nongame bird. The administering agency is CDFG.
Water Quality Control Plan, Ocean Waters of California	Acts as the State's water quality control plan for ocean waters. The plan is reviewed every three years per federal law (Section 303(c) (1) of the Clean Water Act] and State law [Section 13170.2(b) of the California Water Code. Proposed amendments include establishing a numeric water quality objective for salinity. The administering agency is the State Water Resources Control Board (SWRCB).
Porter-Cologne Water Quality Control Act California Water Code, Division 7, section 13142.5(b)	Requires coastal industrial installations that use seawater for cooling, heating, or industrial processing to implement best available site, design, technology, and mitigation measures to minimize intake and mortality of all forms of marine life. The administering agency is the SWRCB.
Local	
North County Multiple Habitat Conservation Plan (MHCP)	A long-term conservation program that addresses existing biological resources, proposed urban growth, habitat losses, and indirect, direct, and cumulative effects on sensitive species throughout the San Diego region. The CECP project lies within the planning area covered by the North County MHCP.
Habitat Management Plan (HMP) for Natural Communities in the city of Carlsbad	Comprises the Carlsbad subarea plan required by the North County MHCP in order for specific jurisdictions to obtain take authorization. Additionally, the HMP proposes a comprehensive, citywide program to preserve habitat diversity and protect sensitive biological resources while allowing for additional development consistent with the city's General Plan and Growth Management Plan. The CECP is located within the HCP's Local Facilities Management Zone (LFMZ) 1 and Core Area 4. Conservation goals within Zone 1 include conservation of the majority of sensitive habitats in or contiguous with biological core areas, including no net loss of wetlands and preservation of habitat adjacent to the Agua Hedionda Lagoon.
Local Coastal Program (LCP) & Agua Hedionda Land Use Plan (LUP)	The city of Carlsbad's LCP includes the city's land use plans, policies, and standards and an implementing ordinance for the city's Coastal Zone. The LCP meets the requirements and implements the provisions and policies of the California Coastal Act. The CECP is located within

Applicable LORS	Description
	planning area of the Agua Hedionda LUP, which has been incorporated into the LCP.
City of Carlsbad General Plan – Open Space and Conservation Element	Provides a planning framework for protection and enhancement of open space and natural resources. The proposed project is located within the city of Carlsbad.

CULTURAL RESOURCES

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

Applicable LORS	Description
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) under four 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 eligibility 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	
City of Carlsbad, General Plan 2006	The city of Carlsbad General Plan includes a policy to "Protect and conserve natural resources, fragile ecological areas, unique natural assets and historically significant features of the community."

FACILITY DESIGN

Applicable LORS	Description
Federal	
	Title 29 Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health standards
State	
	2007 California Building Standards Code (CBSC) (also known as Title 24, California Code of Regulations)
Local	
	City of Carlsbad regulations and ordinances
General	
	American National Standards Institute (ANSI) American Society of Mechanical Engineers (ASME) American Welding Society (AWS) American Society for Testing and Materials (ASTM)

GEOLOGY AND PALEONTOLOGY

Applicable LORS	Description
Federal	
	The proposed CECP is not located on federal land. There are no federal LORS for geologic hazards and resources for this site.
State	
California Building Code (2007)	The California Building Code (CBC 2007) includes a series of standards that are used in project investigation, design, and construction (including grading and erosion control). The CBC has adopted provisions in the International Building Code (IBC, 2006).
Alquist-Priolo Earthquake Fault Zoning Act, Public Resources Code (PRC), section 2621–2630	Mitigates against surface fault rupture of known active faults beneath occupied structures. Requires disclosure to potential buyers of existing real estate and a 50-foot setback for new occupied buildings. The proposed project site and linear alignments are not located within a designated Alquist-Priolo Earthquake Fault Zone.
The Seismic Hazards Mapping Act, PRC section 2690–2699	Areas are identified that are subject to the effects of strong ground shaking, such as liquefaction, landslides, tsunamis, and seiches.
PRC, Chapter 1.7, sections 5097.5 and 30244	Regulates removal of paleontological resources from state lands, defines unauthorized removal of fossil resources as a misdemeanor, and requires mitigation of disturbed sites.
California Coastal Act, sections 30244 and 30253	Section 30244 requires mitigation for adversely impacted archaeological and paleontological resources. Section 30253 requires that risks to life and property that may result from geologic, flood and fire hazards be minimized, and that the “stability and structural integrity” of the site and natural landforms in the surrounding area be maintained.
Society for Vertebrate Paleontology (SVP), 1995	The “Measures for Assessment and Mitigation of Adverse Impacts to Non-Renewable Paleontological Resources: Standard Procedures” is a set of procedures and standards for assessing and mitigating impacts to vertebrate paleontological resources. The measures were adopted in October 1995 by the SVP, a national organization of professional scientists.

Applicable LORS	Description
Local	
County of San Diego	The county requires compliance with the seismic design criteria in the CBC (2007) and mitigation of geologic hazards associated with earthquakes according to the Seismic Hazards Mapping Act. Identification of and setback from faults that present potential surface rupture hazards are required, as set forth in the Alquist-Priolo Earthquake Zoning Act. The “Conservation Element” of the General Plan and Guidelines for Determining Significance address monitoring and collection of discovered resources on county lands.
County of San Diego Grading Ordinance, section 87.430	May require paleontological monitor on grading sites located on county land. Discusses suspension of operations, notification of county officials, and recovery of paleontological resources, and resumption of operations.
County of San Diego Guidelines for Determining Significance for Paleontological Resources	Relies in part on guidelines set forth by the state by CEQA.
County of San Diego General Plan, Part X, Conservation Element	Provides for protection of natural resources on County lands, including Unique Geological Features which includes fossiliferous formations.
City of Carlsbad (COC) General Plan	Requires compliance with public safety aspects in the general plan with regard to geologic hazards during construction, specifically site grading and trenching. The Cultural Resources Guidelines used by the Planning Department also provide for evaluation of potential impacts to scientifically valuable resources.

GREENHOUSE GAS

Applicable LORS	Description
State	
California Global Warming Solutions Act of 2006, AB 32 (Stats. 2006; Chapter 488; Health and Safety Code sections 38500 et seq.)	This act requires the California Air Resources Board (ARB) to enact standards that will reduce GHG emission to 1990 levels. Electricity production facilities will be regulated.
California Code of Regulations, tit. 17, Subchapter 10, Article 2, sections 95100 et. seq.	These ARB regulations implementing mandatory GHG emissions reporting as part of the California Global Warming Solutions Act of 2006 (Stats. 2006; Chapter 488; Health and Safety Code sections 38500 et seq.)
Title 20, California Code of Regulations, section 2900 et seq.; CPUC Decision D0701039 in proceeding R0604009	This regulation prohibits utilities from entering into long-term contracts with any base load facility that does not meet a greenhouse gas emission standard of 0.5 metric tonnes carbon dioxide per megawatt-hour (0.5 mt CO_2/MWh) or 1,100 pounds carbon dioxide per megawatt-hour (1,100 lbs CO_2/MWh)

HAZARDOUS MATERIALS MANAGEMENT

Applicable LORS	Description
Federal	
The Superfund Amendments and Reauthorization Act of 1986 (42 USC §9601 et seq.)	Contains the Emergency Planning and Community Right To Know Act (also known as SARA Title III).
The Clean Air Act (CAA) of 1990 (42 USC 7401 et seq. as amended)	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.

Applicable LORS	Description
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 that requires facilities that use or store certain hazardous materials to submit information to the department 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 of Mechanical Engineers (ASME) Boiler and 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 (CalARP) requires the preparation of a Risk Management Plan (RMP) and off-site consequence analysis (OCA) and submittal to the local Certified Unified Program Agency 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.”

Applicable LORS	Description
California Safe Drinking Water and Toxic Enforcement Act (Proposition 65)	Prevents certain chemicals that cause cancer and reproductive toxicity from being discharged into sources of drinking water.
California Public Utilities Commission General Order 112-E and 58-A	Contains standards for gas piping construction and service.

LAND USE

Applicable LORS	Description
Federal	None
State	
California Coastal Commission Public Resources Code § 25500 et seq. California Coastal Act of 1976, Public Resources Code §3000, et seq. §25529 of the Warren-Alquist Act	The Coastal Act establishes a comprehensive approach to govern land use planning along the entire California coast. The Coastal Act also sets forth general policies (Public Resources Code §30200 et seq.) that govern the Coastal Commission's review of permit applications and local plans. In the case of energy facilities, Section 30600 of the Coastal Act states: (a) Except as provided in subdivision (e), and in addition to obtaining any other permit required by law from any local government or from any state, regional, or local agency, any person, as defined in Section 21066, wishing to perform or undertake any development in the coastal zone, other than a facility subject to Section 25500, shall obtain a coastal development permit. Section 25500 specifically identifies the Energy Commission's exclusive power to certify sites for power generation facilities 50 MW or greater and related facilities anywhere in the state.
Subdivision Map Act (Public Resources Code Section 66410-66499.58)	This section of the California Public Resources Code provides procedures and requirements regulating land division (subdivisions) and parcel legality. Regulation and control of the design and improvement of subdivisions have been vested in the legislative bodies of local agencies.
Local[1]	
Carlsbad General Plan	The City of Carlsbad General Plan establishes an overall multi-part vision for the entire city. Implementation of the city's overall vision is accomplished by the various General Plan elements and various policies, programs, and procedures. The city's last comprehensive amendment to its General Plan was in 1994. Currently, the city is in the beginning stages of the next comprehensive General Plan update.
Carlsbad Zoning Ordinance, Chapter 21.36	The Zoning Ordinance serves as the legal mechanism for implementation of the General Plan. Chapter 21.36 of the city's Zoning Ordinance addresses the Public Utilities ("P-U") Zone and was adopted in 1971. This section of the Zoning Ordinance implements the "Public Utility" land use

[1] COC 2008e.

Applicable LORS	Description
	designation of the city's General Plan. In 1975, the city amended the P-U Zone to require a precise development plan for public utility uses.
Encina Specific Plan (SP 144)	SP 144 includes 680 acres of land that encompass the entire Encina Power Station (EPS) site and the adjacent beach, all water areas of the Agua Hedionda Lagoon, and most properties on either side of Interstate 5 between Cannon Road and the lagoon. At the time of the specific plan's adoption in 1971, all of these lands were owned by San Diego Gas and Electric. Following its adoption, SP 144 was amended several times to permit the development and expansion of the EPS. In 2006, the Carlsbad City Council approved SP 144(H), which permitted the development of the City of Carlsbad Seawater Desalination Plant Project. SP 144(N) is the most current version of the specific plan guiding development at the EPS site.
Encina Power Station (EPS) Precise Development Plan (PDP 00-02)	The adopted precise development plan for the EPS follows Section 21.36.050 of Carlsbad's Zoning Ordinance. PDP 00-02 divides the EPS into planning areas with general development standards for each. It elaborates on parking requirements and provides basic aesthetic and landscaping requirements. The PDP also contains an inventory of existing uses and facilities at the power station and provides general review and approval criteria for any future improvements.
Carlsbad Local Coastal Program/Agua Hedionda Land Use Plan	In May 1982, the Carlsbad City Council adopted the Agua Hedionda Land Use Plan (AHLUP), which is the segment of the City's Local Coastal Program that applies to the Agua Hedionda Lagoon area and all of the SP 144 area. While the AHLULP is a certified segment of the City's Local Coastal Program (LCP), the city does not have the authority to issue coastal development permits within the AHLUP area. However, the city does review projects in the coastal zone for consistency with the requirements of the LCP, but requires project proponent/developers to apply to the California Coastal Commission to obtain a coastal development permit for their projects. The AHLUP contains eight different sections, which contain policies affecting the EPS site. This plan has not had any substantial revisions since its adoption 25 years ago.

Applicable LORS	Description
South Carlsbad Coastal Redevelopment Project Area Plan	In September 1997, the city began to identify options for an action to eliminate or reduce the environmental impacts of the existing EPS and to achieve more compatible land uses along its coastline. The city no longer considered the industrial land uses represented by the EPS to be the best used of coastal property. As a result, the city formed the South Carlsbad Coastal Redevelopment Area and the associated redevelopment plan. The underlying intent of the redevelopment plan was to convert the industrial land west of the railroad tracks to another land use that would provide a greater benefit to the community and would eliminate the possibility of an intensification of industrial uses at the EPS site. The plan's intent is to encourage the redevelopment of the EPS site and decommissioning of the existing power plant.
North County Multiple Habitat Conservation Plan (MHCP) and the Carlsbad Habitat Management Plan (HMP) for Natural Communities[2]	The North County Multiple Habitat Conservation Plan (MHCP) has been prepared for a portion of San Diego County including the cities of Carlsbad, Encinitas, Escondido, Oceanside, San Marcos, Solana Beach, and Vista. The MHCP is a long-term conservation program that addresses existing biological resources, proposed urban growth, habitat losses, and direct, indirect, and cumulative effects on sensitive species throughout the San Diego region. The MHCP is a multi-jurisdictional planning effort and each city is tasked with developing a sub-area plan in order to set policies and regulatory mechanisms to carry out the goals outlined in the regional MHCP. The Habitat Management Plan (HMP) for Natural Communities in the City of Carlsbad, which serves as the city's sub-area plan and received its final approval in November, 2004, proposes a comprehensive, citywide program to preserve the diversity of habitat and protect sensitive biological resources while allowing for additional development consistent with the City's General Plan and its Growth Management Plan. The HMP also identifies existing and proposed conservation areas.

[2] The **Biological Resources** section of this Decision addresses consistency with the MHCP and HMP.

NOISE

Applicable LORS	Description
Federal	
(OSHA): 29 U.S.C. § 651 et seq.	Protects workers from the effects of occupational noise exposure.
State	
(Cal/OSHA): Cal. Code Regs., tit. 8, §§ 5095–5099	Protects workers from the effects of occupational noise exposure.
Local	
City of Carlsbad General Plan Noise Element	Discourages new residential development where the existing ambient noise level exceeds 60 dBA CNEL.
City of Carlsbad Noise Guidelines Manual	Establishes Land Use Compatibility Guidelines for different land uses.
City of Carlsbad Municipal Code, Ch. 8.48, Noise	Permits disturbing construction noise only during the hours between 7:00 a.m. and sunset weekdays, 8:00 a.m. and sunset Saturdays, and not at all on Sundays and holidays. Allows the city manager to grant an exception permit.

POWER PLANT EFFICIENCY

No federal, state, local, or county laws, ordinances, regulations and standards (LORS) apply to the efficiency of this project.

POWER PLANT RELIABILITY

No federal, state, local, or county laws, ordinances, regulations and standards (LORS) pertain to the reliability of this project.

PUBLIC HEALTH

Applicable LORS	Description
Federal	
Clean Air Act section 112 (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 25249.5 et seq. (Proposition 65)	Establishes thresholds of exposure to carcinogenic substances above which Prop 65 exposure warnings are required.
California Health and Safety Code section 41700	This section states that "no person shall discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause injury or damage to business or property."
California Code of Regulations, Title 22, section 60306	Requires that whenever a cooling system uses recycled water in conjunction with an air conditioning facility and a cooling tower that creates a mist that could come into contact with employees or members of the public, a drift eliminator shall be used and chlorine, or other, biocides shall be used to treat the cooling system recirculating water to minimize the growth of Legionella and other micro-organisms.
California Public Resource Code Section 25523(a); Title 20 CCR Section 1752.5, 2300-2309; and Division 2 Chapter 5, Article 1, Appendix B, Part (1); California Clean Air Act, H&SC section 39650, et seq.	These regulations require a quantitative health risk assessment for new or modified sources, including power plants that emit one or more toxic air contaminants.
Local	
San Diego Air Pollution Control District (SDAPCD) Regulation XII, Toxic Air Contaminants, Rule 1200	This rule (New Source Review) specifies acceptable cancer and non-cancer risk thresholds for toxic air contaminants in order to limit public exposure.

SOCIOECONOMICS

California *Education Code*, section 17620, authorizes the governing board of any school district to levy a fee, charge, dedication, or other requirements for the purpose of funding the construction and reconstruction of school facilities.

SOIL AND WATER

Applicable LORS	Description
Federal	
Clean Water Act (33 USC, §§ 1251 et seq.)	Requires states to set standards to protect water quality, which include regulation of storm water discharges during construction and operation of power plant facilities.
Resource Conservation and Recovery Act of 1976 (40 CFR Part 260 et seq.)	Seeks to prevent surface and groundwater contamination, sets guidelines for determining hazardous wastes, and identifies proper methods for handling and disposing of those wastes.
State	
California Constitution, Article X, section 2	Requires that the water resources of the state be put to beneficial use to the fullest extent possible and states that the waste, unreasonable use, or unreasonable method of use is prohibited.
California Water Code, section 13170.2	Requires the State Water Resources Control Board (SWRCB) to formulate and adopt a water quality control plan for ocean waters of the state that shall be known as the California Ocean Plan.
California Water Code, section 13260	Requires filing with the appropriate Regional Water Quality Control Board (RWQCB) a report of waste discharge for any discharge that could affect the water quality of the state.
California Water Code, section 13523	Requires the San Diego Regional Water Quality Control Board (SDRWQRB) to prescribe water reuse requirements for water that is to be used as recycled water after consultation with the Department of Public Health (DPH).
California Water Code, section 13550	Requires the use of recycled water for industrial purposes subject to recycled water being available and upon other criteria such as the quality and quantity of the recycled water are suitable for the use, the cost is reasonable, the use is not detrimental to public health, and the use will not impact downstream users or biological resources.
Title 17, California Code of Regulations	Requires prevention measures for backflow and cross connection of potable and non-potable water lines.
Title 22, California Code of Regulations	Requires DPH to review and approve new or modified recycled water project to ensure they meet all recycled water criteria for the protection of public health.

Applicable LORS	Description
Title 23, California Code of Regulations	Requires the RWQCB to issue waste discharge requirements specifying conditions for protection of water quality.
Local	
City of Carlsbad Municipal Code Title 13, Chapters 13.04, 13.10 & 13.16	Requires new sources of domestic and industrial wastewater to obtain discharge permits from the City of Carlsbad.
City of Carlsbad Municipal Code, Title 14, Chapter 14.08	Establishes procedures and requirements for connection to the City of Carlsbad's potable water mains to water pipes on any real property.
City of Carlsbad Municipal Code Title 15, Chapter 15.12	Requires new development and redevelopment projects to abide by the City of Carlsbad's Storm Water Management and Discharge Control provisions consistent with SDRWQCB Order No. R9-2007-0001.
State Policies and Guidance	
Integrated Energy Policy Report (Pub. Resources Code, Div. 15, § 25300 et seq.)	In the *2003 Integrated Energy Policy Report*, consistent with State Water Resources Control Board Resolution 75-58 and the Warren-Alquist Act, the Energy Commission adopted a policy stating it will approve the use of fresh water for cooling purposes by power plants only where alternative water supply sources and alternative cooling technologies are shown to be "environmentally undesirable" or "economically unsound."

TRANSMISSION LINE SAFETY AND NUISANCE

Applicable LORS	Description
Aviation Safety	
Federal	
Title 14, Part 77 of the Code of Federal Regulations (CFR),"Objects Affecting the Navigable Air Space"	Describes the criteria used to determine the need for a Federal Aviation Administration (FAA) "Notice of Proposed Construction or Alteration" in cases of potential obstruction hazards.
FAA Advisory Circular No. 70/7460-1G, "Proposed Construction and/or Alteration of Objects that May Affect the Navigation Space"	Addresses the need to file the "Notice of Proposed Construction or Alteration" (Form 7640) with the FAA in cases of potential for an obstruction hazard.
FAA Advisory Circular 70/460-1G, "Obstruction Marking and Lighting"	Describes the FAA standards for marking and lighting objects that may pose a navigation hazard as established using the criteria in Title 14, Part 77 of the CFR.
Interference with Radio Frequency Communication	
Federal	
Title 47, CFR, section 15.2524, Federal Communications Commission (FCC)	Prohibits operation of devices that can interfere with radio-frequency communication.
State	
California Public Utilities Commission (CPUC) General Order 52 (GO-52)	Governs the construction and operation of power and communications lines to prevent or mitigate interference.
Audible Noise	
Local	
City of Carlsbad General Plan - Noise Element	Discourages new noise-sensitive land uses in areas above specified noise limits.
City of Carlsbad's Municipal Code Chapter 8.48.	Establishes limitations on the hours of construction within 1000 feet of residential buildings.
Hazardous and Nuisance Shocks	
State	
CPUC GO-95, "Rules for Overhead Electric Line Construction"	Governs clearance requirements to prevent hazardous shocks, grounding techniques to minimize nuisance shocks, and maintenance and inspection requirements.

Applicable LORS	Description
GO-128, CPUC, “Rules for Construction of Underground Electric Supply and Communication Systems”.	Establishes requirements and minimum standards to be used for underground installation of AC power and communication circuits.
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 the right-of-way and substations.
Electric and Magnetic Fields	
State	
CPUC GO-131-D, ”Rules for Planning and Construction of Electric Generation Line and Substation Facilities in California”	Specifies application and noticing requirements for new line construction including EMF reduction.
CPUC Decision 93-11-013	Specifies CPUC requirements for reducing power frequency electric and magnetic fields.
Industry Standards	
American National Standards Institute (ANSI/IEEE) 644-1944 Standard Procedures for Measurement of Power Frequency Electric and Magnetic Fields from AC Power Lines	Specifies standard procedures for measuring electric and magnetic fields from an operating electric line.
Fire Hazards	
State	
14 CCR sections 1250–1258, “Fire Prevention Standards for Electric Utilities”	Provides specific exemptions from electric pole and tower firebreak and conductor clearance standards and specifies when and where standards apply.

TRAFFIC AND TRANSPORTATION

Applicable LORS	Description
Federal	
Aeronautics and Space Title 14 Code of Federal Regulations (CFR), part 77 Objects Affecting Navigable Airspace (14 CFR 77)	Establishes standards for determining physical obstructions to navigable airspace; sets noticing and hearing requirements; and provides for aeronautical studies to determine the effect of physical obstructions on the safe and efficient use of airspace.
49 CFR, Subtitle B	Includes procedures and regulations pertaining to interstate and intrastate transport (including hazardous materials program procedures) and provides safety measures for motor carriers and motor vehicles that operate on public highways.
State	
California Vehicle Code (CVC), division 2, chapter 2.5; div. 6, chap. 7; div. 13, chap. 5; div. 14.1, chap. 1 & 2; div. 14.8; div. 15	Includes regulations pertaining to licensing, size, weight, and load of vehicles operated on highways; safe operation of vehicles; and the transportation of hazardous materials.
California Streets and Highway Code, division 1 & 2, chapter 3 & chapter 5.5	Includes regulations for the care and protection of state and county highways and provisions for the issuance of written permits.
Local	
San Diego County Department of Public Works	Requires a permit for moving any extra-legal load which is overweight and/or oversize.
City of Carlsbad Municipal Code	Requires a permit to transport oversize/overweight loads on city roads.

TRANSMISSION SYSTEM ENGINEERING

Applicable LORS	Description
Federal	
National Electric Safety Code, 1999	Provides electrical, mechanical, civil and structural requirements for overhead electric line construction and operation.
NERC/WECC Planning Standards	The Western Electricity Coordinating Council (WECC) Planning Standards are merged with the North American Electric Reliability Council (NERC) Planning Standards and provide the system performance standards used in assessing the reliability of the interconnected system. These standards require the continuity of service to loads as the first priority and preservation of interconnected operation as a secondary priority. Certain aspects of the NERC/WECC standards are either more stringent or more specific than the NERC standards alone. These standards provide planning for electric systems so as to withstand the more probable forced and maintenance outage system contingencies at projected customer demand and anticipated electricity transfer levels, while continuing to operate reliably within equipment and electric system thermal, voltage and stability limits. These standards include the reliability criteria for system adequacy and security, system modeling data requirements, system protection and control, and system restoration. Analysis of the WECC system is based to a large degree on Section I.A of the standards, “NERC and WECC Planning Standards with Table I and WECC Disturbance-Performance Table” and on Section I.D, “NERC and WECC Standards for Voltage Support and Reactive Power”. These standards require that the results of power flow and stability simulations verify defined performance levels. Performance levels are defined by specifying the allowable variations in thermal loading, voltage and frequency, and loss of load that may occur on systems during various disturbances. Performance levels range from no significant adverse effects inside and outside a system area during a minor disturbance (loss of load or a single transmission element out of service) to a level that seeks to prevent system cascading and the subsequent blackout of islanded areas during a major disturbance (such as loss of multiple 500 kV lines along a common right of way, and/or multiple generators). While controlled loss of generation or load or system separation is permitted in certain circumstances, their uncontrolled loss is not permitted (WECC 2006)

Applicable LORS	Description
NERC Reliability Standards for the Bulk Electric Systems of North America	Provide national policies, standards, principles and guidelines to assure the adequacy and security of the electric transmission system. The NERC Reliability Standards provide for system performance levels under normal and contingency conditions. With regard to power flow and stability simulations, while these Reliability Standards are similar to NERC/WECC Standards, certain aspects of the NERC/WECC Standards are either more stringent or more specific than the NERC Standards for Transmission System Contingency Performance. The NERC Reliability Standards apply not only to interconnected system operation but also to individual service areas (NERC 2006).
State	
California Public Utilities Commission (CPUC) General Order 95 (GO-95)	"Rules for Overhead Electric Line Construction," formulates uniform requirements for construction of overhead lines. Compliance with this order ensures adequate service and safety to persons engaged in the construction, maintenance and operation or use of overhead electric lines and to the public in general.
California Public Utilities Commission (CPUC) General Order 128 (GO-128)	"Rules for Construction of Underground Electric Supply and Communications Systems," formulates uniform requirements and minimum standards to be used for underground supply systems to ensure adequate service and safety to persons engaged in the construction, maintenance and operation or use of underground electric lines and to the public in general.
California ISO Planning Standards	Provide standards, and guidelines to assure the adequacy, security and reliability in the planning of the California ISO transmission grid facilities. The CAISO Grid Planning Standards incorporate the NERC/WECC and NERC Reliability Planning Standards. With regard to power flow and stability simulations, these Planning Standards are similar to the NERC/WECC or NERC Reliability Planning Standards for Transmission System Contingency Performance. However, the California ISO Standards also provide some additional requirements that are not found in the WECC/NERC or NERC Standards. The CAISO Standards apply to all participating transmission owners interconnecting to the CAISO controlled grid. They also apply when there are any impacts to the California ISO grid due to facilities interconnecting to adjacent controlled grids not operated by the CAISO (California ISO 2002a).

Applicable LORS	Description
California ISO/FERC Electric Tariff	Provides guidelines for construction of all transmission additions/upgrades (projects) within the California ISO controlled grid. The California ISO determines the “Need” for the proposed project where it will promote economic efficiency or maintain system reliability. The California ISO also determines the Cost Responsibility of the proposed project and provides an Operational Review of all facilities that are to be connected to the California ISO grid (California ISO 2007a).

VISUAL RESOURCES

Applicable LORS	Description
Federal	
	The project does not involve federal lands or any federal laws related to visual resources.
State	
California Coastal Act of 1976, Section 30251 – Scenic and Visual Qualities	The scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance. Permitted development shall be sited and designed to protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural land forms, to be visually compatible with the character of surrounding areas, and, where feasible, to restore and enhance visual quality in visually degraded areas. New development in highly scenic areas such as those designated in the California Coastline Preservation and Recreation Plan prepared by the state Department of Parks and Recreation and by local government shall be subordinate to the character of its setting.
California Streets and Highways Code, Sections 260 through 263 – Scenic Highways	Ensures the protection of highway corridors that reflect the State's natural scenic beauty.
Local	
City of Carlsbad General Plan, 1994 as amended	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.
<u>Land Use Element</u> - Implementation Policy C.7	Provides specific site development criteria, includes size, height and location of buildings and the character amount of landscaping and screening, greenbelts and pathways. Requires screening of all storage, assembly, and equipment areas completely from view.
<u>Circulation/Scenic Highways Element</u> - Implementation Policy C.2	Provides the Carlsbad Scenic Corridor Guidelines, designated corridors and streets.

Applicable LORS	Description
City of Carlsbad Specific Plan 144, adopted 2006	Provides development standards including landscaping and exterior lighting for the Agua Hedionda Lagoon and the Encina Power Station property.
Agua Hedionda Local Coastal Program - Land Use Plan, adopted 1982.	Identifies land uses and standards by which development will be evaluated within the Coastal Zone. Identifies uses and provides standards adopted by the city of Carlsbad and the California Coastal Act 1976. Although the Implementation Plan was adopted by the City in 1982, authority to issue coastal permits under the plan remains with the State Commission.
Encina Power Plant Precise Development Plan, adopted 2006	Provides specific development standards for the Encina Power Station property including architecture, building materials, landscaping and grading.

WASTE MANAGEMENT

Applicable LORS	Description
Federal	
Title 42, United States Code, §§ 6901, et seq. Solid Waste Disposal Act of 1965 (as amended and revised by the Resource Conservation and Recovery Act of 1976, et al.)	The Solid Waste Disposal Act, as amended and revised by the Resource Conservation and Recovery Act (RCRA) et al., establishes requirements for the management of solid wastes (including hazardous wastes), landfills, underground storage tanks, and certain medical wastes. The statute also addresses program administration, implementation, and delegation to states, enforcement provisions, and responsibilities, as well as research, training, and grant funding provisions. RCRA Subtitle C establishes provisions for the generation, storage, treatment, and disposal of hazardous waste, including requirements addressing: • generator record keeping practices that identify quantities of hazardous wastes generated and their disposition; • waste labeling practices and use of appropriate containers; • use of a manifest when transporting wastes; • submission of periodic reports to the United States Environmental Protection Agency (U.S. EPA) or other authorized agency; and • corrective action to remediate releases of hazardous waste and contamination associated with RCRA-regulated facilities. RCRA Subtitle D establishes provisions for the design and operation of solid waste landfills. RCRA is administered at the federal level by U.S. EPA and its 10 regional offices. The Pacific Southwest regional office (Region 9) implements U.S. EPA programs in California, Nevada, Arizona, and Hawaii.
Title 42, United States Code, §§ 9601, et seq. Comprehensive Environmental Response, Compensation and Liability Act	The Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), also known as Superfund, establishes authority and funding mechanisms for cleanup of uncontrolled or abandoned hazardous waste sites, as well as cleanup of accidents, spills, or emergency releases of pollutants and contaminants into the environment. Among other things, the statute addresses: • reporting requirements for releases of hazardous substances; • requirements for remedial action at closed or abandoned hazardous waste sites and brownfields;

	• liability of persons responsible for releases of hazardous substances or waste; and • requirements for property owners/potential buyers to conduct "all appropriate inquiries" into previous ownership and uses of the property to 1) determine if hazardous substances have been or may have been released at the site and 2) establish that the owner/buyer did not cause or contribute to the release. A Phase I Environmental Site Assessment is commonly used to satisfy CERCLA "all appropriate inquiries" requirements.
Title 40, Code of Federal Regulations (CFR), Subchapter I – Solid Wastes	These regulations were established by U.S. EPA to implement the provisions of the Solid Waste Disposal Act and RCRA (described above). Among other things, the regulations establish the criteria for classification of solid waste disposal facilities (landfills), hazardous waste characteristic criteria and regulatory thresholds, hazardous waste generator requirements, and requirements for management of used oil and universal wastes. • Part 246 addresses source separation for materials recovery guidelines. • Part 257 addresses the criteria for classification of solid waste disposal facilities and practices. • Part 258 addresses the criteria for municipal solid waste landfills. • Parts 260 through 279 address management of hazardous wastes, used oil, and universal wastes (i.e., batteries, mercury-containing equipment, and lamps). U.S. EPA implements the regulations at the federal level. However, California is an authorized state so the regulations are implemented by state agencies and authorized local agencies in lieu of U.S. EPA.
Title 49, CFR, Parts 172 and 173 Hazardous Materials Regulations	U.S. Department of Transportation established standards for transport of hazardous materials and hazardous wastes. The standards include requirements for labeling, packaging, and shipping of hazardous materials and hazardous wastes, as well as training requirements for personnel completing shipping papers and manifests. Section 172.205 specifically addresses use and preparation of hazardous waste manifests in accordance with Title 40, CFR, section 262.20.
State	
California Health and Safety Code, Chapter 6.5, §§ 25100, et seq. Hazardous Waste	This California law creates the framework under which hazardous wastes must be managed in California. The law provides for the development of a state hazardous waste program that administers and implements the provisions of the federal RCRA program. It also provides for the designation of California-only hazardous wastes and development of standards (regulations) that are equal

Control Act of 1972, as amended	to or, in some cases, more stringent than federal requirements. The California Environmental Protection Agency (Cal/EPA), Department of Toxic Substances Control (DTSC) administers and implements the provisions of the law at the state level. Certified Unified Program Agencies (CUPAs) implement some elements of the law at the local level.
Title 22, California Code of Regulations (CCR), Division 4.5 Environmental Health Standards for the Management of Hazardous Waste	These regulations establish requirements for the management and disposal of hazardous waste in accordance with the provisions of the California Hazardous Waste Control Act and federal RCRA. As with the federal requirements, waste generators must determine if their wastes are hazardous according to specified characteristics or lists of wastes. Hazardous waste generators must obtain identification numbers, prepare manifests before transporting the waste off site, and use only permitted treatment, storage, and disposal facilities. Generator standards also include requirements for record keeping, reporting, packaging, and labeling. Additionally, while not a federal requirement, California requires that hazardous waste be transported by registered hazardous waste transporters. The standards addressed by Title 22, CFR include: • Identification and Listing of Hazardous Waste (Chapter 11, §§ 66261.1, et seq.) • Standards Applicable to Generators of Hazardous Waste (Chapter 12, §§ 66262.10, et seq.) • Standards Applicable to Transporters of Hazardous Waste (Chapter 13, §§ 66263.10, et seq.) • Standards for Universal Waste Management (Chapter 23, §§ 66273.1, et seq.) • Standards for the Management of Used Oil (Chapter 29, §§ 66279.1, et seq.) • Requirements for Units and Facilities Deemed to Have a Permit by Rule (Chapter 45, §§ 67450.1, et seq.) The Title 22 regulations are established and enforced at the state level by DTSC. Some generator standards are also enforced at the local level by CUPAs.
California Health and Safety Code, Chapter 6.11 §§ 25404–25404.9 Unified Hazardous Waste and	The Unified Program consolidates, coordinates, and makes consistent the administrative requirements, permits, inspections, and enforcement activities of the six environmental and emergency response programs listed below. • Aboveground Storage Tank Program • Business Plan Program • California Accidental Release Prevention (CalARP) Program

Hazardous Materials Management Regulatory Program (Unified Program)	• Hazardous Material Management Plan / Hazardous Material Inventory Statement Program • Hazardous Waste Generator / Tiered Permitting Program • Underground Storage Tank Program The state agencies responsible for these programs set the standards for their programs while local governments implement the standards. The local agencies implementing the Unified Program are known as Certified Unified Program Agencies (CUPAs). San Diego County Department of Environmental Health is the area CUPA. Note: The Waste Management analysis only considers application of the Hazardous Waste Generator/Tiered Permitting element of the Unified Program. Other elements of the Unified Program may be addressed in the **Hazardous Materials** and/or **Worker Health and Safety** analysis sections.
Title 27, CCR, Division 1, Subdivision 4, Chapter 1, §§ 15100, et seq. Unified Hazardous Waste and Hazardous Materials Management Regulatory Program	While these regulations primarily address certification and implementation of the program by the local CUPAs, the regulations do contain specific reporting requirements for businesses. • Article 9 – Unified Program Standardized Forms and Formats (§§ 15400–15410). • Article 10 – Business Reporting to CUPAs (§§ 15600–15620).
Public Resources Code, Division 30, §§ 40000, et seq. California Integrated Waste Management Act of 1989.	The California Integrated Waste Management Act of 1989 (as amended) establishes mandates and standards for management of solid waste. Among other things, the law includes provisions addressing solid waste source reduction and recycling, standards for design and construction of municipal landfills, and programs for county waste management plans and local implementation of solid waste requirements.
Title 14, CCR, Division 7, § 17200, et seq. California Integrated Waste Management Board	These regulations further implement the provisions of the California Integrated Waste Management Act and set forth minimum standards for solid waste handling and disposal. The regulations include standards for solid waste management, as well as enforcement and program administration provisions. • Chapter 3 – Minimum Standards for Solid Waste Handling and Disposal. • Chapter 3.5 – Standards for Handling and Disposal of

	Asbestos Containing Waste. • Chapter 7 – Special Waste Standards. • Chapter 8 – Used Oil Recycling Program. • Chapter 8.2 – Electronic Waste Recovery and Recycling.
California Health and Safety Code, Division 20, Chapter 6.5, Article 11.9, §25244.12, et seq. Hazardous Waste Source Reduction and Management Review Act of 1989	This law was enacted to expand the state's hazardous waste source reduction activities. Among other things, it establishes hazardous waste source reduction review, planning, and reporting requirements for businesses that routinely generate more than 12,000 kilograms (~ 26,400 pounds) of hazardous waste in a designated reporting year. The review and planning elements are required to be done on a 4-year cycle, with a summary progress report due to DTSC every 4th year.
Title 22, CCR, § 67100.1 et seq. Hazardous Waste Source Reduction and Management Review.	These regulations further clarify and implement the provisions of the Hazardous Waste Source Reduction and Management Review Act of 1989 (noted above). The regulations establish the specific review elements and reporting requirements to be completed by generators subject to the act.
California Health and Safety Code Section 101480 101490	These regulations authorize the San Diego County Department of Environmental Health to enter into voluntary agreements for the oversight of remedial action at sites contaminated by wastes.
Title 22, CCR, Chapter 32, §67383.1 – 67383.5	This chapter establishes minimum standards for the management of all underground and aboveground tank systems that held hazardous waste or hazardous materials, and are to be disposed, reclaimed or closed in place.
Title 8, CCR §1529 and §5208	These regulations require the proper removal of asbestos containing materials in all construction work and are enforced by California Occupational Safety and Health Administration (Cal-OSHA).
Title 27, California CCR , division 2, Subdivision 1, Chapter 3, Subchapter 4, Article	This regulation establishes that alternative daily cover (ADC) and other waste materials beneficially used at landfills constitutes diversion through recycling, and requires the California Integrated Waste Management Board to adopt regulations governing ADC.

Applicable LORS	Description
Local	
City of Carlsbad General Plan (2004)- Public Safety Section	Provides guidance for siting and management of facilities that store, collect, treat, dispose or transfer hazardous waste and hazardous materials.
San Diego County Integrated Waste Management Plan	The plan provides guidance for local management of solid waste and household hazardous waste (incorporates the county's Source Reduction and Recycling Elements, which detail means of reducing commercial and industrial sources of solid waste).
San Diego County Department of Environmental Health, Hazardous Material Division various programs	Hazardous Material Division is the Certified Unified Program Agency (CUPA) for San Diego County that regulates and conducts inspections of businesses that handle hazardous materials, hazardous wastes, and/or have underground storage tanks. Hazardous Material Division programs include assistance with oversight on property re-development (i.e., brownfields) and voluntary or private oversight cleanup assistance.
San Diego County Code Section 68.905	Incorporates by reference the California Health & Safety Code Division 20, Chapter 6.11 which requires the facility to operate as a unified program facility.
San Diego Air Pollution Control District Regulation XI, Subpart M – Rule 361.145	This rule requires the owner or operator of a demolition or renovation to submit an Asbestos Demolition or Renovation Operational Plan (Notice of Intention) at least 10 working days before any asbestos stripping or removal work begins (such as site preparation that would break up, dislodge or similarly disturb asbestos containing materials. A Notice of Intent ()? is required for all demolition regardless of whether there is the presence of asbestos containing material.

WORKER SAFETY AND FIRE PROTECTION

Applicable LORS	Description
Federal	
Title 29 U.S. Code (USC) section 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).
Title 29 Code of Federal Regulation (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 sections 1910.1 to 1910.1500.
State	
Title 8 California Code of Regulations (Cal Code Regs.) all applicable sections (Cal/OSHA regulations)	These sections require that all employers follow these regulations as they pertain to the work involved. This includes regulations pertaining to safety matters during construction, commissioning, and operations of power plants, as well as safety around electrical components, fire safety, and hazardous materials use, storage, and handling.
24 Cal Code Regs. section 3, et seq.	This section incorporates the current addition of the Uniform Building Code.
Health and Safety Code section 25500, et seq.	This section presents Risk Management Plan requirements for threshold quantity of listed acutely hazardous materials at a facility.
Health and Safety Code sections 25500 to 25541	These sections require a Hazardous Material Business Plan detailing emergency response plans for hazardous materials emergency at a facility.
Local (or locally enforced)	
CaliforniaFire Code 2007	The fire code contains general provisions for fire safety, including requirements for proper storage and handling of hazardous materials and listing of the information needed by emergency response personnel. Enforced by the Carlsbad Fire Department.

Applicable LORS	Description
National Fire Protection Association standards	These standards provide specifications and requirements for fire safety, including the design, installation, and maintenance of fire protection equipment. Enforced by the Carlsbad Fire Department.

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 ***CARLSBAD ENERGY CENTER PROJECT***	**DOCKET NO. 07-AFC-6**

EXHIBIT LIST

APPLICANT SPONSORED EXHIBITS

EXHIBIT 1 Correspondence regarding Preparation of Applicant for Certification, dated 7/5/2006. Received into evidence on 2/1/2010.

EXHIBIT 2 Air Quality Modeling Protocol, dated 7/10/2007. Received into evidence on 2/1/2010.

EXHIBIT 3 Revised Air Quality Modeling Protocol, dated 8/9/2007. Received into evidence on 2/1/2010.

EXHIBIT 4 Application for Certification for the Carlsbad Energy Center Project, Volumes I, II and related Appendices. dated 9/11/2007. Received into evidence on 2/1/2010.

EXHIBIT 5 AFC - Air Quality Modeling Files, dated 9/11/2007. Received into evidence on 2/1/2010.

EXHIBIT 6 Application for Authority to Construct, dated 9/17/2007. Received into evidence on 2/1/2010.

EXHIBIT 7 Application to City of Carlsbad for Amendment of the Precise Development/Specific Plans, dated 9/19/2007. Received into evidence on 2/1/2010.

EXHIBIT 8 Carlsbad Energy Center Project Courtesy Copies Data Adequacy Checklists, dated 9/25/2007. Received into evidence on 2/1/2010.

EXHIBIT 9 Certification of Representation for Facility ORIS Code 0302, dated 10/3/2007. Sponsored by Applicant and received into evidence on 2/1/2010.

EXHIBIT 10 Application for Designation of Confidential Records for Carlsbad, Cover Letter Only, dated 10/11/2007. Received into evidence on 2/1/2010

EXHIBIT 11 Application for Designation of Confidential Records (Cultural Resources), dated 10/23/2007. Received into evidence on 2/1/2010

EXHIBIT 12 Data Adequacy Supplement A, dated 10/24/2007. Received into evidence on 2/1/2010

EXHIBIT 13 Attachment WR-1A, Waste Discharge Requirements, dated 10/24/2007. Received into evidence on 2/1/2010

EXHIBIT 14 Response to Staff's Issues Identification Report, dated 12/13/2007. Received into evidence on 2/1/2010

EXHIBIT 15 Applicant's Responses to SDAPCD's Requests for Supplemental Information (#1-25), dated 12/18/2007. Received into evidence on 2/1/2010

EXHIBIT 16 Applicant's PowerPoint Presentation from Site Visit & Informational Hearing, dated 12/19/2007. Received into evidence on 2/1/2010

EXHIBIT 17 Phase II Site Assessment (Attachment DR73-1), dated 12/20/2007. Received into evidence on 2/1/2010

EXHIBIT 18 Electronic Modeling Files, dated 12/20/2007. Received into evidence on 2/1/2010

EXHIBIT 19 Applicant's Responses to Staff's Data Requests, Set 1A (#1-73), dated 12/20/2007. Received into evidence on 2/1/2010

EXHIBIT 20 Interconnection System Impact Study (Attachment DR53-1 to Data Responses), dated 12/20/2007. Received into evidence on 2/1/2010

EXHIBIT 21 Report on Soil Remediation Encina Power Plant (Attachment DR73-2 to Data Responses), dated 12/20/2007. Received into evidence on 2/1/2010

EXHIBIT 22 Supplemental Air Modeling Information Submitted to the San Diego County Air Pollution Control District (Application Nos. 985745-985748), dated 12/26/2007. Received into evidence on 2/1/2010

EXHIBIT 23 Applicant's Response to Questions from Wesley Marx, Resident of Carlsbad, dated 2/1/2008. Received into evidence on 2/1/2010

EXHIBIT 24 Responses to City of Carlsbad's Data Requests, Set 1A (#49-61), dated 2/6/2008. Received into evidence on 2/1/2010

EXHIBIT 25 Responses to Staff's Data Requests, Set 2 (76-112), dated 3/18/2008. Received into evidence on 2/1/2010

EXHIBIT 26 Offsite Alternatives Analysis, dated 4/17/2008. Received into evidence on 2/1/2010

EXHIBIT 27 Emissions Baseline Calculations for the Existing Boiler Unites Submitted to SDAPCD, dated 4/18/2008. Received into evidence on 2/1/2010

EXHIBIT 28 Site Preparation & Construction Stormwater Management & Pollution Prevention Plan, dated 4/29/2008. Received into evidence on 2/1/2010

EXHIBIT 29 Applicant's Response to City of Carlsbad's April 25, 2008 Memorandum, dated 5/7/2008. Received into evidence on 2/1/2010

EXHIBIT 30 Letters of Support, dated 5/29/2008. Received into evidence on 2/1/2010

EXHIBIT 31 Project Consistency with City of Carlsbad Land Use Ordinances, dated 6/3/2008. Received into evidence on 2/1/2010

EXHIBIT 32 Applicant's Response s to Staff's Data Requests, Set 2A (#113-124), dated 6/5/2008. Received into evidence on 2/1/2010

EXHIBIT 33 Authority to Construct - Monitoring Plan for Compliance Testing and CEMS Accuracy Audit, dated 6/16/2008. Received into evidence on 2/1/2010

EXHIBIT 34 Non-Cancer Acute Health Hazard HRA Revised Modeling, dated 7/1/2008. Received into evidence on 2/1/2010

EXHIBIT 35 Project Enhancement and Refinement Document, dated 7/25/08. Received into evidence on 2/1/2010

EXHIBIT 36 Correspondence to SDAPCD re NOx Emissions, dated 7/30/08. Received into evidence on 2/1/2010

EXHIBIT 37 Letters of support, dated 8/12/2008. Received into evidence on 2/1/2010

EXHIBIT 38 County of San Diego's Approval of Site Work Plan, dated 8/18/2008. Received into evidence on 2/1/2010

EXHIBIT 39 NPDES Permit Application, dated 8/15/2008. Received into evidence on 2/1/2010

EXHIBIT 40 Letters of support, dated 8/21/2008; Received into evidence on 2/1/2010

EXHIBIT 41 Letter re lack of issues related to Coastal Commission non-participation, dated 8/25/2008. Received into evidence on 2/1/2010

EXHIBIT 42 Revised Emissions Baseline Calculation for Existing Boiler Units 1, 2, and 3 at Encina Power Station, dated 8/27/2008. Received into evidence on 2/1/2010

EXHIBIT 43 Letters of Support from Ocean Hills' Deputy Mayor Rocky Chavez,dated 9/3/2008. Received into evidence on 2/1/2010

EXHIBIT 44 CECP Rain Permit Application & Statewide Compliance Certification, dated 9/4/2008. Received into evidence on 2/1/2010

EXHIBIT 45 Applicant's Responses to Staff's Data Requests, Set 3, dated 9/12/08. Received into evidence on 2/1/2010

EXHIBIT 46 Letters of support, dated 9/25/2008. Received into evidence on 2/1/2010

EXHIBIT 47 Additional Acute Health Hazard Modeling Analysis, dated 9/25/2008. Received into evidence on 2/1/2010

EXHIBIT 48 Applicant's Responses to City's Data Requests, Set 3B, dated 10/14/2008. Received into evidence on 2/1/2010

EXHIBIT 49 Applicant's Responses to Staff's Data Requests, Set 3A #126-131, dated 10/21/2008. Received into evidence on 2/1/2010

EXHIBIT 50 Applicant's objections to Center for Biological Diversity's Data Requests, dated 10/23/2008. Received into evidence on 2/1/2010

EXHIBIT 51 Request for Easements for Vista/Carlsbad Interceptor Sewer Replacement Project, dated 10/30/2009. Received into evidence on 2/1/2010

EXHIBIT 52 Applicant's November 2008 Status Report, dated 11/30/2008. Received into evidence on 2/1/2010

EXHIBIT 53 SDRWQCB correspondence re CECP NPDES Permit Application, dated 11/4/2008. Received into evidence on 2/1/2010

EXHIBIT 54 Applicant's Fire Risk and Emergency Response Assessment Report, dated 11/7/2008. Received into evidence on 2/1/2010

EXHIBIT 55 Applicant's Response to CURE's Document Request, dated 11/17/2008. Received into evidence on 2/1/2010

EXHIBIT 56 Applicant's Response to Center for Biological Diversity's Petition for Order Directing Responses to Data Requests, dated 11/20/2008. Received into evidence on 2/1/2010

EXHIBIT 57 Correspondence from SDG&E re 230kV Switchyard Expansion, dated 11/20/2008. Received into evidence on 2/1/2010

EXHIBIT 58 Preliminary Determination of Compliance from the SDAPCD, dated 11/21/2008. Received into evidence on 2/1/2010

EXHIBIT 59 Applicant's December 2008 Status Report, dated 12 /3/2008. Received into evidence on 2/1/2010

EXHIBIT 60 Letter of Support from Andrew Howard, dated 12/8/2008. Received into evidence on 2/1/2010

EXHIBIT 61 Correspondence to SDAPCD re mailing of Notice of PDOC, dated 12/10/2008. Received into evidence on 2/1/2010

EXHIBIT 62 Applicant's Record of Conversation with California Department of Fish & Game, dated 12/29/2008. Received into evidence on 2/1/2010

EXHIBIT 63 Applicant's Comments of SDAPCD's PDOC, dated 1/5/2009. Received into evidence on 2/1/2010

EXHIBIT 64 Editorial Publication from the San Diego Union Tribune and North Coast Times, dated 1/16/2009. Received into evidence on 2/1/2010

EXHIBIT 65 Applicant's Response to CBD's Data Requests (A1-G1), dated 1/26/2009. Received into evidence on 2/1/2010

Exhibit 66 Memorandum re Service of Responses of CBD's Data Responses, dated 1/28/2009. Received into evidence on 2/1/2010

EXHIBIT 67 Applicant's Opposition to City's Motion for Revised Preliminary Staff Assessment, dated 1/30/2009. Received into evidence on 2/1/2010

EXHIBIT 68 Applicant's January 2009 Status Report, dated 1/30/2009. Received into evidence on 2/1/2010

EXHIBIT 69 Applicant's Comments to PSA, dated 1/30/2009. Received into evidence on 2/1/2010

EXHIBIT 70 Revised Air Emissions Data (NOx Emission Reduction Credits; Revised NOx Baseline Calculations), dated 2/13/2009. Received into evidence on 2/1/2010

EXHIBIT 71 Applicant's Responses to Staff's Data Requests, Set 4 (#142-158), dated 2/19/2009. Received into evidence on 2/1/2010

EXHIBIT 72 Press Release from SD Regional Chamber of Commerce, dated 3/10/2009. Received into evidence on 2/1/2010

EXHIBIT 73 Correspondence from Bruce Wolfe**,** dated 3/10/2009. Received into evidence on 2/1/2010

EXHIBIT 74 February 26, 2009 and March 9, 2009 Correspondence to SDAPCD from Michael Carroll (NRG) re SDAPCD, Rule 20.3(e)(1) Statewide Compliance Certification, dated 3/13/2009. Received into evidence on 2/1/2010

EXHIBIT 75 Fire Code Compliance Table, CECP Fire/Emergency Site Access Routes Diagram, and Related Correspondence to City of Carlsbad, dated 3/13/2009. Received into evidence on 2/1/2010

EXHIBIT 76 Summary of Cumulative Impact Air Quality Monitoring, dated 3/13/2009. Received into evidence on 2/1/2010

EXHIBIT 77 Applicant's March 2009 Status Report, dated 3/13/2009. Received into evidence on 2/1/2010

EXHIBIT 78 Letter of Support from San Diego Regional Chamber of Commerce, dated 4/8/2009. Received into evidence on 2/1/2010

EXHIBIT 79 Request Change to POS, dated 4/8/2009. Received into evidence on 2/1/2010

EXHIBIT 80 Applicant's Objections to City of Carlsbad's Data Requests, Set 4 (#142-151), dated 4/9/2009. Received into evidence on 2/1/2010

EXHIBIT 81 Correspondence re Elimination of Dual Fuel Requirement, dated 4/9/2009. Received into evidence on 2/1/2010

EXHIBIT 82 Notice of Submittal of Application for Designation of Confidential Records, dated 4/9/2009. Received into evidence on 2/1/2010

EXHIBIT 83 2007/2008 Fuel Use and NOx Emission Information, dated 4/20/2009. Received into evidence on 2/1/2010

EXHIBIT 84 Supplemental Fire Risk Assessment, dated 4/24/2009. Received into evidence on 2/1/2010

EXHIBIT 85 Applicant's April 2009 Status Report, dated 4/24/2009. Received into evidence on 2/1/2010

EXHIBIT 86 Supplemental Health Risk Assessment, dated 4/29/2009. Received into evidence on 2/1/2010

EXHIBIT 87 Applicant's Response to City of Carlsbad's Petition Compel Response to Data Requests, dated 5/1/2009. Received into evidence on 2/1/2010

EXHIBIT 88 VOC Emission Reduction Credits (Certification Nos.), dated 5/4/209. Received into evidence on 2/1/2010

EXHIBIT 89 Notice of Application for Designation of Confidential Records, dated 5/19/2009; Received into evidence on 2/1/2010

EXHIBIT 90 Applicant's June 2009 Status Report, dated 6/5/2009. Received into evidence on 2/1/2010

EXHIBIT 91 Correspondence to EPA re Prevention of Significant Deterioration Non-Applicability Determination Request, dated 6/8/2009. Received into evidence on 2/1/2010

EXHIBIT 92 Objections to POV's Data Request, Set 1, dated 6/19/2009. Received into evidence on 2/1/2010

EXHIBIT 93 Correspondence to SDAPCD providing supplemental data re fuel use for Encina Units 1, 2, and 3 (2002-2006), dated 6/23/2009. Received into evidence on 2/1/2010

EXHIBIT 94 Response to City of Carlsbad's Letter re SDG&E's RFO, dated 7/2/2009. Received into evidence on 2/1/2010

EXHIBIT 95 Response to Executive Director Jones' approval of Application for Confidential Treatment, dated 7/7/2009. Received into evidence on 2/1/2010

EXHIBIT 96 Opposition to Power of Vision's Petition to Compel Response to Data Requests, dated 7/14/2009. Received into evidence on 2/1/2010

EXHIBIT 97 Applicant's July 2009 Status Report, dated 7/17/2009. Received into evidence on 2/1/2010

EXHIBIT 98 Letter of Support by SDREDC, dated 8/14/2009. Received into evidence on 2/1/2010

EXHIBIT 99 Correspondence from City of Del Mar, dated 8/4/2009. Received into evidence on 2/1/2010

EXHIBIT 100 SDAPCD's Final Determination of Compliance, dated 8/6/2009. Received into evidence on 2/1/2010

EXHIBIT 101 Correspondence to the Mayor or Solana Beach, dated 8/11/2009. Received into evidence on 2/1/2010

EXHIBIT 102 Response to South Carlsbad Redevelopment Agency's Petition to Intervene, dated 8/19/2009. Received into evidence on 2/1/2010

EXHIBIT 103 Encina Power Plant Annual Emissions Data (1997-2008), dated 8/25/2009. Received into evidence on 2/1/2010

EXHIBIT 104 Applicant's September 2009 Status Report, dated 9/12/2009. Received into evidence on 2/1/2010

EXHIBIT 105 Applicant's Response to Power of Vision's Data Request, Set 1, dated 10/8/2009. Received into evidence on 2/1/2010

EXHIBIT 106 Applicant's October 2009 Status Report, dated 10/12/2009. Received into evidence on 2/1/2010

EXHIBIT 107 Response to POV's further Petition to compel response to Data Requests, dated 10/12/2009. Received into evidence on 2/1/2010

EXHIBIT 108 Applicant's correspondence to City of Carlsbad officials re the City's proposed ordinance CS-067 (moratorium), dated 10/27/2009. Received into evidence on 2/1/2010

EXHIBIT 109 **L**etter of support. dated,11/23/2009. Received into evidence on 2/1/2010

EXHIBIT 110 Email from Steve Moore, SDAPCD, to Mike Monasmith and CECP Parties, transmitting the SDAPCD's "Responses to Comments, Carlsbad Air Quality Energy Center Project" related to the PDOC, dated 11/19/2009. Received into evidence on 2/1/2010

EXHIBIT 111 Applicant's Opening Testimony General Various, dated 12/15/2009. Received into evidence on 2/1/2010

EXHIBIT 112 Applicant's Opening Testimony, Ex. A-1 Air Quality, dated12/15/2009. Received into evidence on 2/1/2010

EXHIBIT 113 Applicant's Opening Testimony, Ex. A-2 Land Use, dated12/15/2009. Received into evidence on 2/1/2010

EXHIBIT 114 Applicant's Opening Testimony, Ex. A-3 Visual Resources, dated 12/15/2009. Received into evidence on 2/1/2010

EXHIBIT 115 Applicant's Opening Testimony, Ex. A-4 Traffic and Transportation, dated12/15/2009. Received into evidence on 2/1/2010

EXHIBIT 116 Applicant's Opening Testimony, Ex. A-5 Worker Safety & Fire Protection, dated 12/15/2009. Received into evidence on 2/1/2010

EXHIBIT 117 Applicant's Opening Testimony, Ex. A-6 Cultural Resources, dated12/15/2009. Received into evidence on 2/1/2010

EXHIBIT 118 Applicant's Opening Testimony, Ex. A-7 Soil and Water, dated12/15/2009. Received into evidence on 2/1/2010

EXHIBIT 119 Declaration of Curtis R. Basnett, Pile Driving/ Vibration, dated 12/15/209. Received into evidence on 2/1/2010

EXHIBIT 120 Declaration of Mark Bastasch, Noise, dated 12/15/2009. Received into evidence on 2/1/2010

EXHIBIT 121 Declaration of Jim Bushnell, Worker Safety, dated 12/15/2009. Received into evidence on 2/1/2010

Exhibit 122 Declaration of Mariorie Eisert, Biological Resources, dated 12/15/2009. Received into evidence on 2/1/2010

EXHIBIT 123 Declaration of Matthew Franck, Water Resources, dated 12/15/2009. Received into evidence on 2/1/2010

EXHIBIT 124 Declaration of Marsha Gale, Visual Resources, dated 12/15/2009. Received into evidence on 2/1/2010

EXHIBIT 125 Declaration of Clint Helton, Cultural Resources, dated 12/15/2009. Received into evidence on 2/1/2010

EXHIBIT 126 Declaration of Edward Holden, Project Description, Facility Desiqn, Natural Gas Supply), dated 12/15/2009. Received into evidence on 2/1/2010

EXHIBIT 127 Declaration of Francisco D. Kayas, Electric Transmission, dated 12/15/2009. Received into evidence on 2/1/2010

EXHIBIT 128 Declaration of Thomas A. Lae, Geological Hazard, dated 12/15/2009. Received into evidence on 2/1/2010

EXHIBIT 129 Declaration of Stephen P. Long, Souls, dated 12/15/2009. Received into evidence on 2/1/2010

EXHIBIT 130 Declaration of Sarah Madams, Haz Mat, dated 12/15/2009. Received into evidence on 2/1/2010

EXHIBIT 131 Declaration of Sarah Madams, Waste, dated 12/15/2009. Received into evidence on 2/1/2010

EXHIBIT 132 Declaration of Robert C. Mason, Various, dated 12/15/2009. Received into evidence on 2/1/2010

EXHIBIT 133 Declaration of Diep Nguyen, Worker Health, Safety & Fire Protection, dated 12/15/2009. Received into evidence on 2/1/2010

EXHIBIT 134 Declaration of George Piantka, Various, dated 12/15/2009. Received into evidence on 2/1/2010

EXHIBIT 135 Declaration of James Roidan, Traffic & Transportation, dated 12/15/2009. Received into evidence on 2/1/2010

EXHIBIT 136 Declaration of Ronald W. Rouse, Land Use, dated 12/15/2009. Received into evidence on 2/1/2010

EXHIBIT 137 Declaration of Gary Rubenstein, Air Quality & Public Health, dated 12/15/2009. Received into evidence on 2/1/2010

EXHIBIT 138 Declaration of Jennifer School, Alternatives, dated 12/15/2009. Received into evidence on 2/1/2010

EXHIBIT 139 Declaration of W. Geoffrey Spauldinq, Ph.D., Paleontological Resources, dated 12/15/2009. Received into evidence on 2/1/2010

EXHIBIT 140 Declaration of John Steinbeck, Biological Resources, dated 12/15/2009. Received into evidence on 2/1/2010

EXHIBIT 141 Declaration of Fatuma I. Yusuf, Ph.D., Socioeconomics, dated 12/15/2009. Received into evidence on 2/1/2010

EXHIBIT 142 Correspondence to SDRWQCB re Report of Waste Discharqe, dated 12/17/2009. Received into evidence on 2/1/2010

EXHIBIT 143 Applicant's Rebuttal Testimony (Air Quality and Public Health), dated 1/14/2009. Received into evidence on 2/1/2010

EXHIBIT 144 Applicant's Rebuttal Testimony (Alternatives), dated 1/14/2010. Received into evidence on 2/1/2010

EXHIBIT 145 Applicant's Rebuttal Testimony (Biological Resources), dated 1/14/2010. Received into evidence on 2/1/2010

EXHIBIT 146 Applicant's Rebuttal Testimony (Cumulative Impacts), dated 1/14/2010. Received into evidence on 2/1/2010

EXHIBIT 147 Applicant's Rebuttal Testimony (Land Use), dated 1/14/2010. Received into evidence on 2/1/2010

EXHIBIT 148 Applicant's Rebuttal Testimony (Noise), dated 1/14/2010. Received into evidence on 2/1/2010

EXHIBIT 149 Applicant's Rebuttal Testimony (Socioeconomics), dated 1/14/2010. Received into evidence on 2/1/2010

EXHIBIT 150 Applicant's Rebuttal Testimony (Visual), dated 1/14/2010. Received into evidence on 2/1/2010

EXHIBIT 151 Applicant's Rebuttal Testimony (Water Resources), dated 1/14/2010. Received into evidence on 2/1/2010

EXHIBIT 152 Applicant's Rebuttal Testimony (Worker Safety and Fire Protection), dated 1/14/2010. Received into evidence on 2/1/2010

EXHIBIT 153 Declaration of Gary Rubenstein in Support of Applicant's Rebuttal Testimony, dated 1/14/2010. Received into evidence on 2/1/2010

EXHIBIT 154 Declaration of Robert Mason in Support of Applicant's Rebuttal Testimony, dated 1/14/2010. Received into evidence on 2/1/2010

EXHIBIT 155 Declaration of John Steinbeck in Support of Applicant's Rebuttal Testimony, dated 1/14/2010. Received into evidence on 2/1/2010

EXHIBIT 156 Declaration of Ronald W. Rouse in Support of Applicant's Rebuttal Testimony, dated 1/14/2010. Received into evidence on 2/1/2010

EXHIBIT 157 Declaration of Mark Bastasch in Support of Applicant's Rebuttal Testimony, dated 1/14/2010. Received into evidence on 2/1/2010

EXHIBIT 158 Declaration of Christopher Morrow in Support of Applicant's Rebuttal Testimony, dated 1/14/2010. Received into evidence on 2/1/2010

EXHIBIT 159 Declaration of Robert J. Wojcik in Support of Applicant's Rebuttal Testimony, dated 1/14/2010. Received into evidence on 2/1/2010

EXHIBIT 160 Declaration of Marsha Gale in Support of Applicant's Rebuttal Testimony, dated 1/14/2010. Received into evidence on 2/1/2010

EXHIBIT 161 Declaration of Matthew Franck in Support of Applicant's Rebuttal Testimony, dated 1/14/2010. Received into evidence on 2/1/2010

EXHIBIT 162 Declaration of Edward Holden in Support of Applicant's Rebuttal Testimony, dated 1/14/2010. Received into evidence on 2/1/2010

EXHIBIT 163 Declaration of Frank Collins in Support of Applicant's Rebuttal Testimony, dated 1/14/2010. Received into evidence on 2/1/2010

EXHIBIT 164 Declaration of George Piantka in Support of Applicant's Rebuttal Testimony, dated 1/14/2010. Received into evidence on 2/1/2010

EXHIBIT 165 Visual Rendering - Landscape Buffer Cross Sections, dated 1/14/2010. Received into evidence on 2/1/2010

EXHIBIT 166 Visual Rendering - Existing View Adams Street South of Hoover, dated 1/14/2010. Received into evidence on 2/1/2010

EXHIBIT 167 Visual Rendering - Simulation of CECP with Landscaping at 5 years, dated 1/14/2010. Received into evidence on 2/1/2010

EXHIBIT 168 Visual Rendering - Simulation of CECP and I-5 Widening with landscaping at approximately 5 years, dated 1/14/2010. Received into evidence on 2/1/2010

EXHIBIT 169 Visual Rendering - Simulation of CECP and I-5 Widening with landscaping at approximately 10 years, dated 1/14/2010. Received into evidence on 2/1/2010

EXHIBIT 170 Visual Rendering - Conceptual Simulation with Landscape Buffer at approximately 5 years, dated 1/14/2010. Received into evidence on 2/1/2010

EXHIBIT 171 Visual Rendering - Conceptual Simulation with Landscape Buffer at approximately 10 years, dated 1/14/2010. Received into evidence on 2/1/2010

EXHIBIT 172 City of Carlsbad's Correspondence regarding Visual Impacts and Site Constraints, dated 10/8/2008. Received into evidence on 2/1/2010

EXHIBIT 173 Narrated Video Clip Sponsored by the City of Carlsbad regarding February Evidentiary Hearings with Transcription (http://www.youtube.com/watch?v=3KAXQDCqIXq), date Unknown. Received into evidence on 2/1/2010

EXHIBIT 174 Narrated Video Clip Sponsored by the City of Carlsbad Citing to Visual Impacts and Coastal Commission Issues with Transcription, (http://www.youtube.com/watch?v=aEHmSkk7Izc), date unknown. Received into evidence on 2/1/2010

EXHIBIT 175 Visual Rendering - Caltrans Cross sections at beginninq of Caltrans Wall, dated 1/14/2010. Received into evidence on 2/1/2010

EXHIBIT 176 Visual Rendering - Caltrans cross sections at end of Caltrans wall. "Caltrans x-sect at end of wall", dated 1/14/2010. Received into evidence on 2/1/2010

EXHIBIT 177 Visual Rendering - Plan view of area available for landscape screening. "NRGE-CARLSBAD GRADING OPTION", dated 1/14/2010. Received into evidence on 2/1/2010

EXHIBIT 178 Visual Rendering - Caltrans right of way lines for each alternative alignment based on plan views. "NRGE-CARLSBAD RW OPTIONS", dated 1/14/2010. Received into evidence on 2/1/2010

EXHIBIT 179 Visual Rendering - Plan view of CECP and Caltrans 8+4 with barrier alignment and cross sections at three locations. "NRGE-CARLSBAD SITE EXHIBIT", dated 1/14/2010. Received into evidence on 2/1/2010.

EXHIBIT 180 Email Correspondence between Caltrans Representatives and CECP Representatives with Oversize Attachments (Attachments not included available upon request), dated 1/14/2009. Received into evidence on 2/1/2010.

EXHIBIT 181 Email Correspondence between Caltrans Representatives and CECP Representatives (without Attachments), dated 1/14/2010. Received into evidence on 2/1/2010.

EXHIBIT 182 General Email Correspondence between Caltrans Representatives and CECP Representatives, dated 1/14/2010. Received into evidence on 2/1/2010.

EXHIBIT 183 FAA Presentation re Flight Standards Assessment, dated 1/8/2009. Received into evidence on 2/1/2010.

EXHIBIT 184 Correspondence from Joe Garuba to Mike Monasmith re Results of FAA Feasibility Report re Alternate Sites for CECP; dated 11/20/2008. Received into evidence on 2/1/2010.

EXHIBIT 185 Map indicating radar flight tracks for McClellan-Palomar Airport Alternatives, date unknown. Received into evidence on 2/1/2010

EXHIBIT 186 Map: Existing and Future Conditions/ Uses, dated 1/14/2010. Received into evidence on 2/1/2010

EXHIBIT 187 Applicant's Prehearing Conference Statement, dated 1/14/2010. Received into evidence on 2/1/2010

EXHIBIT 188 Technical Memorandum - Preliminary Estimate of Vertical Plume Velocities for the Carlsbad Energy Center Project, dated 10/21/2008. Received into evidence on 2/1/2010

EXHIBIT 189 Declaration of David Stein (with Attached Qualifications, dated 1/14/2010, Received into evidence on 2/1/2010

EXHIBIT 190 Revised Plot Plan re Site Access. Received into evidence on 2/1/2010

EXHIBIT 191: Reclaimed Water Email Correspondence, e-mail sent July 10, 2007; Received into evidence on 2/1/2010

Exhibit 192 Rebuttal Greenhouse Gas Exhibit, article entitled: *On the determination of climate feedbacks from ERBE data by* Richard S. Lindzen and Yong-Sang Choi, written for GEOPHYSICAL RESEARCH LETTERS, VOL. 36, L16705, doi:10.1029/2009GL039628, 2009. Received into evidence on 2/1/2010

Exhibit 193 Water Non-Availability Letter from Joe Garuba, Municipal Projects Manager, City of Carlsbad, to Michael Monasmith, dated February 20, 2008. Received into evidence on 2/1/2010

Exhibit 194 City of Carlsbad Resolution 2002-0-351, dated February 9, 2002. Received into evidence on 2/2/2010

Exhibit 195 October 16, 2007, letter from Peter Douglas, Executive Director, California Coastal Commission, to B.B. Blevins, Executive Director, California Energy Commission; July 8, 2008, letter from Joe Garuba, City of Carlsbad, to Peter Douglas; July 15, 2008, letter from Peter Douglas to Joe Garuba; July 28, 2008 letter from Ronald Ball, Carlsbad City Attorney, to Peter Douglas; August 8, 2008 letter from Ronald Ball to Mike Monasmith; August 25, 2008 letter from John McKinsey to Mike Monasmith; August 27, 2008 letter from Ronald Ball to Mike Monasmith; all regarding the Coastal Commission's lack of participation in the review of the Carlsbad Energy Center Application for Certification; received into evidence on 2/3/2010

Exhibit 196 Email from Taylor Miller, Senior Environmental Counsel, Sempra Energy, to Paul Kramer, dated January 26, 2010 regarding City Request for RFO bidder information, and with attachments CPUC Decision 06-06-066 dated June 29, 2006 (Order Instituting Rulemaking to Implement Senate Bill No. 1488 (2004 Cal. Stats., Ch. 690) Relating to Confidentiality of Information, Rulemaking 05-06-040) and Rulemaking Appendices. Received into evidence on 2/3/2010

Exhibit 197 Carlsbad Planning Commission Resolution No. 6635 dated August 19, 2009. Received into evidence on 2/4/2010

Exhibit 198 Carlsbad Planning Commission Resolution No. 6632 and City of Carlsbad's Approved Desalination Plant Layout, Revision E, both dated August 19, 2009. Received into evidence on 5/20/2011

Exhibit 199 Revised 1-Hour Air Quality Modeling Protocol (NO_2), dated March 5, 2010 and Revised 1-Hour Air Quality Modeling Analysis (NO_2), dated April 15, 2010. Received into evidence on 5/20/2011

Exhibit 199A Carlsbad Planning Commission Resolution No. 6635 dated August 19, 2009. **Not** received into evidence (duplicate of Exhibit 197).

Exhibit 199B Carlsbad Housing and Redevelopment Commission Resolution No. 420, dated June 13, 2006. Received into evidence on 5/20/2011

Exhibit 199C Carlsbad Housing and Redevelopment Commission Resolution No. 477, approved September 15, 2009. Received into evidence on 5/20/2011

Exhibit 199D Written testimony of Ronald W. Rouse regarding Extraordinary Public Purpose, undated. Received into evidence on 5/20/2011

Exhibit 199E Declaration of Ronald W. Rouse in support of testimony (Ex. 199D) dated May 17, 2011. Received into evidence on 5/20/2011

Exhibit 199F Proposed Condition re Shutdown of Units 4 & 5. Received into evidence on 5/20/2011

Exhibit 199G Carlsbad Energy Center LLC's Supplemental Testimony, Exhibits, Witness List, and Time Estimates For Examination Of Witnesses dated November 18, 2011. Received into evidence on 12/12/2011

Exhibit 199H Declaration of & Professional Qualifications for Scott Valentino. Received into evidence on 12/12/2011

Exhibit 199I Letter from Dynegy to San Diego Unified Port District dated October 25, 2011. Received into evidence on 12/12/2011

Exhibit 199J Testimony of Brian Theaker re Grid Reliability dated November 18, 2011. Received into evidence on 12/12/2011

Exhibit 199K Declaration of & Professional Qualifications for Brian Theaker dated November 18, 2011. Received into evidence on 12/12/2011

Exhibit 199L Declaration of Gary Rubenstein dated November 17, 2011. Received into evidence on 12/12/2011

Exhibit 199M Palmdale Hybrid Power Project's BACT Analysis dated August 2011. Received into evidence on 12/12/2011

Exhibit 199N Palmdale Hybrid Power Project's PSD Permit dated October 18, 2011. Received into evidence on 12/12/2011

Exhibit 199O Declaration of Ronald Rouse dated November 18, 2011. Received into evidence on 12/12/2011

Exhibit 199P Carlsbad Energy Center LLC's Rebuttal Testimony Related to the December 12, 2011 Evidentiary Hearing dated December 8, 2011. Received into evidence on 12/12/2011

Exhibit 199Q Declaration of Brian Theaker in support of rebuttal testimony dated December 7, 2011. Received into evidence on 12/12/2011

Exhibit 199R California ISO Report on Basis and Need for CPM Designation for Sutter Energy Center dated December 6, 2011. Received into evidence on 12/12/2011

Exhibit 199S Declaration of Robert Mason in Support of Rebuttal Testimony dated December 7, 2011. Received into evidence on 12/12/2011

Exhibit 199T Declaration of Gary Rubenstein in Support of Rebuttal Testimony dated December 7, 2011. Received into evidence on 12/12/2011

Exhibit 199U Presentation slides of Neil Millar, Executive Director, Infrastructure Development, California ISO, dated December 8, 2011. Unnumbered Welcome and Introduction slide and Slide 12 - "Conclusions-Range of LCR Requirements." Received into evidence on 12/12/2011

ENERGY COMMISSION STAFF- SPONSORED EXHIBITS

EXHIBIT 200: 11/09, Carlsbad Energy Center Project, Final Staff Assessment; received into evidence on 2/1/2010
http://www.energy.ca.gov/2009publications/CEC-700-2009-017/CEC-700-2009-017-FSA.PDF

EXHIBIT 201 8/09, San Diego Air Pollution Control District, FDOC; received into evidence on 2/1/2010
http://www.energy.ca.gov/sitingcases/carlsbad/documents/others/2009-08-04_SDAPCD_FDOC.pdf

EXHIBIT 202 1/10, CAISO Prepared Testimony of Jim McIntosh; received into evidence on 2/1/2010
http://www.energy.ca.gov/sitingcases/carlsbad/documents/2010-01-06_Preliminary_Identification_of_Contested_Issues_TN-54699.PDF

EXHIBIT 203 1/10, Rebuttal Testimony Exhibits x 7 (Worker Safety / Fire Protection, Visual Resources); received into evidence on 2/1/2010
http://www.energy.ca.gov/sitingcases/carlsbad/documents/2010-01-19_Staff_PHC_Statement_TN-54840.pdf

EXHIBIT 204 3/09, Committee Guidance on Fulfilling California Environmental Quality Act Responsibilities for Greenhouse Gas Impacts in Power Plant Siting Applications; received into evidence on 2/1/2010 http://www.energy.ca.gov/_09publications/CEC-700-2009-004/CEC-700-2009-004.PDF

(References from Air Quality Section – GHG Appendix)

EXHIBIT 205 ARB2008 (AB 32 Scoping Plan). California Air Resources Board, December 2008; received into evidence on 2/1/2010 http://www.arb.ca.gov/cc/scopingplan/document/adopted_scoping_plan.pdf

EXHIBIT 206 CalEPA 2006 (California Environmental Protection Agency). Climate Action Team Report to Governor Schwarzenegger and the Legislature. March, 2006; received into evidence on 2/1/2010 http://www.climatechange.ca.gov/climate_action_team/reports/2006report/2006-04-03_FINAL_CAT_REPORT.PDF

EXHIBIT 207 CAISO 2007 (California Independent System Operator). Integration of Renewable Resources, November 2007; received into evidence on 2/1/2010 http://www.caiso.com/1ca5/1ca5a7a026270.pdf

EXHIBIT 208 CAISO 2008 2011-2013 Local Capacity Technical Analysis Report and Study Results; received into evidence on 2/1/2010 http://www.caiso.com/20ad/20ad77d04d70.pdf

EXHIBIT 209 CEC 1998 (California Energy Commission). 1997 Global Climate Change, Greenhouse Gas Emissions Reduction Strategies for California, Volume 2, Staff Report, 1998; received into evidence on 2/1/2010 http://www.climatechange.ca.gov/publications/97GLOBALVOL2.PDF.

EXHIBIT 210 CEC 2003. 2/03, Integrated Energy Policy Report. December 2003. http://www.energy.ca.gov/reports/100-03-019F.PDF; received into evidence on 2/1/2010

EXHIBIT 211 CEC 2007. 2007 Integrated Energy Policy Report; received into evidence on 2/1/2010 http://www.energy.ca.gov/2007publications/CEC-100-2007-008/CEC-100-2007-008-CMF.PDF

EXHIBIT 212 CEC 2009b**.** Framework for Evaluating Greenhouse Gas Implications of Natural Gas-Fired Power Plants in California, CEC-700-2009-009, MRW and Associates. May 27, 2009; received into evidence on 2/1/2010 http://www.energy.ca.gov/2009publications/CEC-700-2009-009/CEC-700-2009-009.PDF

EXHIBIT 213 CPUC 2008 (California Public Utilities Commission). Draft Final Opinion on Greenhouse Gas Regulatory Strategies, Joint Agency proposed final opinion, publication # CEC-100-2008-007-D. Posted: September 12, 200; received into evidence on 2/1/2010
http://www.energy.ca.gov/2008publications/CEC-100-2008-007/CEC-100-2008-007-D.PDF

EXHIBIT 214 CECP 2007a – Carlsbad Energy Center Project/T. Hemig (tn: 42299). Application for Certification for the Carlsbad Energy Center Project. 09/11/2007. Duplicate of Exhibit 4 and therefore **not** received into evidence.

(References from FSA Alternatives Section)

EXHIBIT 215 Anders and Bialek 2006 – Scott Anders and Tom Bialek, Technical Potential for Rooftop Voltaics in the San Diego Region, July 2006, research paper, [online]; received into evidence on 2/1/2010
http://www.sandiego.edu/epic/publications/documents/060309_ASESPVPotentialPaperFINAL.pdf

EXHIBIT 216 CEC 2009a – California Energy Commission 2009 Integrated Energy Policy Report (IEPR) forecast demand for electricity in San Diego region, (Forms 1.4, 1.5); received into evidence on 2/1/2010
http://www.energy.ca.gov/2009publications/CEC-200-2009-012/index.html

EXHIBIT 217 CEC 2009b – California Energy Commission, Comparative Costs of California Central Station Electricity Generation, draft staff report, August 2009. Staff draft report that has the levelized cost estimates and gas plant characterizations/cost drivers:
http://www.energy.ca.gov/2009publications/CEC-200-2009-017/CEC-200-2009-017-SD.PDF
additional estimates referred to in the report, which has the renewable, nuclear and coal characterizations/cost drivers;
http://www.energy.ca.gov/2009publications/CEC-500-2009-084/CEC-500-2009-084.PDF
received into evidence on 2/1/2010

EXHIBIT 218 SDG&E 2009 – San Diego Gas and Electric Request for Offers for Demand Response and Supply Resources, July 9, 2009 (*Correct date is likely June 9, 2009*); received into evidence on 2/1/2010
http://www.sdge.com/documents/rfo/suppyResourceRFO2009/RFO.pdf1

EXHIBIT 219 Wiser et al 2009 – Tracking the Sun: The Installed Cost of Photovoltaics in the U.S. from 1998- 2007, Ryan Wiser, Galen Barbose, Carla Peterman, Lawrence Berkeley National Laboratory, February 2009; received into evidence on 2/1/2010
http://eetd.lbl.gov/ea/EMS/reports/lbnl-1516e-web.pdf

EXHIBIT 220 CEC Staff Errata Comments, Final Staff Assessment, Air Quality, dated January 29, 2010, received into evidence on 2/1/2010 http://www.energy.ca.gov/2009publications/CEC-200-2009-012/index.html

EXHIBIT 221 Presentation slides (7 pages), referred to by William Kanemoto in his testimony on February 3, 2010, received into evidence on 2/3/2010

EXHIBIT 222 Revised Air Quality and Worker Safety Final Staff Assessment Sections, November, 2009, received into evidence on 2/4/2010

EXHIBIT 223 Presentation slides (8 pages), referred to by Alvin J. Greenberg in his testimony on February 4, 2010, received into evidence on 2/4/2010

EXHIBIT 224 South Coast Air Quality Management Multiple Air Toxics Exposure Study (MATES-II) Final Report dated March 2000. Received into evidence on 2/4/2010

EXHIBIT 225 Bay Area Air Quality Management District Emissions Inventory, undated. Received into evidence on 2/4/2010

EXHIBIT 226 Air Quality Impact Analysis Report Addendum 1, New Federal NO2 and SO2 Standards, March 29, 2011, prepared for San Diego Air Pollution Control District by Ralph DeSiena. Received into evidence on 5/20/2011

EXHIBIT 227 Fire Protection testimony of Dr. Alvin Greenberg dated May 17, 2011. Received into evidence on 5/20/2011

EXHIBIT 228 Proposed Condition of Certification Worker Safety-8. Received into evidence on 5/20/2011

EXHIBIT 229 Staff's Supplemental Testimony dated August 12, 2011. Received into evidence on 12/12/2011

EXHIBIT 230 Energy Commission and CAISO Staff Rebuttal Testimony dated December 8, 2011. Received into evidence on 12/12/2011

INTERVENOR TERRAMAR- SPONSORED EXHIBITS

EXHIBIT 300 Terramar Testimony, including testimony of Lane Sharman (marked as Ex. 319 – 323), Catherine Miller (uncredited, Ex. 373), Bailey Noble (Ex. 374), and Diane Wist (Ex. 375), dated 1/6/2010, docketed 1/6/2010 and received into evidence on 2/1/2010

EXHIBITS 301 - 375 [reserved to avoid overlapping with "exhibit" labels used to separate topics in Exhibit 300]

EXHIBIT 376 Presentation slides—Testimony of Lane Sharman, Addendum to Exhibits 320-324, undated. Received into evidence on 2/4/2010

EXHIBIT 377 2011 RMR/Black Start/Dual Fuel Contract Status, California ISO. Received into evidence on 5/20/2011.

EXHIBIT 378 Undated letter from Steve P. Rodgers, Director, Division of Tariffs and Market Development-West, FERC, to Robert C. Fallon, Leonard, Street and Deinard, PA, regarding Notice of Termination of Reliability Must-Run Agreement. Received into evidence on 5/20/2011.

EXHIBIT 379 Undated letter from Steve P. Rodgers, Director, Division of Tariffs and Market Development-West, FERC, to Robert C. Fallon, Leonard, Street and Deinard, PA, regarding Interim Dual Fuel and Interim Black Start Agreements. Received into evidence on 5/20/2011.

EXHIBIT 380 HUFFPOST NEW YORK article: "Connecticut Gas Explosion: 'Mass Casualties' Reported At Kleen Energy Systems Power Plant" 2/ 7/10 11:24 PM. Received into evidence on 5/20/2011.

EXHIBIT 381 NC Times article: "ESCONDIDO: Fire extinguished at SDG&E plant," 12/23/10 6:00 pm. Received into evidence on 5/20/2011.

EXHIBIT 382 L.A.NOW article: "Pasadena water and power plant catches fire; smoke seen for miles," May 4, 2010 1:29 pm. Received into evidence on 5/20/2011.

EXHIBIT 383 Article: "Power plant transformer catches fire Sunday," January 16, 2011 4:03 pm (updated 8:15 pm). Received into evidence on 5/20/2011.

EXHIBIT 384 KDVR Denver article: "Officials: Safety failures led to deadly Georgetown power plant accident," August 25, 2010. Received into evidence on 5/20/2011.

EXHIBIT 385 News-Gazette article: "Small fire, spill temporarily evacuate Abbott power plant, but cause no injuries," 06/28/2010 9:28am. Received into evidence on 5/20/2011.

EXHIBIT 386 Click2Houston.com article: "Transformer Sparks Power Plant Fire," October 13, 2006. Received into evidence on 5/20/2011.

EXHIBIT 387 Virginian-Pilot article: "Fire at Chesapeake plant cuts power to 35,000," January 26, 2011. Received into evidence on 5/20/2011.

EXHIBIT 388 Article: "Fire hits Bridgeport power plant," October 27, 2010. Received into evidence on 5/20/2011.

EXHIBIT 389 Thomas Commission Executive Report, Governor's Commission Kleen Energy Explosion, September 21,2010. Received into evidence on 5/20/2011.

EXHIBIT 390 CEC Pio Pico Project homepage. Received into evidence on 12/12/2011.

EXHIBIT 391 CEC Quail Brush Project homepage. Received into evidence on 12/12/2011.

EXHIBIT 392 June 28, 2011 Escondido Planning Commission minutes. Received into evidence on 12/12/2011.

EXHIBIT 393 E-mail from Shaheerah Kelly to Kerry Siekmann dated November 29, 2011. Received into evidence on 12/12/2011.

EXHIBIT 394 Implementation Plan for Compliance with California Policy on the Use of Coastal and Estuarine Waters for Power Plant Cooling, Encina Power Station, March, 2011. Received into evidence on 12/12/2011.

EXHIBIT 395 CAISO – SDG&E Reliability Standards Agreement dated June 15, 2007. Received into evidence on 12/12/2011.

EXHIBIT 396 E-mail from Michelle Mata to Kerry Siekmann dated December 6, 2011. Received into evidence on 12/12/2011.

EXHIBIT 397 Terramar Testimony, Exhibits, Witness List, and Time Estimates for Testimony and Rebuttal dated December 1, 2011. Received into evidence on 12/12/2011.

EXHIBIT 398 Terramar Rebuttal Testimony dated December 8, 2011. Received into evidence on 12/12/2011.

INTERVENORS CITY OF CARLSBAD/REDEVELOPMENT AGENCY- SPONSORED EXHIBITS

EXHIBIT 400 City Council resolving to oppose CECP because inconsistent with LORS: Resolution 2009-323. Received into evidence on 2/1/2010

EXHIBIT 401 Housing and Redevelopment Commission Opposing CECP because violates LORS: Resolution 482. Received into evidence on 2/1/2010

EXHIBIT 402 Map of the City of Carlsbad's vision for the power plant site. Received into evidence on 2/1/2010

EXHIBIT 403 City council precludes all non-coastal dependent industrial applications, including energy generation from any future land use at the Encina power station: Resolution 2008-235. Received into evidence on 2/1/2010

EXHIBIT 404 Prohibiting the expansion or location of thermal electric power generation facilities in the coastal zone pending studies and General Plan changes; directing the staff to conduct studies and make recommendations to the General Plan Resolutions: CS-067 and 2009-263. Received into evidence on 2/1/2010

EXHIBIT 405 City Council and Housing and Redevelopment Commission resolving that CECP does not comply with LORS: Resolution 2009-020. Received into evidence on 2/1/2010

EXHIBIT 406 Map of the South Carlsbad Coastal Redevelopment Project Area. Received into evidence on 2/1/2010

EXHIBIT 407 Revised Redevelopment Plan, pages 62-99. Received into evidence on 2/1/2010

EXHIBIT 408 Letter dated June 18,2001 on the Cabrillo Power Draft Memorandum of Understanding. Received into evidence on 2/1/2010

EXHIBIT 409 Resolution of the Planning Commission recommending the approval of Poseidon Desalination Plant: Resolution 6091. Received into evidence on 2/1/2010

EXHIBIT 410 City of Carlsbad General Plan; received into evidence on 2/1/2010

EXHIBIT 411 Chapter 21.36 of the Carlsbad Zoning Ordinance; received into evidence on 21/2010

EXHIBIT 412 Agua Hedionda Land Use Plan. Received into evidence on 2/1/2010

EXHIBIT 413 Scenic Corridor Guidelines. Received into evidence on 2/1/2010

EXHIBIT 414 Agua Hedionda Land Use Map. Received into evidence on 2/1/2010

EXHIBIT 415 Resolution of Carlsbad City Council to consider zoning changes pertaining to the Encina Power Plant: Resolution 98-145. Received into evidence on 2/1/2010

EXHIBIT 416 Resolution of the Carlsbad City Council to allow the desalination project to be processed without a comprehensive update of the specific plan 144: Resolution 2003-208. Received into evidence on 2/1/2010

EXHIBIT 417 City Manager letter of support to SDG&E for the Desalination Plant Received into evidence on 2/1/2010

EXHIBIT 418 1990 California Coastal Commission Report to the California Energy Commission. Received into evidence on 2/1/2010

EXHIBIT 419 California Energy Commission Issues and Alternatives Report: Executive Summary and Table of Contents. Received into evidence on 2/1/2010

EXHIBIT 420 Proposed Carlsbad Energy Center Project (CECP) California Coastal Act Conformance Report 2009. Received into evidence on 2/1/2010

EXHIBIT 421 HNTB Visualization, view from Key Observation Point 4. Received into evidence on 2/1/2010

EXHIBIT 422 HNTB Visualization, view from Key Observation Point 6. Received into evidence on 2/1/2010

EXHIBIT 423 HNTB Visualization, view from the North Bluff across the lagoon. Received into evidence on 2/1/2010

EXHIBIT 424 HNTB Visualization, 3-D graphic of the CECP with access road widths and accounting for the I-5 Freeway widening. Received into evidence on 2/1/2010

EXHIBIT 425 City Manager Letter of Support to SDG&E for the Poseidon Desalination Project dated August 6, 2009. Received into evidence on 2/1/2010

EXHIBIT 426 FAA's reports on Alternative sites. Received into evidence on 2/1/2010

EXHIBIT 427 Cumulative project descriptions with a cover sheet. Received into evidence on 2/1/2010

EXHIBIT 428 Map of Transmission interconnection site, Received into evidence on 2/1/2010

EXHIBIT 429 City of Carlsbad Chronology for the Encina Power Plant. Received into evidence on 2/1/2010

EXHIBIT 430 HNTB Visualization video of the power plant while driving. Received into evidence on 2/1/2010

EXHIBIT 431 HNTB Visualization video of the power plant from a helicopter circling the plant. Received into evidence on 2/1/2010

EXHIBIT 432 Carlsbad City Council adopting an emergency measure prohibiting the expansion of gas and electric utility facilities located within the public utility zone. Received into evidence on 2/1/2010

EXHIBIT 433 Testimony of the City of Carlsbad & the Carlsbad Housing and Redevelopment Agency regarding the 07-AFC-06, dated 1/6/2010. Received into evidence on 2/1/2010

EXHIBIT 434 City of Carlsbad, Seawater Desalination Project Close-Up View from the South (RO Building), dated May 6, 2009. Received into evidence on 2/4/2010

EXHIBIT 435 Escondido Fire – Lessons Learned Prepared Direct Testimony of Kevin Crawford, Fire Chief, City of Carlsbad, undated. Received into evidence on 5/19/2011

EXHIBIT 436 Escondido Fire – Lessons Learned Prepared Direct Testimony of Joseph Garuba, Municipal Property Manager for the City of Carlsbad, undated. **Withdrawn, not received into evidence.**

EXHIBIT 437 Letter from Michael Lowry, Escondido Fire Chief, to James D. Boyd commenting on the Carlsbad Energy Center Project, dated May 16, 2011. Received into evidence on 5/20/2011.

EXHIBIT 438 Response to the City of Carlsbad and Carlsbad Redevelopment Agency to the Motion of Carlsbad Energy Center LLC to Admit Supplemental Documents into the Evidentiary Record, dated March 1, 2010 Received into evidence on 5/20/2011.

EXHIBIT 439 Report to the California Energy Commission Regarding San Diego Gas & Electric Company's December 22, 2010 Transformer Incident at Palomar Energy Center, dated April 13, 2010. Received into evidence on 5/20/2011.

EXHIBIT 440 NFIRS Comments, FDID 37070, and Apparatus reports for the Palomar Energy Center December 22, 2010 Incident. Received into evidence on 5/20/2011.

EXHIBIT 441 Page 2-25 of Interstate 5 North Coast Corridor Project, Draft EIR/EIS, June 2010. **Withdrawn, not received into evidence.**

EXHIBIT 442 Four GIS overlay maps depicting the project site, right of way boundaries of railroad and possible I-5 expansions. **Withdrawn, not received into evidence.**

EXHIBIT 443 Letter from Pamela Fair, Sempra Energy, to Lisa Hildebrand, Carlsbad City Manager, dated May 10, 2011 regarding criteria necessary to relocate existing SDG&E operations center from Cannon Road site. Received into evidence on 5/20/2011

EXHIBIT 444 City of Escondido approval of Escondido Energy Center Project, July 12, 2011. Received into evidence on 12/12/2011

EXHIBIT 445 City of Escondido Staff Report on the Escondido Energy Center Project Dated July 12, 2011. Received into evidence on 12/12/2011

EXHIBIT 446 Housing and Redevelopment Commission Resolution 513, dated September 20, 2011. Received into evidence on 12/12/2011

EXHIBIT 447 Staff Report "Update Report on Proceedings before the CEC on September 19, 2011, Carlsbad Energy Center. Received into evidence on 12/12/2011

EXHIBIT 448 Ordinance CS-159, an ordinance approving an amendment to the Encina Power Station Precise Development Plan, dated October 11, 2011. Received into evidence on 12/12/2011

EXHIBIT 449 Ordinance CS-160, an ordinance approving an amendment to the Encina Specific Plan SP 144(N), dated October 11, 2011. Received into evidence on 12/12/2011

EXHIBIT 450 Prepared Track I Testimony of San Diego Gas & Electric Company, in R 10-05-006, July 1, 2011. Received into evidence on 12/12/2011

EXHIBIT 451 Testimony of the 2010 Long-term Procurement Planning Track I System Plan of San Diego Gas & Electric Company, in R 10-05-006, dated August 5, 2011. Received into evidence on 12/12/2011

EXHIBIT 452 Application of San Diego Gas & Electric Company for Authority to Enter Into Purchase Power Tolling Agreements with Escondido Energy Center. Pio Pico Energy Center and Quail Brush Power, dated May 19, 2011, Application A 11-05-023. Received into evidence on 12/12/2011

EXHIBIT 453 Prepared Direct Testimony of San Diego Gas & electric Company in Support of Application for Authority to Enter into Purchase Power Agreements With Escondido Energy Center, Pio Pico Energy Center and Quail Brush Power, dated May 19, 2011 in Application A 11-05-023. Received into evidence on 12/12/2011

EXHIBIT 454 Rebuttal Testimony of Robert Anderson of Behalf of San Diego Gas & Electric Company in Support of Application of San Diego Gas & Electric Company for Authority to Enter into Purchase Power Tolling Agreements With Escondido Energy Center, Pio Pico Energy Center and Quail Brush Power, dated October 21, 2011, in A 11-05-023. Received into evidence on 12/12/2011

EXHIBIT 455 SDG&E's Response to City of Carlsbad Data Requests in A 11-05-023, Dated September 6, 2011. Received into evidence on 12/12/2011

EXHIBIT 456 Testimony of Matthew D. Zinn, Dated December 6, 2011. Received into evidence on 12/12/2011

EXHIBIT 457 October 13, 2010 letter from Deborah Jordan, USEPA, to George Piantka regarding "PSD Determination for the Carlsbad Energy Center Power Project." Received into evidence on 12/12/2011

EXHIBIT 458 March 4, 2011 letter from Deborah Lebow Aal, USEPA, to Cheryl Heying, Utah Department of Environmental Quality regarding Comments on Pacificorp Lake Side Power Plant. Received into evidence on 12/12/2011

EXHIBIT 459 City Rebuttal Testimony, dated December __, 2011. Received into evidence on 12/12/2011

INTERVENOR CALIFORNIA UNIONS FOR RELIABLE ENERGY - SPONSORED EXHIBITS

No exhibits

INTERVENOR CENTER FOR BIODIVERSITY- SPONSORED EXHIBITS

EXHIBIT 600 2003 Integrated Energy Policy Report, dated 2003, sponsored by Center for Biological Diversity and received into evidence on 2/1/2010

EXHIBIT 601 2007 Integrated Energy Policy Report, dated 2007, sponsored by Center for Biological Diversity and received into evidence on 2/1/2010

EXHIBIT 602 2009 Integrated Energy Policy Report, dated 2009, sponsored by Center for Biological Diversity and received into evidence on 2/1/2010

EXHIBIT 603 Anders and Bialek, *Technical Potential for Rooftop Voltaics in the San Diego Region*, dated 7/2006, sponsored by Center for Biological Diversity and received into evidence on 2/1/2010

EXHIBIT 604 Framework for Evaluating Greenhouse Gas Implications of Natural Gas-Fired Power Plants in California, dated 5/27/2009, sponsored by Center for Biological Diversity and received into evidence on 2/1/2010

EXHIBIT 605 ARB, Climate Change, Proposed Scoping Plan a Framework for Change Pursuant to AB 32, dated 10/2008, sponsored by Center for Biological Diversity and received into evidence on 2/1/2010

EXHIBIT 606 CPUC Rulemaking 04-01-025, dated 9/2/2004, sponsored by Center for Biological Diversity and received into evidence on 2/1/2010

EXHIBIT 607 Sempra LNG Update Presentation to CEC, dated 8/2009, sponsored by Center for Biological Diversity and received into evidence on 2/1/2010

EXHIBIT 608 Sempra Energy 2008 Financial Report, dated 2008, sponsored by Center for Biological Diversity and received into evidence on 2/1/2010

EXHIBIT 609 Sempra Energy Press Release re: Costa Azul, dated 5/15/2008, sponsored by Center for Biological Diversity and received into evidence on 2/1/2010

EXHIBIT 610 DOE Order Allowing Sempra to Import and Export LNG, dated 9/22/2009, sponsored by Center for Biological Diversity and received into evidence on 2/1/2010

EXHIBIT 611 Royal Dutch Shell Press Release re: LNG & Natural Gas Contracts with Gazprom Global, dated 8/4/2009, sponsored by Center for Biological Diversity and received into evidence on 2/1/2010

EXHIBIT 612 DOE Order Allowing Gazprom to Import LNG from Various International Sources, dated 4/17/2009, sponsored by Center for Biological Diversity and received into evidence on 2/1/2010

EXHIBIT 613 EPA: Endangerment and Cause or Contribute Findings for Greenhouse Gases, dated 12/15/2009, sponsored by Center for Biological Diversity and received into evidence on 2/1/2010

EXHIBIT 614 Hansen, J. *et al.*, *Target Atmospheric CO2: Where should Humanity Aim?, dated 4/2008*, sponsored by Center for Biological Diversity and received into evidence on 2/1/2010

EXHIBIT 615 James Hansen, *Tipping Point: Perspectives of a Climatologist*, *dated 4/2008*, sponsored by Center for Biological Diversity and received into evidence on 2/1/2010

EXHIBIT 616 Bill McKibben, OpEd in LA Times - *Civilization's last chance, dated 5/11/2008*, sponsored by Center for Biological Diversity and received into evidence on 2/1/2010

EXHIBIT 617 Matthews, H.D., and Caldeira, K., *"Stabilizing climate requires near-zero emissions, dated 2/27/2008*, sponsored by Center for Biological Diversity and received into evidence on 2/1/2010

EXHIBIT 618 Rory Cox and Robert Freehling, Collision Course: How Imported Liquefied Natural Gas Will Undermine Clean Energy in California, 2008, sponsored by Center for Biological Diversity and received into evidence on 2/1/2010

EXHIBIT 619 Heede, LNG Supply Chain GHG Emissions Report, dated 5/7/2006, sponsored by Center for Biological Diversity and received into evidence on 2/1/2010

EXHIBIT 620 Jaramillo, et al. *Comparative Life Cycle Air Emissions of Coal, Domestic Natural Gas, LNG, and SNG for Electricity Generation*, dated 2007, sponsored by Center for Biological Diversity and received into evidence on 2/1/2010

EXHIBIT 621 California Climate Change Center, Our Changing Climate Assessing the Risks to California, dated 7/2006, sponsored by Center for Biological Diversity and received into evidence on 2/1/2010
.

EXHIBIT 622 Governor Schwarzenegger's Executive Order S-3-05, dated 6/1/2005, sponsored by Center for Biological Diversity and received into evidence on 2/1/2010

EXHIBIT 623 33% Renewable Portfolio Standard Implementation Analysis Preliminary Results, dated 6/2009, sponsored by Center for Biological Diversity and received into evidence on 2/1/2010

EXHIBIT 624 Renewable Portfolio Standard Quarterly Report, dated 10/2008, sponsored by Center for Biological Diversity and received into evidence on 2/1/2010 .

EXHIBIT 625 Current Renewable Procurement Status, dated 1/6/2010, sponsored by Center for Biological Diversity and received into evidence on 2/1/2010

EXHIBIT 626 OPR Technical Advisory on CEQA and Climate Change, dated 6/19/2008, sponsored by Center for Biological Diversity and received into evidence on 2/1/2010

EXHIBIT 627 CARB draft Recommended Approaches for Setting Interim Significance Thresholds for GHG under CEQA, dated 10/24/2008, sponsored by Center for Biological Diversity and received into evidence on 2/1/2010

EXHIBIT 628 South Coast Interim CEQA GHG Significance Threshold, dated 12/5/2008, sponsored by Center for Biological Diversity and received into evidence on 2/1/2010

EXHIBIT 629 California Air Pollution Control Officers, CEQA and Climate Change, dated 1/2008, sponsored by Center for Biological Diversity and received into evidence on 2/1/2010

EXHIBIT 630 CEC: Combined Heat & Power Market Assessment, dated 10/2009, sponsored by Center for Biological Diversity and received into evidence on 2/1/2010

EXHIBIT 631 Anders, et al. *Potential for Renewable Energy in the San Diego Region*, dated 8/2005, sponsored by Center for Biological Diversity and received into evidence on 2/1/2010

EXHIBIT 632 Powers, *San Diego Smart Energy 2020*, dated 10/2007, sponsored by Center for Biological Diversity and received into evidence on 2/1/2010

EXHIBIT 633 CAISO Presentation on RETPP, dated 12/8/2009, sponsored by Center for Biological Diversity and received into evidence on 2/1/2010

EXHIBIT 634 CAISO RETPP Draft Final Proposal, dated 1/8/2010, sponsored by Center for Biological Diversity and received into evidence on 2/1/2010

EXHIBIT 635 Inter-Agency Implementation of OTC Mitigation Through Energy Infrastructure Planning and Procurement, dated 7/2009, sponsored by Center for Biological Diversity and received into evidence on 2/1/2010

EXHIBIT 636 Reuters article, *PG&E Calif Diablo Canyon reactor cut to 50 pct*, dated 10/15/2009, sponsored by Center for Biological Diversity and received into evidence on 2/1/2010

EXHIBIT 637 IEA Variability of Wind Power and Other Renewables, dated 2005, sponsored by Center for Biological Diversity and received into evidence on 2/1/2010

EXHIBIT 638 CEC 2008 Net System Power Report, dated 7/2009, sponsored by Center for Biological Diversity and received into evidence on 2/1/2010

EXHIBIT 639 DOE Energy Storage Demo Project List, dated 11/24/2009, sponsored by Center for Biological Diversity and received into evidence on 2/1/2010

EXHIBIT 640 SolarReserve Press Release, dated 12/22/2009, sponsored by Center for Biological Diversity and received into evidence on 2/1/2010

EXHIBIT 641 Itron Presentation on SB 412, Self-Generation Incentive Program, dated 1/7/2010, sponsored by Center for Biological Diversity and received into evidence on 2/1/2010

EXHIBIT 642 E3 and Black & Veatch ReDEC Presentation, dated 12/9/2009, sponsored by Center for Biological Diversity and received into evidence on 2/1/2010

EXHIBIT 643 Excerpts from Final Commission Decision on Chula Vista Energy Upgrade Project, dated 6/2009, sponsored by Center for Biological Diversity and received into evidence on 2/1/2010

EXHIBIT 644 Excerpts from RETI Phase 1B Report, dated 1/2009, sponsored by Center for Biological Diversity and received into evidence on 2/1/2010

EXHIBIT 645 Declaration and Rubuttal testimony of Tam Hunt, dated 1/14/10, sponsored by Center for Biological Diversity and received into evidence on 2/1/2010

EXHIBIT 646 Declaration of Rory Cox, dated 1/14/10, sponsored by Center for Biological Diversity and received into evidence on 2/1/2010

EXHIBIT 647 Testimony of Rory Cox, dated 1/6/10, sponsored by Center for Biological Diversity and received into evidence on 2/1/2010

EXHIBIT 648 CPUC Final Report on the Audit of the Encina Power Plant, dated December 10, 2010. **Withdrawn**

EXHIBIT 649 CAISO 2009 RMR/Black Start/Dual Fuel Contract Status. Received into evidence on 12/12/2011.

EXHIBIT 650 CAISO 2008 RMR/Black Start/Dual Fuel Contract Status. Received into evidence on 12/12/2011.

EXHIBIT 651 CAISO Letter to Mr. Randy Hickok re: RMR status terminated, dated October 15, 2010. Received into evidence on 12/12/2011.

EXHIBIT 652 SCE Submission of Contracts for Procurement of Renewable Energy Resulting from Renewables Standard Contracts Program, January 31, 2011. Received into evidence on 12/12/2011.

EXHIBIT 653 CAISO Summary of Preliminary Results of 33% Renewable Integration Study – 2010 CPUC LTPP Docket No. R.10-05-006, May 20, 2011. Received into evidence on 12/12/2011.

EXHIBIT 654 February 8, 2011 Renewable Energy World article "Solar PV Becoming Cheaper than Gas in California." Received into evidence on 12/12/2011.

EXHIBIT 655 "Renewable Power in California: Status and Issues" California Energy Commission, Pub # CEC-150-2011-002-LCF, posted December 6, 2011 (http://www.energy.ca.gov/2011_energypolicy/documents/index.html). Received into evidence on 12/12/2011.

Intervenor Power of Vision- SPONSORED EXHIBITS

EXHIBIT 700 Power of Vision Opening Testimony, Preliminary Identification of Contested Issues, dated 1/5/2010, docketed 1/6/2010 and received into evidence on 2/1/2010

EXHIBITS 701 – 741, excluding 727, 738 [reserved to avoid overlapping with "exhibit" labels used to separate topics in Exhibit 700]

EXHIBIT 727 214 photographs of the existing Encina Power Plant from various places around Carlsbad and at sea, undated, and received into evidence on 2/1/2010

EXHIBIT 738 A Petition with 2302 signatures, some pages dated, others undated and received into evidence on 2/1/2010

EXHIBIT 742 Power of Vision Prehearing Conference Statement, including witness resumes and qualifications dated and docketed 1/14/2010 and received into evidence on 2/1/2010

EXHIBIT 743 Power of Vision Addendum to Prehearing Conference Statement, dated and docketed 1/20/2010 and received into evidence on 2/1/2010

EXHIBIT 744 California Energy Commission 2008, An Assessment of California's Operating Nuclear Power Plants: AB 1632 Committee Report, CEC-100-2008-108-CTF. Received into evidence on 5/20/2011.

EXHIBIT 745 National Propane Gas Association web page: "National Fuel Gas Code to Consider Chemical Safety Board Recommendation, Undated letter from Steve P. Rodgers, Director, Division of Tariffs and Market Development-West, FERC, to Robert C. Fallon, Leonard, Street and Deinard, PA, regarding Interim Dual Fuel and Interim Black Start Agreements. Received into evidence on 5/20/2011.

EXHIBIT 746 Undated letter from Steve P. Rodgers, Director, Division of Tariffs and Market Development-West, FERC, to Robert C. Fallon, Leonard, Street and Deinard, PA, regarding Interim Dual Fuel and Interim Black Start Agreements. **Duplicate of Exhibit 379**, therefore **not** received into evidence.

EXHIBIT 747 Undated letter from Steve P. Rodgers, Director, Division of Tariffs and Market Development-West, FERC, to Robert C. Fallon, Leonard, Street and Deinard, PA, regarding Notice of Termination of Reliability Must-Run Agreement. **Duplicate of Exhibit 378**, therefore **not** received into evidence.

EXHIBIT 748 Power of Vision's Responsive Testimony to Applicant's & CEC Staff's Testimony, dated December 5, 2011. Received into evidence on 12/12/2011.

INTERVENOR ROB SIMPSON- SPONSORED EXHIBITS

EXHIBIT 800 Rob Simpson's Testimony, Public Comment, Data Requests and Motion to Stay Hearing, including attachments identified therein. Received into evidence on 12/12/11.

EXHIBIT 801 Rob Simpson's Reply Testimony and Public Comment, including attachments identified therein. Received into evidence on 12/12/11.

BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION OF THE STATE OF CALIFORNIA
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APPLICATION FOR CERTIFICATION FOR THE *CARLSBAD ENERGY CENTER PROJECT*

Docket No. 07-AFC-6
PROOF OF SERVICE
(Revised 3/27/2012)

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DECLARATION OF SERVICE

I, _____, declare that on _____, 2012, I served and filed a copy of the attached _____. This document is accompanied by the most recent Proof of Service list, located on the web page for this project at: www.energy.ca.gov/sitingcases/carlsbad/ index.html.

The document has been sent to the other parties in this proceeding (as shown on the Proof of Service list) and to the Commission's Docket Unit or Chief Counsel, as appropriate, in the following manner:

(*Check all that Apply*)

For service to all other parties:

___ Served electronically to all e-mail addresses on the Proof of Service list;

___ Served by delivering on this date, either personally, or for mailing with the U.S. Postal Service with first-class postage thereon fully prepaid, to the name and address of the person served, for mailing that same day in the ordinary course of business; that the envelope was sealed and placed for collection and mailing on that date to those addresses marked "hard copy required."

AND

For filing with the Docket Unit at the Energy Commission:

___ by sending an original paper copy and one electronic copy, mailed with the U.S. Postal Service with first class postage thereon fully prepaid and e-mailed respectively, to the address below (preferred method); *OR*

___ by depositing an original and 12 paper copies in the mail with the U.S. Postal Service with first class postage thereon fully prepaid, as follows:

CALIFORNIA ENERGY COMMISSION – DOCKET UNIT
Attn: Docket No. 07-AFC-6
1516 Ninth Street, MS-4
Sacramento, CA 95814-5512
docket@energy.state.ca.us

OR, if filing a Petition for Reconsideration of Decision or Order pursuant to Title 20, § 1720:

____ Served by delivering on this date one electronic copy by e-mail, and an original paper copy to the Chief Counsel at the following address, either personally, or for mailing with the U.S. Postal Service with first class postage thereon fully prepaid:

California Energy Commission
Michael J. Levy, Chief Counsel
1516 Ninth Street MS-14
Sacramento, CA 95814
mlevy@energy.state.ca.us

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct, that I am employed in the county where this mailing occurred, and that I am over the age of 18 years and not a party to the proceeding.

_____